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POWERSEMTM

physics with passionTM since 1985



**Customized + Standard Power Devices
SiC-Modules and SiC-Rectifiers**

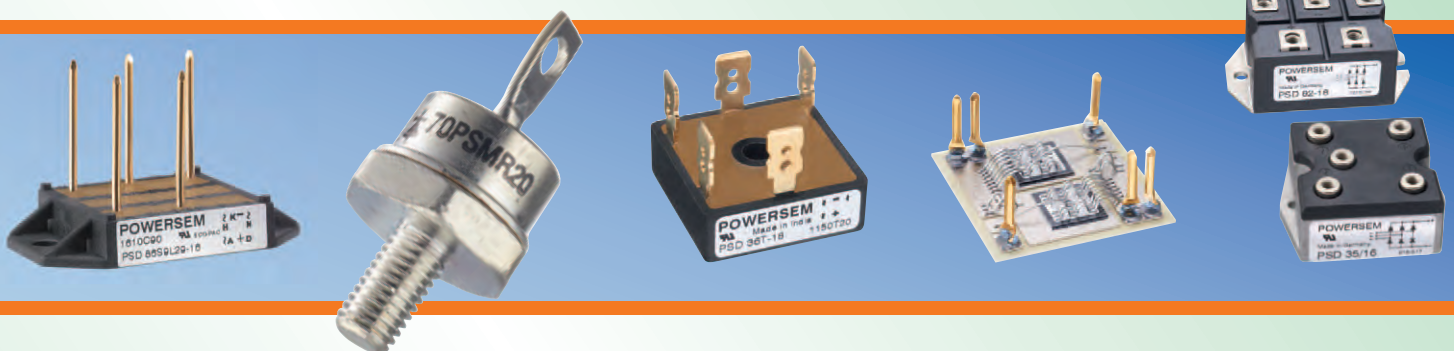
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- Customized Products not included
- Datasheets on our website



Quality
first...
since 1985

Power Semiconductors
Made in Germany & Made in India

Founder of POWERSEM

a motor in progress of semiconductor technology and semiconductor devices

“**Madan** had realized his dreams building up a company in power electronics in Schwabach/Germany.

His spirit and visions are on continuity by his daughter Kavita and his son Ashok.”

Mr. Madan Mohan Chadda (1939-2002) was born in Amritsar, India. He was a renowned physicist and scientist - B. Sc. (Hons.); M. Sc. (Math.); M. Sc. (Phys.) -, educated in India and England, and worked for many established corporations in India, England, Switzerland and Germany until he settled down with his family in Germany. For his work as a physicist, **Mr. Chadda** obtained over 40 patents in his lifetime.

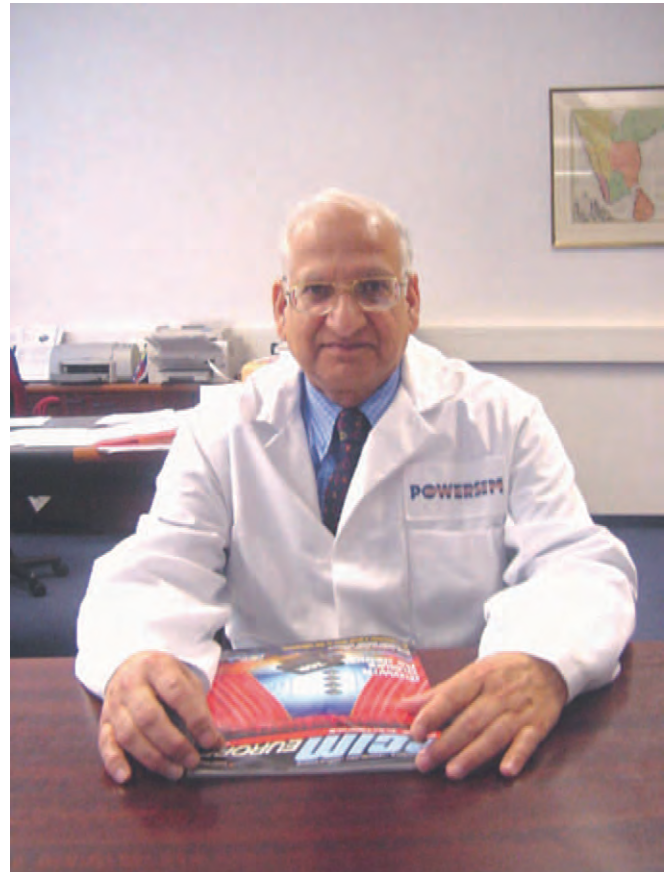
Mr. Chadda founded **POWERSEM GmbH** in Germany in 1985. The pinnacle of his remarkable career was the opening of a brand new, state-of-the-art facility in 2000 utilizing clean and efficient hydrogen power. **POWERSEM** designs, develops and manufactures multiple chip semiconductor modules. Today, **POWERSEM** is considered a world leader in designing and manufacturing isolated base packaged modules for standard, fast single, three phase, half and full controlled power semiconductor modules in a compact package. **POWERSEM** has offices and representations throughout the entire world, with a new manufacturing unit founded by his son Ashok in Bangalore, India.

Mr. Chadda was a very well respected CEO and President of **POWERSEM** and business leader not only in the German industrial and political landscape, but, internationally recognized, especially, in Germany, India, United Kingdom and Switzerland where he was engaged in numerous projects and strategic alliances with large companies. He was a philanthropist, always believing in giving back to his community and country by constantly funding charitable projects.

Mr. Madan Mohan Chadda was truly a devoted husband and father, whose relentless energy and passion for power electronics helped him realize his dreams in building up his global company.

POWERSEM GmbH is now managed and led in the spirit of Mr. Chadda by his daughter Kavita and his son Ashok.

In 2005 **POWERSEM GmbH**, Germany, has formed its Subsidiary „**POWERSEM Semiconductors Pvt. Ltd.**” in Bangalore, India. In spirit of **Madan Mohan Chadda**, **POWERSEM Germany** and **POWERSEM India** wishes to serve its worldwide customers with newest innovations and latest technologies. **POWERSEM** hopes to be an essential help for the industrial and economical growth of the Indian Power Semiconductor Manufacturing Market.



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Alphanumerical Index

Modules (P = Presspin, more Presspin-Modules in Eco-Pac™ Housing to follow)

PSB 15	17	PSBZ 50	19	PSDH 70	24	PSII 6	32
PSB 21	17	PSBZ 55	19	PSDH 75	24	PSII 15	32
PSB 25T	17	PSBZ 75	19	PSDH 90	24	PSII 24	32
PSB 31	17	PSBZ 85	19	PSDH 110	24	PSII 35	32
PSB 35T	17	PSBZ 125	19	PSDH 175	24	PSII 3x10	32
PSB 36T	17	PSCH 25	20	PSDI 33	34	PSIIX 20	32
PSB 41	17	PSCH 50	20	PSDI 50	34	PSIS 25	31
PSB 50	17	PSCH 55	20	PSDM 33	34	PSIS 50	31
PSB 51	17	PSCH 75	20	PSDT 39	24	PSIS 75	31
PSB 53	17	PSCH 85	20	PSDT 70	24	PSIS 100	31
PSB 54	17	PSCH 125	20	PSDT 75	25	PSIS 130	31
PSB 55T	17	PSCT 50	21	PSDT 90	25	PSIS 160	31
PSB 63 & 17mm*	18	PSCT 85	21	PSEI 2x30	9	PSKD 26	11
PSB 68	18	PSCT 125	21	PSEI 2x31	9	PSKD 30 E	7
PSB 75	18	PSD 25T	22	PSEI 2x61	9	PSKD 44	11
PSB 78	18	PSD 27	22	PSEI 2x101	9	PSKD 50 E	7
PSB 82 & 17mm*	18	PSD 28	22	PSEI 2x121	9	PSKD 56	11
PSB 83 & 17mm*	18	PSD 31	22	PSEI 2x161	9	PSKD 72	11
PSB 88	18	PSD 35T	22	PSEK 60	9	PSKD 75 E	7
PSB 95	18	PSD 36T	22	PSET 132	14	PSKD 95	11
PSB 105	18	PSD 41	22	PSET 180	14	PSKD 100 E	7
PSB 112 & 17mm*	18	PSD 50	22	PSFH 70	24	PSKD 142	11
PSB 125	18	PSD 51	22	PSFT 70	25	PSKD 150 E	7
PSB 162 & 17mm*	18	PSD 55T	22	PSHI 25	30	PSKD 172	11
PSB 192 & 17mm*	18	PSD 61	22	PSHI 50	30	PSKD 200 E	7
PSB 19F	21	PSD 62 & 17mm*	22	PSHI 100	30	PSKD 220	11
PSB 33F	21	PSD 63 & 17mm*	22	PSHI 50 D	30	PSKD 250	11
PSB 71F	21	PSD 67	23	PSHI 75 D	30	PSKD 255	11
PSB 100F	21	PSD 68	23	PSHM 40	34	PSKD 310	11
PSBH 25	19	PSD 75	23	PSHM 120	34	PSKD 312	11
PSBH 50	19	PSD 82 & 17mm*	23	PSHM 140	34	PSKH 26	12
PSBH 55	19	PSD 83 & 17mm*	23	PSHM 40D	34	PSKH 44	12
PSBH 75	19	PSD 86 P & 17mm*	23	PSHM 120D	34	PSKH 56	12
PSBH 85	19	PSD 95	23	PSHM 140D	34	PSKH 72	12
PSBH 125	19	PSD 98	23	PSI 25	30	PSKH 80	14
PSBI 9	29	PSD 105	23	PSI 50	30	PSKH 94	12
PSBI 30	32	PSD 108	23	PSI 75	30	PSKH 95	12
PSBI 33	29	PSD 112 & 17mm*	23	PSI 100	30	PSKH 96	14
PSBM 24	29	PSD 125	23	PSI 130	30	PSKH 132	12
PSBT 25	20	PSD 162 & 17mm*	23	PSIC 30	32	PSKH 161	12
PSBT 50	20	PSD 192 & 17mm*	23	PSIG 25	33	PSKH 162	12
PSBT 55	20	PSD 24F	25	PSIG 50	33	PSKH 220	12
PSBT 75	20	PSD 43F	25	PSIG 75	33	PSKH 225	12
PSBT 85	20	PSD 91F	25	PSIG 100	33	PSKH 250	12
PSBT 125	20	PSD 150F	25	PSIG 130	33	PSKH 255	12
PSBZ 36	19	PSDH 39	24	PSIG 160	33	PSKH 310	12

* 17 mm Module-Height available.

PSKI 96	14	PSMD 200 E	8	PSUH 35	28	PSWT 90	13
PSKT 19	15	PSMG 50	34	PSUH 36	28	PSWT 160	13
PSKT 26	15	PSMG 60	34	PSUH 40	28	PSW1C 25	26
PSKT 44	15	PSMG 100	34	PSUH 50	28	PSW1C 40	26
PSKT 56	15	PSMG 150	34	PSUH 60	28	PSW1C 50	27
PSKT 72	15	PSMI 40	34	PSUH 80	28	PSW1C 70	26
PSKT 94	15	PSND 30 E	8	PSUH 95	28	PSW1C 75	27
PSKT 95	15	PSND 50 E	8	PSUT 35	28	PSW1C 100	26
PSKT 96	14	PSND 75E	8	PSUT 36	28	PSW1C 110	26
PSKT 132	16	PSND 100 E	8	PSUT 40	28	PSW1C 112	27
PSKT 161	16	PSND 150 E	8	PSUT 50	28	PSW1C 140	26
PSKT 162	16	PSND 200 E	8	PSUT 60	28	PSW1C 142	27
PSKT 170	16	PSSI 25	31	PSUT 80	28	PSW1C 175	26
PSKT 224	16	PSSI 45D	31	PSUT 95	28	PSW1C 176	27
PSKT 225	16	PSSI 46D	31	PSVD 80	10	PSW1C 205	26
PSKT 255	16	PSSI 50	31	PSVD 120	10	PSW1C 206	27
PSKT 310	16	PSSI 75	31	PSVD 175	10	PSW1H 110	26
PSKT 312	16	PSSI 100	31	PSVT 70	13	PSW1H 140	26
PSMD 30 E	7	PSSI 130	31	PSVT 90	13	PSW1H 175	26
PSMD 150 E	8	PSSI 160	31	PSVT 160	13	PSW1H 205	26
		PSTD	66	PSWD 80	10		
		PSTDK	66	PSWT 70	13		

Stud Type Devices

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PSM 40	35	PSM 25F	35	PSM 40NT	35
PSM 60	35	PSM 40F	35	PSM 56NT	35
PSM 70	35	PSM 70F	35	PSM 70NT	35
PSM 85	35	PSM 1N5831	35	PSM 100NT	35
PSM 100	35	PSM 1N5832	35	PSM 125NT	35
PSM 125	35	PSM 1N5833	35	PSM 150NT	35
PSM 150	35	PSM 1N5834	35		
PSM 200	35	PSM 1N6391	35		
PSM 250	35	PSM SD41	35		
PSM 300	35	PSM SD51	35		

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Symbols and Terms

di/dt	Rate of change of current
$(dv/dt)_c$	Critical rate of rise of forward voltage
E_{ts}	Total switching energy
f	Frequency range
I_C	Collector current
I_{Cpuls}	Pulsed collector current
I_{cm}	Maximum collector current
I_{2t}	Fusing current
I_{DAV}	Average DC-output current
I_{DRM}	Off-state leakage current
$I_{D(cont)}$	Continuous drain current
I_F	Forward current
I_{FAV}	Maximum average forward current
I_{FRMS}	RMS forward current
I_{FSM}	Peak one cycle surge forward current
I_H	Holding current
I_R	Maximum reverse current
I_{RMS}	RMS current
I_{TAV}	Maximum average on-state current
I_{TRMS}	RMS forward current
$I_{FSM}^* I_{TSM}$	Maximum surge forward current
P_D	Power dissipation
P_N	Mains power
r_T	Slope resistance (for power loss calculations)
$R_{DS(on)}$	Static drain source on resistance
R_{thJS}	Thermal resistance junction to heatsink
R_{thCH}	Thermal resistance case to heatsink
R_{thJA}	Thermal resistance junction to ambient
R_{thJC}	Thermal resistance junction to case
R_{thJH}	Thermal resistance junction to heatsink
T_A	Ambient temperature or temperature of the cooling medium
T_C	Case temperature
T_J, T_{VJ}	Junction temperature
T_O	Operating temperature
T_{VJM}	Maximum junction temperature
$t_{d(off)}$	Turn-off delay time
$t_{d(on)}$	Turn-on delay time
t_f	Current fall time
t_q	Turn-off time
t_r	Current rise time
t_{rr}	Reverse recovery time
V_{CES}	Collector-emitter voltage (IGBT)
$V_{CE(sat)}$	Collector-emitter saturation voltage with I_B and I_C specified
V_{DRM}	Maximum repetitive off-state voltage
V_{DSS}	Drain source breakdown voltage
V_{FM}	Forward voltage drop
V_{vRMS}	Maximum allowed AC-voltage (RMS-value)
V_{RRM}	Maximum repetitive reverse voltage
V_{TM}	Zero turn-on voltage
V_{TO}	Threshold voltage (for power loss calculations only)

Ultrafast Epitaxial Diode Modules, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{FAV}	T_C	I_{FSM}	V_F	I_F	t_{rr}	R_{thJC} per Chip/ per Module	R_{thJH} per Chip/ per Module	Figure
	V	V	A	°C	A	V	A	ns	K/W	K/W	
PSKD 30E/02	200	60	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	1
PSKD 30E/04	400	125	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/06	600	200	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/08	800	250	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/10	1000	312	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSKD 30E/12	1200	400	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSKD 50E/02	200	60	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	1
PSKD 50E/04	400	125	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/06	600	200	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/08	800	250	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/10	1000	312	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSKD 50E/12	1200	400	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSKD 75E/02	200	60	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	1
PSKD 75E/04	400	125	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/06	600	200	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/08	800	250	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/10	1000	312	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSKD 75E/12	1200	400	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSKD 100E/02	200	60	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	2
PSKD 100E/04	400	125	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/06	600	200	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/08	800	250	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/10	1000	312	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSKD 100E/12	1200	400	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSKD 150E/02	200	60	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	2
PSKD 150E/04	400	125	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/06	600	200	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/08	800	250	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/10	1000	312	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSKD 150E/12	1200	400	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSKD 200E/02	200	60	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	2
PSKD 200E/04	400	125	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/06	600	200	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/08	800	250	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/10	1000	312	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSKD 200E/12	1200	400	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSMD 30E/02	200	60	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	1
PSMD 30E/04	400	125	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/06	600	200	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/08	800	250	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/10	1000	312	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSMD 30E/12	1200	400	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSMD 50E/02	200	60	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	1
PSMD 50E/04	400	125	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/06	600	200	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/08	800	250	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/10	1000	312	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSMD 50E/12	1200	400	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSMD 75E/02	200	60	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	1
PSMD 75E/04	400	125	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/06	600	200	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/08	800	250	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/10	1000	312	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSMD 75E/12	1200	400	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSMD 100E/02	200	60	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	2
PSMD 100E/04	400	125	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/06	600	200	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/08	800	250	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/10	1000	312	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSMD 100E/12	1200	400	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	

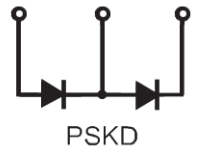


Figure 1
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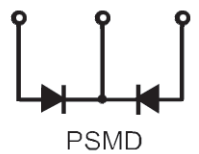


Figure 2
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Ultrafast Epitaxial Diode Modules, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{FAV}	T_C	I_{FSM}	V_F	I_F	t_{tr}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	A	V	A	ns	Chip/ per Module K/W	Chip/ per Module K/W	
PSMD 150E/02	200	60	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	2
PSMD 150E/04	400	125	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/06	600	200	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/08	800	250	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/10	1000	312	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSMD 150E/12	1200	400	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSMD 200E/02	200	60	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	2
PSMD 200E/04	400	125	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/06	600	200	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/08	800	250	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/10	1000	312	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSMD 200E/12	1200	400	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSND 30E/02	200	60	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	1
PSND 30E/04	400	125	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSND 30E/06	600	200	25	85	400	1.25	30	60	1.0 / 0.5	1.2 / 0.6	
PSND 30E/08	800	250	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSND 30E/10	1000	312	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSND 30E/12	1200	400	25	85	300	2.00	30	100	1.0 / 0.5	1.2 / 0.6	
PSND 50E/02	200	60	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	1
PSND 50E/04	400	125	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSND 50E/06	600	200	50	85	800	1.25	50	60	0.9 / 0.45	1.1 / 0.55	
PSND 50E/08	800	250	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSND 50E/10	1000	312	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSND 50E/12	1200	400	50	85	600	2.00	50	100	0.9 / 0.45	1.1 / 0.55	
PSND 75E/02	200	60	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	1
PSND 75E/04	400	125	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSND 75E/06	600	200	75	85	1400	1.25	75	60	0.85 / 0.43	1.0 / 0.5	
PSND 75E/08	800	250	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSND 75E/10	1000	312	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSND 75E/12	1200	400	75	85	1000	2.00	75	100	0.85 / 0.43	1.0 / 0.5	
PSND 100E/02	200	60	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	2
PSND 100E/04	400	125	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSND 100E/06	600	200	136	70	2000	1.25	100	60	0.65 / 0.33	0.84 / 0.42	
PSND 100E/08	800	250	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSND 100E/10	1000	312	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSND 100E/12	1200	400	104	70	1500	1.55	100	100	0.65 / 0.33	0.84 / 0.42	
PSND 150E/02	200	60	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	2
PSND 150E/04	400	125	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSND 150E/06	600	200	272	70	3000	1.25	150	60	0.42 / 0.21	0.57 / 0.28	
PSND 150E/08	800	250	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSND 150E/10	1000	312	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSND 150E/12	1200	400	208	70	2500	1.55	150	100	0.42 / 0.21	0.57 / 0.28	
PSND 200E/02	200	60	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	2
PSND 200E/04	400	125	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSND 200E/06	600	200	408	70	4000	1.25	200	60	0.28 / 0.14	0.38 / 0.19	
PSND 200E/08	800	250	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSND 200E/10	1000	312	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	
PSND 200E/12	1200	400	312	70	3200	1.55	200	100	0.28 / 0.14	0.38 / 0.19	

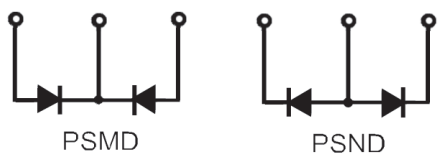


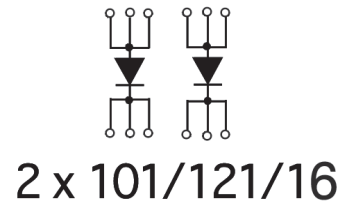
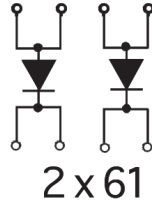
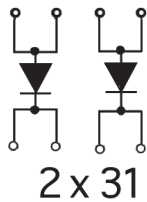
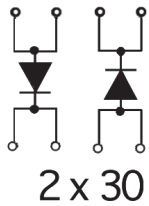
Figure 1
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Figure 2
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Fast Recovery Epitaxial Diode (FRED) Modules, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	t_{tr}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	A	V	mΩ	ns	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSEI 2x30/04	400	125	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	3
PSEI 2x30/06	600	200	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x30/10	1000	312	30	50	200	1.50	12.5	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x30/12	1200	400	28	50	200	1.65	18.2	40	1.25 / 0.63	1.3 / 0.65	
PSEI 2x31/04	400	125	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	3
PSEI 2x31/06	600	200	30	85	300	1.01	7.10	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x31/10	1000	312	30	50	200	1.50	12.5	35	1.25 / 0.63	1.3 / 0.65	
PSEI 2x31/12	1200	400	28	50	200	1.65	18.2	40	1.25 / 0.63	1.3 / 0.65	
PSEI 2x61/02	200	60	71	85	950	0.70	3.00	35	0.7 / 0.35	0.75 / 0.38	3
PSEI 2x61/04	400	125	60	70	550	1.13	4.70	35	0.7 / 0.35	0.75 / 0.38	
PSEI 2x61/06	600	200	60	70	550	1.13	4.70	35	0.7 / 0.35	0.75 / 0.38	
PSEI 2x61/10	1000	312	60	50	500	1.43	6.10	35	0.7 / 0.35	0.75 / 0.38	
PSEI 2x61/12	1200	400	52	50	450	1.65	8.30	40	0.7 / 0.35	0.75 / 0.38	
PSEI 2x101/06	600	200	96	70	1200	0.70	4.70	35	0.5 / 0.25	0.55 / 0.28	4
PSEI 2x101/12	1200	400	91	50	900	1.01	6.10	40	0.5 / 0.25	0.55 / 0.28	
PSEI 2x121/02	200	60	123	70	1200	0.70	2.10	35	0.7 / 0.35	0.8 / 0.4	4
PSEI 2x161/02	200	60	165	70	1200	0.53	2.6	35	0.29 / 0.15	0.49 / 0.25	
PSEI 2x161/06	600	200	147	70	1200	0.85	2.7	35	0.29 / 0.15	0.49 / 0.25	4
PSEI 2x161/12	1200	400	128	70	1200	1.16	3	40	0.29 / 0.15	0.49 / 0.25	



released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	t_{tr}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	A	V	mΩ	ns	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSEK 60/02	200	60	34	100	325	0.72	4.20	35	1.25 / 0.63	1.3 / 0.65	3
PSEK 60/06	600	200	30	70	300	1.01	7	35	1.25 / 0.63	1.3 / 0.65	
PSEK 60/12	1200	400	26	70	200	1.65	18.2	40	1.25 / 0.63	1.3 / 0.65	

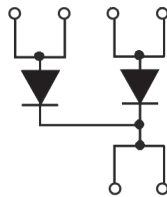


Figure 3
page 38



Figure 4
page 38

Part Number	V_{RRM} V_{DRM}	I_{Tavm} I_{Favm}	T_C °C	I_{FSM} 45°C 10ms A	V_{TO} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Figure
	V									
PSVD 80/08	800	50	85	1200	0.8	5	150	0.9	1.08	2
PSVD 80/12	1200									
PSVD 80/14	1400									
PSVD 80/16	1600									
PSVD 80/18	1800									
PSVD 120/08	800	70	85	1800	0.8	3	150	0.65	0.83	2
PSVD 120/12	1200									
PSVD 120/14	1400									
PSVD 120/16	1600									
PSVD 120/18	1800									
PSVD 175/08	800	100	85	2800	0.8	2.2	150	0.45	0.6	2
PSVD 175/12	1200									
PSVD 175/14	1400									
PSVD 175/16	1600									
PSVD 175/18	1800									
PSWD 80/08	800	50	85	1200	0.8	5	150	0.9	1.08	2
PSWD 80/12	1200									
PSWD 80/14	1400									
PSWD 80/16	1600									
PSWD 80/18	1800									
PSWD 120/08	800	70	85	1800	0.8	3	150	0.65	0.83	2
PSWD 120/12	1200									
PSWD 120/14	1400									
PSWD 120/16	1600									
PSWD 120/18	1800									
PSWD 175/08	800	100	85	2800	0.8	2.2	150	0.45	0.6	2
PSWD 175/12	1200									
PSWD 175/14	1400									
PSWD 175/16	1600									
PSWD 175/18	1800									

PSWD/PSVD 80/120/175 = isolated base
 PSYD/PSXD 80/120/175 = non isolated base



Figure 2
page 37

Part Number	V_{RRM} V_{DRM}	I_{Tavm} I_{Favm}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Diode DC Current K/W	R_{thJH} per Diode DC Current K/W	Figure
	V	A	°C	45°C 10ms A	V	mΩ	°C			
PSKD 26/08	800	36	100	650	0.8	6.1	150	1.0	1.2	7*
PSKD 26/12	1200									
PSKD 26/14	1400									
PSKD 26/16	1600									
PSKD 26/18	1800									
PSKD 44/08	800	59	100	1150	0.8	4.3	150	0.59	0.79	7*
PSKD 44/12	1200									
PSKD 44/14	1400									
PSKD 44/16	1600									
PSKD 44/18	1800									
PSKD 56/08	800	71	100	1400	0.8	3.0	150	0.51	0.71	7*
PSKD 56/12	1200									
PSKD 56/14	1400									
PSKD 56/16	1600									
PSKD 56/18	1800									
PSKD 72/08	800	99	100	1700	0.8	2.3	150	0.35	0.55	7*
PSKD 72/12	1200									
PSKD 72/14	1400									
PSKD 72/16	1600									
PSKD 72/18	1800									
PSKD 95/08	800	120	105	2800	0.75	1.95	150	0.26	0.46	7*
PSKD 95/12	1200									
PSKD 95/14	1400									
PSKD 95/16	1600									
PSKD 95/18	1800									
PSKD 142/08	800	165	100	4700	0.8	1.3	150	0.21	0.31	8*
PSKD 142/12	1200									
PSKD 142/14	1400									
PSKD 142/16	1600									
PSKD 142/18	1800									
PSKD 172/08	800	190	100	6600	0.8	0.8	150	0.21	0.31	8*
PSKD 172/12	1200									
PSKD 172/14	1400									
PSKD 172/16	1600									
PSKD 172/18	1800									
PSKD 220/08	800	270	100	8500	0.75	0.9	150	0.129	0.169	9*
PSKD 220/12	1200									
PSKD 220/14	1400									
PSKD 220/16	1600									
PSKD 250/08	800	290	100	11000	0.75	0.75	150	0.129	0.169	9*
PSKD 250/12	1200									
PSKD 250/14	1400									
PSKD 250/16	1600									
PSKD 250/18	1800									
PSKD 255/12	1200	270	100	9500	0.8	0.6	150	0.14	0.18	10
PSKD 255/14	1400									
PSKD 255/16	1600									
PSKD 255/18	1800									
PSKD 310/08	800	305	100	11500	0.75	0.63	150	0.129	0.169	9*
PSKD 310/12	1200									
PSKD 310/14	1400									
PSKD 310/16	1600									
PSKD 310/18	1800									
PSKD 312/12	1200	310	100	10500	0.8	0.68	150	0.12	0.16	10
PSKD 312/14	1400									
PSKD 312/16	1600									
PSKD 312/18	1800									
PSKD 312/20	2000									
PSKD 312/22	2200									

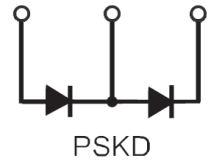


Figure 7
page 40



Figure 8
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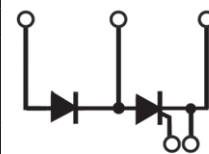
Figure 9
page 41



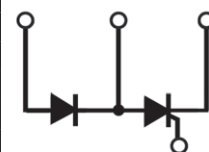
Figure 10
page 41

* alternate types available with baseplates, HiPOR[®]-Modules, pages 62, 63, 64, 65.

Part Number	V_{RRM}	I_{TAV}	T_c	I_{TRMS}	I_{FRMS}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure
	V_{DRM}										
	V	V	°C	A	A	V	mΩ	°C	K/W	K/W	
PSKH 26/08io8	800	27	85	50	520	0.85	11	125	0.88	1.08	7*
PSKH 26/12io8	1200										
PSKH 26/14io8	1400										
PSKH 26/16io8	1600										
PSKH 44/08io8	800	49	85	80	1150	0.85	5.3	125	0.53	0.73	7*
PSKH 44/12io8	1200										
PSKH 44/14io8	1400										
PSKH 44/16io8	1600										
PSKH 44/18io8	1800										
PSKH 56/08io8	800	60	85	100	1500	0.85	3.7	125	0.45	0.65	7*
PSKH 56/12io8	1200										
PSKH 56/14io8	1400										
PSKH 56/16io8	1600										
PSKH 56/18io8	1800										
PSKH 72/08io8	800	85	85	180	1700	0.85	3.2	125	0.3	0.5	7*
PSKH 72/12io8	1200										
PSKH 72/14io8	1400										
PSKH 72/16io8	1600										
PSKH 72/18io8	1800										
PSKH 94/20io1	2000	104	85	180	1700	0.85	3.2	125	0.22	0.42	7*
PSKH 94/22io1	2200										
PSKH 95/08io8	800	116	85	180	2250	0.8	2.4	125	0.22	0.42	7*
PSKH 95/12io8	1200										
PSKH 95/14io8	1400										
PSKH 95/16io8	1600										
PSKH 95/18io8	1800										
PSKH 132/08io1	800	130	85	300	4750	0.8	1.5	125	0.23	0.33	8*
PSKH 132/12io1	1200										
PSKH 132/14io1	1400										
PSKH 132/16io1	1600										
PSKH 132/18io1	1800										
PSKH 161/20io1	2000	165	85	300	6000	0.8	1.6	125	0.155	0.225	8*
PSKH 161/22io1	2200										
PSKH 162/08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.225	8*
PSKH 162/12io1	1200										
PSKH 162/14io1	1400										
PSKH 162/16io1	1600										
PSKH 162/18io1	1800										
PSKH 220/08io1	800	250	85	400	8500	0.9	1.0	140	0.139	0.179	9*
PSKH 220/12io1	1200										
PSKH 220/14io1	1400										
PSKH 220/16io1	1600										
PSKH 225/12io1	1200	221	85	400	8000	0.8	0.76	130	0.157	0.197	10
PSKH 225/14io1	1400										
PSKH 225/16io1	1600										
PSKH 225/18io1	1800										
PSKH 250/08io1	800	287	85	450	9000	0.85	0.82	140	0.129	0.169	9*
PSKH 250/12io1	1200										
PSKH 250/14io1	1400										
PSKH 250/16io1	1600										
PSKH 255/12io1	1200	250	85	450	9000	0.8	0.68	130	0.14	0.18	10
PSKH 255/14io1	1400										
PSKH 255/16io1	1600										
PSKH 255/18io1	1800										
PSKH 310/08io1	800	320	85	500	9200	0.8	0.82	140	0.112	0.152	9*
PSKH 310/12io1	1200										
PSKH 310/14io1	1400										
PSKH 310/16io1	1600										
PSKH 312/12io1	1200	320	85	520	9200	0.8	0.68	140	0.12	0.16	10
PSKH 312/14io1	1400										
PSKH 312/16io1	1600										
PSKH 312/18io1	1800										



PSKH Version 1
io1



PSKH Version 8
io8



Figure 7
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Figure 8
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Figure 9
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Figure 10
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* alternate types available with baseplates, HiPOR[®]-Modules, pages 62, 63, 64, 65.

Thyristor Modules, released, E 148688

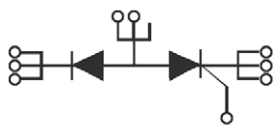
Part Number	V_{RRM} V_{DRM}	I_{TAV}	T_C	I_{TSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip	R_{thJH} per Chip	Figure
	V	A	°C	45°C 10ms per Chip A	V	mΩ	°C	K/W	K/W	
PSVT 70/08 PSVT 70/12 PSVT 70/14 PSVT 70/16	800 1200 1400 1600	49	85	1150	0.85	5.3	125	0.35	0.55	2
PSVT 90/08 PSVT 90/12 PSVT 90/14 PSVT 90/16	800 1200 1400 1600	70	85	1200	0.85	4.3	125	0.31	0.51	2
PSVT 160/08 PSVT 160/12 PSVT 160/14 PSVT 160/16	800 1200 1400 1600	85	85	1700	0.85	3.2	125	0.3	0.5	2
PSWT 70/08 PSWT 70/12 PSWT 70/14 PSWT 70/16	800 1200 1400 1600	49	85	1150	0.85	5.3	125	0.35	0.55	2
PSWT 90/08 PSWT 90/12 PSWT 90/14 PSWT 90/16	800 1200 1400 1600	70	85	1200	0.85	4.3	125	0.31	0.51	2
PSWT 160/08 PSWT 160/12 PSWT 160/14 PSWT 160/16	800 1200 1400 1600	85	85	1700	0.85	3.2	125	0.3	0.5	2

PSWT/ PSVT 70/90/160 = isolated base
 PSXT/ PSYT 70/90/160 = non isolated base

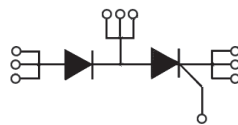


Figure 2
page 37

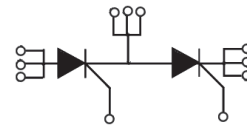
Part Number	V_{RRM}	I_{TRMS} I_{FRMS}	I_{TAV} I_{FAVM}	T_C	I_{FSM} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	T_{VJ-} T_{VJM} A	A	°C	A	V	mΩ	°C			
PSKH 80/06	600	140	80	85	550	0.8	2.95	125	0.36 / 0.18	0.56 / 0.28	4
PSKH 80/08	800	140									
PSKH 80/12	1200	140									
PSKH 96/06	600	180	105	85	2250	0.8	2.4	125	0.26 / 0.13	0.46 / 0.23	4
PSKH 96/08	800	180									
PSKH 96/12	1200	180									
PSKH 96/14	1400	180									
PSKH 96/16	1600	180									
PSKH 96/18	1800	180									
PSKT 96/06	600	180	105	85	2250	0.8	2.4	125	0.26 / 0.13	0.46 / 0.23	4
PSKT 96/08	800	180									
PSKT 96/12	1200	180									
PSKT 96/14	1400	180									
PSKT 96/16	1600	180									
PSKT 96/18	1800	180									
PSKI 96/06	600	180	105	85	2250	0.8	2.4	125	0.26 / 0.13	0.46 / 0.23	4
PSKI 96/08	800	180									
PSKI 96/12	1200	180									
PSKI 96/14	1400	180									
PSKI 96/16	1600	180									
PSKI 96/18	1800	180									
PSET 132/08	800	300	132	85	3600	0.8	1.65	150 for 10 s	0.25 / 0.13	0.35 / 0.18	4
PSET 132/12	1200	300									
PSET 132/14	1400	300									
PSET 132/16	1600	300									
PSET 132/18	1800	300									
PSET 180/08	800	300	180	90	4500	0.75	1.23	150 for 10 s	0.17 / 0.09	0.23 / 0.12	4
PSET 180/12	1200	300									
PSET 180/14	1400	300									
PSET 180/16	1600	300									
PSET 180/18	1800	300									



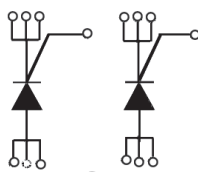
PSKH 80



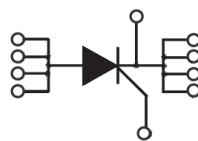
PSKH 96



PSKT



PSKI



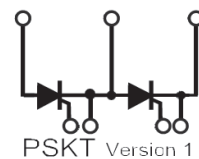
PSET



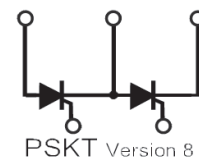
Figure 4
page 38

Thyristor Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{TAV}	T_c	I_{TRMS} I_{FRMS} $T_{VJ} = T_{VJM}$	I_{TRMS} I_{FRMS} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip	R_{thJH} per Chip	Figure	
	V	V	°C	A	A	V	mΩ	°C	K/W	K/W		
PSKT 19/08io1 PSKT 19/12io1 PSKT 19/14io1 PSKT 19/16io1	800 1200 1400 1600	18	85	40	400	0.85	18	125	1.3	1.5	7*	
PSKT 19/08io8 PSKT 19/12io8 PSKT 19/14io8 PSKT 19/16io8	800 1200 1400 1600	18	85	40	400	0.85	18	125	1.3	1.5		
PSKT 26/08io1 PSKT 26/12io1 PSKT 26/14io1 PSKT 26/16io1	800 1200 1400 1600	27	85	50	520	0.85	11	125	0.88	1.08		7*
PSKT 26/08io8 PSKT 26/12io8 PSKT 26/14io8 PSKT 26/16io8	800 1200 1400 1600	27	85	50	520	0.85	11	125	0.88	1.08		
PSKT 44/08io1 PSKT 44/12io1 PSKT 44/14io1 PSKT 44/16io1 PSKT 44/18io1	800 1200 1400 1600 1800	49	85	80	1150	0.85	5.3	125	0.53	0.73	7*	
PSKT 44/08io8 PSKT 44/12io8 PSKT 44/14io8 PSKT 44/16io8 PSKT 44/18io8	800 1200 1400 1600 1800	49	85	80	1150	0.85	5.3	125	0.53	0.73		
PSKT 56/08io1 PSKT 56/12io1 PSKT 56/14io1 PSKT 56/16io1 PSKT 56/18io1	800 1200 1400 1600 1800	60	85	100	1500	0.85	3.7	125	0.45	0.65		7*
PSKT 56/08io8 PSKT 56/12io8 PSKT 56/14io8 PSKT 56/16io8 PSKT 56/18io8	800 1200 1400 1600 1800	60	85	100	1500	0.85	3.7	125	0.45	0.65		
PSKT 72/08io1 PSKT 72/12io1 PSKT 72/14io1 PSKT 72/16io1 PSKT 72/18io1	800 1200 1400 1600 1800	85	85	180	1700	0.85	3.2	125	0.3	0.5	7*	
PSKT 72/08io8 PSKT 72/12io8 PSKT 72/14io8 PSKT 72/16io8 PSKT 72/18io8	800 1200 1400 1600 1800	85	85	180	1700	0.85	3.2	125	0.3	0.5		
PSKT 94/20io1 PSKT 94/22io1	200 2200	104	85	180	1700	0.85	3.2	125	0.22	0.42		7*
PSKT 95/08io1 PSKT 95/12io1 PSKT 95/14io1 PSKT 95/16io1 PSKT 95/18io1	800 1200 1400 1600 1800	116	85	180	2250	0.8	2.4	125	0.22	0.42		
PSKT 95/08io8 PSKT 95/12io8 PSKT 95/14io8 PSKT 95/16io8 PSKT 95/18io8	800 1200 1400 1600 1800	116	85	180	2250	0.8	2.4	125	0.22	0.42	7*	



io1



io8



Figure 7
page 40

* alternate types available with baseplates, HIPOR®-Modules, pages 62, 63, 64, 65.

Thyristor Modules, released, E 148688

Part Number	V_{RRM} V_{DRM}	I_{TAV}	T_c	I_{TRMS} I_{FRMS} $T_{VJ} = T_{VJM}$	I_{TRMS} I_{FRMS} 45°C 10ms	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip	R_{thJH} per Chip	Figure
	V	V	°C	A	A	V	mΩ	°C	K/W	K/W	
PSKT 132/08io1	800	130	85	300	4750	0.8	1.5	125	0.23	0.33	8*
PSKT 132/12io1	1200										
PSKT 132/14io1	1400										
PSKT 132/16io1	1600										
PSKT 132/18io1	1800										
PSKT 161/20io1	2000	165	85	300	6000	0.8	1.6	125	0.155	0.225	8*
PSKT 161/22io1	2200										
PSKT 162/08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.225	8*
PSKT 162/12io1	1200										
PSKT 162/14io1	1400										
PSKT 162/16io1	1600										
PSKT 162/18io1	1800										
PSKT 170/12io1	1200	203	85	350	5400	0.8	1.0	130	0.164	0.204	10
PSKT 170/14io1	1400										
PSKT 170/16io1	1600										
PSKT 170/18io1	1800										
PSKT 224/20io1	2000	240	85	400	8000	0.8	0.76	130	0.139	0.179	10
PSKT 224/22io1	2200										
PSKT 225/12io1	1200	221	85	400	8000	0.8	0.76	130	0.157	0.197	10
PSKT 225/14io1	1400										
PSKT 225/16io1	1600										
PSKT 225/18io1	1800										
PSKT 255/12io1	1200	250	85	450	9000	0.8	0.68	130	0.14	0.18	10
PSKT 255/14io1	1400										
PSKT 255/16io1	1600										
PSKT 255/18io1	1800										
PSKT 310/08io1	800	320	85	500	9200	0.8	0.82	140	0.112	0.152	9*
PSKT 310/12io1	1200										
PSKT 310/14io1	1400										
PSKT 310/16io1	1600										
PSKT 310/18io1	1800										
PSKT 312/12io1	1200	320	85	520	9200	0.8	0.68	140	0.12	0.16	10
PSKT 312/14io1	1400										
PSKT 312/16io1	1600										
PSKT 312/18io1	1800										

* alternate types available with baseplates, HiPOR®-Modules, pages 62, 63, 64, 65.

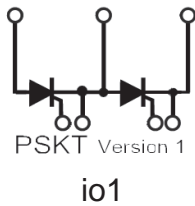


Figure 8
page 40



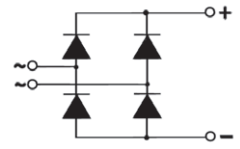
Figure 9
page 41



Figure 10
page 41

Single Phase Rectifier Bridges, released, E 148688

Part Number	V _{RRM}	V _{VRMS}	I _{DAV}	T _C	I _{FSM}	V _{TO}	r _T	T _{VJM}	R _{thJC} per Chip/ per Module	R _{thJH} per Chip/ per Module	Figure			
	V	V	A	°C	A	V	mΩ	°C	K/W	K/W				
PSB 15/06	600	180	21	100	100	0.8	40	150	2.3 / 0.58	2.8 / 0.7	14			
PSB 15/08	800	250												
PSB 15/12	1200	400												
PSB 21/08	800	250	21	100	100	0.8	40	150	2.3 / 0.58	2.8 / 0.7	3			
PSB 21/12	1200	400												
PSB 25T/08	800	250	21	63	380	0.85	12	150	8.2 / 2.05	9.4 / 2.35	11			
PSB 25T/12	1200	400												
PSB 25T/14	1400	440												
PSB 25T/16	1600	500												
PSB 25T/18	1800	575												
PSB 31/08	800	250	38	100	450	0.8	10	150	1.55 / 0.388	2.1 / 0.525	5			
PSB 31/12	1200	400												
PSB 31/14	1400	440												
PSB 31/16	1600	500												
PSB 31/18	1800	575												
PSB 35T/08	800	250	35	85	400	0.85	12	150	2.8 / 0.7	3.4 / 0.85	12			
PSB 35T/12	1200	400												
PSB 35T/14	1400	440												
PSB 35T/16	1600	500												
PSB 35T/18	1800	575												
PSB 36T/08	800	250	30	62	550	0.8	5.8	150	6.2 / 1.55	7.4 / 1.85	11			
PSB 36T/12	1200	400												
PSB 36T/14	1400	440												
PSB 36T/16	1600	500												
PSB 36T/18	1800	575												
PSB 41/08	800	250	45	100	550	0.8	8	150	1.45 / 0.363	1.9 / 0.475	5			
PSB 41/12	1200	400												
PSB 41/14	1400	440												
PSB 41/16	1600	500												
PSB 41/18	1800	575												
PSB 50/08	800	250	72	100	675	0.8	5	150	1.1 / 0.275	1.52 / 0.38	6			
PSB 50/12	1200	400												
PSB 50/14	1400	440												
PSB 50/16	1600	500												
PSB 50/18	1800	575												
PSB 51/08	800	250	55	100	750	0.8	6	150	1.3 / 0.325	1.6 / 0.4	5			
PSB 51/12	1200	400												
PSB 51/14	1400	440												
PSB 51/16	1600	500												
PSB 51/18	1800	575												
PSB 53/08	800	250	54	100	300	0.8	13	150	1.1 / 0.28	1.6 / 0.4	14			
PSB 53/12	1200	400												
PSB 53/14	1400	440												
PSB 53/16	1600	500												
PSB 54/08	800	250	54	100	300	0.8	13	150	1.1 / 0.28	1.6 / 0.4	3			
PSB 54/12	1200	400												
PSB 54/14	1400	440												
PSB 54/16	1600	500												
PSB 55T/08	800	250	50	64	750	0.85	8	150	2.6 / 0.65	2.84 / 0.71	13			
PSB 55T/12	1200	400												
PSB 55T/14	1400	440												
PSB 55T/16	1600	500												
PSB 55T/18	1800	575												
PSB 61/08	800	250	65	100	1000	0.8	5	150	1.12 / 0.28	1.5 / 0.375	5			
PSB 61/12	1200	400												
PSB 61/14	1400	440												
PSB 61/16	1600	500												
PSB 61/18	1800	575												
30 mm	PSB 62/08	800	250	52	100	550	0.8	8	150	1.45 / 0.36	1	17 mm	PSBS 62/08	23
	PSB 62/12	1200	400										PSBS 62/12	
	PSB 62/14	1400	440										PSBS 62/14	
	PSB 62/16	1600	500										PSBS 62/16	
	PSB 62/18	1800	575										PSBS 62/18	



B2U



Figure 1 page 37



Figure 3 page 38



Figure 5 page39



Figure 6 page 39



Figure 11 page 42



Figure 12 page 42



Figure 13 page 43

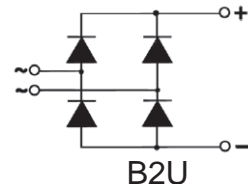




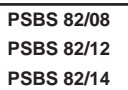
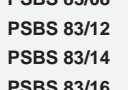


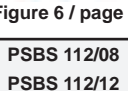

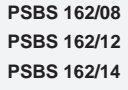
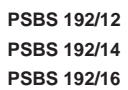
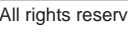
Figure 14 page 43



Figure 23 page 48

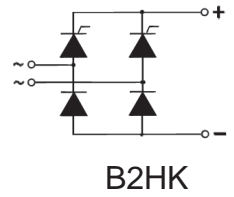
Single Phase Rectifier Bridges, released, E 148688



	Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure			
		V	V	A	°C	A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W				
30 mm	PSB 63/08	800	250	60	100	1000	0.8	8	150	0.58 / 0.145	0.825 / 0.206	1	17 mm	PSBS 63/08	23
	PSB 63/12	1200	400											PSBS 63/12	page 48
	PSB 63/14	1400	440											PSBS 63/14	
	PSB 63/16	1600	500											PSBS 63/16	
	PSB 63/18	1800	575											PSBS 63/18	
30 mm	PSB 68/08	800	250	68	90	530	0.8	7.5	150	1.2 / 0.3	1.5 / 0.375	3	17 mm	 Figure 1 page 37	23
	PSB 68/12	1200	400												
	PSB 68/14	1400	440												
	PSB 68/16	1600	500												
	PSB 68/18	1800	575												
30 mm	PSB 75/08	800	250	70	85	1000	0.8	6	150	1.28 / 0.32	1.38 / 0.345	15	17 mm	 Figure 2 page 37	23
	PSB 75/12	1200	400												
	PSB 75/14	1400	440												
	PSB 75/16	1600	500												
	PSB 75/18	1800	575												
30 mm	PSB 78/08	800	250	78	100	750	0.8	6.0	150	1.2 / 0.3	1.5 / 0.375	4	17 mm	 Figure 2 page 37	23
	PSB 78/12	1200	400												
	PSB 78/14	1400	440												
	PSB 78/16	1600	500												
	PSB 78/18	1800	575												
30 mm	PSB 82/08	800	250	72	100	750	0.8	5	150	1.1 / 0.28	1.52 / 0.38	1	17 mm	 Figure 3 / page 38	23
	PSB 82/12	1200	400												
	PSB 82/14	1400	440												
	PSB 82/16	1600	500												
	PSB 82/18	1800	575												
30 mm	PSB 83/08	800	250	88	100	1200	0.8	5	150	0.58 / 0.145	0.825 / 0.206	1	17 mm	 Figure 3 / page 38	23
	PSB 83/12	1200	400												
	PSB 83/14	1400	440												
	PSB 83/16	1600	500												
	PSB 83/18	1800	575												
30 mm	PSB 88/08	800	250	92	100	900	0.8	4	150	0.85 / 0.212	1.15 / 0.288	4	17 mm	 Figure 4 / page 38	23
	PSB 88/12	1200	400												
	PSB 88/14	1400	440												
	PSB 88/16	1600	500												
	PSB 88/18	1800	575												
30 mm	PSB 95/08	800	250	95	85	1200	0.8	5	150	0.9 / 0.225	1.1 / 0.275	6	17 mm	 Figure 4 / page 38	23
	PSB 95/12	1200	400												
	PSB 95/14	1400	440												
	PSB 95/16	1600	500												
	PSB 95/18	1800	575												
30 mm	PSB 105/08	800	250	107	85	1500	0.8	5	150	0.83 / 0.21	1.13 / 0.28	15	17 mm	 Figure 6 / page 39	23
	PSB 105/12	1200	400												
	PSB 105/14	1400	440												
	PSB 105/16	1600	500												
	PSB 105/18	1800	575												
30 mm	PSB 112/08	800	250	84	100	1200	0.8	5	150	0.85 / 0.2125	1.05 / 0.263	2	17 mm	 Figure 15 / page 44	22
	PSB 112/12	1200	400												
	PSB 112/14	1400	440												
	PSB 112/16	1600	500												
	PSB 112/18	1800	575												
30 mm	PSB 125/08	800	250	124	85	1800	0.8	3	150	0.83 / 0.21	1.13 / 0.28	15	17 mm	 Figure 15 / page 44	22
	PSB 125/12	1200	400												
	PSB 125/14	1400	440												
	PSB 125/16	1600	500												
	PSB 125/18	1800	575												
30 mm	PSB 162/08	800	250	122	100	1800	0.8	3	150	0.65 / 0.16	0.83 / 0.21	2	17 mm	 Figure 15 / page 44	22
	PSB 162/12	1200	400												
	PSB 162/14	1400	440												
	PSB 162/16	1600	500												
	PSB 162/18	1800	575												
30 mm	PSB 192/08	800	250	174	100	2800	0.8	2.2	150	0.45 / 0.11	0.6 / 0.15	2	17 mm	 Figure 15 / page 44	22
	PSB 192/12	1200	400												
	PSB 192/14	1400	440												
	PSB 192/16	1600	500												
	PSB 192/18	1800	575												

Single Phase Half Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure	
	V	V	A	°C	A	V	mΩ	°C				
PSBH 25/08 PSBH 25/12	800 1200	250 400	32	85	200	0.85	27	125	1.3 / 0.33	1.8 / 0.45	3	
PSBH 50/08 PSBH 50/12 PSBH 50/14 PSBH 50/16	800 1200 1400 1600	250 400 440 500	53	85	550	0.85	11	125	0.9 / 0.225	1.1 / 0.275		5
PSBH 55/08 PSBH 55/12 PSBH 55/14 PSBH 55/16	800 1200 1400 1600	250 400 440 500	46	85	520	0.85	11	125	1.2 / 0.3	1.31 / 0.327	6	
PSBH 75/08 PSBH 75/12 PSBH 75/14	800 1200 1400	250 400 440	74	85	1150	0.85	5.33	125	0.66 / 0.165	0.93 / 0.233		
PSBH 85/08 PSBH 85/12 PSBH 85/14	800 1200 1400	250 400 440	82	85	1150	0.85	3.7	125	0.65 / 0.163	0.8 / 0.2		
PSBH 125/08 PSBH 125/12 PSBH 125/14 PSBH 125/16	800 1200 1400 1600	250 400 440 500	123	85	1500	0.85	3.2	125	0.46 / 0.115	0.55 / 0.138		



Single Phase Half Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure	
	V	V	A	°C	A	V	mΩ	°C				
PSBZ 36/08 PSBZ 36/12 PSBZ 36/14 PSBZ 36/16	800 1200 1400 1600	250 400 440 500	36	85	320	0.85	13	125	1.4 / 0.35	2.0 / 0.5	3	
PSBZ 50/08 PSBZ 50/12 PSBZ 50/14 PSBZ 50/16	800 1200 1400 1600	250 400 440 500	53	85	550	0.85	11	125	0.9 / 0.225	1.1 / 0.275		5
PSBZ 55/08 PSBZ 55/12 PSBZ 55/14 PSBZ 55/16	800 1200 1400 1600	250 400 440 500	46	85	520	0.85	11	125	1.2 / 0.3	1.31 / 0.327	6	
PSBZ 75/08 PSBZ 75/12 PSBZ 75/14	800 1200 1400	250 400 440	74	85	1150	0.85	5.33	125	0.66 / 0.165	0.93 / 0.233		
PSBZ 85/08 PSBZ 85/12 PSBZ 85/14	800 1200 1400	250 400 440	82	85	1150	0.85	3.7	125	0.65 / 0.163	0.8 / 0.2		
PSBZ 125/08 PSBZ 125/12 PSBZ 125/14 PSBZ 125/16	800 1200 1400 1600	250 400 440 500	123	85	1500	0.85	3.2	125	0.46 / 0.115	0.55 / 0.138		

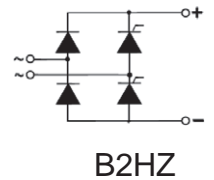


Figure 2
page 37



Figure 3
page 38



Figure 5
page 39

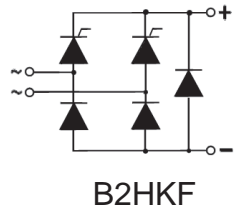


Figure 6
page 39

Single Phase Half Controlled Rectifier Bridges, released, E 148688

With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V									
PSCH 25/08	800	250	32	85	200	0.85	27	125	1.3 / 0.26	1.8 / 0.36	3
PSCH 25/12	1200	400									
PSCH 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.18	1.1 / 0.22	5
PSCH 50/12	1200	400									
PSCH 50/14	1400	440									
PSCH 50/16	1600	500									
PSCH 55/08	800	250									
PSCH 55/12	1200	400	46	85	520	0.85	11	125	1.2 / 0.24	1.31 / 0.262	6
PSCH 55/14	1400	440									
PSCH 55/16	1600	500									
PSCH 75/08	800	250									
PSCH 75/12	1200	400	74	85	1150	0.85	5.33	125	0.66 / 0.132	0.93 / 0.186	6
PSCH 75/14	1400	440									
PSCH 85/08	800	250									
PSCH 85/12	1200	400	82	85	1150	0.85	3.7	125	0.65 / 0.13	0.8 / 0.16	2
PSCH 85/14	1400	440									
PSCH 125/08	800	250									
PSCH 125/12	1200	400	123	85	1500	0.85	3.2	125	0.46 / 0.092	0.55 / 0.11	2
PSCH 125/14	1400	440									
PSCH 125/16	1600	500									



Single Phase Full Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V									
PSBT 25/08	800	250	32	85	200	0.85	27	125	1.3 / 0.33	1.8 / 0.45	3
PSBT 25/12	1200	400									
PSBT 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.225	1.1 / 0.275	5
PSBT 50/12	1200	400									
PSBT 50/14	1400	440									
PSBT 50/16	1600	500									
PSBT 55/08	800	250									
PSBT 55/12	1200	400	46	85	520	0.85	11	125	1.2 / 0.3	1.31 / 0.327	6
PSBT 55/14	1400	440									
PSBT 55/16	1600	500									
PSBT 75/08	800	250									
PSBT 75/12	1200	400	74	85	1150	0.85	5.33	125	0.66 / 0.165	0.93 / 0.233	6
PSBT 75/14	1400	440									
PSBT 85/08	800	250									
PSBT 85/12	1200	400	82	85	1150	0.85	3.7	125	0.65 / 0.162	0.8 / 0.2	2
PSBT 85/14	1400	440									
PSBT 125/08	800	250									
PSBT 125/12	1200	400	123	85	1500	0.85	3.2	125	0.46 / 0.115	0.55 / 0.137	2
PSBT 125/14	1400	440									
PSBT 125/16	1600	500									

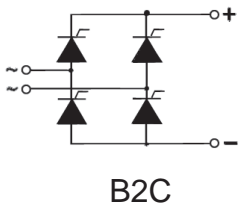


Figure 2
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Figure 3
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Figure 5
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Figure 6
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Single Phase Full Controlled Rectifier Bridges, released, E 148688

With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	°C			
PSCT 50/08	800	250	53	85	550	0.85	11	125	0.9 / 0.18	1.1 / 0.22	5
PSCT 50/12	1200	400									
PSCT 50/14	1400	440									
PSCT 50/16	1600	500									
PSCT 55/08	800	250	46	85	520	0.85	11	125	1.2 / 0.24	1.31 / 0.262	6
PSCT 55/12	1200	400									
PSCT 55/14	1400	440									
PSCT 55/16	1600	500									
PSCT 75/08	800	250	74	85	1150	0.85	5.33	125	0.66 / 0.132	0.93 / 0.186	6
PSCT 75/12	1200	400									
PSCT 75/14	1400	440									
PSCT 85/08	800	250	82	85	1150	0.85	3.7	125	0.65 / 0.13	0.8 / 0.16	2
PSCT 85/12	1200	400									
PSCT 85/14	1400	440									
PSCT 125/08	800	250	123	85	1500	0.85	3.2	125	0.46 / 0.092	0.55 / 0.11	2
PSCT 125/12	1200	400									
PSCT 125/14	1400	440									
PSCT 125/16	1600	500									

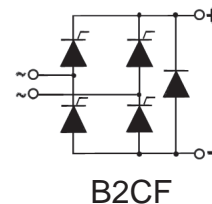


Figure 2
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Figure 5
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Figure 6
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Single Phase Full Controlled Rectifier Bridges, released, E 148688

With Fast Recovery Epitaxial Diodes

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	t_{rr}	R_{thJC} per Chip/ per Module K/W	R_{thJH} per Chip/ per Module K/W	Figure
	V	V	A	°C	A	V	mΩ	ns			
PSB 19F/04	400	125	27	85	50	1.18	22	35	2.5 / 0.63	2.8 / 0.7	3
PSB 19F/06	600	200	27	85	50	1.18	22	35	2.5 / 0.63	2.8 / 0.7	
PSB 19F/08	800	250	19	85	40	1.32	30	40	2.5 / 0.63	2.8 / 0.7	
PSB 19F/12	1200	400	19	85	40	1.32	30	40	2.5 / 0.63	2.8 / 0.7	
PSB 33F/04	400	125	44	85	110	1.13	13	35	1.6 / 0.4	1.9 / 0.48	3
PSB 33F/06	600	200	44	85	110	1.13	13	35	1.6 / 0.4	1.9 / 0.48	
PSB 33F/08	800	250	32	85	90	1.32	30	40	1.6 / 0.4	1.9 / 0.48	
PSB 33F/12	1200	400	32	85	90	1.32	30	40	1.6 / 0.4	1.9 / 0.48	
PSB 71F/04	400	125	68	85	250	0.98	8	35	0.9 / 0.23	1.2 / 0.3	3
PSB 71F/06	600	200	68	85	250	0.98	8	35	0.9 / 0.23	1.2 / 0.3	
PSB 71F/08	800	250	59	85	200	1.31	15	40	0.9 / 0.23	1.2 / 0.3	
PSB 71F/12	1200	400	59	85	200	1.31	15	40	0.9 / 0.23	1.2 / 0.3	
PSB 100F/04	400	125	100	85	600	1.09	4.3	35	0.85 / 0.21	1.0 / 0.25	4
PSB 100F/06	600	200	100	85	600	1.09	4.3	35	0.85 / 0.21	1.0 / 0.25	
PSB 100F/08	800	250	100	75	500	1.12	5.7	40	0.85 / 0.21	1.0 / 0.25	
PSB 100F/12	1200	400	100	75	500	1.12	5.7	40	0.85 / 0.21	1.0 / 0.25	

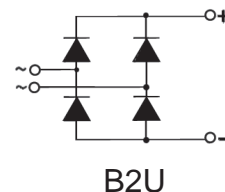
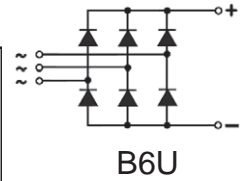


Figure 3
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Figure 4
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Three Phase Rectifier Bridges, released, E 148688



Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure				
	V	V	A	°C	A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W					
PSD 25T/08	800	250	25	63	380	0.85	12	150	9.3 / 1.55	10.2 / 1.70	11				
PSD 25T/12	1200	400													
PSD 25T/14	1400	440													
PSD 25T/16	1600	500													
PSD 25T/18	1800	575													
PSD 27/06	600	180	28	100	100	0.8	40	150	2.3 / 0.38	2.8 / 0.47	14				
PSD 27/08	800	250													
PSD 27/12	1200	400													
PSD 28/06	600	250	28	100	100	0.8	40	150	2.3 / 0.38	2.8 / 0.47	3				
PSD 28/08	800	400													
PSD 28/12	1200	440													
PSD 31/08	800	250	60	100	450	0.8	10	150	1.55 / 0.258	2.1 / 0.35	5				
PSD 31/12	1200	400													
PSD 31/14	1400	440													
PSD 31/16	1600	500													
PSD 31/18	1800	575													
PSD 35T/08	800	250	38	85	400	0.85	12	150	4.2 / 0.70	4.8 / 0.80	12				
PSD 35T/12	1200	400													
PSD 35T/14	1400	440													
PSD 35T/16	1600	500													
PSD 35T/18	1800	575													
PSD 36T/08	800	250	35	62	550	0.8	7.4	150	7.5 / 1.25	8.4 / 1.40	11				
PSD 36T/12	1200	400													
PSD 36T/14	1400	440													
PSD 36T/16	1600	500													
PSD 36T/18	1800	575													
PSD 41/08	800	250	70	100	550	0.8	8	150	1.45 / 0.242	1.9 / 0.317	5				
PSD 41/12	1200	400													
PSD 41/14	1400	440													
PSD 41/16	1600	500													
PSD 41/18	1800	575													
PSD 50/08	800	250	80	110	675	0.8	5	150	1.1 / 0.183	1.52 / 0.253	6				
PSD 50/12	1200	400													
PSD 50/14	1400	440													
PSD 50/16	1600	500													
PSD 50/18	1800	575													
PSD 51/08	800	250	85	100	750	0.85	6	150	1.3 / 0.22	1.6 / 0.27	5				
PSD 51/12	1200	400													
PSD 51/14	1400	440													
PSD 51/16	1600	500													
PSD 51/18	1800	575													
PSD 55T/08	800	250	58	85	750	0.85	8	150	2.7 / 0.45	3.06 / 0.51	13				
PSD 55T/12	1200	400													
PSD 55T/14	1400	440													
PSD 55T/16	1600	500													
PSD 55T/18	1800	575													
PSD 61/08	800	250	100	100	1000	0.80	5	150	1.12 / 0.187	1.5 / 0.25	5				
PSD 61/12	1200	400													
PSD 61/14	1400	440													
PSD 61/16	1600	500													
PSD 61/18	1800	575													
30 mm	PSD 62/08	800	250	63	110	550	0.8	8	150	1.45 / 0.24	1.87 / 0.31	1	17 mm	PSDS 62/08	23
	PSD 62/12	1200	400												
	PSD 62/14	1400	440												
	PSD 62/16	1600	500												
	PSD 62/18	1800	575												
30 mm	PSD 63/08	800	250	75	100	1000	0.8	8	150	0.58 / 0.097	0.825 / 0.138	1	17 mm	PSDS 63/08	23
	PSD 63/12	1200	400												
	PSD 63/14	1400	440												
	PSD 63/16	1600	500												
	PSD 63/18	1800	575												



Figure 1
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Figure 3
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Figure 5
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Figure 6
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Figure 11
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Figure 12
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Figure 13
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Figure 14
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Figure 23
page 48

Three Phase Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure				
	V	V	A	°C	A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W					
PSD 67/06	600	180	68	100	300	0.8	13	150	1.1 / 0.18	1.6 / 0.27	14				
PSD 67/08	800	250													
PSD 67/12	1200	400													
PSD 67/14	1400	440													
PSD 67/16	1600	500													
PSD 68/06	600	180	68	100	300	0.8	13	150	1.1 / 0.18	1.6 / 0.27	3				
PSD 68/08	800	250													
PSD 68/12	1200	400													
PSD 68/14	1400	440													
PSD 68/16	1600	500													
PSD 75/08	800	250	95	85	1000	0.8	6	150	1.28 / 0.213	1.38 / 0.23	15				
PSD 75/12	1200	400													
PSD 75/14	1400	440													
PSD 75/16	1600	500													
PSD 75/18	1800	575													
30 mm	PSD 82/08	800	250	88	110	750	0.8	5	150	1.1 / 0.183	1.52 / 0.253	1	17 mm	PSDS 82/08	23
	PSD 82/12	1200	400								PSDS 82/12				
	PSD 82/14	1400	440								PSDS 82/14				
	PSD 82/16	1600	500								PSDS 82/16				
	PSD 82/18	1800	575								PSDS 82/18				
30 mm	PSD 83/08	800	250	100	100	1200	0.8	5	150	0.58 / 0.097	0.825 / 0.138	1	17 mm	PSDS 83/08	23
	PSD 83/12	1200	400								PSDS 83/12				
	PSD 83/14	1400	440								PSDS 83/14				
	PSD 83/16	1600	500								PSDS 83/16				
	PSD 83/18	1800	575								PSDS 83/18				
Solder Pin Version	PSD 86/06	600	180	86	90	530	0.8	7.5	150	1.2 / 0.2	1.5 / 0.25	3	Press Pin Version	PSD 86P9/06	24 A*
	PSD 86/08	800	250								PSD 86P9/08				
	PSD 86/12	1200	400								PSD 86P9/12				
	PSD 86/14	1400	440								PSD 86P9/14				
	PSD 86/16	1600	500								PSD 86P9/16				
	PSD 95/08	800	250	140	85	1200	0.8	5	150	0.9 / 0.15	1.1 / 0.183	6		* 17 mm Height	
	PSD 95/12	1200	400								PSD 86P17/06			Figure 24B / page 49	
	PSD 95/14	1400	440								PSD 86P17/08				
	PSD 95/16	1600	500								PSD 86P17/12				
	PSD 95/18	1800	575								PSD 86P17/14				
	PSD 98/08	800	250	100	85	750	0.8	6	150	1.2 / 0.2	1.5 / 0.25	4			PSD 86P17/16
	PSD 98/12	1200	400												
	PSD 98/14	1400	440												
	PSD 98/16	1600	500												
	PSD 105/08	800	250	160	85	1500	0.8	5	150	0.83 / 0.138	1.13 / 0.188	15		Figure 22 / page 47	
	PSD 105/12	1200	400												
	PSD 105/14	1400	440												
	PSD 105/16	1600	500												
	PSD 105/18	1800	575												
	PSD 108/08	800	250	117	100	900	0.8	4	150	0.85 / 0.142	1.15 / 0.192	4		Figure 23 / page 48	
	PSD 108/12	1200	400												
	PSD 108/14	1400	440												
	PSD 108/16	1600	500												
30 mm	PSD 112/08	800	250	127	90	1200	0.8	4	150	0.9 / 0.15	1.08 / 0.18	2	17 mm	PSDS 112/08	22
	PSD 112/12	1200	400								PSDS 112/12				
	PSD 112/14	1400	440								PSDS 112/14				
	PSD 112/16	1600	500								PSDS 112/16				
	PSD 112/18	1800	575								PSDS 112/18				
	PSD 125/08	800	250	166	85	1800	0.8	3	150	0.83 / 0.138	1.13 / 0.188	15		Figure 24A / page 48	
	PSD 125/12	1200	400												
	PSD 125/14	1400	440												
	PSD 125/16	1600	500												
	PSD 125/18	1800	575												
30 mm	PSD 162/08	800	250	175	90	1800	0.8	3	150	0.65 / 0.108	0.83 / 0.138	2	17 mm	PSDS 162/08	22
	PSD 162/12	1200	400								PSDS 162/12				
	PSD 162/14	1400	440								PSDS 162/14				
	PSD 162/16	1600	500								PSDS 162/16				
	PSD 162/18	1800	575								PSDS 162/18				
30 mm	PSD 192/08	800	250	248	90	2800	0.8	2.2	150	0.45 / 0.075	0.6 / 0.1	2	17 mm	PSDS 192/08	22
	PSD 192/12	1200	400								PSDS 192/12				
	PSD 192/14	1400	440								PSDS 192/14				
	PSD 192/16	1600	500								PSDS 192/16				
	PSD 192/18	1800	575								PSDS 192/18				

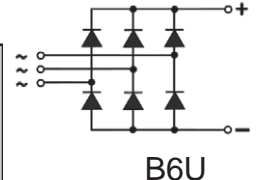


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Figure 22 / page 47



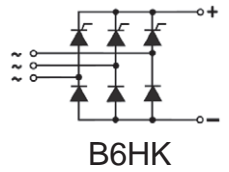
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Figure 24A / page 48

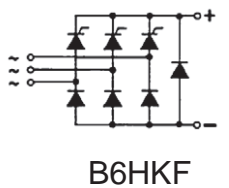
Three Phase Half Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	45°C 10ms A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSDH 39/08 PSDH 39/12	800 1200	250 400	39	85	200	0.85	27	125	1.3 / 0.22	1.8 / 0.3	3
PSDH 70/08 PSDH 70/12 PSDH 70/14 PSDH 70/16	800 1200 1400 1600	250 400 440 500	70	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	
PSDH 75/08 PSDH 75/12 PSDH 75/14 PSDH 75/16	800 1200 1400 1600	250 400 440 500	75	85	520	0.85	11	125	0.9 / 0.15	1.1 / 0.183	6
PSDH 90/08 PSDH 90/12 PSDH 90/14	800 1200 1400	250 400 440	100	85	1150	0.85	5.33	125	0.6 / 0.1	0.8 / 0.133	
PSDH 110/08 PSDH 110/12 PSDH 110/14	800 1200 1400	250 400 440	110	85	1150	0.85	6	125	0.65 / 0.108	0.8 / 0.133	2
PSDH 175/08 PSDH 175/12 PSDH 175/14 PSDH 175/16	800 1200 1400 1600	250 400 440 500	167	85	1500	0.85	3.5	125	0.46 / 0.077	0.55 / 0.092	



Three Phase Half Controlled Rectifier Bridges, released, E 148688 With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	45°C 10ms A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSFH 70/08 PSFH 70/12 PSFH 70/14 PSFH 70/16	800 1200 1400 1600	250 400 440 500	70	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.157	5



Three Phase Full Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	45°C 10ms A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSDT 39/08 PSDT 39/12	800 1200	250 400	39	85	200	0.85	27	125	1.3 / 0.22	1.8 / 0.3	3
PSDT 70/08 PSDT 70/12 PSDT 70/14 PSDT 70/16	800 1200 1400 1600	250 400 440 500	70	85	520	0.85	11	125	0.9 / 0.15	1.1 / 0.183	

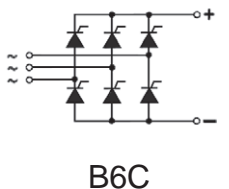


Figure 2
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Figure 3
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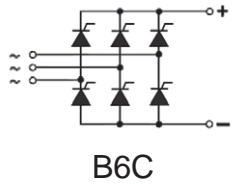
Figure 5
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Figure 6
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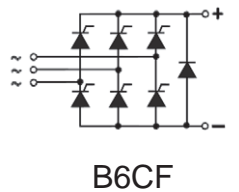
Three Phase Full Controlled Rectifier Bridges, released, E 148688

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	45°C 10ms A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSDT 75/08	800	250	75	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	6
PSDT 75/12	1200	400									
PSDT 75/14	1400	440									
PSDT 75/16	1600	500									
PSDT 90/08	800	250	100	85	1150	0.85	5.33	125	0.6 / 0.10	0.8 / 0.133	6
PSDT 90/12	1200	400									
PSDT 90/14	1400	440									
PSDT 110/08	800	250	110	85	1150	0.85	6	125	0.65 / 0.108	0.8 / 0.133	2
PSDT 110/12	1200	400									
PSDT 110/14	1400	440									
PSDT 175/08	800	250	167	85	1500	0.85	3.5	125	0.46 / 0.077	0.55 / 0.092	2
PSDT 175/12	1200	400									
PSDT 175/14	1400	440									
PSDT 175/16	1600	500									



Three Phase Full Controlled Rectifier Bridges, released, E 148688 With Freewheeling Diode

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	45°C 10ms A	V	mΩ	°C	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSFT 70/08	800	250	70	85	550	0.85	11	125	0.9 / 0.15	1.1 / 0.18	5
PSFT 70/12	1200	400									
PSFT 70/14	1400	440									
PSFT 70/16	1600	500									



Three Phase Rectifier Bridges, released, E 148688 With Fast Recovery Epitaxial Diodes

Part Number	V_{RRM}	V_{VRMS}	I_{DAV}	T_C	I_{FSM}	V_{TO}	r_T	t_{rr}	R_{thJC}	R_{thJH}	Figure
	V	V	A	°C	45°C 10ms A	V	mΩ	ns	per Chip/ per Module K/W	per Chip/ per Module K/W	
PSD 24F/04	400	125	34	85	50	1.18	22	35	2.5 / 0.42	2.8 / 0.47	3
PSD 24F/06	600	200	34	85	50	1.18	22	35	2.5 / 0.42	2.8 / 0.47	
PSD 24F/08	800	250	24	85	40	1.39	55	40	2.5 / 0.42	2.8 / 0.47	
PSD 24F/12	1200	400	24	85	40	1.39	55	40	2.5 / 0.42	2.8 / 0.47	
PSD 43F/04	400	125	56	85	110	1.13	13	35	1.6 / 0.27	1.9 / 0.32	3
PSD 43F/06	600	200	56	85	110	1.13	13	35	1.6 / 0.27	1.9 / 0.32	
PSD 43F/08	800	250	40	85	90	1.32	30	40	1.6 / 0.27	1.9 / 0.32	
PSD 43F/12	1200	400	40	85	90	1.32	30	40	1.6 / 0.27	1.9 / 0.32	
PSD 91F/04	400	125	86	100	250	0.98	8	35	0.9 / 0.15	1.2 / 0.2	3
PSD 91F/06	600	200	86	100	250	0.98	8	35	0.9 / 0.15	1.2 / 0.2	
PSD 91F/08	800	250	74	85	200	1.31	15	40	0.9 / 0.15	1.2 / 0.2	
PSD 91F/12	1200	400	74	85	200	1.31	15	40	0.9 / 0.15	1.2 / 0.2	
PSD 150F/04	400	125	130	85	600	1.09	4.3	35	0.85 / 0.14	1.0 / 0.17	4
PSD 150F/06	600	200	130	85	600	1.09	4.3	35	0.85 / 0.14	1.0 / 0.17	
PSD 150F/08	800	250	130	75	500	1.12	5.7	40	0.85 / 0.14	1.0 / 0.17	
PSD 150F/12	1200	400	130	75	500	1.12	5.7	40	0.85 / 0.14	1.0 / 0.17	

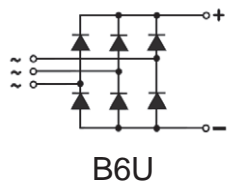


Figure 2
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Figure 3
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Figure 4
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Figure 5
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Figure 6
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Part Number	V_{RRM}	I_{TAV}	I_{RMS}	I_{TMS}	V_{TO}	r_T	T_{VJM}	$\int i^2 dt$	R_{thJC}	R_{thJH}	Figure		
	V	T_C 85°C A	T_C 85°C A	45°C 10ms A	V	mΩ	10s °C	@ 45°C 10ms A²s	per Chip/ per Module K/W	per Chip/ per Module K/W			
PSW1H 110/08 PSW1H 110/12 PSW1H 110/14	800 1200 1400	51	112	1000	0.85	5.6	150	5000	0.8 / 0.4	0.9 / 0.45	3		
PSW1H 140/08 PSW1H 140/12 PSW1H 140/14 PSW1H 140/16 PSW1H 140/18	800 1200 1400 1600 1800	58	130	1150	0.85	5.2	150	6600	0.7 / 0.35	0.8 / 0.4		3	
PSW1H 175/08 PSW1H 175/12 PSW1H 175/14 PSW1H 175/16 PSW1H 175/18	800 1200 1400 1600 1800	80	175	1500	0.85	3.7	150	11200	0.5 / 0.25	0.65 / 0.33			
PSW1H 205/08 PSW1H 205/12 PSW1H 205/14 PSW1H 205/16 PSW1H 205/18	800 1200 1400 1600 1800	105	230	2250	0.85	2.4	125	25300	0.26 / 0.13	0.46 / 0.23	4		
PSW1C 25/06 PSW1C 25/08 PSW1C 25/12	600 800 1200	17	26	250	0.90	18	125	310	1.42 / 0.71	1.75 / 0.88			3
PSW1C 40/06 PSW1C 40/08 PSW1C 40/12 PSW1C 40/14 PSW1C 40/16	600 800 1200 1400 1600	27	44	520	0.85	10.0	125	1350	0.88 / 0.44	1.1 / 0.55			
PSW1C 70/06 PSW1C 70/08 PSW1C 70/12	600 800 1200	45	72	1100	0.85	4.6	125	6050	0.62 / 0.31	0.78 / 0.39			
PSW1C 100/06 PSW1C 100/08 PSW1C 100/12 PSW1C 100/14 PSW1C 100/16	600 800 1200 1400 1600	53	96	1200	0.85	4.0	125	7200	0.53 / 0.27	0.73 / 0.37			
PSW1C 110/08 PSW1C 110/12 PSW1C 110/14	800 1200 1400	51	112	1000	0.85	5.6	150	5000	0.8 / 0.4	0.9 / 0.45	3		
PSW1C 140/08 PSW1C 140/12 PSW1C 140/14 PSW1C 140/16 PSW1C 140/18	800 1200 1400 1600 1800	58	130	1150	0.85	5.2	150	6600	0.7 / 0.35	0.8 / 0.4		3	
PSW1C 175/08 PSW1C 175/12 PSW1C 175/14 PSW1C 175/16 PSW1C 175/18	800 1200 1400 1600 1800	80	175	1500	0.8	3.7	150	11200	0.5 / 0.25	0.65 / 0.33			
PSW1C 205/08 PSW1C 205/12 PSW1C 205/14 PSW1C 205/16 PSW1C 205/18	800 1200 1400 1600 1800	105	230	2250	0.85	2.4	125	25300	0.26 / 0.13	0.46 / 0.23	4		



Figure 3
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Figure 4
page 38

Single Phase AC Controller Subassemblies, released, E 148688

Part Number	V_{RRM}	I_{TAV}	I_{RMS}	I_{FMS}	V_{TO}	r_T	T_{VJM}	$\int i^2 dt$	R_{thJC}	Figure
		T_C	T_C	$45^\circ C$			10s	@	per	
	V	$85^\circ C$	$85^\circ C$	10ms	V	m Ω	$^\circ C$	$45^\circ C$	Chip/	
		A	A	A				10ms	per	
								$A^2 \cdot s$	Module	
								K/W		
PSW1C 50/08 PSW1C 50/12 PSW1C 50/14 PSW1C 50/16	800 1200 1400 1600	23	50	520	0.85	11	150	1350	1.1 / 0.55	17
PSW1C 75/08 PSW1C 75/12 PSW1C 75/14	800 1200 1400	39	86	1000	0.85	4	125	5000	0.8 / 0.4	18
PSW1C 112/08 PSW1C 112/12 PSW1C 112/14	800 1200 1400	51	112	1000	0.85	5.6	150	6000	0.8 / 0.4	16
PSW1C 142/08 PSW1C 142/12 PSW1C 142/14 PSW1C 142/16 PSW1C 142/18	800 1200 1400 1600 1800	58	130	1150	0.85	5.2	150	6600	0.7 / 0.35	16
PSW1C 176/08 PSW1C 176/12 PSW1C 176/14 PSW1C 176/16 PSW1C 176/18	800 1200 1400 1600 1800	80	175	1500	0.8	3.7	150	11200	0.5 / 0.25	16
PSW1C 206/08 PSW1C 206/12 PSW1C 206/14 PSW1C 206/16 PSW1C 206/18	800 1200 1400 1600 1800	105	230	2250	0.8	2.4	125	25300	0.26 / 0.13	19



Figure 16
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Figure 17
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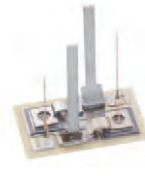


Figure 18
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Figure 19
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Three Phase AC Controller Subassemblies, released, E 148688

Part Number	V_{RRM}	I_{TAV}	I_{RMS}	I_{FMS}	V_{TO}	r_T	T_{VJM}	$\int i^2 dt$	R_{thJC}	Figure
		T_C	T_C	$45^\circ C$			10s	@	per	
	V	$85^\circ C$	$85^\circ C$	10ms	V	m Ω	$^\circ C$	$45^\circ C$	per	
		A	A	A				10ms	Module	
								$A^2 \cdot s$	K/W	
PSW3C 95/08 PSW3C 95/12 PSW3C 95/14 PSW3C 95/16	800 1200 1400 1600	44	96	1150	0.85	4.8	125	6600	0.5 / 0.25	20

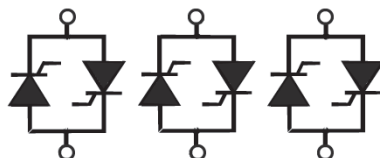


Figure 20
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Three Phase AC Controller Modules, released, E 148688, W3H

Part Number	V_{RRM}	I_{TAV}	I_{RMS}	I_{TMS}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure	
	V	T_C 85°C A	T_C 85°C A	45°C 10ms A	V	mΩ	10s °C	per Chip/ per Module K/W	per Chip/ per Module K/W		
PSUH 35/08 PSUH 35/12	800 1200	16	3x35	200	0.85	27	125	1.3 / 0.217	1.8 / 0.3	3	
PSUH 36/08 PSUH 36/12 PSUH 36/14 PSUH 36/16	800 1200 1400 1600	18	3x39	320	0.85	13	125	1.3 / 0.217	1.5 / 0.25		21
PSUH 40/08 PSUH 40/12 PSUH 40/14 PSUH 40/16	800 1200 1400 1600	18	3x40	400	0.85	15	125	1.43 / 0.238	1.53 / 0.255	6	
PSUH 50/08 PSUH 50/12 PSUH 50/14 PSUH 50/16	800 1200 1400 1600	23	3x50	520	0.85	11	125	1.20 / 0.20	1.31 / 0.218		
PSUH 60/08 PSUH 60/12 PSUH 60/14 PSUH 60/16	800 1200 1400 1600	27	3x60	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	21	
PSUH 80/08 PSUH 80/12 PSUH 80/14	800 1200 1400	37	3x82	1000	0.85	5.2	125	0.81 / 0.135	1.0 / 0.167		6
PSUH 95/08 PSUH 95/12 PSUH 95/14	800 1200 1400	44	3x96	1150	0.85	4.8	125	0.66 / 0.11	0.93 / 0.155		



Figure 3
page 38



Figure 6
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Figure 21
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Three Phase AC Controller Modules, released, E 148688, W3C

Part Number	V_{RRM}	I_{TAV}	I_{RMS}	I_{TMS}	V_{TO}	r_T	T_{VJM}	R_{thJC}	R_{thJH}	Figure	
	V	T_C 85°C A	T_C 85°C A	45°C 10ms A	V	mΩ	10s °C	per Chip/ per Module K/W	per Chip/ per Module K/W		
PSUT 35/08 PSUT 35/12	800 1200	16	3x35	200	0.85	27	125	1.3 / 0.217	1.8 / 0.3	3	
PSUT 36/08 PSUT 36/12 PSUT 36/14 PSUT 36/16	800 1200 1400 1600	18	3x39	320	0.85	13	125	1.3 / 0.217	1.5 / 0.25		21
PSUT 40/08 PSUT 40/12 PSUT 40/14 PSUT 40/16	800 1200 1400 1600	18	3x40	400	0.85	15	125	1.43 / 0.238	1.53 / 0.255	6	
PSUT 50/08 PSUT 50/12 PSUT 50/14 PSUT 50/16	800 1200 1400 1600	23	3x50	520	0.85	11	125	1.20 / 0.20	1.31 / 0.218		
PSUT 60/08 PSUT 60/12 PSUT 60/14 PSUT 60/16	800 1200 1400 1600	27	3x60	550	0.85	11	125	0.9 / 0.15	1.1 / 0.183	21	
PSUT 80/08 PSUT 80/12 PSUT 80/14	800 1200 1400	37	3x82	1000	0.85	5.2	125	0.81 / 0.135	1.0 / 0.167		6
PSUT 95/08 PSUT 95/12 PSUT 95/14	800 1200 1400	44	3x96	1150	0.85	4.8	125	0.66 / 0.11	0.93 / 0.155		

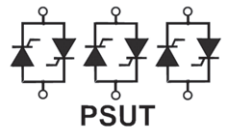


Figure 3
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Figure 6
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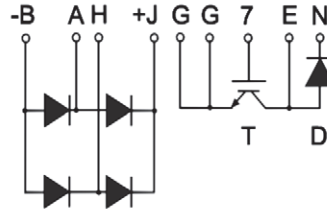
Figure 21
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Rectifier Bridges for Power Factor Correction (PFC), Single Phase PFC

released, E 148688

Boost Module with Ultra Fast IGBT and Boost Diode, Fast Recovery Diodes

Part Number	V_{CES}	I_{C80} T_C 80°C IGBT	I_{F80} T_C 80°C boost diode	V_{RMM}	I_{C80} T_C 80°C rect. diodes	R_{thJC} IGBT per diode	R_{thJC} boost diode	R_{thJC} rectifier	Figure
	V	A	A	A	V	K/W	K/W	K/W	
PSBI 9/06	600	25	22	1200	10	0.96	1.15	2.5	3
PSBI 33/06	600	30	19	600	22	0.96	1.15	2.5	4



Rectifier Bridges for Power Factor Correction (PFC), Single Phase PFC

released, E 148688

Boost Module with MOSFET and Boost Diode, Fast Rectifier Diodes

Part Number	V_{DSS} max.	$I_{D(cont.)}$ T_s 25°C	$R_{DS(on)}$ T_C 80°C boost diode	R_{thJS} max.	P_D max. TS= 25°C	V_{RRM} boost diode	V_{RRM} rectifier diode	Figure
	V	A	Ω	K/W	V	V	V	
PSBM 24/05	500	35	0.12	0.38	325	600	800	4

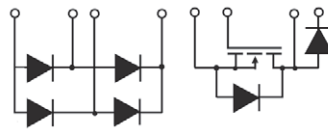
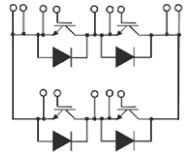


Figure 3
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Figure 4
page 38

Part Number	V_{CES} Voltage Grade	I_{C25} T_c 25°C	I_{F80} T_c 80°C	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j=25^\circ\text{C}$	E_{off} $T_j=25^\circ\text{C}$	R_{thJC}	I_{F25}	I_{F80}	Figure
	V	IGBT A	IGBT A	A	IGBT mJ	IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	
	PSHI 25/06*	600	24.5	17	2.4	0.5	1.52	18.5	
PSHI 25/12*	1200	30	21	2.6	2.1	0.96	26	17	4
PSHI 50/06*	600	42.5	29	2.4	1.0	0.96	30	19	4
PSHI 50/12*	1200	49	33	3.1	3.4	0.6	49	31	4
PSHI 100/06*	600	69	48	2.3	1.4	0.6	56	35	4

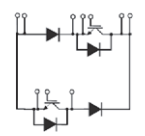


*NTC optional



Figure 4
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Part Number	V_{CES} Voltage Grade	I_{C25} T_c 25°C	I_{F80} T_c 80°C	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j=25^\circ\text{C}$	E_{off} $T_j=25^\circ\text{C}$	R_{thJC}	I_{F25}	I_{F80}	Figure
	V	IGBT A	IGBT A	A	IGBT mJ	IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	
	PSHI 50D/06*	600	42.5	29	2.4	1.0	0.96	56	
PSHI 50D/12*	1200	49	33	3.1	3.4	0.6	49	31	4
PSHI 75D/06*	600	69	48	2.3	1.4	0.6	56	35	4

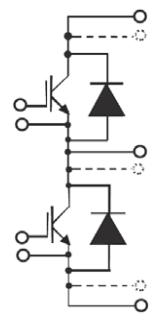


*NTC optional



Figure 4
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Part Number	V_{CES} Voltage Grade	I_{C25} T_c 25°C	I_{F80} T_c 80°C	$V_{CE(SAT)}$ Saturation Voltage (typical) $T_j=25^\circ\text{C}$	$t_{d(on)}$ $t_{d(off)}$ delay time Switching Characteristics	R_{thJC}	I_{F25}	I_{F80}	R_{thJC}	Figure
	V	IGBT A	IGBT A	A	ns	IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	Diode K/W	
	PSI 25/06*	600	24.5	17	2.4	30 270	1.52	18.5	12	
PSI 25/12*	1200	30	21	2.6	100 500	0.96	26	17	2.3	4
PSI 50/06*	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSI 50/12*	1200	49	33	3.1	100 500	0.6	49	31	1.3	4
PSI 75/06*	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSI 75/12*	1200	92	62	2.7	100 500	0.33	103	65	0.66	4
PSI 100/06*	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSI 130/06*	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4



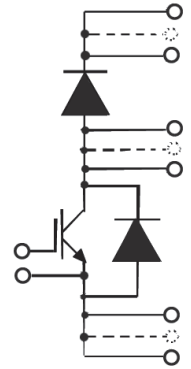
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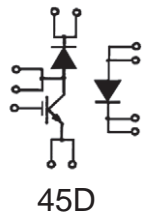
Figure 4
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Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{F80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	t _{d(on)} t _{d(off)} Delay Time Switching Characteristics	R _{thJC}	I _{F25}	I _{F80}	R _{thJC}	Figure
	V	IGBT A	IGBT A	A	ns	IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	Diode K/W	
PSSI 25/06*	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSSI 25/12*	1200	30	21	2.6	100 500	0.96	26	17	2.3	
PSSI 50/06*	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSSI 50/12*	1200	49	33	3.1	100 500	0.6	49	31	1.3	
PSSI 75/06*	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSSI 75/12*	1200	92	62	2.7	100 500	0.33	103	65	0.66	
PSSI 100/06*	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSSI 100/12*	1200	138	94	2.8	100 650	0.22	154	97	0.45	
PSSI 130/06*	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4
PSSI 160/12*	1200	169	117	2.9	100 600	0.18	154	97	0.45	

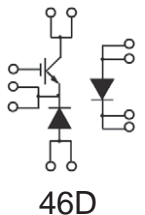
*NTC optional



Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{F80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	t _{d(on)} t _{d(off)} Delay Time Switching Characteristics	R _{thJC}	I _{F25}	I _{F80}	R _{thJC}	Figure
	V	IGBT A	IGBT A	A	ns	IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	Diode K/W	
PSSI 45D/06	600	69	48	2.3	50 300	0.6	134	82	0.66	4
PSSI 46D/06	600	69	48	2.3	50 300	0.6	134	82	0.66	



45D



46D

Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{F80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	t _{d(on)} t _{d(off)} Delay Time Switching Characteristics	R _{thJC}	I _{F25}	I _{F80}	R _{thJC}	Figure
	V	IGBT A	IGBT A	A	ns	IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	Diode K/W	
PSIS 25/06*	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSIS 25/12*	1200	30	21	2.6	100 500	0.96	26	17	2.3	
PSIS 50/06*	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSIS 50/12*	1200	49	33	3.1	100 500	0.6	49	31	1.3	
PSIS 75/06*	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSIS 75/12*	1200	92	62	2.7	100 500	0.33	103	65	0.66	
PSIS 100/06*	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSIS 100/12*	1200	138	94	2.8	100 650	0.22	154	97	0.45	
PSIS 130/06*	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4
PSIS 160/12*	1200	169	117	2.9	100 600	0.18	154	97	0.45	

*NTC optional

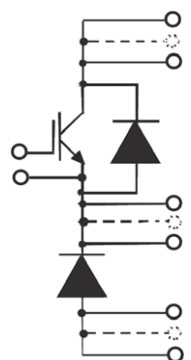
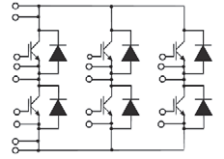


Figure 4
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IGBT Modules,  released, E 148688
IGBT Sixpac Module

ECO-PAC™ 2

Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{F80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	E _{off} T _J =25°C	R _{thJC}	I _{F25}	I _{F80}	Figure
	V	IGBT A	IGBT A	A	IGBT mJ	IGBT K/W	T _C = 25°C Diode A	T _C = 80°C Diode A	
PSII 6/12*	1200	6	4.1	3.9	0.2	3.1	12	8	4
PSII 15/12*	1200	18	14	2.3	1.1	1.4	15	10	4
PSIIX 20/12	1200	28	17	1.8	1.7	1.3	33	22	4
PSII 24/06*	600	19	14	1.9	0.3	1.7	21	14	4
PSII 35/06	600	31	21	1.9	0.7	1.3	35	22	4

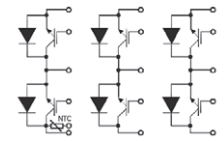


*NTC optional

IGBT Modules,  released, E 148688
IGBT Sixpac Module with NTC

ECO-PAC™ 1

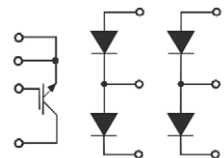
Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{C80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	E _{off} T _J =25°C	R _{thJC}	I _{F25} T _C = 25°C	I _{F80} T _C = 80°C	Figure
	V	IGBT A	IGBT A	A	IGBT mJ	IGBT K/W	Diode A	Diode A	
PSII 3x10/06	600	19	14	1.9	0.3	1.7	21	14	3



IGBT Modules,  released, E 148688
START UP Module

ECO-PAC™ 1

Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{C80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	t _{d(on)} t _{d(off)}	R _{thJC}	I _{F25} T _C = 25°C	I _{F80} T _C = 80°C	Figure
	V	IGBT A	IGBT A	A	Delay Time Switching Characteristics ns	IGBT K/W	Diode A	Diode A	
PSBI 30/06	600	42	29	2.4	50 270	0.96	42	27	3



IGBT Modules,  released, E 148688
Chopper Module

ECO-PAC™ 1

Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{C80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	t _{d(on)} t _{d(off)}	R _{thJC}	I _{F25} T _C = 25°C	I _{F80} T _C = 80°C	Figure
	V	IGBT A	IGBT A	A	Delay Time Switching Characteristics ns	IGBT K/W	Diode A	Diode A	
PSIC 30/06	600	42	29	2.4	50 270	0.96	72	45	3

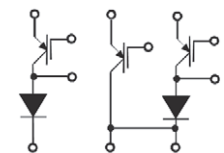


Figure 3
page 38



Figure 4
page 38

Part Number	V _{CES} Voltage Grade	I _{C25} T _C 25°C	I _{F80} T _C 80°C	V _{CE(SAT)} Saturation Voltage (typical) T _J =25°C	t _{d(on)} t _{d(off)} Delay Time Switching Characteristics ns	R _{thJC}	I _{F25}	I _{F80}	R _{thJC}	Figure
	V	IGBT A	IGBT A	A		IGBT K/W	Tc= 25°C Diode A	Tc= 80°C Diode A	Diode K/W	
PSIG 25/06	600	24.5	17	2.4	30 270	1.52	18.5	12	3.5	4
PSIG 25/12	1200	30	21	2.6	100 500	0.96	26	17	2.3	4
PSIG 50/06	600	42.5	29	2.4	50 270	0.96	30	19	2.3	4
PSIG 50/12	1200	49	33	3.1	100 500	0.6	49	31	1.3	4
PSIG 75/06	600	69	48	2.3	50 300	0.6	56	35	1.3	4
PSIG 75/12	1200	92	62	2.7	100 500	0.33	103	65	0.66	4
PSIG 100/06	600	93	63	2.4	150 450	0.43	134	82	0.66	4
PSIG 100/12	1200	138	94	2.8	100 650	0.22	154	97	0.45	4
PSIG 130/06	600	121	83	2.3	25 150	0.33	134	82.3	0.66	4
PSIG 160/12	1200	169	117	2.9	100 600	0.18	154	97	0.45	4

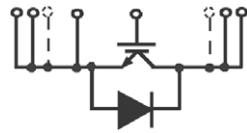
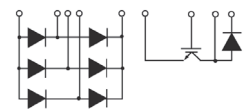


Figure 4
page 38

Rectifier Bridges for Braking Systems,  released, E 148688 ECO-PAC™ 2
Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

Part Number	Rectifier			IGBT		fast Diode			Figure
	V _{RRM} V	I _{dAV} @ T _H		V _{CES} V	I _{C80} A	V _{RRM} V	I _{F(AV)} A	t _{rr} ns	
		A	°C						
PSDI 33/06*	600	29	80	600	30	600	18	30	4
PSDI 50/12	1600	56	TC=100	1200	14	1200	10	110	4



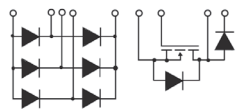
*NTC optional



Figure 4
page 38

Rectifier Bridges for Braking Systems,  released, E 148688 ECO-PAC™ 2
Three Phase Rectifier Bridge with MOSFET and Fast Recovery Diode for Braking System

Part Number	Rectifier			MOSFET		fast Diode			Figure
	V _{RRM} V	I _{dAV} @ T _H		V _{CES} V	I _{C80} A	V _{RRM} V	I _{F(AV)} A	t _{rr} ns	
		A	°C						
PSDM 33/05*	800	54	85	500	24	600	33	30	4



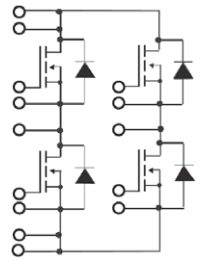
*NTC optional



Figure 4
page 38

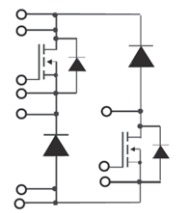
Part Number	V_{DSS}	I_{D25}	I_{D80}	$R_{DS(on)}$	t_f	t_r	R_{thJC}	Figure
	V	$T_s=25^{\circ}C$ A	$T_s=28^{\circ}C$ A	$T_j=25^{\circ}C$ mΩ	ns	ns	K/W	
PSHM 40/06*	600	38	25 ($T_c=90^{\circ}C$)	70	10	95	0.45	4
PSHM 120/01*	100	75	47	25	60	60	0.5	4
PSHM 140/01*	100	70	52	20	TBD	TBD	0.45	4

*NTC optional



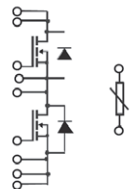
Part Number	V_{DSS}	I_{D25}	I_{D80}	$R_{DS(on)}$	t_f	t_r	R_{thJC}	Figure
	V	$T_s=25^{\circ}C$ A	$T_s=28^{\circ}C$ A	$T_j=25^{\circ}C$ mΩ	ns	ns	K/W	
PSHM 40D/06*	600	38	25 ($T_c=90^{\circ}C$)	70	10	95	0.45	4
PSHM 120D/01*	100	75	47	25	60	60	0.5	4
PSHM 140D/01*	100	70	52	20	TBD	TBD	0.45	4

*NTC optional



Part Number	V_{DSS}	I_{D25}	I_{D80}	$R_{DS(on)}$	t_f	t_r	R_{thJC}	Figure
	V	$T_s=25^{\circ}C$ A	$T_s=28^{\circ}C$ A	$T_j=25^{\circ}C$ mΩ	ns	ns	K/W	
PSMI 40/06*	600	38	25 ($T_c=90^{\circ}C$)	70	10	95	0.45	4

*NTC optional



Part Number	V_{DSS}	I_{D25}	I_{D80}	$R_{DS(on)}$	t_f	t_r	R_{thJC}	Figure
	V	$T_s=25^{\circ}C$ A	$T_s=28^{\circ}C$ A	$T_j=25^{\circ}C$ mΩ	ns	ns	K/W	
PSMG 50/05*	500	43	31	100	45	60	0.3	4
PSMG 60/08	800	60	tbd	0.12	40	45	0.45	4
PSMG 100/05*	500	82	62	50	45	60	0.16	4
PSMG 150/01*	100	150	110	8	65	90	0.3	4

*NTC optional

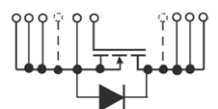


Figure 4
page 38

Stud Type Devices

Standard Recovery Diodes

Part Number	V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (V)	I_{FSM} (A)	I_R (μ A)	$R_{th(j-c)}$ ($^{\circ}$ C/W)	Package
PSM 6	100-1600	6	1.2	175	100	2.5	DO-4
PSM 12	100-1600	12	1.2	250	100	2.0	DO-4
PSM 16	100-1600	16	1.3	300	100	1.5	DO-4
PSM 25	100-1600	25	1.3	400	150	1.5	DO-5
PSM 40	100-1600	40	1.3	500	150	1.0	DO-5
PSM 60	100-1600	55	1.3	850	100	0.65	DO-5
PSM 70	100-1600	70	1.3	1200	150	0.45	DO-5
PSM 85	100-1600	85	1.3	1700	200	0.50	DO-5
PSM 100	100-1600	100	1.3	2200	200	0.40	DO-8
PSM 125	100-1600	125	1.3	2600	200	0.30	DO-8
PSM 150	100-1600	150	1.4	3100	200	0.25	DO-8
PSM 200	100-1600	200	1.4	4000	200	0.23	DO-8
PSM 250	100-1600	250	1.4	4500	200	0.18	DO-9
PSM 300	100-1600	300	1.4	5000	200	0.18	DO-9
PSM 320	100-1600	320	1.4	6100	200	0.18	DO-9
PSM 400	100-1600	400	1.4	8250	200	0.15	DO-9

Fast Recovery Diodes

Part Number	V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (V)	I_{FSM} (A)	I_R (μ A)	$R_{th(j-c)}$ ($^{\circ}$ C/W)	t_{Tr} (ns)	Package
PSM 12F	100-1000	12	1.4	150	100	2.5	300	DO-4
PSM 16F	100-1000	16	1.4	180	100	2.0	300	DO-4
PSM 25F	100-1000	25	1.4	250	100	1.7	300	DO-5
PSM 40F	100-1000	40	1.5	420	100	1.3	300	DO-5
PSM 70F	100-1000	70	1.5	700	100	0.8	300	DO-5

Schottky Diodes

Part Number	V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (V)	I_{FSM} (A)	$R_{th(j-c)}$ ($^{\circ}$ C/W)	Package
PSM 1N5831	40	25	0.38	800	1.75	DO-4
PSM 1N5832	20	40	0.36	800	1.00	DO-5
PSM 1N5833	30	40	0.37	800	1.00	DO-5
PSM 1N5834	40	40	0.38	800	1.00	DO-5
PSM 1N6391	45	25	0.52	600	2.00	DO-4
PSM SD41	45	30	0.64	600	2.00	DO-4
PSM SD51	45	60	0.70	800	1.00	DO-5



Zener Diodes

Part Number	Zener Voltage (V)	Wattage (W)	V_F (V)	I (A)	Package
PSM 1N2970 – PSM 1N3015	6.8 - 200	10	1.5	2.0	DO-4
PSM BZY93 Series	7.5 - 75	20	1.5	5.0	DO-4
PSM 1N3305 – PSM 1N3350	6.8 - 200	50	1.5	10.0	DO-5
PSM BZY91 Series	7.5 - 75	75	1.5	10.0	DO-5

Thyristors

Part Number	V_{RRM} (V)	$I_{T(AV)}$ (A)	V_{TM} (V)	I_{TSM} (A)	V_{GT} (V)	I_{GT} (mA)	dv/dt (V/ μ s)	$R_{th(j-c)}$ ($^{\circ}$ C/W)	Package
PSM 25NT	200-1600	25	1.7	380	2.5	10-100	300	0.9	TO-48
PSM 40NT	200-1600	40	1.4	600	2.5	50-150	300	0.9	TO-65
PSM 56NT	200-1600	56	1.4	900	2.5	50-150	300	0.6	TO-65
PSM 70NT	200-1600	70	1.4	1800	2.5	50-200	300	0.35	TO-94
PSM 100NT	200-1600	100	1.4	2020	2.5	50-200	300	0.35	TO-94
PSM 125NT	200-1600	125	1.4	3500	2.5	50-200	300	0.18	TO-94
PSM 150NT	200-1600	150	1.4	5700	2.5	50-200	300	0.11	TO-93

For detailed information with pictures, outlines and datasheets visit www.powersem.com

Mounting Instructions

Modules and Rectifier Bridges:

Contact surfaces must be free of dirt and be undamaged. The heat sink contact surface must have a flatness of < 0.03 mm (< 1.2 mil) and a levelling depth of <0.02 mm (< 0.8 mil). Apply a thin layer of heat transfer paste evenly to the module's base plate just sufficient to cover the entire base plate. It is recommended to apply DC 340 (Dow Corning) or Berulub FZ 1E3 (Bechem, silicone free), or equivalent by using a sponge/soft rubber roller.

The minimum thickness of grease is best controlled by removing some modules from the heat sink after mounting and inspecting the entire area of the metal base plate. The module bottom surface must have wetted completely with thermal grease.

The minimum required depth of thread in aluminium heatsinks is 12 mm and 10 mm in copper heat sink. All mounting holes must be free from burrs. First tighten all mounting and terminal screws stepwise. Then use a torque wrench to apply the tightening torques given on the data sheet. Make sure that the screws fit easily into the threads. Otherwise the total tightening torque will be reached without the necessary contact being obtained.

Do not pull or push on the terminals when making the electrical connections. Make sure that no permanent tensile force is exerted on the terminals.

Modules and Rectifier Bridges supplied with solderable leads:

The maximum allowable soldering time is 10 seconds. Do not exert any axial force on the leads. Make sure that the distance between the bending axis and package is > 5 mm, with the bending radius > 2 mm. Avoid repeated bending. The distance between solder leads and package should be > 10 mm.

Note about Modules with Copper-Baseplates:

Due to the manufacturing process there could be variations in the flatness of the baseplates. But the thermal resistance will always be within the limits of the datasheets.

The flatness is controlled in several steps during the manufacturing process.

Make sure that the given torque is not exceeded. Besides a thermal conductance paste (e.g. DC 340, Dow Corning) has to be used with a layer thickness of 50µm -100µm.

Important note:

The terminal connection torques given in the data sheets are maximum values, depending on the applied connection.

Using current bars, torques up to 5 Nm can be necessary to achieve a tight and reliable connection.

For open cable lugs, a torque of 2.5 Nm is already sufficient to realize a good electrical connection. Higher terminal connection torques could damage the lug itself as well as the module terminals and the housing.

In every case, one should pay attention, that the clamping parts don't move, while the terminal screws are fastened. Twisting of the terminals would effect mechanical stresses on the terminals themselves and on the housing. Both could reduce lifetime and reliability fo the module.

For each module you can download detailed datasheets from our website or send us your request to info@powersem.com

if you should need more help and information
concerning mounting instructions
do not hesitate to contact:

tech@powersem.com

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

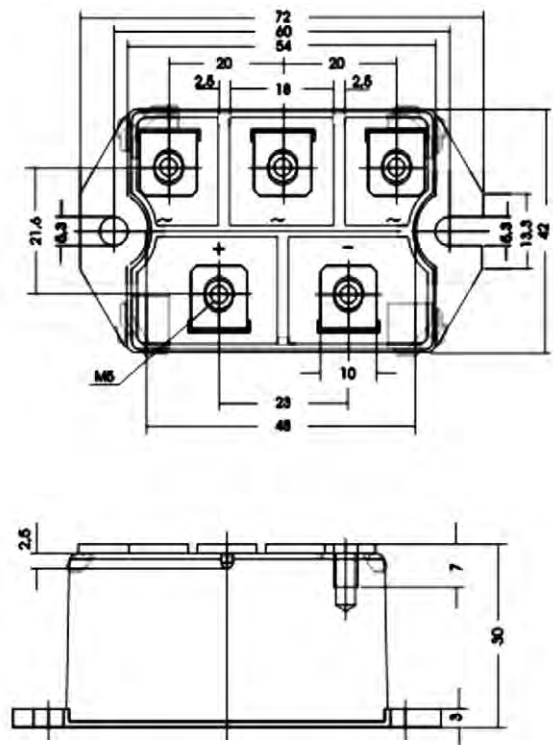
Figure 1, 30 mm Height, 72 mm Length

typ. weight = 160 g



Also available in modified version for high-speed-rotating applications, Page 63. Picture only representative for Housing Dimensions

Figure 1, 30 mm Height, 72 mm Length



Outline only representative for Housing Dimensions

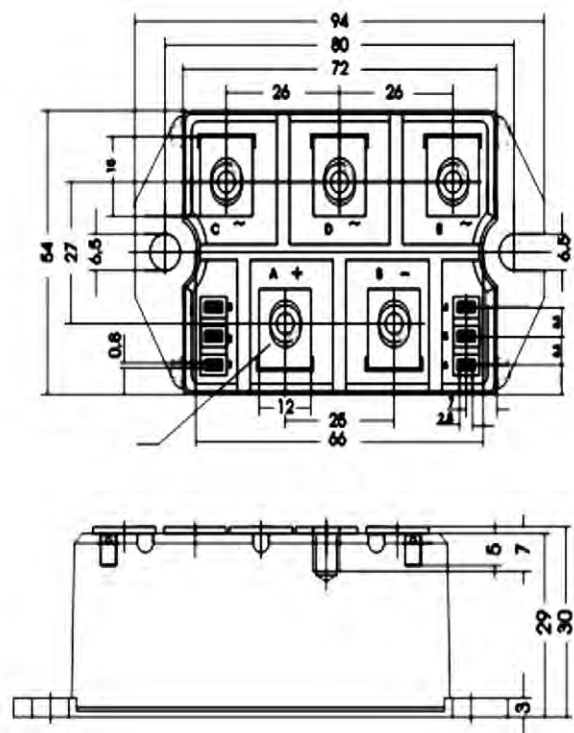
Figure 2, 30 mm Height, 94 mm Length

typ. weight = 270 g



Picture only representative for Housing Dimensions

Figure 2, 30 mm Height, 94 mm Length



Outline only representative for Housing Dimensions

Figures

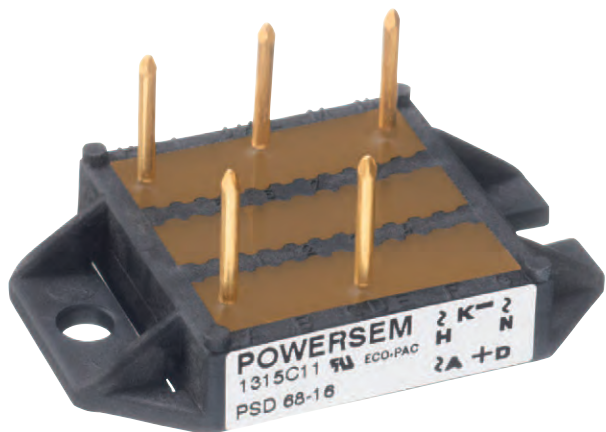
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

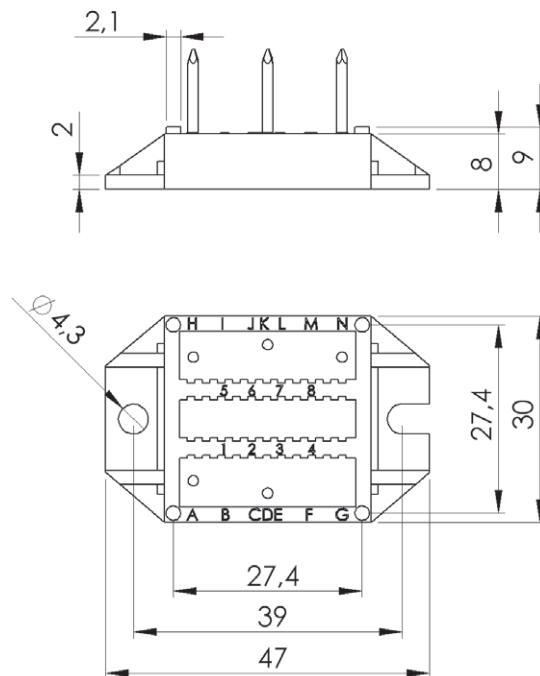
Figure 3, ECO-PAC™ 1, Solder Version, Gold-Plated

typ. weight = 16 g



Picture only representative for Housing Dimensions

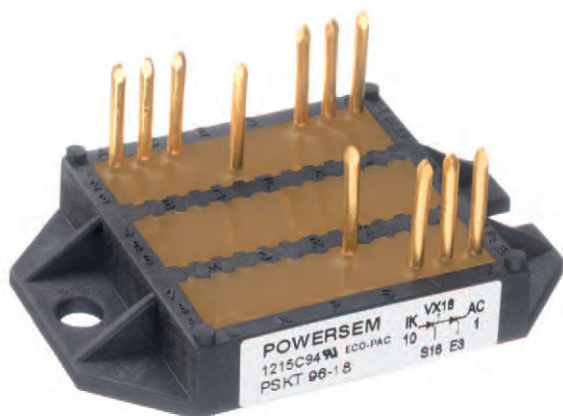
Figure 3, ECO-PAC™ 1, Solder Version, Gold-Plated



Outline only representative for Housing Dimensions

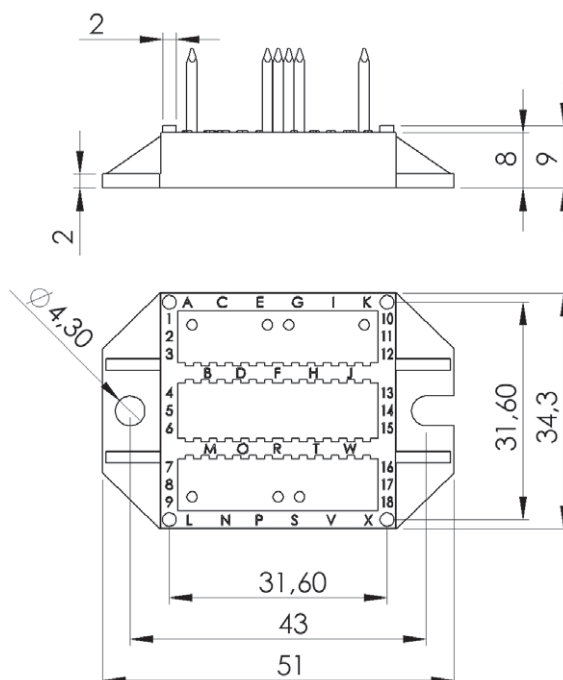
Figure 4, ECO-PAC™ 2, Solder Version, Gold-Plated

typ. weight = 24 g



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Figure 4, ECO-PAC™ 2, Solder Version, Gold-Plated



Outline only representative for Housing Dimensions

Figures

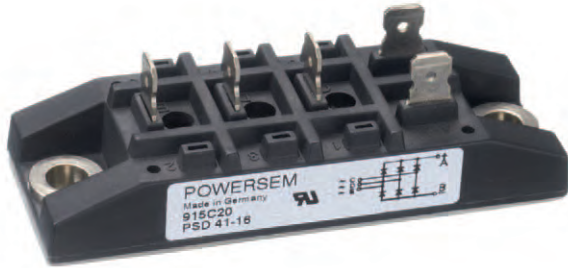
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

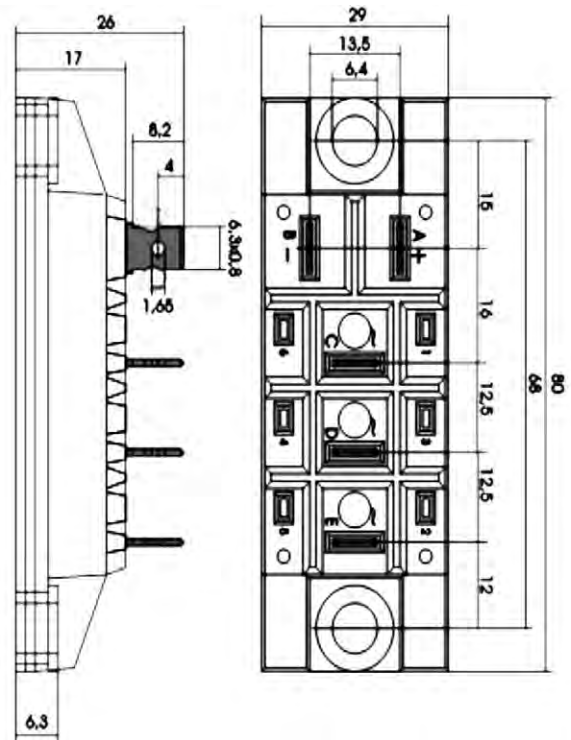
Figure 5, POWER-PAC™, 17 mm Height

typ. weight = 100 g



Picture only representative for Housing Dimensions

Figure 5, POWER-PAC™, 17 mm Height



Outline only representative for Housing Dimensions

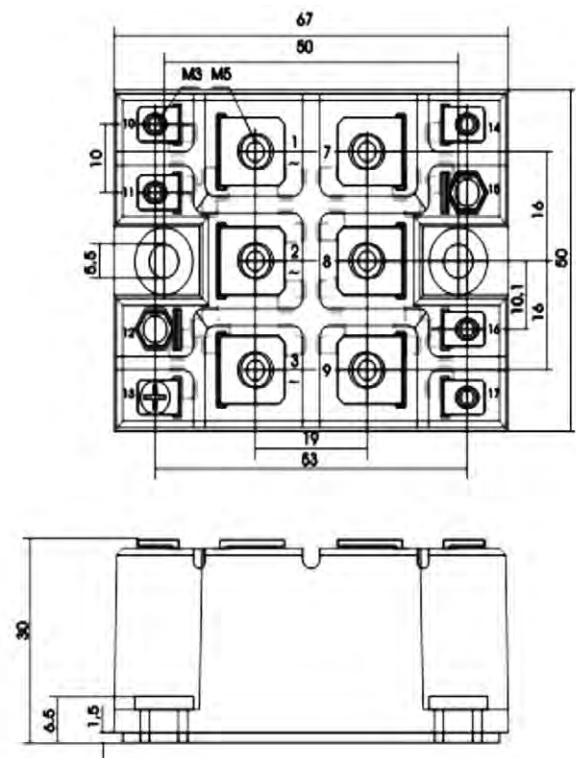
Figure 6

typ. weight = 220 g



Picture only representative for Housing Dimensions

Figure 6



Outline only representative for Housing Dimensions

Figures

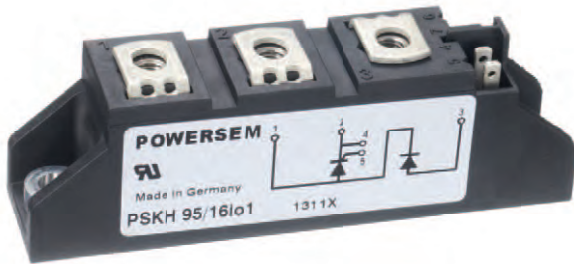
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

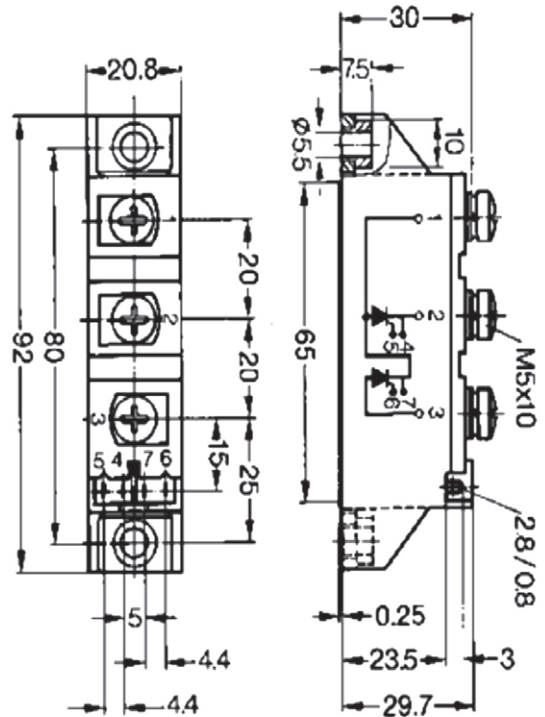
Figure 7

typ. weight = 90 g



Also available in modified version for high-speed-rotating applications, Page 63. Picture only representative for Housing Dimensions

Figure 7



Outline only representative for Housing Dimensions

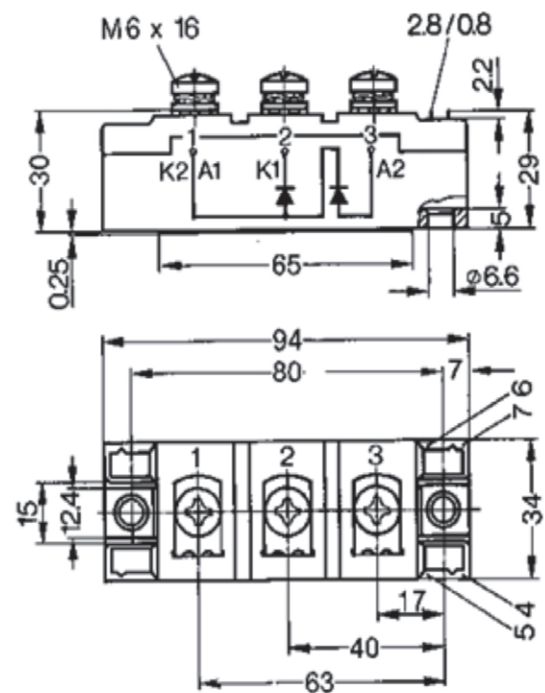
Figure 8

typ. weight = 120 g



Picture only representative for Housing Dimensions

Figure 8



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

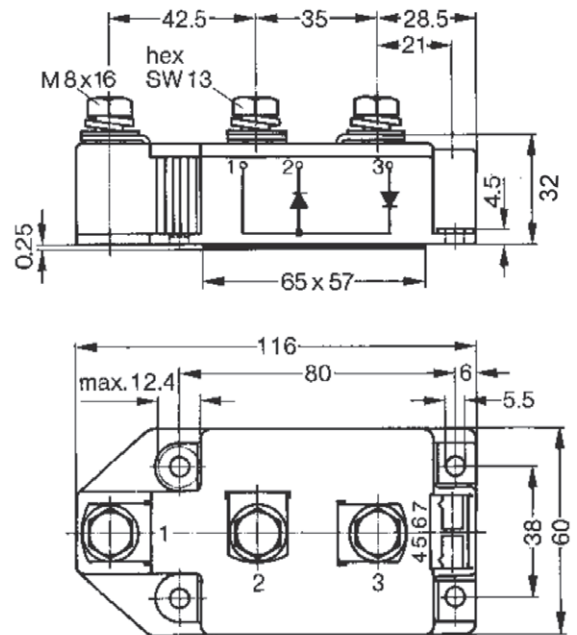
Figure 9

typ. weight = 320 g



Picture only representative for Housing Dimensions

Figure 9



Outline only representative for Housing Dimensions

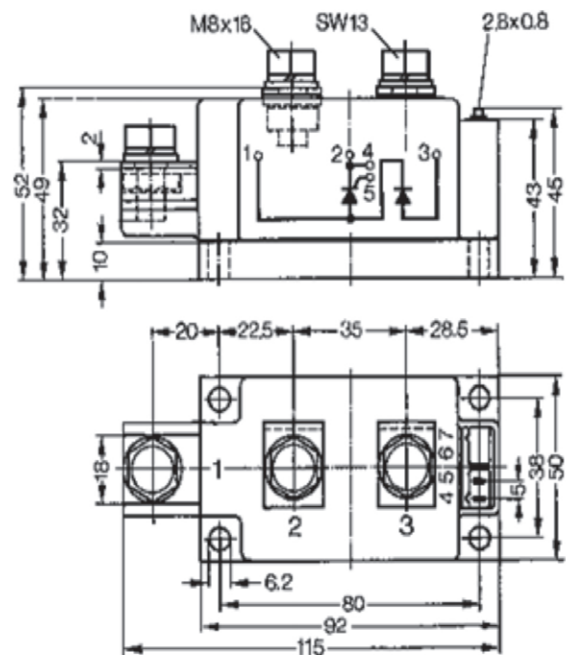
Figure 10

typ. weight = 750 g



Picture only representative for Housing Dimensions

Figure 10



Outline only representative for Housing Dimensions

Figures

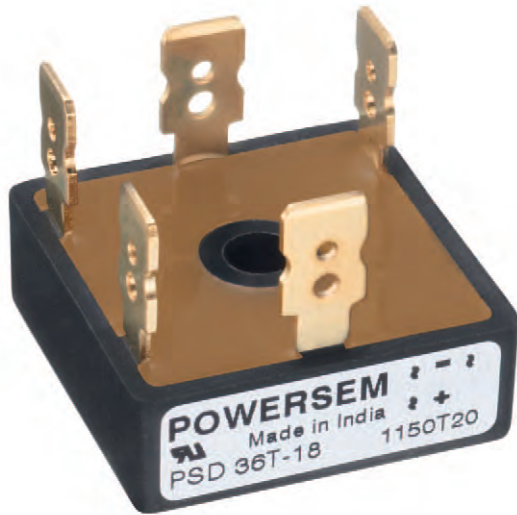
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

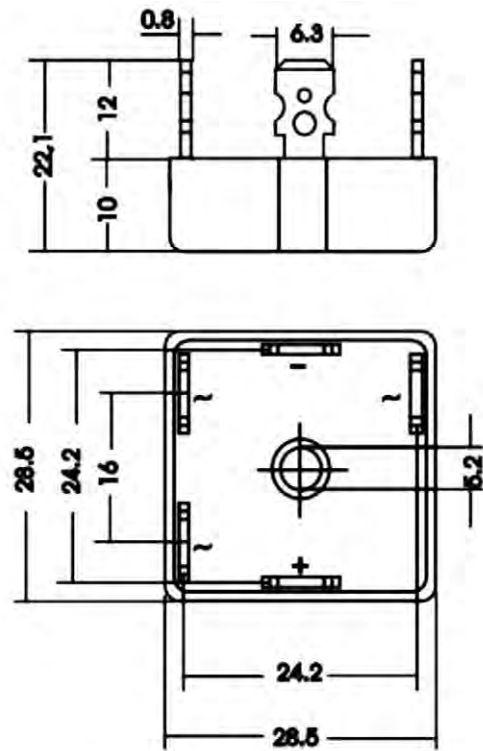
Figure 11

typ. weight = 22 g



Picture only representative for Housing Dimensions

Figure 11



Outline only representative for Housing Dimensions

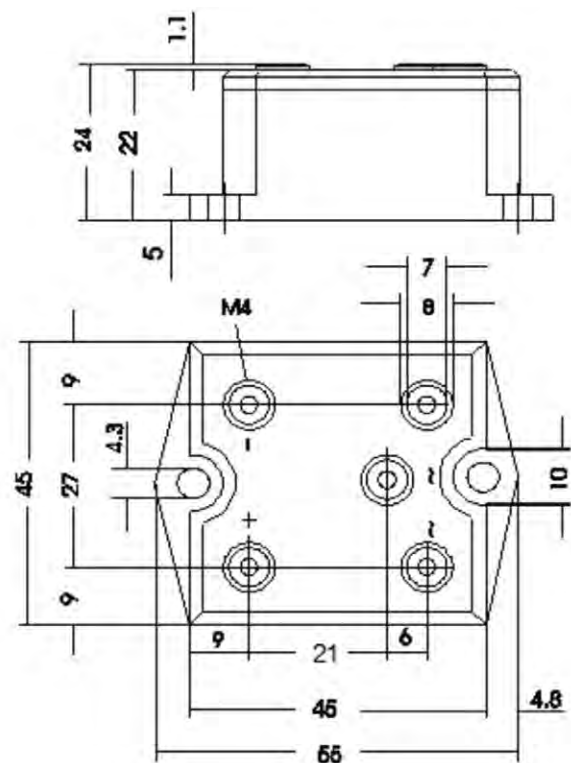
Figure 12

typ. weight = 110 g



Picture only representative for Housing Dimensions

Figure 12



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

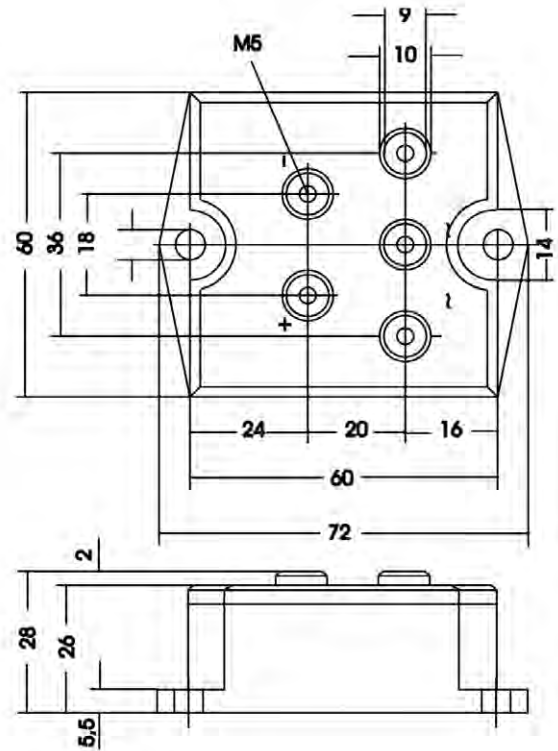
Figure 13

typ. weight = 205 g



Picture only representative for Housing Dimensions

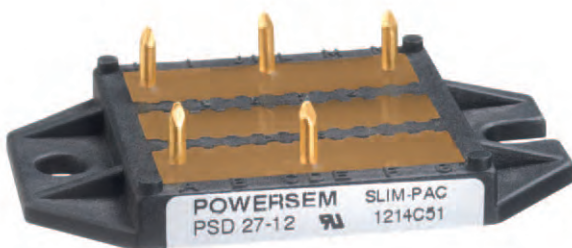
Figure 13



Outline only representative for Housing Dimensions

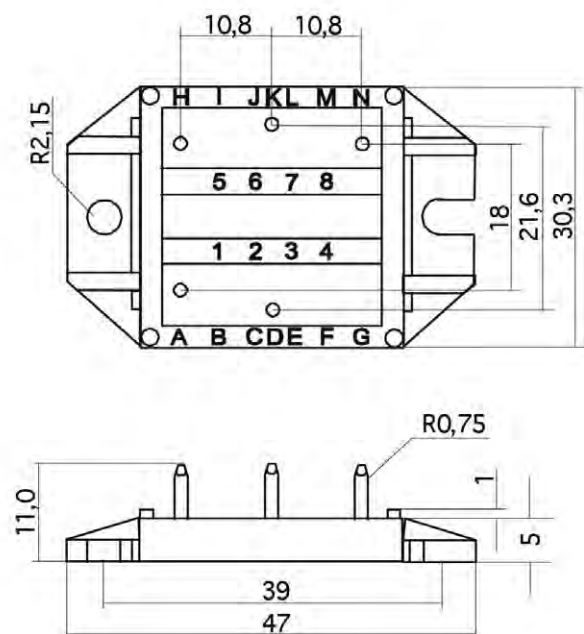
Figure 14, 6 mm Height

typ. weight = 10 g



Picture only representative for Housing Dimensions

Figure 14, 6 mm Height



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

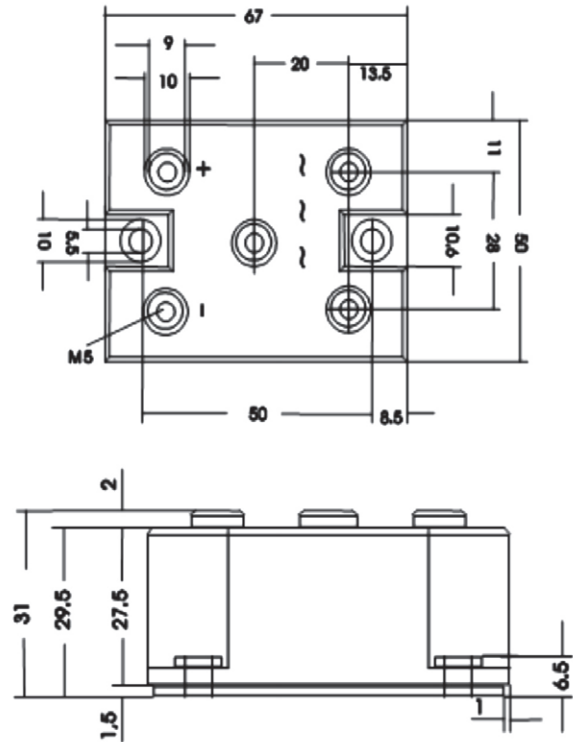
Figure 15

typ. weight = 240 g



Picture only representative for Housing Dimensions

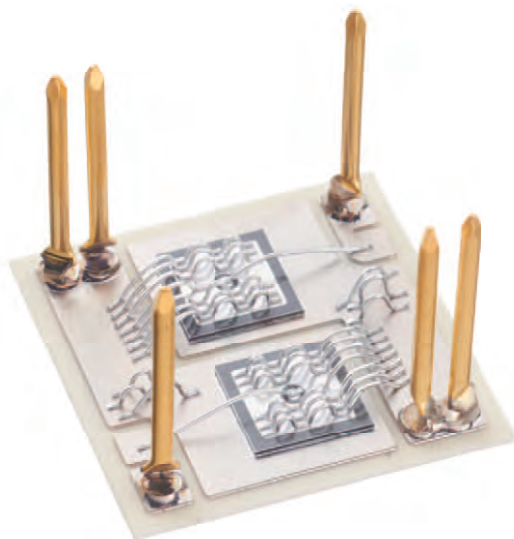
Figure 15



Outline only representative for Housing Dimensions

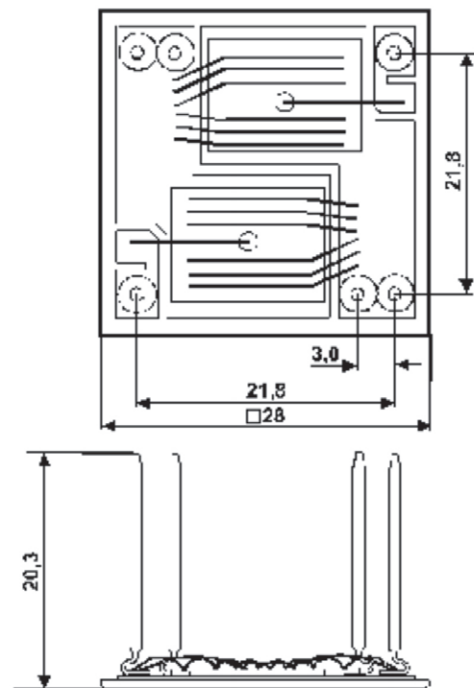
Figure 16, SUB-ASSEMBLY

typ. weight = 8 g



Picture only representative for Housing Dimensions

Figure 16, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

Figures

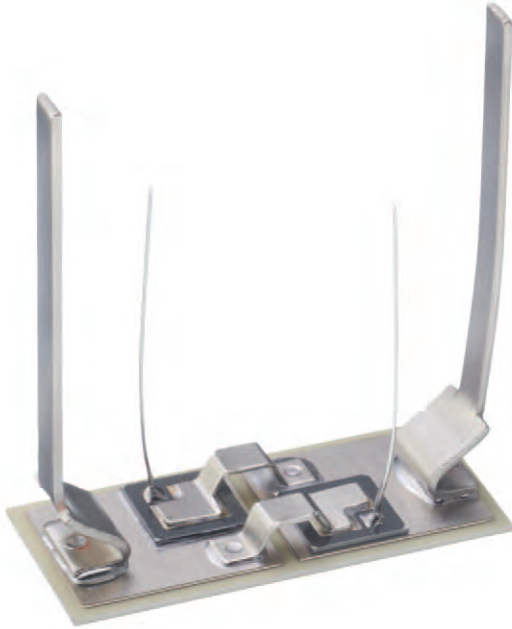
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

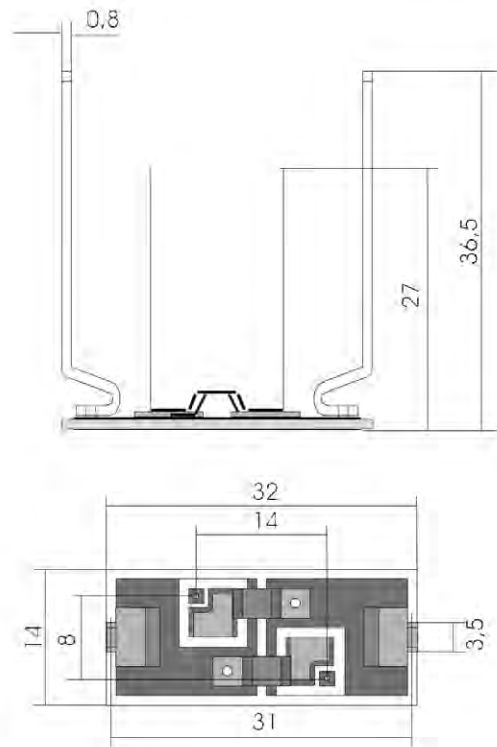
Figure 17, SUB-ASSEMBLY

typ. weight = 8 g



Picture only representative for Housing Dimensions

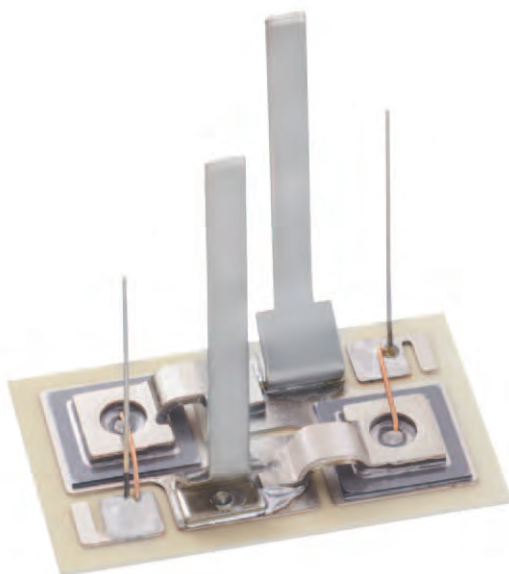
Figure 17, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

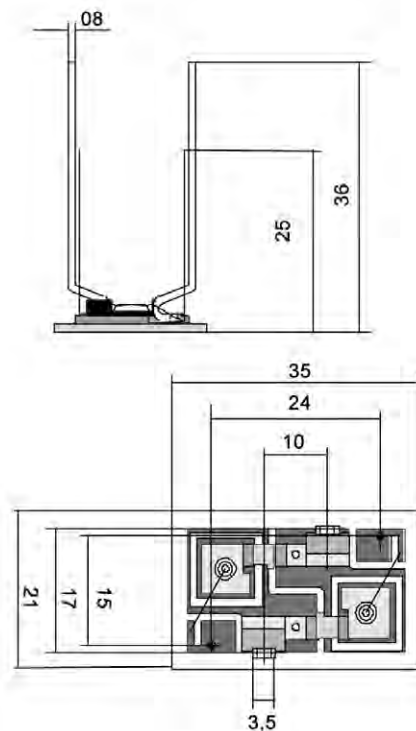
Figure 18, SUB-ASSEMBLY

typ. weight = 9 g



Picture only representative for Housing Dimensions

Figure 18, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

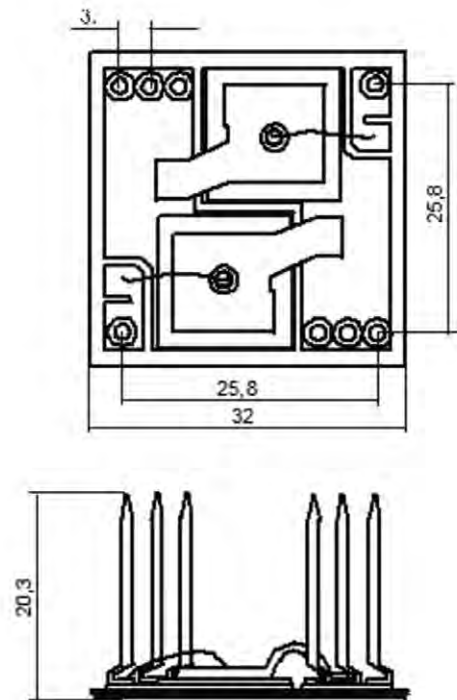
Figure 19, SUB-ASSEMBLY

typ. weight = 18 g



Picture only representative for Housing Dimensions

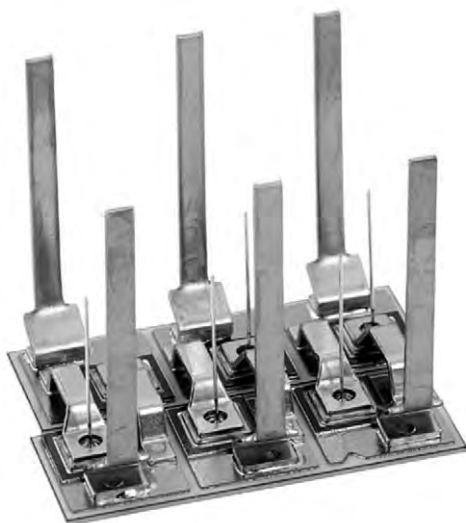
Figure 19, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

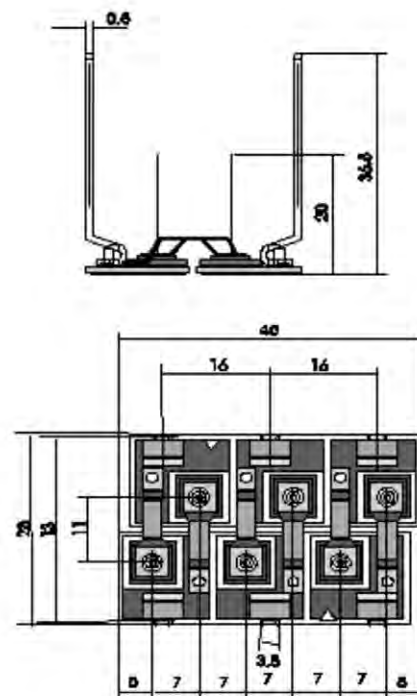
Figure 20, SUB-ASSEMBLY

typ. weight = 20 g



Picture only representative for Housing Dimensions

Figure 20, SUB-ASSEMBLY



Outline only representative for Housing Dimensions

Figures

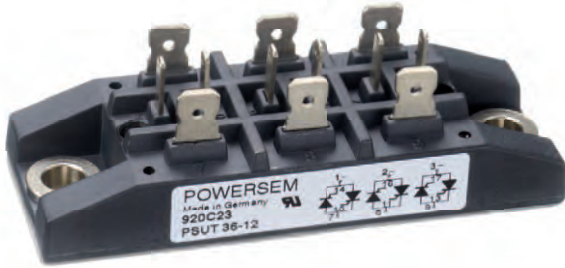
Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

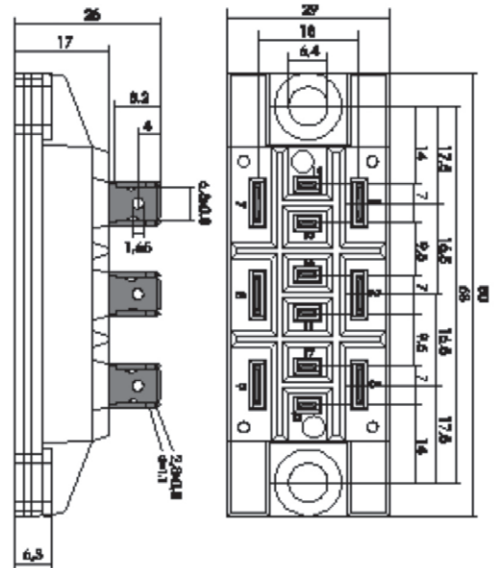
Figure 21, 17 mm Height

typ. weight = 100 g



Picture only representative for Housing Dimensions

Figure 21, 17 mm Height



Outline only representative for Housing Dimensions

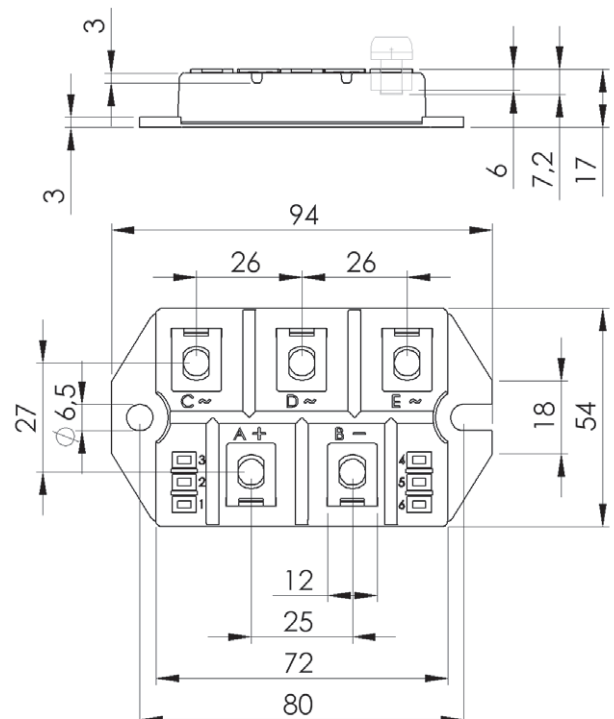
Figure 22, 17 mm Height

typ. weight = 225 g



Picture only representative for Housing Dimensions

Figure 22, 17 mm Height



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

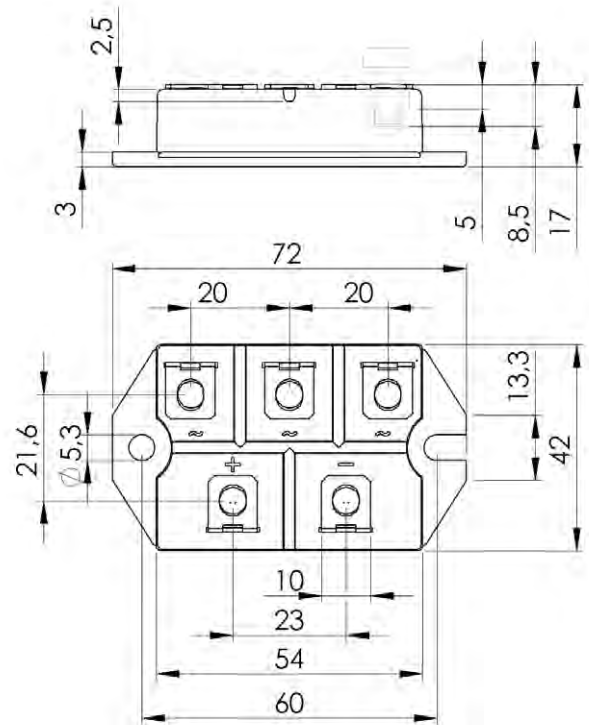
Figure 23, 17 mm Height

typ. weight = 120 g



Picture only representative for Housing Dimensions

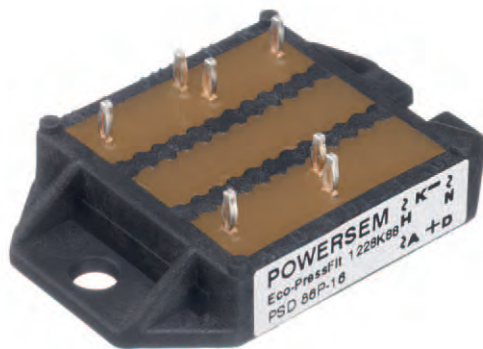
Figure 23, 17 mm Height



Outline only representative for Housing Dimensions

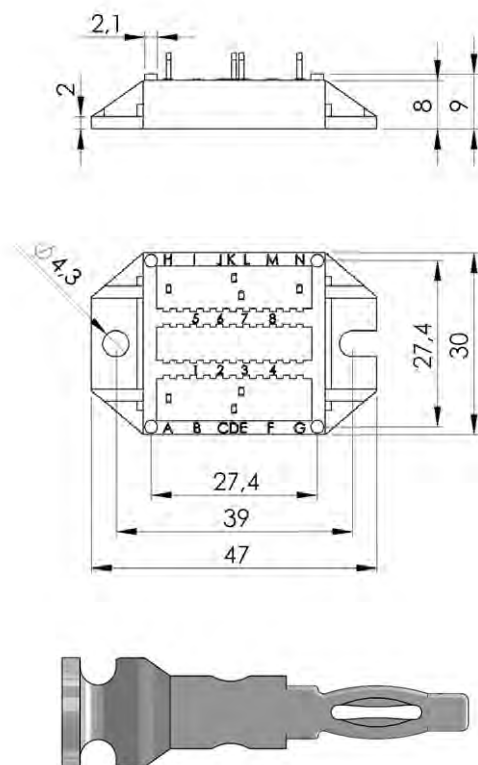
Figure 24 A, ECO-PRESS-FIT™ 1

typ. weight = 16 g



Picture only representative for Housing Dimensions

Figure 24 A, ECO-PRESS-FIT™ 1



Outline only representative for Housing Dimensions

Figures

Module Picture

Outline Drawing

Dimensions in mm (1mm = 0.0394")

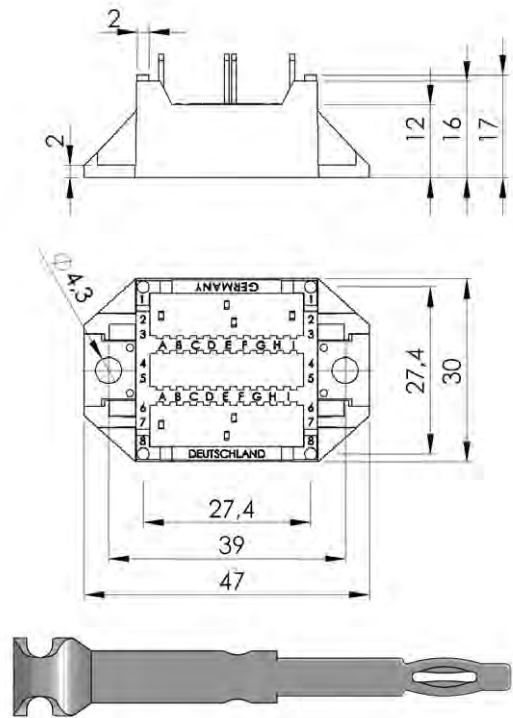
Figure 24 B
ECO-PRESS-FIT™ 1, 17 mm Height

typ. weight = 23 g



Picture only representative for Housing Dimensions

Figure 24 B
ECO-PRESS-FIT™ 1, 17 mm Height

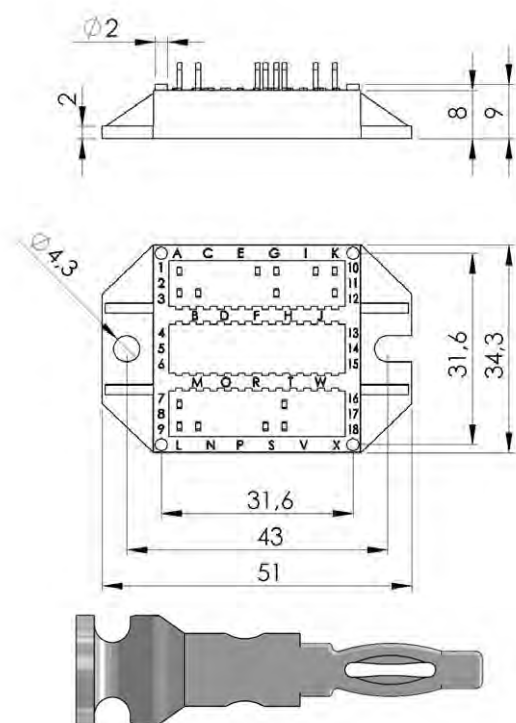


Outline only representative for Housing Dimensions

Press-Pin

Figure 25 A
ECO-PRESS-FIT™ 2

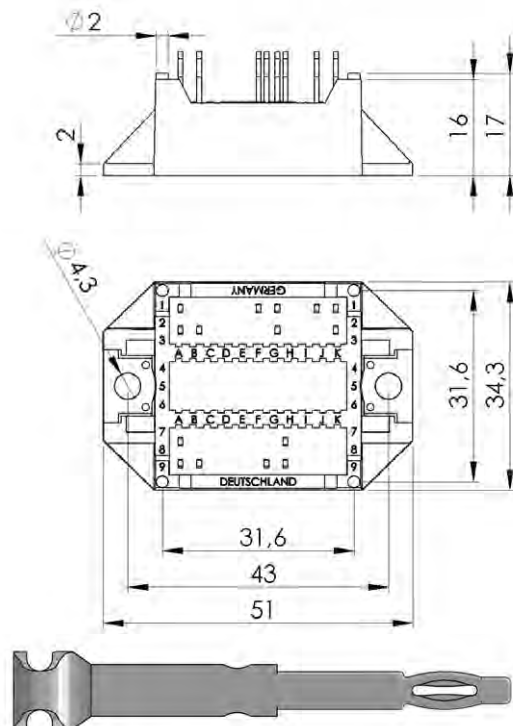
typ. weight = 24 g



Picture only representative for Housing Dimensions

Figure 25 B
ECO-PRESS-FIT™ 2, 17 mm Height

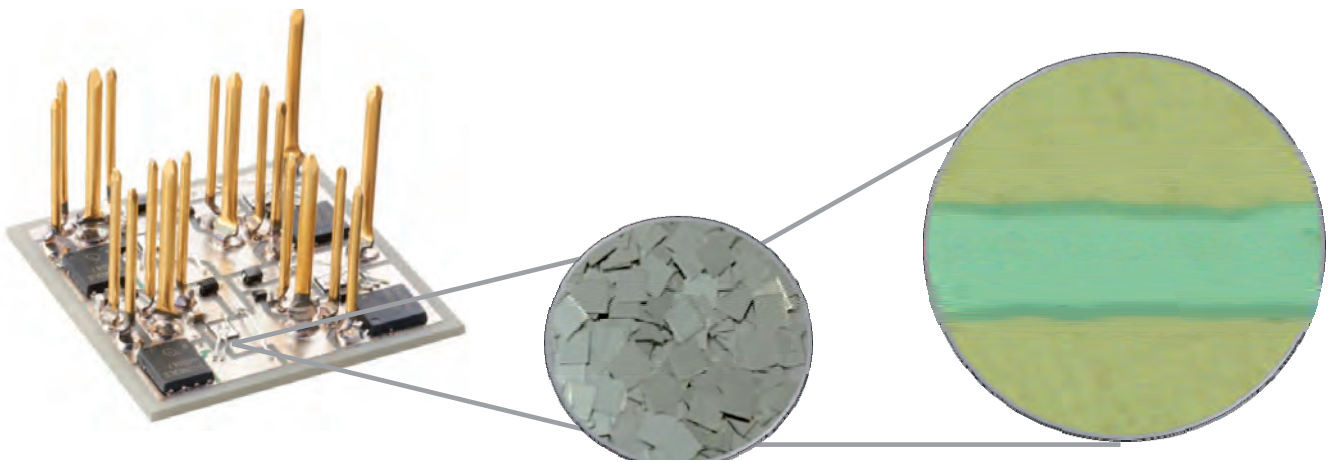
typ. weight = 28 g



Outline only representative for Housing Dimensions

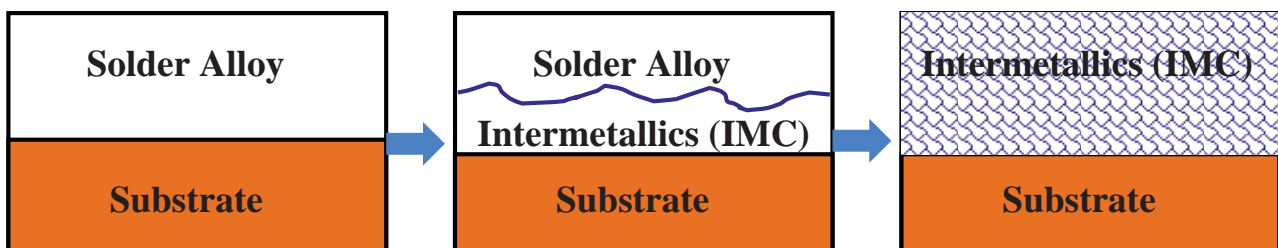
Press-Pin

Preform based Diffusion Soldering Technology for SiC/GaN Devices for Usage at High Temperatures



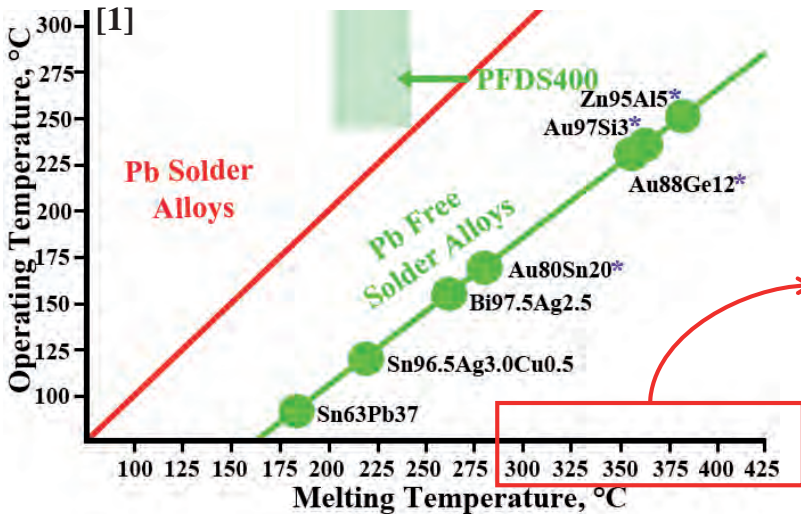
Diffusion Soldering:

Growth of intermetallic phases in the joint during the isothermal solidification



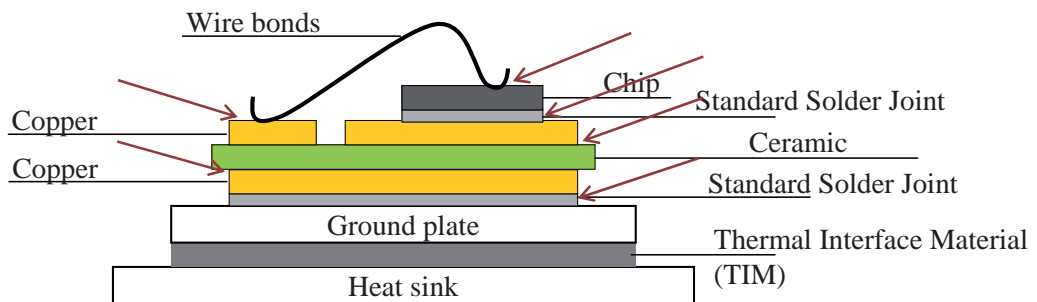
Why “Diffusion Soldering” for high temperature electronic applications?

Why “Diffusion Soldering” for high temperature electronic applications?



1- General application
2- SiC/GaN chips (> 300°C)

[1]: M. Knoerr et al., ISBN 978-3-8007-3212-8, VDE Verlag, Berlin Offenbach



Die attach and DBC attach –

- Solder fatigue, fractures
- Voids and CTE mismatch, delamination
- Loss of adhesion, thermal runaway, open circuit

Substrate –

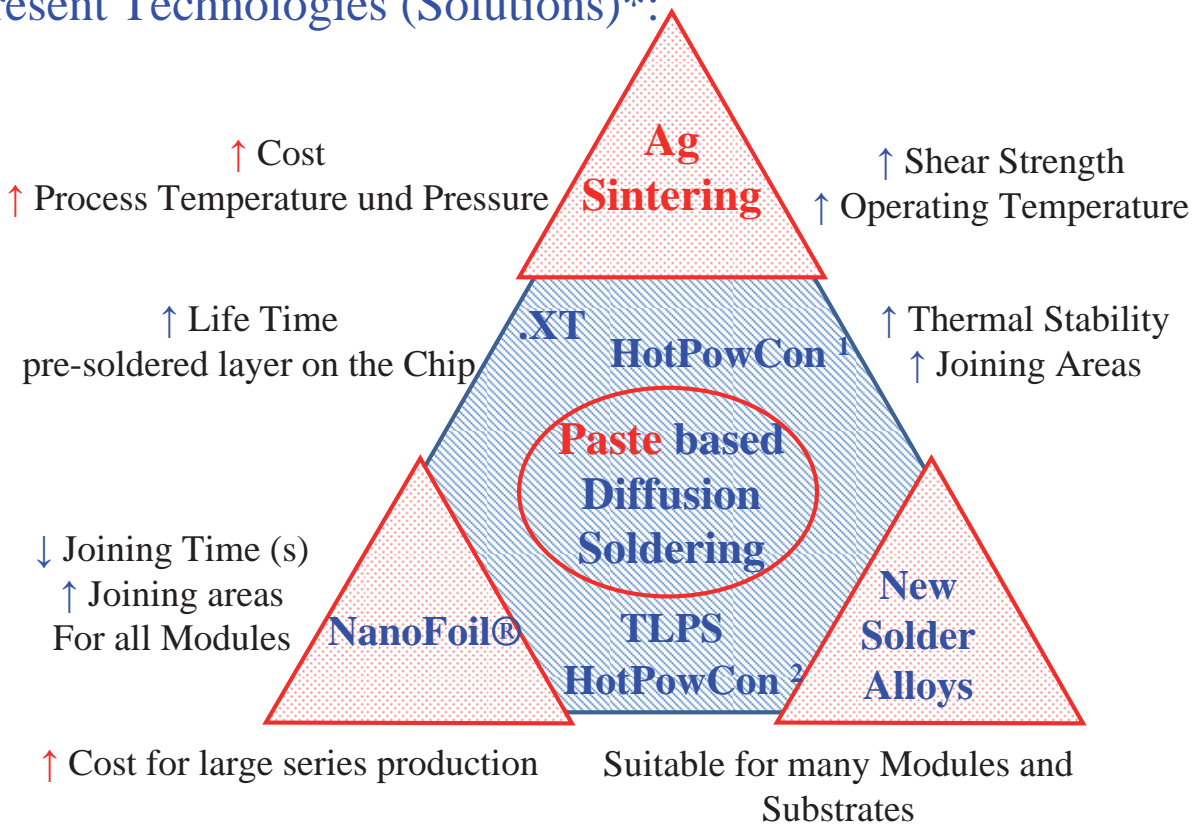
- Copper delamination
- Substrate fracture and fatigue
- Ceramic cracking

Wire bonds –

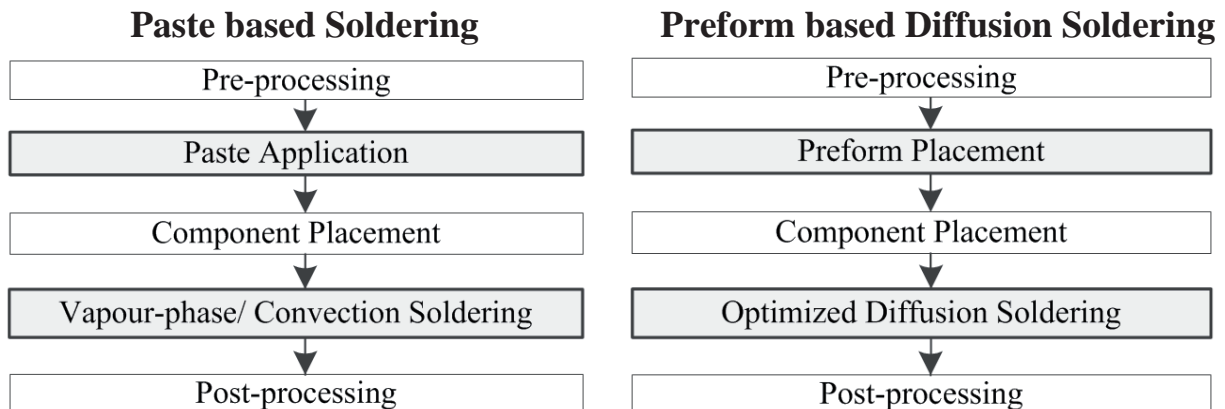
- Wire lift-off and flexure fatigue
- Cracking of semiconductor die

- Sn-based solders reaching load limits due to thermo-mechanical fatigue
- Sn-based standard solder joints unreliable as operating temperatures reach 200°C in power electronics
- Need for reliable power modules for operating temperatures >200°C
- Compatible with new generation materials (SiC, GaN) and already available manufacturing equipment
- Competitive and cost-effective processes compared to other die-attach technologies

Present Technologies (Solutions)*:



*: R. Kohl, et al., and T. Herberholz, et al., DVS 310, 2015



- ✓ Elimination of paste printers and laborious handling of solder pastes
- ✓ Elimination of hardware based changes and installations (e.g. stencils/ screens)
- ✓ Flexible handling of preforms and integration possibilities

➡ **Immediate cost reduction with higher Product Reliability**

➡ **Customized prototyping and faster product designs with higher flexibility**

PFDS400:

Preforms based **Diffusion Soldering** technology made by Pfarr for usage at **high temperatures** is your solution



Initials experiments → metallized chips/or substrates with Cu and Ni

PFDS400
MADE BY PFARR
IT IS 2 IN 1



www.pfarr.de

Pfarr Stanztechnik GmbH:

- Founded in 1982
- 100 employees
- Precision preforms stamped parts for electronic and microelectronic applications
- High purity solder and braze alloys
- Landal-Seal®

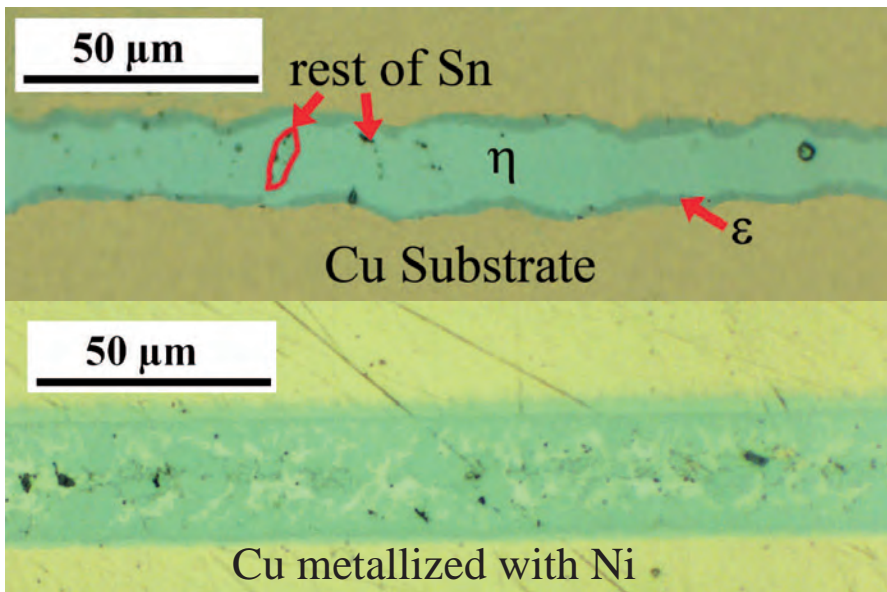
PFDS400
MADE BY PFARR
IT IS 2 IN 1

PFDS400:

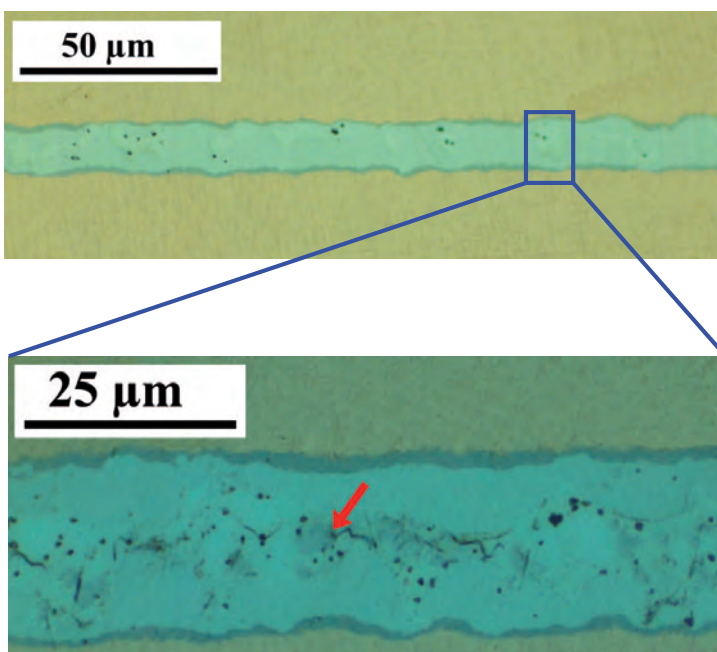
Initial Results

- ✓ Different choices of solder alloys
- ✓ Various sizes and thickness
- ✓ Suitable for different metallized substrates/Chips

Property	Cu ₆ Sn ₅ (η)	Cu ₃ Sn (ε)
E-Modul	86 GPa	108 GPa
Melting point	415°C	676°C



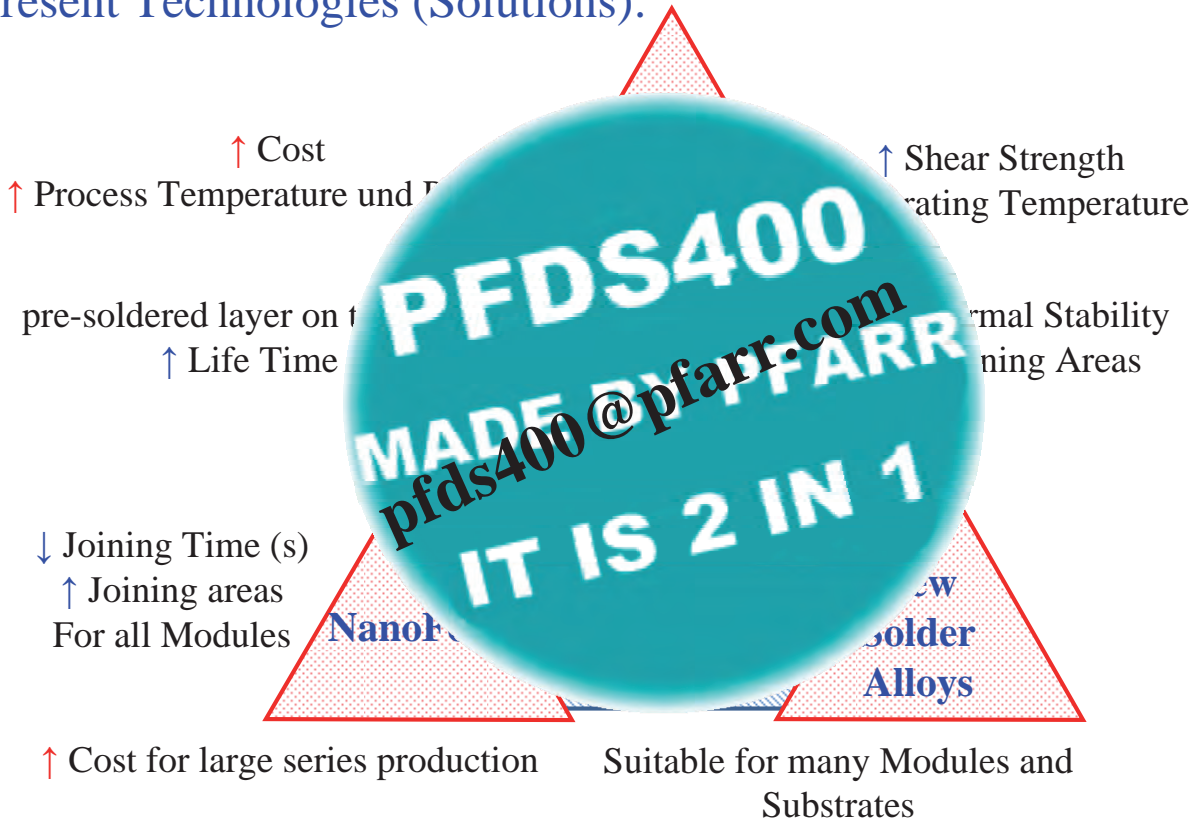
PFDS400:



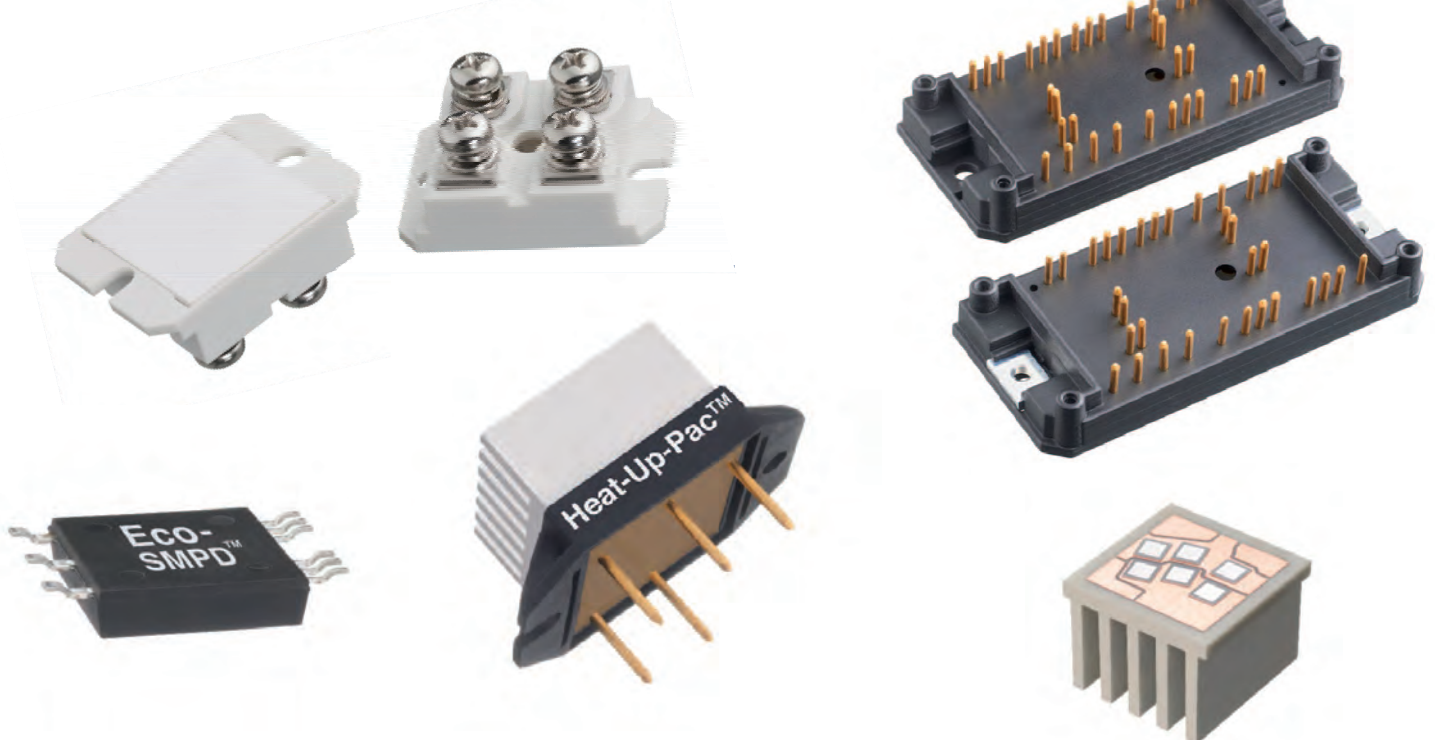
- ✓ Conventional vacuum soldering process
- ✓ Melting points < 250°C
- ✓ Operating temperatures up to 400°C
- ✓ Temperatures profiles < 300°C
- ✓ Time of temperature profiles ≤ 30 min



Present Technologies (Solutions):



Featured Products



Eco-227®



- ✓ Same footprint as SOT 227
- ✓ Halogen-Free Housings
- ✓ Best Thermal Cycling with SCT instead of DBC
- ✓ More flexible customized and optimized circuits possible than with SOT 227
- ✓ *Ideal for SiC-, GaN- Modules*

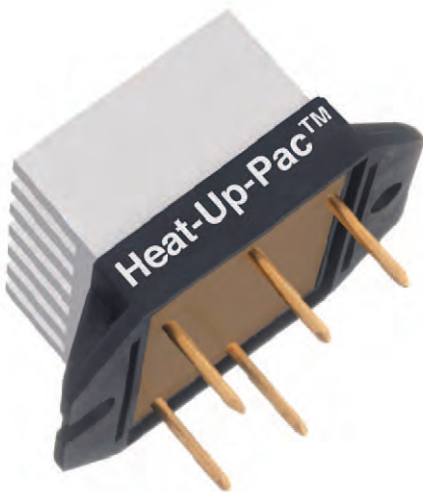
➔ *Highest efficiency with preform based diffusion soldering (PFDS400)*

iSi-Flow®



- ✓ 9mm, 12mm and 17mm Heights available
- ✓ Halogen-Free Housings
- ✓ Best Thermal Cycling with SCT instead of DBC
- ✓ Screwable from TOP or DOWN
- ✓ Available with Solder Pins (gold-plated) or PRESS-FIT-PINS
- ✓ *Ideal for SiC-, GaN- Modules*

➔ *Highest efficiency with preform based diffusion soldering (PFDS400)*

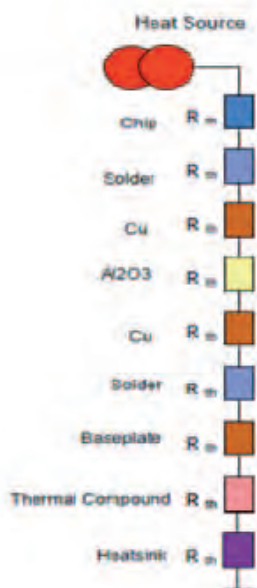


Heat-Up-Pack™

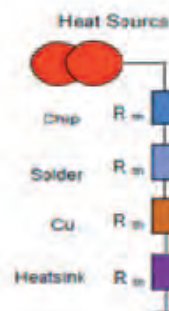
- ✓ Best Thermal Cycling with CoH™ instead of DBC and Aluminium Heatsink
- ✓ Available with Solder Pins (gold-plated) or PRESS-FIT-PINS
- ✓ *Ideal for SiC-, GaN- Modules*



Highest efficiency with preform based diffusion soldering (PFDS400)



ACTUAL R_{th} -STANDARD



PFDS400

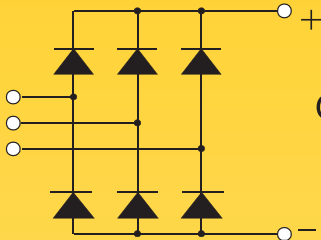
Your **NEW R_{th} -STANDARD**
for chip temperatures above 200° C



contact: info@powersem.com



High-Performance ECO-PRESS-FIT-Modules for Si- and SiC-Layouts



Other configurations and pin layout upon request
kundenspezifische Konfiguration
und Pin Layout möglich

9mm Gehäuse-Höhe, 9mm Housing Height
17mm Gehäuse-Höhe, 17mm Housing-Height



Flexible Einpresstechnik EloPin®

- ✓ Niedrige Einpresskräfte
- ✓ Hohe Haltekräfte
- ✓ Niedriger Übergangswiderstand
- ✓ Hohe Schwingungs - und Schock beständigkeit
- ✓ Einsatztemperatur von - 40°C bis +150°C
- ✓ Geringste Beanspruchung der Durchkontaktierungen und PCB-Layer
- ✓ Keine Zinnspanbildung beim Einpressvorgang
- ✓ RoHS-konform

Elastic Press-Fit EloPin®

- ✓ Low press-in force
- ✓ High push-out force
- ✓ Low electrical resistance
- ✓ High vibration and shock resistance
- ✓ Operating temperature - 40°C to +150°C
- ✓ Low stress on through plated holes and PCB Layers
- ✓ No tin chips during press-in process
- ✓ RoHS-compliant



Halogen-Free Housing

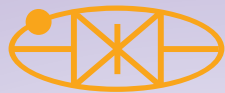
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info@powersem.com

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PCIM
EUROPE





RECTIFIER BRIDGES

Current	Voltage	Part Number	Available Configurations	Figure
25 A	200 V – 1000 V	PSB 25MB & PSD 25MT PSB 25MBN & PSD 25MTN		
	1200 V – 2200 V	PSB 25T & PSD 25T PSB 25TN & PSD 25TN		
36 A	200 V – 1000 V	PSB 36MB & PSD 36MT PSB 36MBN & PSD 36MTN		
	1200 V – 2200 V	PSB 36T & PSD 36T PSB 36TN & PSD 36TN		

Highlights:

- > Single phase and three phase uncontrolled bridges
- > Compact package, easy to mount with one screw
- > Connectors suitable for easy PCB mounting
- > Gold plated or nickel plated terminals
- > UL certified, RoHS and REACH conform



Nomenclature:

PSD 36 TN / 16

- Configuration:**
PSD = Three Phase Bridge
PSB = Single Phase Bridge
- Current Rating:**
36 = 36 Amps
25 = 25 Amps
(@Tc = 62°C per module)
- Voltage Rating:**
02, 04, 06, 08, 10 = 200 V, 400 V, 600 V, 800 V, 1000 V
12, 14, 16, 18 = 1200 V, 1400 V, 1600 V, 1800 V
- Add ON:**
T, MT, MB = Gold-plated terminals
TN, MTN, MBN = Nickel-plated terminals

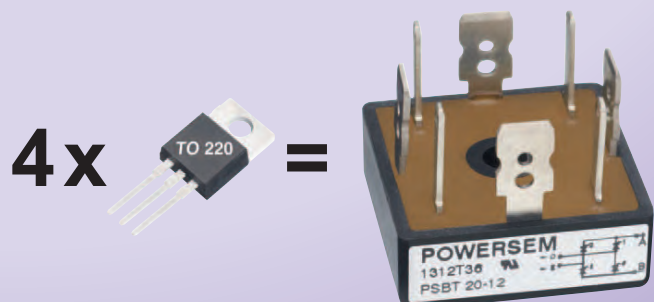
200 V to 800 V: MT, MB, MTN, MBN
1000 V to 1800 V: T, TN

FULL CONTROLLED RECTIFIER BRIDGES

Current	Voltage	Part Number	Available Configurations	Figure
20 A	200 V – 1000 V	PSBT 20		

Highlights:

- > Single phase fully controlled bridge
- > Replaces 4 discrete thyristors
- > Reduced costs and assembly times
- > Compact package, easy to mount with one screw
- > Connectors suitable for easy PCB mounting
- > Nickel plated terminals
- > UL certified, RoHS and REACH conform



For detailed datasheets visit www.powersem.com



POWERSEM

P

physics with passion since 1985

Customized Si/SiC-ECO-Diode-Modules* for mounting on PCBs with solder pins or press pins and optimized module heights (pin heights on request)

ECO-PAC 1[®]



9 mm Height with different solder pin lengths on request

ECO-PAC 1[®]



ECO-PAC 1[®]



ECO-PAC 1/2[®]



17 mm Height
ECO-Press-Fit[®]

ECO-PAC 1/2[®]



9 mm Height
ECO-Press-Fit[®]

ECO-PAC 1/2[®]



9 mm Height
ECO-Press-Fit[®]

SLIM-PAC[®]



6 mm Height
with solder pins

ECO-227[®]



12 mm Height
without Baseplate

Power modules with SCT** or DCB/DBC

Differences SCT / DCB:

	SCT	DCB
Method of production	Screenprinting	High temperature bonding process
Min. gapwidth	100µ	0,4 mm (@ 200µ CU) 0,5mm (@ 300µ CU)
Number of thermal cycles (-55°/150°C) (63,3%)	> 1000 (depending on layout)	~ 150 (depending on layout)
Free of partial discharge	yes	no (special treatment required)
Specific. Resistance	0,0167 Ohm x mm ² /m	0,0297 Ohm x mm ² /m
Min. thickness of metallization	17µm	127µm
Multilayer	Up to 4 layers	No
Printed resistors	Yes	No

Made in Germany



with Phase Change Material

* All housing types also available for Thyristor-, IGBT-, Si-MOSFET- and SiC-MOSFET-Configurations

**SCT = Structure Copper Technology



POWERSEM

excellence since 1985



SiC at its best...![®] Customized and optimized SiC-ECO-Modules



9 mm Height



9 mm Height



17 mm Height
Eco-Press-Fit[®]



12 mm Height
with Baseplate



Pin Heights can change



9 mm Height
Eco-Press-Fit[®]



6 mm Height
SiC-Slim[®]



5,5 mm Height



12 mm Height
without Baseplate

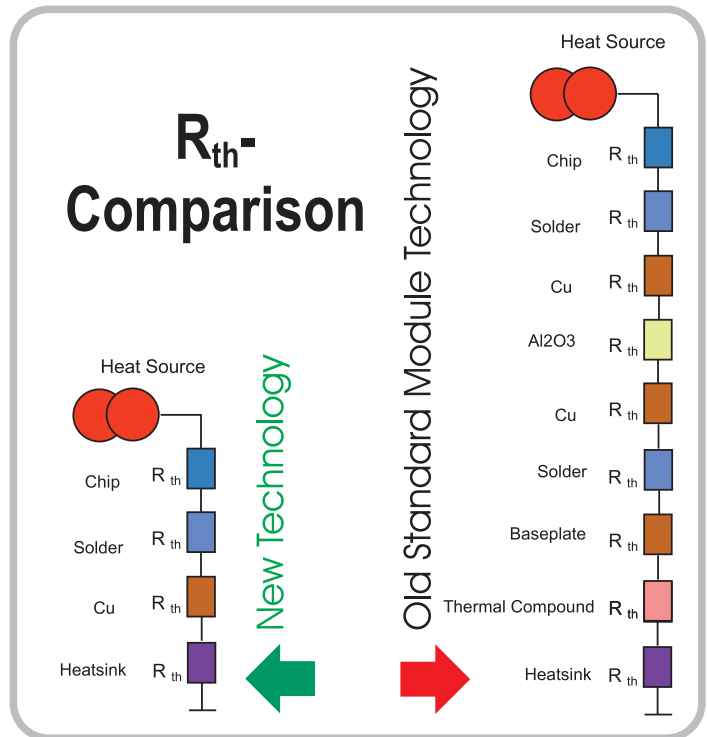


Chip on Heatsink[®]

NEW!



Module with
integrated
AlN CeramCool[®]
Chip on Heatsink[®]



CeramCool[®], The Ceramic Heatsink made by



sic@powersem.com



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physics with passion since 1985



HiPOR™ HIGH POWER RELIABILITY from POWERSEM

Diode-Diode-, Diode-Thyristor-, Thyristor-Thyristor-Modules



Figure 26, **HiPOR 1**



Figure 27, **HiPOR 2**



Figure 28 / 29 (similar), **HiPOR 3**



Figure 33, **HiPOR 4**



Figure 30, **HiPOR 5**



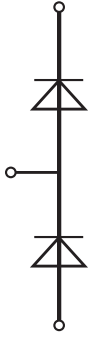
Figure 31 / 32 (similar), **HiPOR 6**

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TYPE	V _{DRM} /V _{RRM} V	I _{T(AV)} @ T _C A	I _{F(RMS)} A	I _{FSM} A	I ² t kA ² s	V _{FM} @ I _{FM} V A	V _{FO} V	r _F		R _{JC}		Figure
								mΩ	°C/W			
PSKD 26M	800-1800	26	41	650	2,1	1,65 80	0,80	6,80	1,30	1,30	26	
PSKD 42M	800-1800	40	63	1000	5	1,55 120	0,80	5,57	0,90	0,90	26	
PSKD 55M	800-1800	55	86	1300	8,45	1,45 170	0,80	3,47	0,70	0,70	26	
PSKD 72M	800-1800	70	110	1800	16,2	1,40 210	0,80	2,50	0,57	0,57	26	
PSKD 92M	800-1800	90	141	2300	26	1,33 270	0,80	1,70	0,47	0,47	26	
PSKD 112M	800-1800	110	173	2600	33	1,45 330	0,80	1,74	0,35	0,35	26	
PSKD 135M	800-1800	135	212	3900	76	1,38 410	0,80	1,18	0,31	0,31	27	
PSKD 162M	800-1800	160	251	4600	106	1,56 480	0,80	1,35	0,23	0,23	27	
PSKD 184M	800-1800	182	286	6400	205	1,43 550	0,80	0,96	0,22	0,22	27	
PSKD 202M	800-1800	200	314	7500	281	1,38 600	0,75	0,88	0,21	0,21	27	
PSKD 252M	800-1800	250	393	9500	451	1,43 750	0,75	0,76	0,14	0,14	28	
PSKD 285M	800-1800	285	447	9500	453	1,40 750	0,75	0,70	0,14	0,14	28	
PSKD 302M	800-1800	300	471	10000	500	1,35 900	0,75	0,55	0,13	0,13	28	
PSKD 352M	800-1800	350	550	12000	720	1,50 1050	0,75	0,61	0,11	0,11	29	
PSKD 402M	800-1800	400	628	13000	845	1,48 1200	0,75	0,50	0,10	0,10	29	
PSKD 502M	800-1800	500	785	16000	1280	1,45 1500	0,75	0,30	0,09	0,09	30	
PSKD 572M	800-1800	570	895	18000	1620	1,45 1500	0,75	0,30	0,09	0,09	30	
PSKD 602M	800-1800	600	785	19000	1805	1,50 1800	0,75	0,28	0,065	0,065	31	
PSKD 802M	800-1800	800	1256	22000	2420	1,80 2400	0,72	0,18	0,058	0,058	31	
PSKD 1010M	800-1800	1000	1570	28000	3920	1,82 3000	0,71	0,10	0,052	0,052	32	
PSKD 1210M	800-1800	1200	1884	34000	5780	1,86 3000	0,71	0,11	0,040	0,040	32	



Figure 26, HIPOR 1



Figure 27, HIPOR 2



Figure 28 / 29 (similar), HIPOR 3



Figure 30, HIPOR 5



Figure 31 / 32 (similar), HIPOR 6

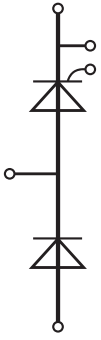


Figure 26, HIPOR 1



Figure 27, HIPOR 2



Figure 29, HIPOR 3



Figure 30, HIPOR 5



Figure 31 / 32 (similar), HIPOR 6



Figure 33, HIPOR 4

TYPE	V _{DRM} /V _{RRM} V	I _{T(AV)} @ T _C A	T _C °C	I _{TSM} A	i ² t kA ² S	V _{TM} @ I _{TM} V	I _{TM} A	V _{TO} V	r _T mΩ	R _{JC}		Figure
										°C/W		
PSKH 26M	800-1800	26	85	500	1,25	1,69	80	0,85	9,68	0,95	26	
PSKH 42M	800-1800	40	85	900	4,05	1,60	120	0,85	5,57	0,65	26	
PSKH 55M	800-1800	55	85	1300	8,45	1,50	170	0,85	3,47	0,53	26	
PSKH 72M	800-1800	70	85	1500	11,3	1,48	210	0,80	2,64	0,41	26	
PSKH 92M	800-1800	90	85	1800	16,2	1,85	270	0,80	3,01	0,28	26	
PSKH 112M	800-1800	110	85	2200	24,2	1,69	330	0,80	2,29	0,25	26	
PSKH 113M	2000-2200	110	85	1600	12,8	1,95	330	0,85	2,25	0,25	26	
PSKH 135M	800-1800	135	85	3600	65	1,75	410	0,80	2,85	0,20	27	
PSKH 162M	800-1800	160	85	6000	180	1,70	480	0,80	1,69	0,17	27	
PSKH 184M	800-1800	182	85	7000	245	1,62	550	0,80	1,26	0,16	27	
PSKH 185M	2000-2200	182	85	4800	115	1,84	550	0,85	1,21	0,16	27	
PSKH 252M	800-1800	250	85	9000	405	1,57	750	0,80	0,85	0,12	28	
PSKH 285M	800-1800	300	85	9100	414	1,45	750	0,80	0,53	0,12	28	
PSKH 332M	800-1800	330	85	9100	414	1,45	750	0,80	0,53	0,12	33	
PSKH 352M	800-1800	350	85	11000	605	1,45	550	0,95	0,36	0,09	29	
PSKH 402M	800-1800	400	85	12500	781	1,52	628	0,80	0,49	0,08	30	
PSKH 502M	800-1800	500	85	14500	1051	1,44	1500	0,80	0,34	0,065	30	
PSKH 572M	800-1800	570	85	15000	1125	1,45	1600	0,80	0,20	0,065	30	
PSKH 602M	800-1800	600	85	16000	1280	1,45	942	0,80	0,28	0,054	31	
PSKH 802M	800-1800	800	85	22000	2420	1,86	1256	0,80	0,20	0,042	31	
PSKH 1010M	800-1800	1000	85	28000	3920	1,96	1570	0,80	0,15	0,034	32	
PSKH 1210M	800-1800	1200	85	34000	5480	1,76	1884	0,80	0,09	0,031	32	



Figure 26, HIPOR 1



Figure 27, HIPOR 2



Figure 29, HIPOR 3



Figure 30, HIPOR 5



Figure 31 / 32 (similar), HIPOR 6



Figure 33, HIPOR 4

TYPE	V _{DRM} /V _{RRM}	I _{T(AV)} @ T _C	I _{TSM}	i ² t	V _{TM} @ I _{TM}	V _{TO}	r _T	R _{JC}	Figure
	V	A	A	kJA ² S	V A	V	mΩ	°C/W	
PSKT 26M	800-1800	26	500	1,25	1,69 80	0,85	9,68	0,95	26
PSKT 42M	800-1800	40	900	4,05	1,60 120	0,85	5,57	0,65	26
PSKT 55M	800-1800	55	1300	8,45	1,50 170	0,85	3,47	0,53	26
PSKT 72M	800-1800	70	1500	11,3	1,48 210	0,80	2,64	0,41	26
PSKT 92M	800-1800	90	1800	16,2	1,85 270	0,80	3,01	0,28	26
PSKT 112M	800-1800	110	2200	24,2	1,69 330	0,80	2,29	0,25	26
PSKT 113M	2000-2200	110	1600	12,8	1,95 330	0,85	2,25	0,25	26
PSKT 135M	800-1800	135	3600	65	1,75 410	0,80	2,85	0,20	27
PSKT 162M	800-1800	160	6000	180	1,70 480	0,80	1,69	0,17	27
PSKT 163M	2000-2200	106	4500	101	1,90 480	0,85	1,53	0,17	27
PSKT 184M	800-1800	182	7000	245	1,62 550	0,80	1,26	0,16	27
PSKT 202M	800-1800	200	8000	320	1,90 600	0,85	1,27	0,14	27
PSKT 252M	800-1800	250	9000	405	1,57 750	0,80	0,85	0,12	33
PSKT 253M	800-1800	250	9000	405	1,73 750	0,85	0,80	0,12	33
PSKT 332M	800-1800	330	9100	414	1,45 750	0,80	0,53	0,12	33
PSKT 352M	800-1800	350	11000	605	1,45 1050	0,95	0,36	0,090	29
PSKT 402M	800-1800	400	12500	781	1,52 1200	0,80	0,49	0,080	30
PSKT 502M	800-1800	500	14500	1051	1,44 1500	0,80	0,34	0,065	30
PSKT 572M	800-1800	570	15000	1125	1,45 1600	0,80	0,20	0,065	30
PSKT 602M	800-1800	600	16000	1280	1,45 1800	0,80	0,28	0,054	31
PSKT 802M	800-1800	800	22000	2420	1,86 2400	0,80	0,20	0,042	31
PSKT 1010M	800-1800	1000	28000	3920	1,96 3000	0,80	0,15	0,034	32
PSKT 1210M	800-1800	1200	34000	5780	1,76 3000	0,80	0,09	0,031	32

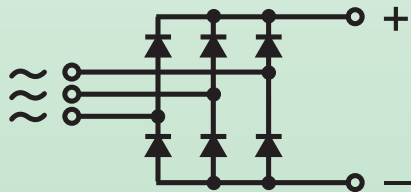


TRACTION-PAC™: Diode Modules for high-speed-rotating applications

Three Phase Rectifier Bridge PSTD 82

PSTD 82

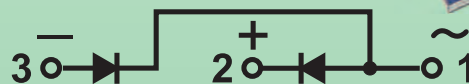
- V_{RRM} : 600 - 1800 V
- I_{DAV} : 88 A @ $T_c = 110^\circ C$
- I_{FSM} : 750 A (10 ms, $45^\circ C$)
- V_{TO} : 0,8 V
- r_T : 5m Ω
- T_{VJM} : 150° C
- R_{thJC} : 1,10 K/W
- R_{thJH} : 1,52 K/W

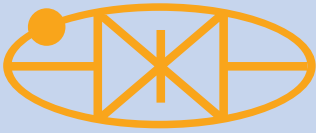


Diode Module PSTKD 82

PSTKD 82

- V_{RRM} : 600 - 1800 V
- I_{DAV} : 88 A @ $T_c = 110^\circ C$
- I_{FSM} : 1700 A (10 ms, $45^\circ C$)
- V_{TO} : 0,8 V
- r_T : 2,7 m Ω
- T_{VJM} : 150° C
- R_{thJC} : 0,35 K/W
- R_{thJH} : 0,55 K/W





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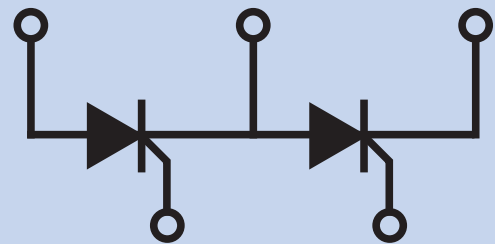
physics with passion since 1985



ECO-FRIENDLY THYRISTOR MODULES FOR PCB MOUNTING

V_{RRM} : 600 - 1800 V
 I_{TAVM} : 116 A @ $T_c = 85^\circ C$
 I_{FSM} : 2250 A (45° C, 10 msec)
 V_{TO} : 0,8 V
 r_T : 2,4 mΩ
 T_{VJM} : 125° C
 R_{thJC} : 0,26 K/W
 R_{thJH} : 0,46 K/W

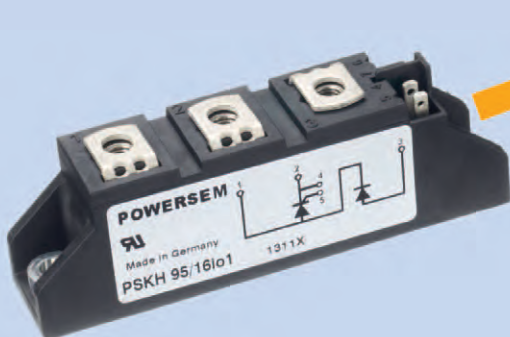
PSKT 95 (TO 240)
 PSKT 96 (ECO-PAC^{®2})



➔ REDUCE COSTS! ⬅️ ⬅️ ⬅️ ⬅️

ECO-PAC[®] - Devices are compact (9mm Module Height) and ideal for mounting on PCB, with Solder Pins or Press Pins, on Request with Phase Change Compound

TO 240 (PSKT 95)



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Reduce Costs!

Eco-Pac® - Devices are ideal for mounting on PCB, with Solder Pins or Press Pins, on Request with Phase Change Compound



ZERTIFIKAT



Hiermit wird bescheinigt, dass

POWERSEM Gesellschaft für Halbleiterbauelemente und Elektronik mbH

Walpersdorferstraße 53
91126 Schwabach
Deutschland

ein **Qualitätsmanagementsystem** eingeführt hat und anwendet.

Geltungsbereich:

Entwicklung, Produktion und Vertrieb von Leistungselektronik-Modulen wie Dioden-Modulen, Thyristor-Modulen, IGBT-Modulen, MOSFET-Modulen, SiC-Modulen und Halbleiter-Relais.
Entwicklung, Produktion und Vertrieb von Leistungselektronik-Komponenten in diskreter und umspritzter Bauweise.

Durch ein Audit, dokumentiert in einem Bericht, wurde der Nachweis erbracht, dass das Managementsystem die Forderungen des folgenden Regelwerks erfüllt:

ISO 9001 : 2015

Zertifikat-Registrier-Nr.	209348 QM15
Gültig ab	2018-07-18
Gültig bis	2021-07-17
Zertifizierungsdatum	2018-07-18



DQS GmbH

Stefan Heinloth
Geschäftsführer



CERTIFICATE



This is to certify that

POWERSEM Gesellschaft für Halbleiterbauelemente und Elektronik mbH

Walpersdorferstraße 53
91126 Schwabach
Germany

has implemented and maintains a **Quality Management System**.

Scope:

Development, Production and Distribution of Power Semiconductor Modules like Diode-Modules, Thyristor-Modules, IGBT-Modules, MOSFET-Modules, SiC-Modules and Solid-State-Relays. Development, Production and Distribution of Power Semiconductor Components in discrete and transfer-moulded design.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 9001 : 2015

Certificate registration no.	209348 QM15
Valid from	2018-07-18
Valid until	2021-07-17
Date of certification	2018-07-18



DQS GmbH

Stefan Heinloth
Managing Director



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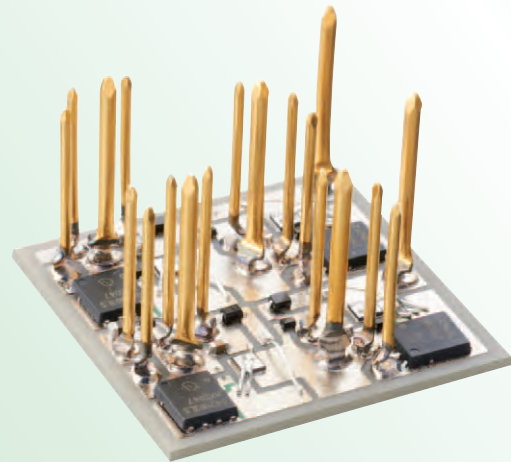
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