

MBRF20100CTL

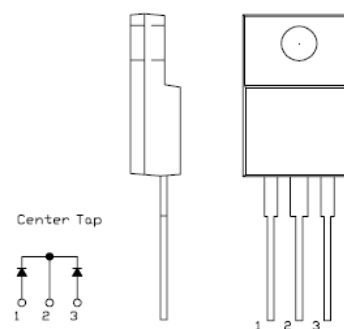
MBRF20100CTL SCHOTTKY RECTIFIER

Applications:

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Features:

- 150 °C T_J operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



OUTLINE DRAWING

Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	V_{RWM}	-	100	V
Max. Average Forward (per leg)	$I_{F(AV)}$	50% duty cycle @T _C =105°C, rectangular wave form	20	A
Max. Peak One Cycle Non-Repetitive Surge Current (per leg)	I_{FSM}	8.3 ms, half Sine pulse	150	A



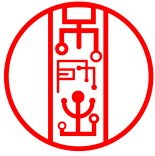
Electrical Characteristics:

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop (per leg) *	V _{F1}	@ 5A, Pulse, T _J = 25 °C	0.80	V
	V _{F2}	@ 10A, Pulse, T _J = 25 °C	0.90	V
		@ 5A, Pulse, T _J = 125 °C	0.70	V
		@ 10A, Pulse, T _J = 125 °C	0.80	V
Max. Reverse Current at DC condition (per leg)	I _{R1}	@V _R = rated V _R T _J = 25 °C	1.0	mA
Max. Reverse Current (per leg) *	I _{R2}	@V _R = rated V _R T _J = 125 °C	6.0	mA
Max. Junction Capacitance (per leg)	C _T	@V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz	250	pF
Typical Series Inductance (per leg)	L _S	Measured lead to lead 5 mm from package body	8.0	nH
Max. Voltage Rate of Change	dv/dt	-	10,000	V/μs
RSM Isolation Voltage (t = 1.0 second, R. H. <=30%, T _A = 25 °C)	V _{ISO}	Clip mounting, the epoxy body away from the heatsink edge by more than 0.110" along the lead direction.	4500	V
		Clip mounting, the epoxy body is inside the heatsink.	3500	V
		Screw mounting, the epoxy body is inside the heatsink.	1500	V

* Pulse Width < 300μs, Duty Cycle <2%

Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification	Units
Max. Junction Temperature	T _J	-	-55 to +150	°C
Max. Storage Temperature	T _{stg}	-	-55 to +150	°C
Maximum Thermal Resistance Junction to Case (per leg)	R _{θJC}	DC operation	3.5	°C/W
Approximate Weight	wt	-	2	g
Case Style	TO-220F			



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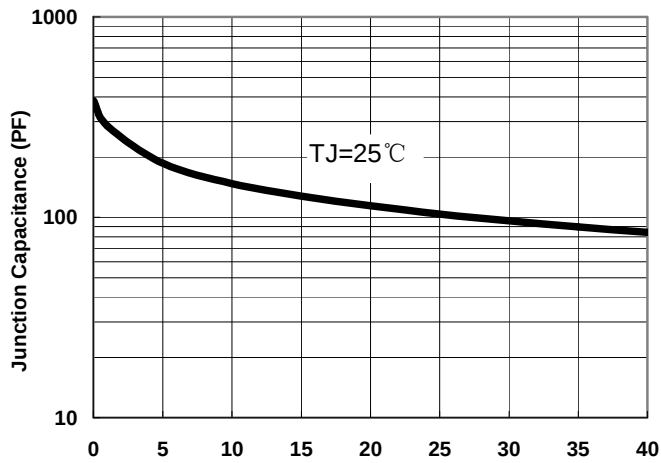


Fig.1-Typical Junction Capacitance

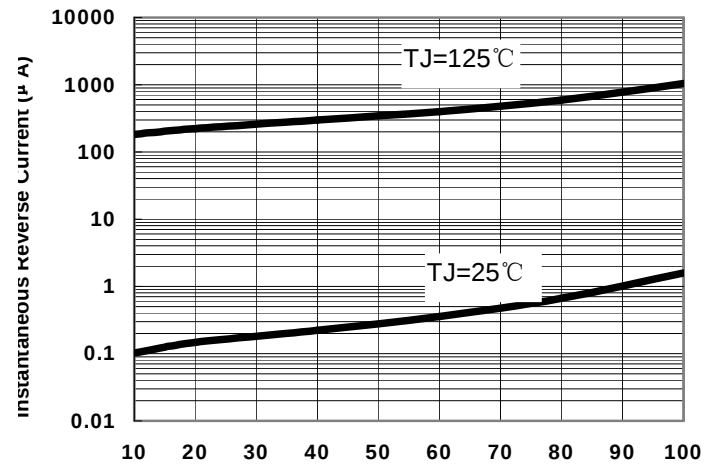


Fig.2-Typical Reverse Characteristics

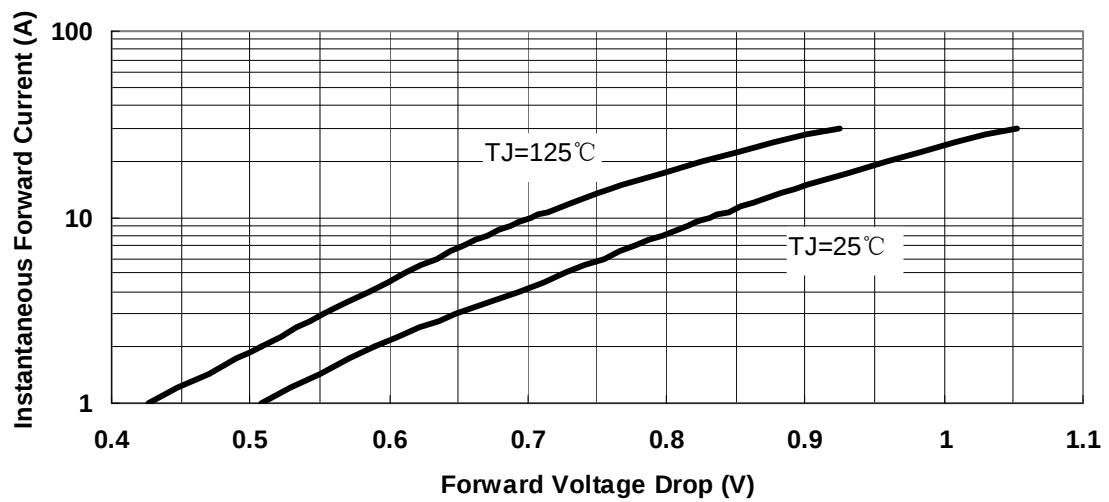
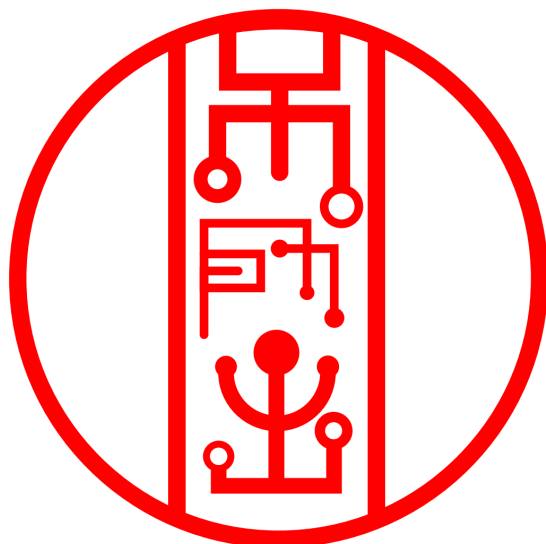


Fig.3-Typical Instantaneous Forward Voltage Characteristics

Mechanical Dimensions: In mm



Dim	OPTION 1(CJ)		OPTION 2(HD)	
	Min	Max	Min	Max
A	4.4	4.6	4.30	4.70
b	0.6TYP		0.50	0.75
b1	1.3TYP		1.30	1.40
b2	1.7TYP		1.70	1.80
b3	1.6TYP		1.50	1.75
b4	1.2TYP		1.10	1.35
C	0.60TYP		0.50	0.75
D	14.8	15.1	14.80	15.20
E	10.06	10.26	9.96	10.36
e	2.55TYP		2.54TYP	
F	2.9	3.1	2.80	3.20
G	6.5	6.9	6.50	6.90
L	12.7	13.7	12.8	13.2
L1	3.4	3.8	3.60	4.00
L2	2.6	3.0	-	-
Q	2.5	2.9	2.50	2.90
Q1	2.5	2.9	2.70REF	
ØR	3.5REF		3.50REF	