

Rectifier Diode Module

V_{RRM}	1200 to 2000V
I_{FAV}	135Amp
I_{FRMS}	250 Amp

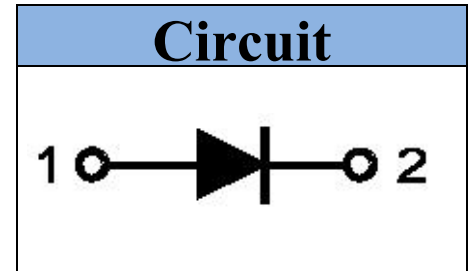


Features

- Very low forward voltage drop
- High surge current capability

Applications

- Non-controllable rectifiers for AC/DC
- Line rectifiers for transistorized AC motor
- Field supply for DC motors



Module Type

Type	V_{RRM}	V_{RSM}
MD135-12	1200V	1300V
MD135-16	1600V	1700V
MD135-18	1800V	1900V
MD135-20	2000V	2100V

Maximum Ratings

Symbol	Item	Conditions	Values	Unit
I_{FAV}	Average Forward Current	180° Conduction Sin Half Wave, $T_c = 100^\circ\text{C}$	135	A
I_{FRMS}	RMS Forward Current		250	A
I_{FSM}	Surge Forward Current	$T_j = 25^\circ\text{C}$, $t = 50\text{Hz}(10\text{ms})$, $V_R = 0\text{V}$	6000	A
I^2t	Circuit Fusing Consideration	$t = 10\text{ms}$ $T_j = 25^\circ\text{C}$	180000	A^2s
V_{ISO}	Isolation Breakdown Voltage	AC 50Hz/60Hz; R.M.S; 1min	2500	V
T_j	Operating Junction Temperature		-40 to +150	$^\circ\text{C}$
T_{stg}	Storage Temperature		-40 to +125	$^\circ\text{C}$
M_t	Mounting Torque	To Terminals(M6)	5±15%	N·m
M_s		To Heatsink(M6)	5±15%	
Weight	Module (Approximately)		220	g

Thermal Characteristics

Symbol	Item	Conditions	Values	Unit
$R_{th(j-c)}$	Thermal Impedance, Max	Junction to Case(Per Diode)	0.28	$^\circ\text{C/W}$
$R_{th(c-s)}$	Thermal Impedance, Max	Case to Heat Sink	0.05	$^\circ\text{C/W}$

Electrical Characteristics

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
V_{FM}	Forward Voltage Drop, Max	$T_j = 25^\circ\text{C}$ $I_F = 480\text{A}$	—	—	1.20	V
I_{RRM}	Repetitive Peak Reverse Current, Max	$T_j = 25^\circ\text{C}$ $V_R = V_{RRM}$	—	—	0.1	mA
		$T_j = 150^\circ\text{C}$ $V_R = V_{RRM}$	—	—	10	
V_{T0}	Threshold Voltage, for power loss calculation only	$T_j = 125^\circ\text{C}$	0.7			V
r_T	Slope Resistance, for power loss calculation only	$T_j = 125^\circ\text{C}$	0.83			mΩ

Performance Curves

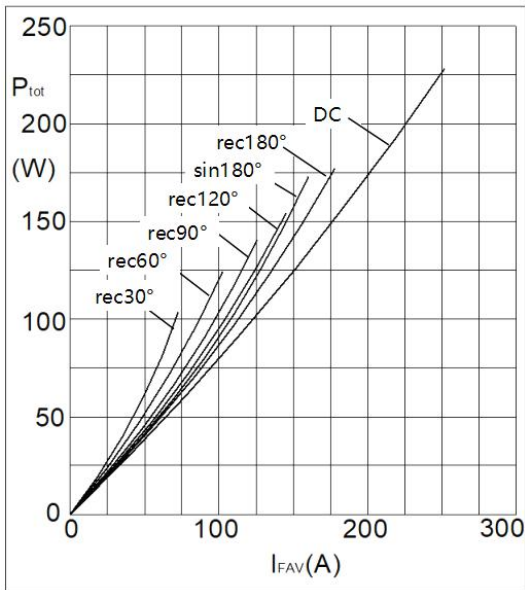


Fig1. Power Dissipation

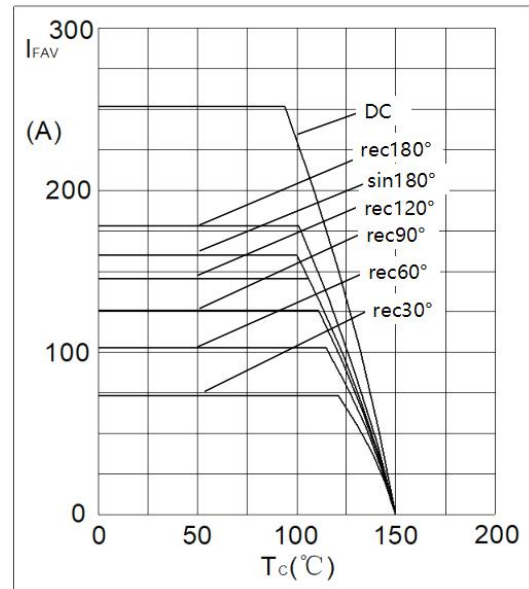


Fig2. Forward Current Derating Curve

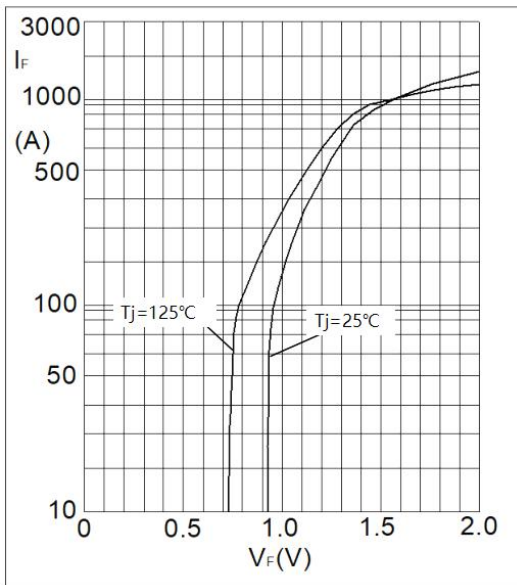


Fig3. Forward Characteristics

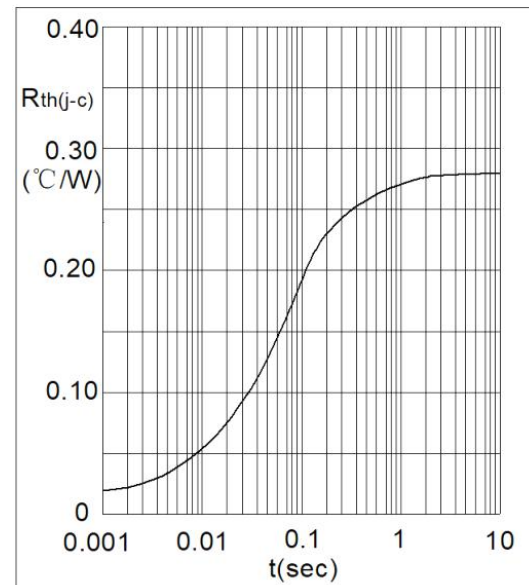


Fig4. Transient Thermal impedance

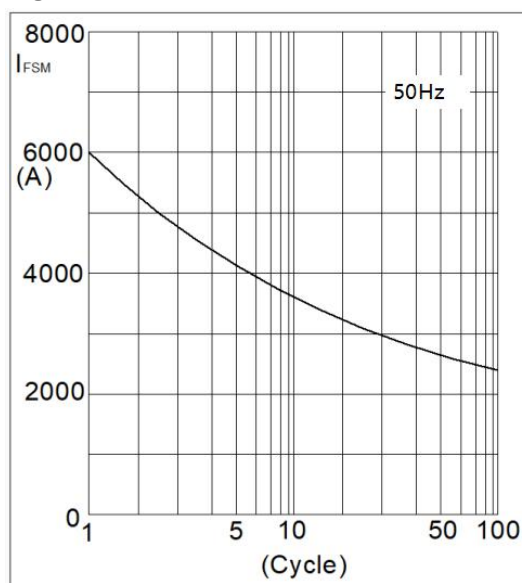


Fig5. Max Non-Repetitive Forward Surge Current

