

MDD452-250

Diode high power module

Features

- Rectifier diodes couple
- Metal pressure contact

Application

- Uncontrolled line frequency rectifier bridge arm

Maximum ratings			Value	Unit
V_{RRM}	Repetitive peak reverse voltage $T_J = -40 \div 140^\circ\text{C}$	10	1 000	V
		12	1 200	
		14	1 400	
		16	1 600	
		18	1 800	
		20	2 000	
I_{FAVM}	Average forward current $T_C = 85^\circ\text{C}, \sin 180^\circ, f = 50\text{ Hz}$		320	A
I_{FRMS}	RMS forward current $T_C = 85^\circ\text{C}, \sin 180^\circ, f = 50\text{ Hz}$		506	A
I_{FSM}	Surge forward current $\sin.180^\circ, t_d = 10\text{ ms}, V_R = 0\text{ V}$	$T_J = 140^\circ\text{C}$	7 000	A
		$T_J = 25^\circ\text{C}$	8 100	
I^2t	Maximum rated value I^2t $\sin.180^\circ, t_d = 10\text{ ms}, V_R = 0\text{ V}$	$T_J = 140^\circ\text{C}$	245 000	A²s
		$T_J = 25^\circ\text{C}$	328 050	
V_{isol}	Isolation streng of the base $T_J = 25^\circ\text{C}, 60\text{ s}$		2 500	V
$T_{jmin} - T_{jmax}$	Operating temperature range		-40 - +140	°C
$T_{stgmin} - T_{stgmax}$	Storage temperature range		-40 - +140	°C

Characteristics		Value			Unit
		min	typ	max	
V_{T0}	Threshold voltage			0.74	V
r_T	Slope resistance $T_j = 140\text{ }^\circ\text{C}$, approx $I_{T1} = 390\text{ A}$, $I_{T2} = 1180\text{ A}$			0.50	m Ω
U_{TM}	Maximum peak forward voltage $T_j = 25\text{ }^\circ\text{C}$, $I_{TM} = 785\text{ A}$			1.18	V
I_{RRM}	Peak reverse current $T_j = 140\text{ }^\circ\text{C}$, $V_R = V_{RRM}$			30	mA
Q_{rr}	Reverse recovery charge $I_T = 320\text{ A}$, $di/dt = -12,5\text{ A}/\mu\text{s}$, $V_R = -100\text{ V}$ $T_j = 140\text{ }^\circ\text{C}$		700	1200	μC

Mechanical and thermal parameters		Value	Unit
R_{thjc}	Thermal resistance junction to base	0.15	K/W
M_m	Mounting torque - base	4.0	N.m
	Mounting torque - upper terminal	2.8	N.m
m	Weight	0.580	kg

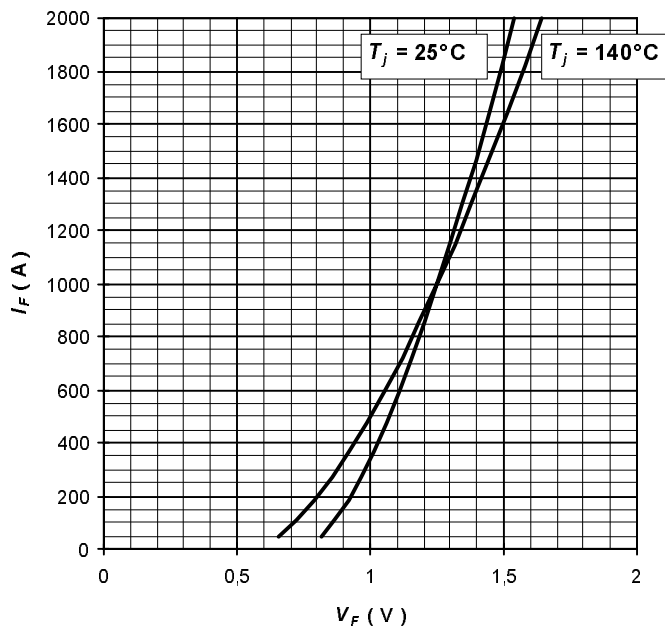


Fig. 1 Forward voltage drop characteristics

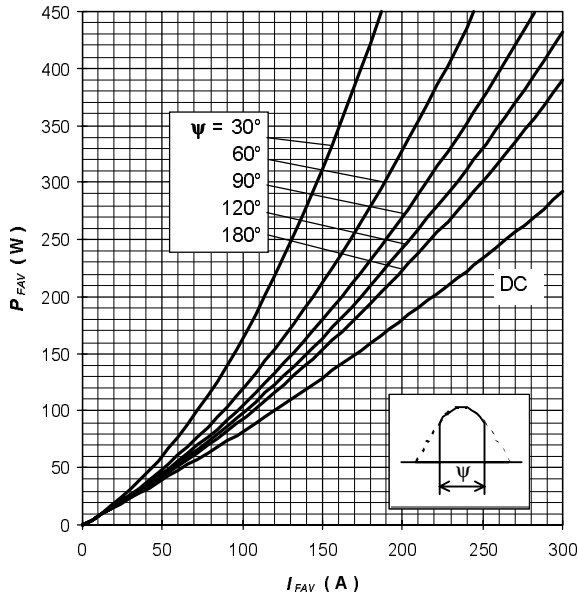


Fig. 2 Dependencies of forward power loss on average forward current, sine waveform, $f = 50 \text{ Hz}$

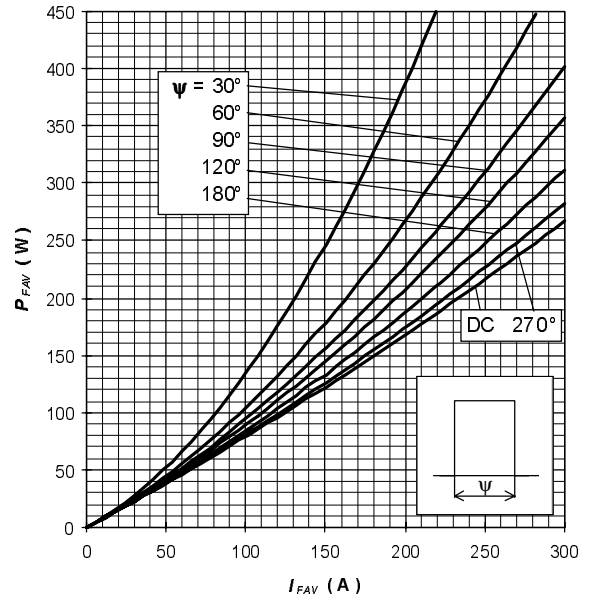


Fig. 3 Dependencies of forward power loss on average forward current, square waveform, $f = 50 \text{ Hz}$

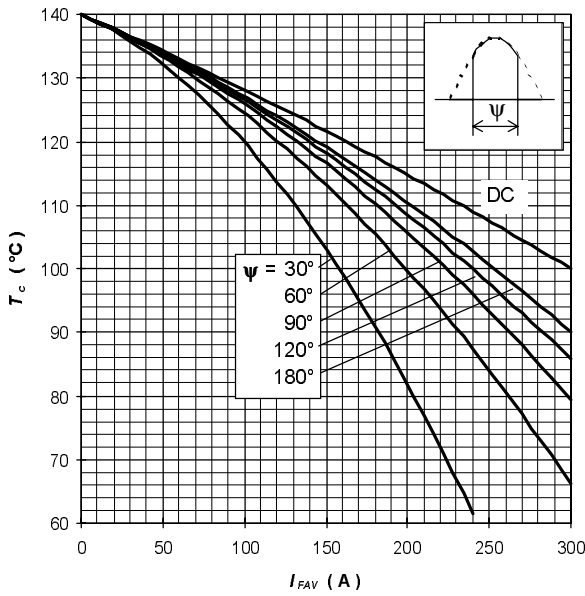


Fig. 4 Dependencies of max. case temperature on aver. forward current, sine waveform, $f = 50 \text{ Hz}$

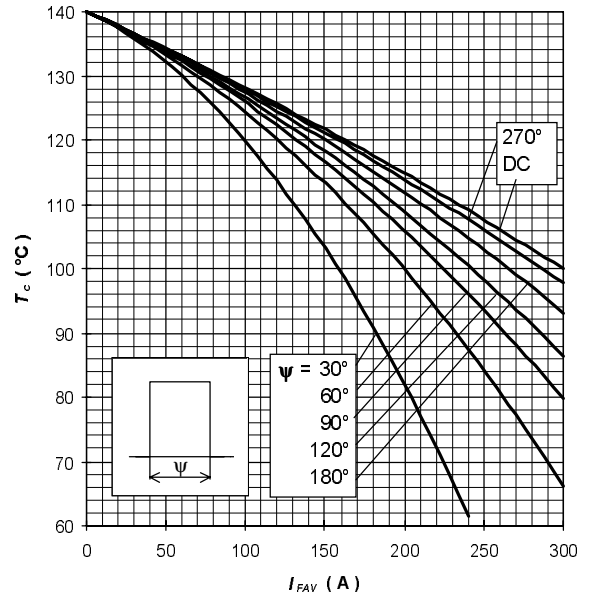


Fig. 5 Dependencies of max. case temperature on average forward current, square waveform, $f = 50 \text{ Hz}$

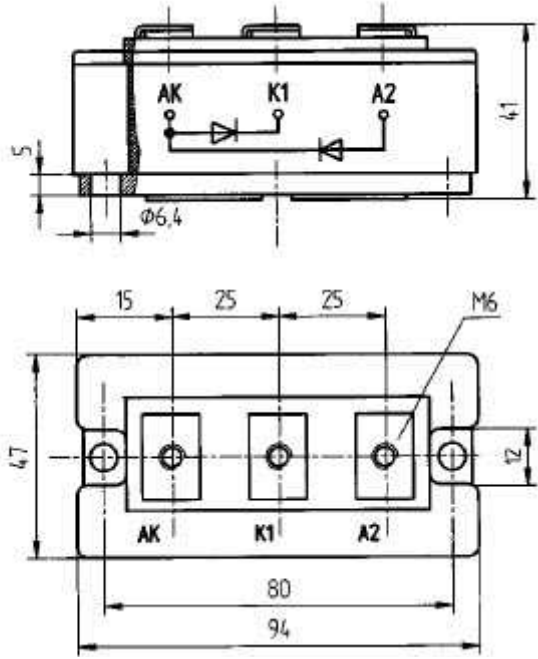


Fig. 6 Case