

SMDS400MxxM(N)P20

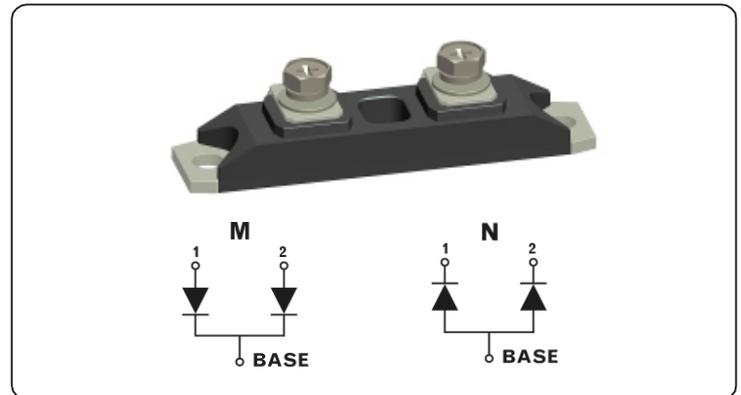
Schottky Diode -400A

FEATURES

- 175°C T_j operation
- Center tap module
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and Long term reliability
- Lead(pb)-free
- Designed and qualified for industrial level

TYPICAL APPLICATIONS

- High current switching power supplies
- Plating power supplies
- UPS system
- Converters
- Freewheeling
- Welder
- Reverse battery protection



PRODUCT SUMMARY

TYPE	I _{F(AV)}	VR
SMDS400M100M(N)P20	400A	100V
SMDS400M150M(N)P20		150V
SMDS400M200M(N)P20		200V

VOLTAGE RATINGS					
PARAMETER	SYMBOL	SMDS400M100M(N)P20	SMDS400M150M(N)P20	SMDS400M200M(N)P20	UNIT
Maximum DC reverse voltage	VR	100	150	200	V
Maximum working peak reverse voltage	VR _{WM}	100	150	200	

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNIT
I _{F(AV)}	Rectangular waveform	400	A
V _{RRM}		100/150/200	V
I _{FSM}	T _p =5us sine	25000	A
V _F	200APK T _J =125°C(per leg)	0.75	V
T _J	Range	-55 to 175	°C

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum average forward Current per leg per device	I _{F(AV)}	50% duty cycle at T _J = 142°C, rectangular waveform		200	A
				400	
Maximum peak one cycle non-repetitive surge current per leg	I _{FSM}	5 μs sine or 3 μs rect. pulse	Following any rated load condition and with rated V _{RRM} Applied	25000	A
		10 ms sine or 6 ms rect. pulse		3300	
Non- repetitive avalanche energy per leg	EAS	T _J =25°C, I _{AS} =13A, L=0.2mH		15	mJ
Repetitive avalanche current per leg	I _{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T _J maximum V _A =1.5xV _{typical}		1	A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNIT
Maximum forward voltage drop per leg	V _{FM} ⁽¹⁾	200A	T _J =25°C	0.85	V
		400A		1.1	
		200A	T _J =125°C	0.75	
		400A		0.88	
Maximum reverse leakage current per leg	I _{RM} ⁽¹⁾	T _J =25°C	V _R =Rated V _R	2.5	mA
		T _J =125°C		40	
Maximum junction capacitance per leg	C _T	V _R = 5 VDC (test signal range 100 kHz to 1 MHz) 25°C		4150	pF
Typical series inductance per leg	L _s	From top of terminal hole to mounting plane		6.0	nH
Maximum voltage rate of change	dV/dt	Rated V _R		10000	V/μs

Note: (1) Pulse width < 300 μs, duty cycle < 2%

THERMAL-MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	MIN	TYP	MAX.	UNIT
Maximum junction and storage temperature range	T _J , T _{Stg}	-55	-	175	°C
Thermal resistance, junction to case per leg	R _{thjc}	-	-	0.19	°C/W
Thermal resistance, junction to case per module	R _{thcs}	-	-	0.085	
Thermal resistance, case to heatsink		-	0.1	-	
Weight	-	-	78	-	g
Mounting torque		35.4(4)	-	53.1(6)	lbf · in (N · m)
Mounting torque center hole		30(3.4)	-	40(4.6)	
Terminal torque		30(3.4)	-	44.2 (5)	
vertical pull		-	-	80	lbf · in
2" lever pull		-	-	35	

Fig.1 Maximum forward voltage drop Characteristics(Per Leg)

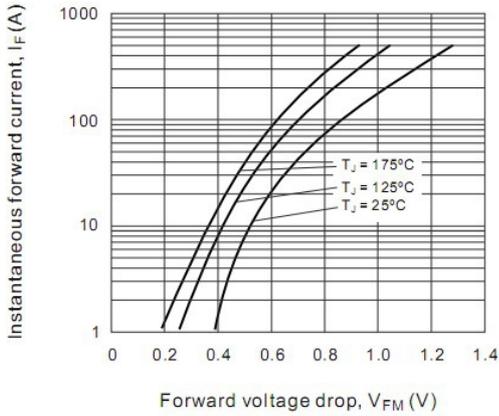


Fig.2 Typical Junction Capacitance vs reverse Voltage(Per leg)

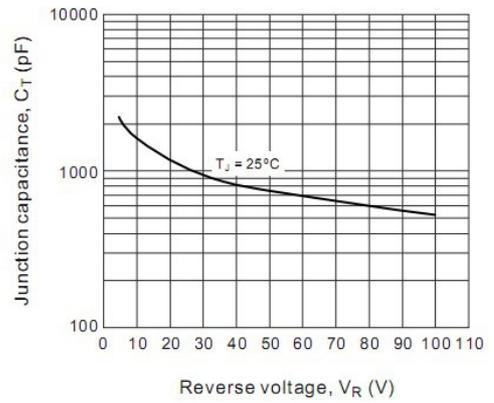


Fig.4 Maximum allowable case temperature Vs.Average forward current (Per Leg)

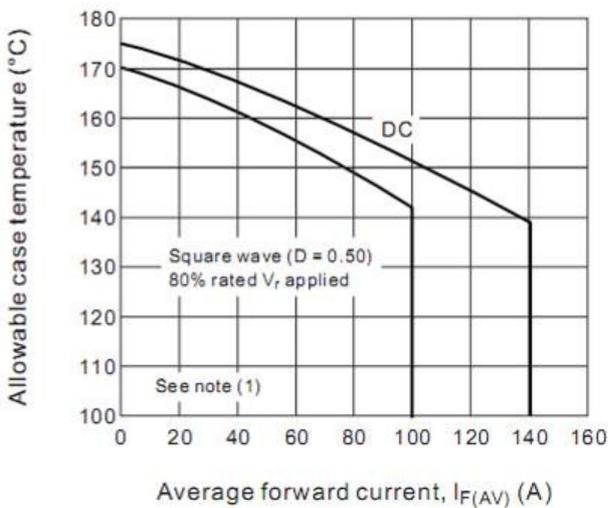


Fig.5 Forward power loss characteristics (Per Leg)

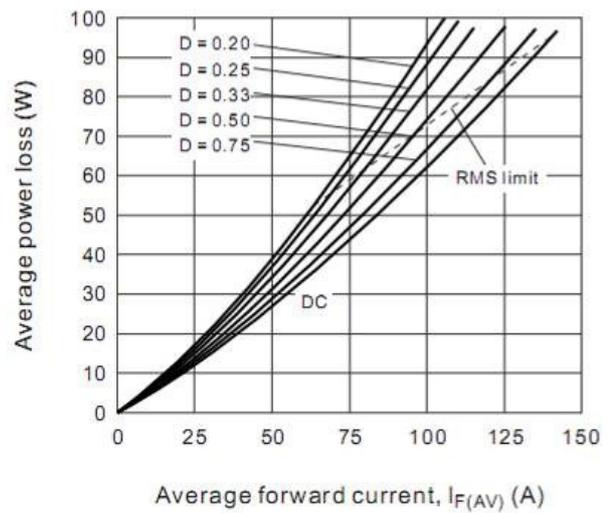


Fig.6 Maximum non-repetitive surge current (Per Leg)

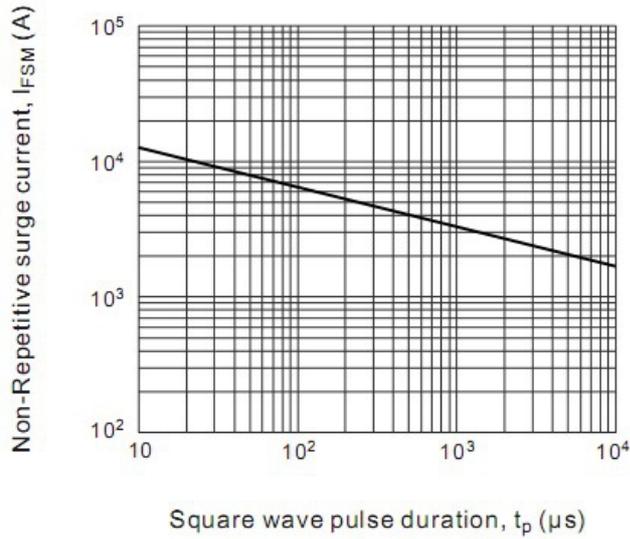
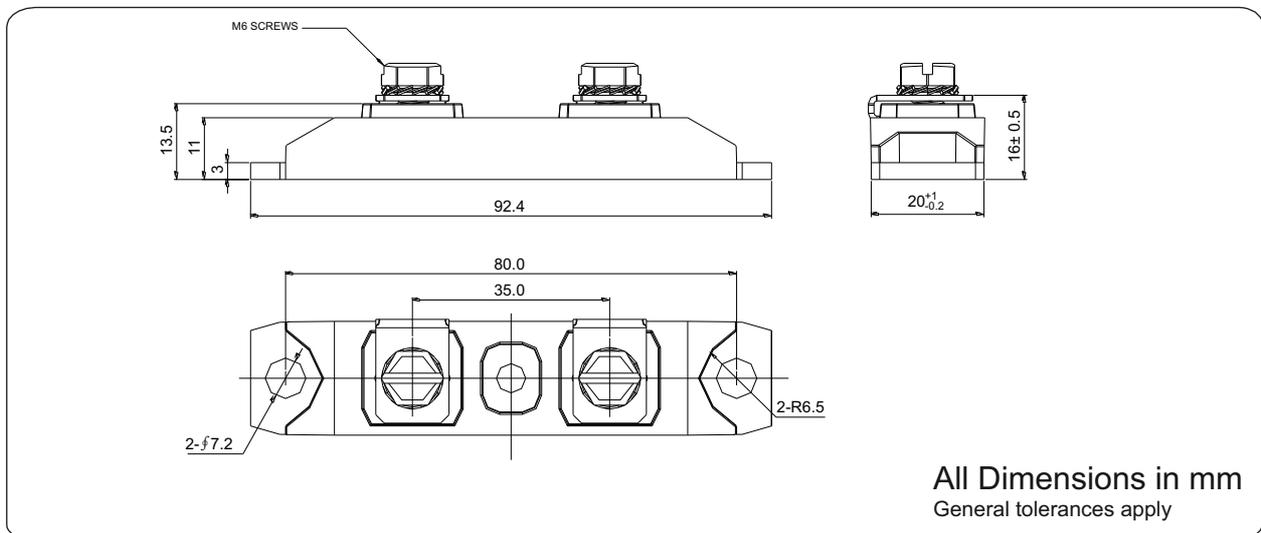
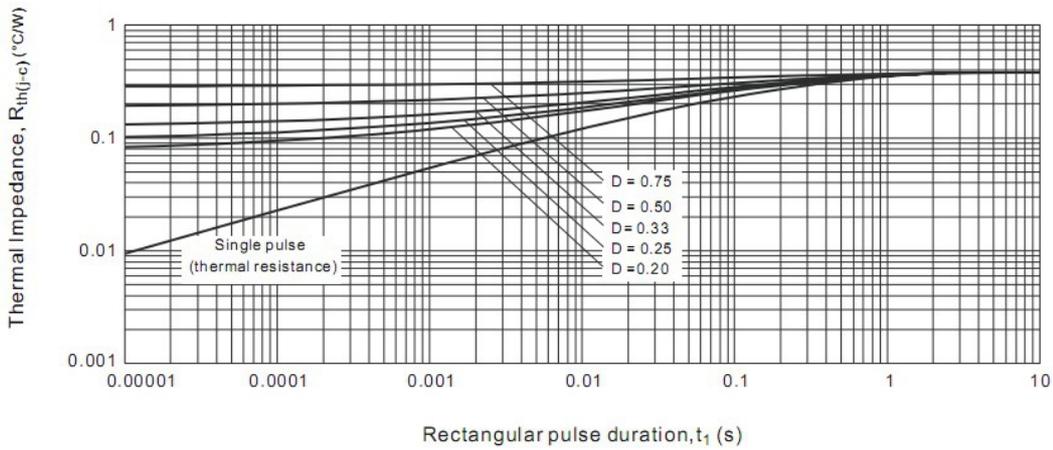


Fig.3 Maximum thermal impedance $R_{th(j-c)}$ characteristics
(Per Leg)



All Dimensions in mm
General tolerances apply