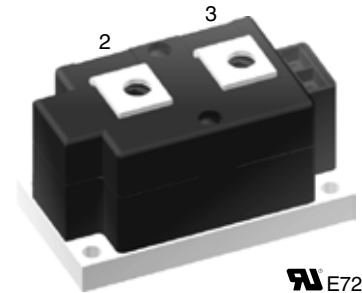
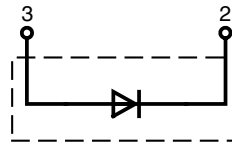


High Power Diode Modules

$I_{FRMS} = 955 \text{ A}$
 $I_{FAVM} = 608 \text{ A}$
 $V_{RRM} = 1600 \text{ V}$

V_{RSM} V	V_{RRM} V	Type
1700	1600	MDO 600-16N1



E72873

Symbol	Conditions	Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$	955	A
I_{FAVM}	$T_C = 85^\circ\text{C}; 180^\circ \text{ sine}$	608	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz)}$	15000	A
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	16000	A
	$T_{VJ} = T_{VJM}; t = 10 \text{ ms (50 Hz)}$	13000	A
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	14400	A
I^2t	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz)}$	1125000	A ² s
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	1062000	A ² s
	$T_{VJ} = T_{VJM}; t = 10 \text{ ms (50 Hz)}$	845000	A ² s
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	813000	A ² s
T_{VJ}		-40...+140	°C
T_{VJM}		140	°C
T_{stg}		-40...+125	°C
V_{ISOL}	50/60 Hz, RMS $t = 1 \text{ min}$	3000	V~
	$I_{ISOL} \leq 1 \text{ mA}; t = 1 \text{ s}$	3600	V~
M_d	Mounting torque (M6)	4.5 - 7	Nm
	Terminal connection torque (M8)	11 - 13	Nm
Weight	Typical including screws	650	g

Features

- International standard package
- **Direct Copper Bonded** Al₂O₃-ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

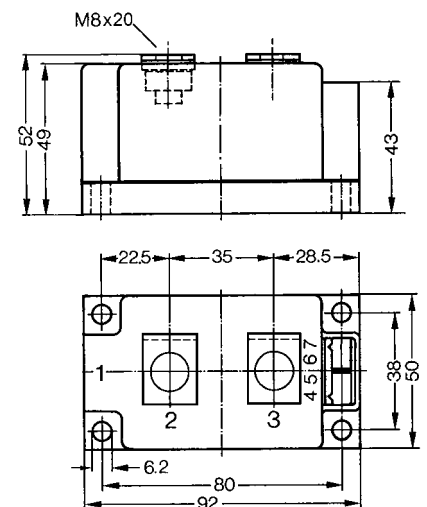
Applications

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

Advantages

- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Dimensions in mm (1 mm = 0.0394")



Symbol	Conditions	Characteristic Values	
		typ.	max.
I_{RRM}	$V_R = V_{RRM}$	$T_{VJ} = T_{VJM}$	30 mA
V_F	$I_T = 1200 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$	1.3 V
V_{T0}	For power-loss calculations only		0.8 V
r_t		$T_{VJ} = T_{VJM}$	0.38 mΩ
R_{thJC}	DC current		0.072 K/W
R_{thJK}	DC current		0.096 K/W
d_s	Creeping distance on surface		21.7 mm
d_A	Creepage distance in air		9.6 mm
a	Maximum allowable acceleration		50 m/s ²

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

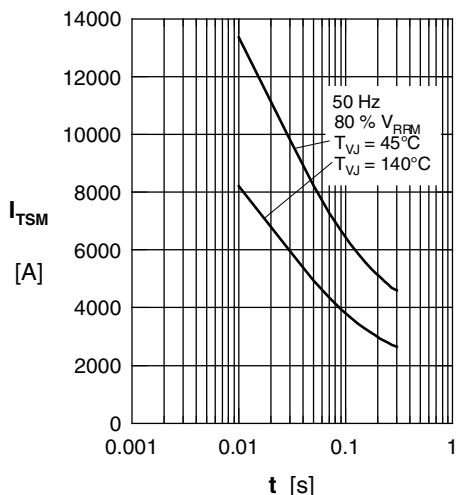


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

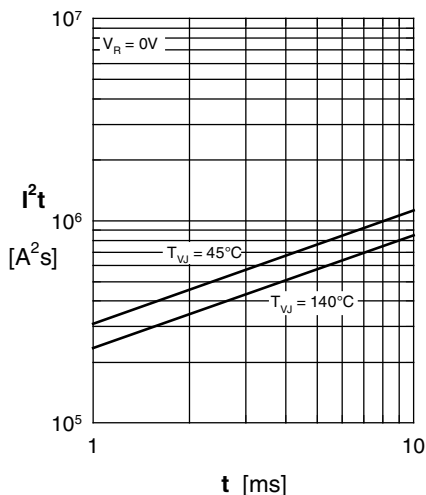


Fig. 2 I^2t versus time (1-10 ms)

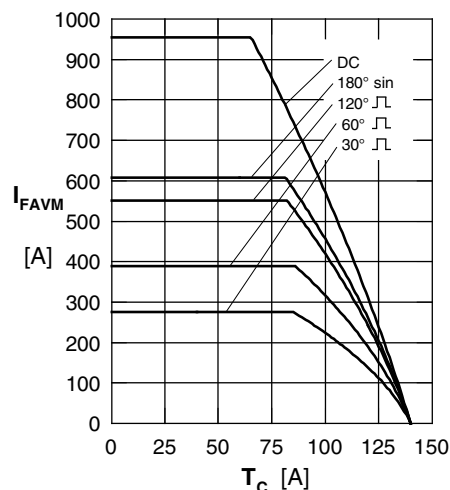


Fig. 3 Max. forward current at case temperature

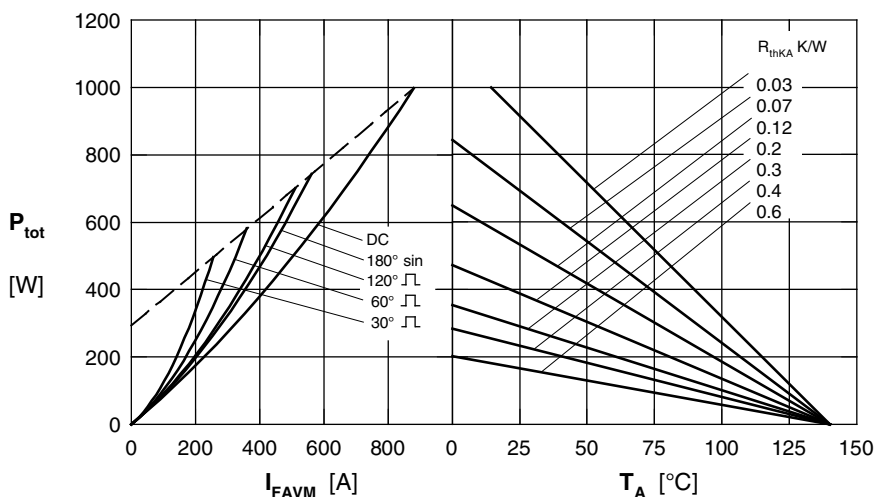


Fig. 4 Power dissipation vs. forward current and ambient temperature

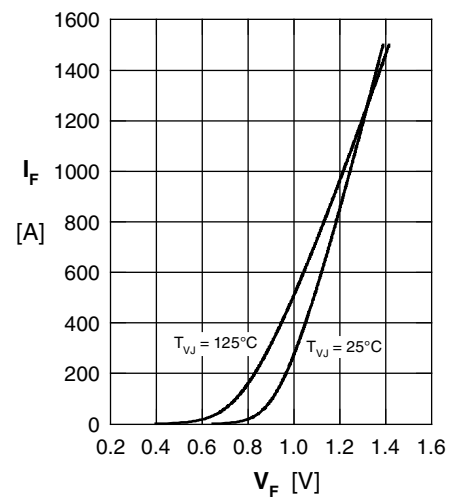


Fig. 5 Forward current I_F vs. V_F

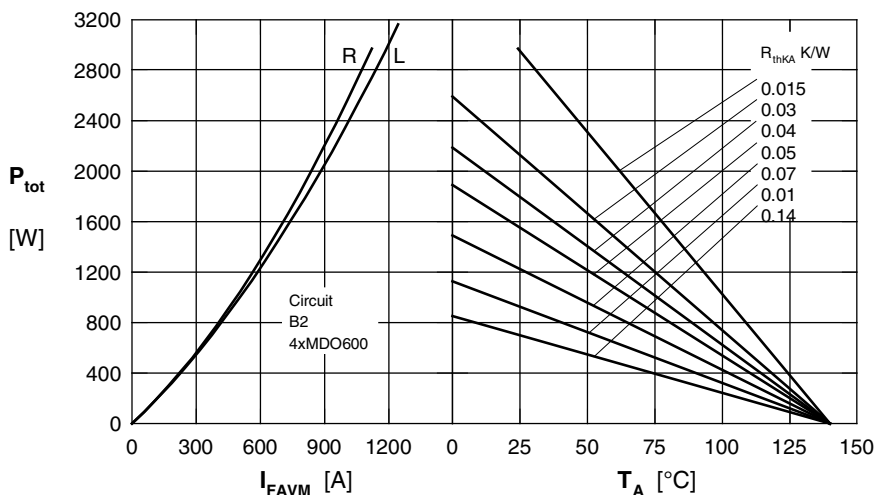


Fig. 6 Single phase rectifier bridge: Power dissipation vs. direct output current and ambient temperature R = resistive load, L = inductive load

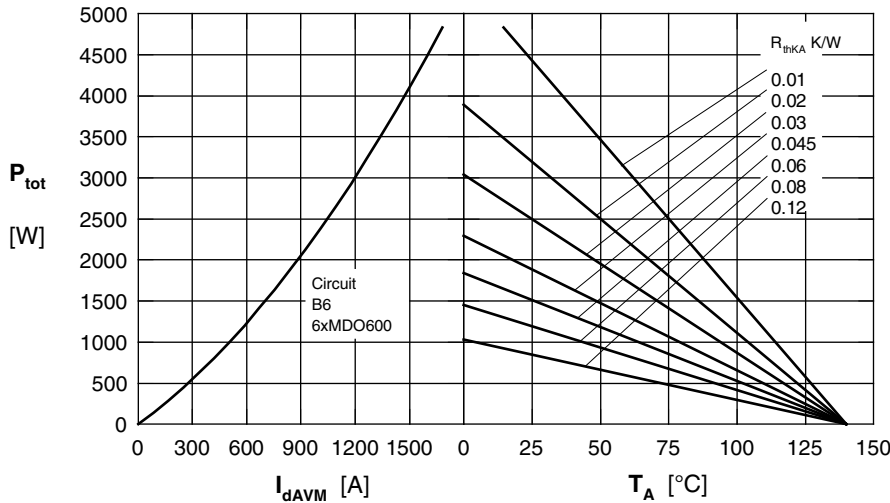


Fig. 7 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

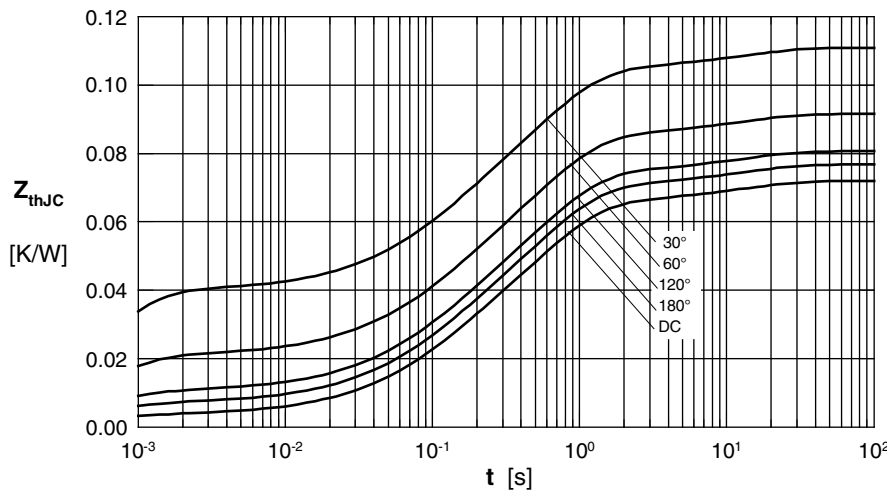


Fig. 8 Transient thermal impedance junction to case

R_{thJC} for various conduction angles d :

d	R_{thJC} (K/W)
DC	0.072
180°	0.0768
120°	0.081
60°	0.092
30°	0.111

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12

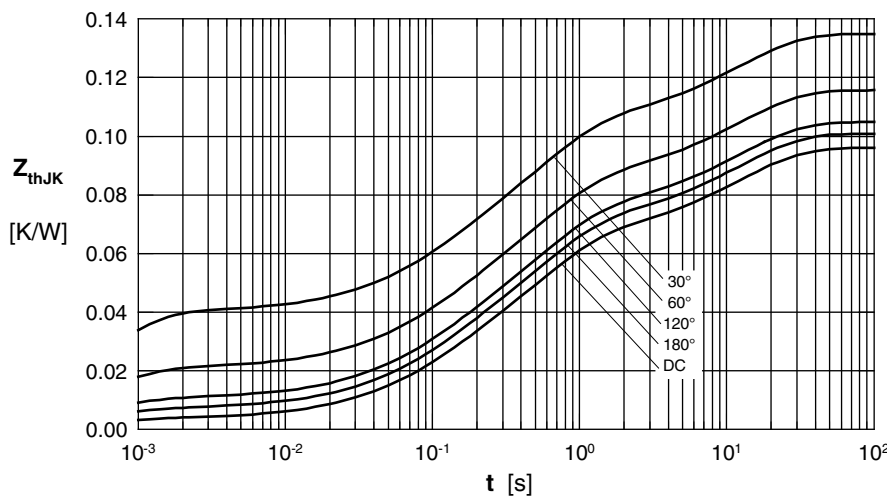


Fig. 9 Transient thermal impedance junction to heatsink

R_{thJK} for various conduction angles d :

d	R_{thJK} (K/W)
DC	0.096
180°	0.1
120°	0.105
60°	0.116
30°	0.135

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0054
2	0.0186	0.098
3	0.0432	0.54
4	0.0067	12
5	0.024	12