

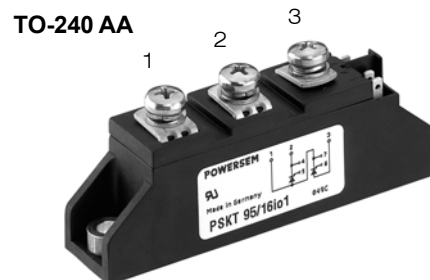
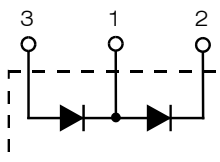
Diode Modules

PSKD 72

Preliminary Data Sheet

$$\begin{aligned} I_{FRMS} &= 2 \times 180 \text{ A} \\ I_{FAVM} &= 2 \times 113 \text{ A} \\ V_{RRM} &= 800-1800 \text{ V} \end{aligned}$$

V_{RSM} V	V_{RRM} V	Type
900	800	PSKD 72/08
1300	1200	PSKD 72/12
1500	1400	PSKD 72/14
1700	1600	PSKD 72/16
1900	1800	PSKD 72/18



Symbol	Test Conditions	Maximum Ratings
I_{FRMS}	$T_{VJ} = T_{VJM}$	180 A
I_{FAVM}	$T_C = 92^\circ\text{C}; 180^\circ \text{ sine}$	113 A
	$T_C = 100^\circ\text{C}; 180^\circ \text{ sine}$	99 A
I_{FSM}	$T_{VJ} = 45^\circ\text{C};$ $V_R = 0$ $t = 10 \text{ ms (50 Hz), sine}$	1700 A
	$t = 8.3 \text{ ms (60 Hz), sine}$	1950 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10 \text{ ms (50 Hz), sine}$	1540 A
	$t = 8.3 \text{ ms (60 Hz), sine}$	1800 A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ $t = 10 \text{ ms (50 Hz), sine}$	14 450 A ² s
	$t = 8.3 \text{ ms (60 Hz), sine}$	15 700 A ² s
	$T_{VJ} = T_{VJM}$ $V_R = 0$ $t = 10 \text{ ms (50 Hz), sine}$	11 850 A ² s
	$t = 8.3 \text{ ms (60 Hz), sine}$	13 400 A ² s
T_{VJ}		-40...+150 °C
T_{VJM}		150 °C
T_{stg}		-40...+125 °C
V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ min}$	3000 V~
	$t = 1 \text{ s}$	3600 V~
M_d	Mounting torque (M5) Terminal connection torque (M5)	2.5-4/22-35 Nm/lb.in.
Weight	Typical including screws	90 g

Features

- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 148688

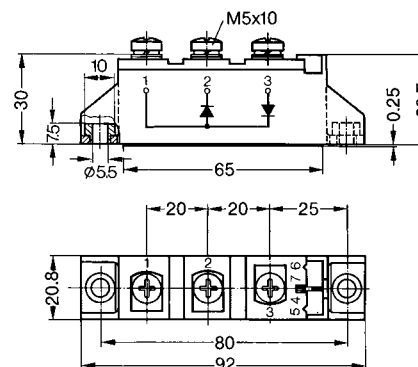
Applications

- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages

- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.

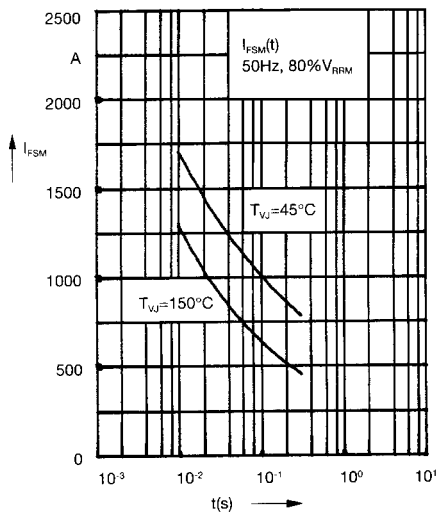


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

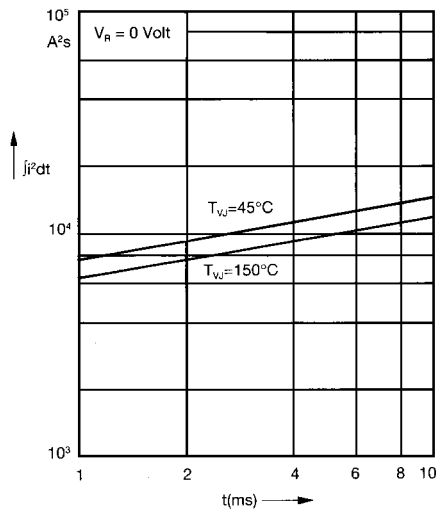


Fig. 2 $\int i^2 dt$ versus time (1-10 ms)

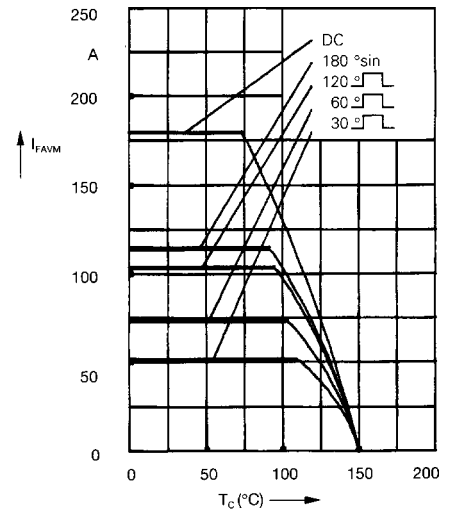


Fig. 2a Maximum forward current
at case temperature

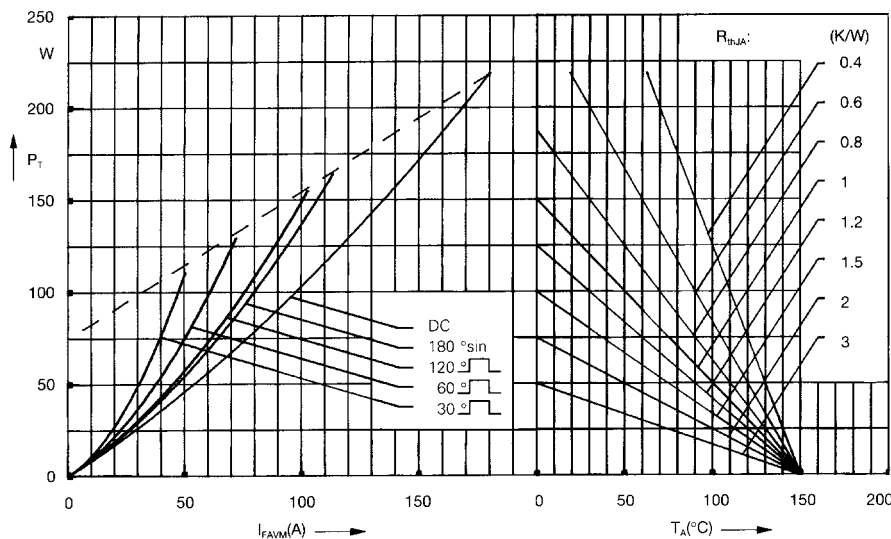


Fig. 3 Power dissipation versus
forward current and ambient
temperature (per diode)

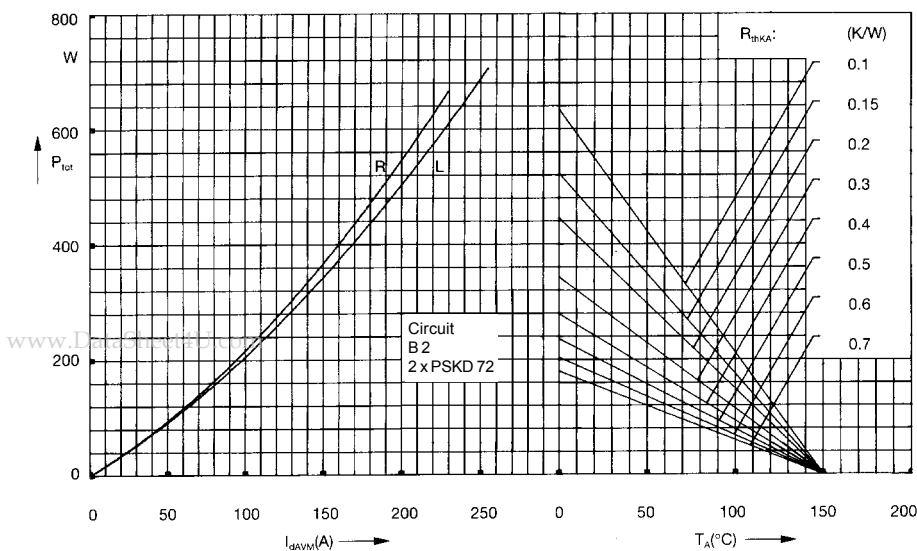


Fig. 4 Single phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature
R = resistive load
L = inductive load

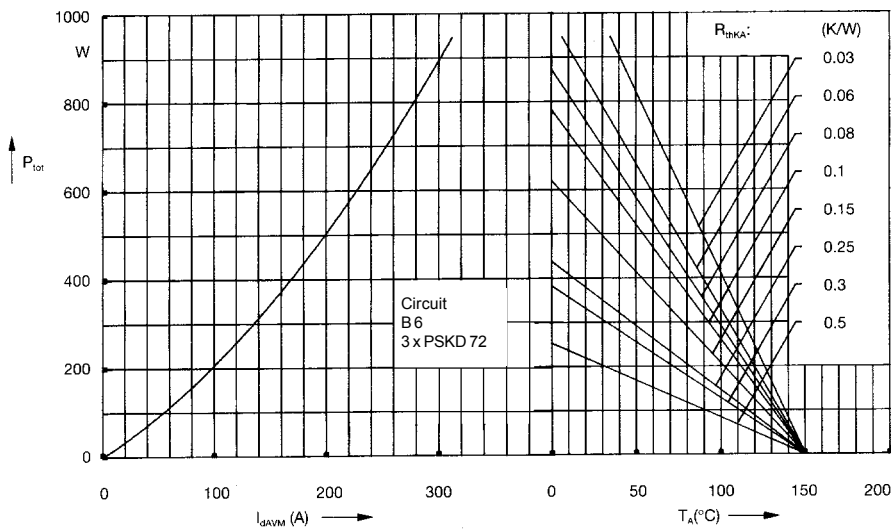


Fig. 5 Three phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature

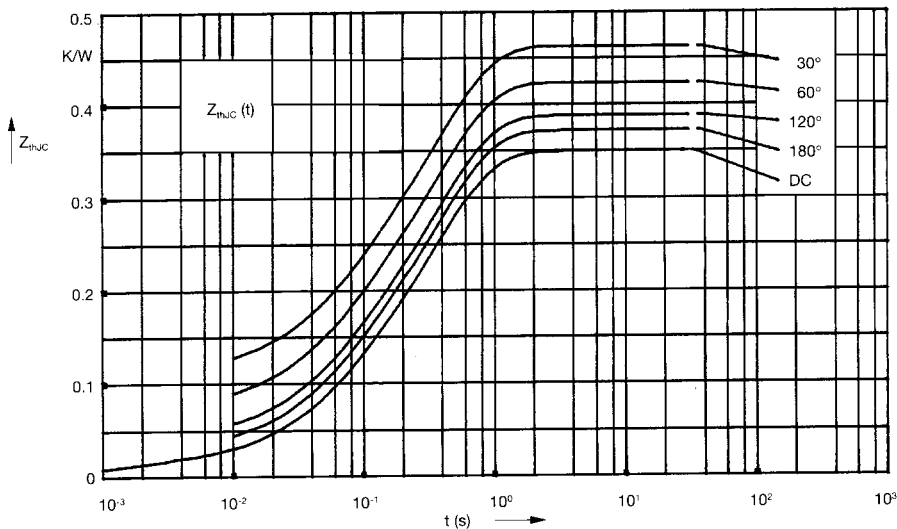


Fig. 6 Transient thermal impedance
junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.35
180°	0.37
120°	0.39
60°	0.43
30°	0.47

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0014
2	0.072	0.062
3	0.265	0.375

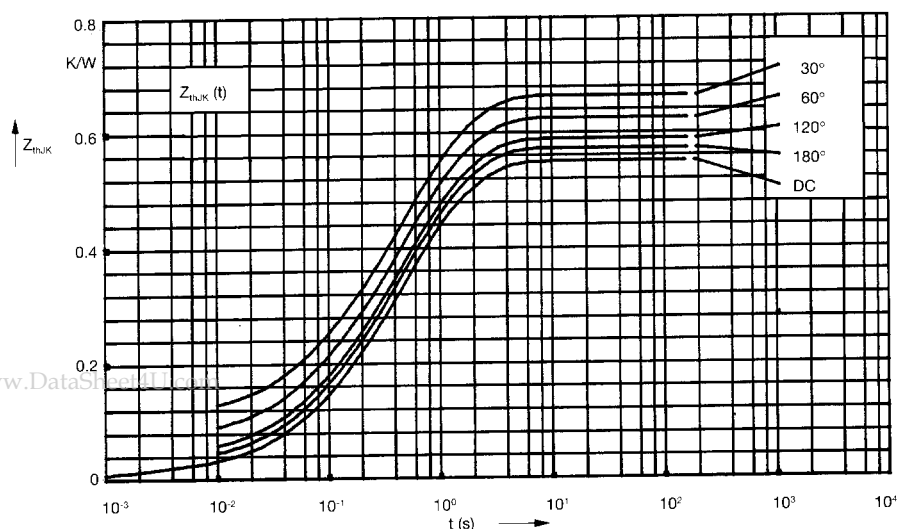


Fig. 7 Transient thermal impedance
junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.55
180°	0.57
120°	0.59
60°	0.63
30°	0.67

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.013	0.0014
2	0.072	0.062
3	0.265	0.375
4	0.2	1.32