

MBRS230LT3

Surface Mount Schottky Power Rectifier

SMB Power Surface Mount Package

... employing the Schottky Barrier principle in a metal-to-silicon power rectifier. Features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency switching power supplies; free wheeling diodes and polarity protection diodes.

- Compact Package with J-Bend Leads Ideal for Automated Handling
- Highly Stable Oxide Passivated Junction
- Guardring for Over-Voltage Protection
- Low Forward Voltage Drop

Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL94, VO at 1/8"
- Weight: 95 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Maximum Temperature of 260°C/10 Seconds for Soldering
- Available in 12 mm Tape, 2500 Units per 13" Reel, Add "T3" Suffix to Part Number
- Cathode Polarity Band
- Marking: 2BL3

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	30	V
Average Rectified Forward Current (At Rated V_R , $T_C = 110^\circ\text{C}$)	I_O	2.0	A
Peak Repetitive Forward Current (At Rated V_R , Square Wave, 20 kHz, $T_C = 105^\circ\text{C}$)	I_{FRM}	4.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz)	I_{FSM}	40	A
Storage/Operating Case Temperature	T_{stg} , T_C	-55 to +175	°C
Operating Junction Temperature	T_J	-55 to +125	°C
Voltage Rate of Change (Rated V_R , $T_J = 25^\circ\text{C}$)	dv/dt	10,000	V/ μs



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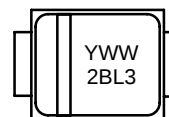
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIER 2.0 AMPERES 30 VOLTS



SMB
CASE 403A
PLASTIC

MARKING DIAGRAM



Y = Year
WW = Work Week
2BL3 = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBRS230LT3	SMB	2500/Tape & Reel

MBRS230LT3

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance - Junction-to-Lead (Note 1)	$R_{\theta JL}$	18.6	$^{\circ}\text{C/W}$
Thermal Resistance - Junction-to-Ambient (Note 1)	$R_{\theta JA}$	135	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) see Figure 2 ($I_F = 2.0 \text{ A}$) ($I_F = 4.0 \text{ A}$)	V_F	$T_J = 25^{\circ}\text{C}$	$T_J = 125^{\circ}\text{C}$	Volts
		0.50 0.60	0.45 0.63	
Maximum Instantaneous Reverse Current (Note 2) see Figure 4 ($V_R = 30 \text{ V}$) ($V_R = 15 \text{ V}$)	I_R	$T_J = 25^{\circ}\text{C}$	$T_J = 125^{\circ}\text{C}$	mA
		1 0.31	75 35	

1. Minimum pad size (0.108" X 0.085") for each lead on FR4 board.
2. Pulse Test: Pulse Width $\leq 250 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

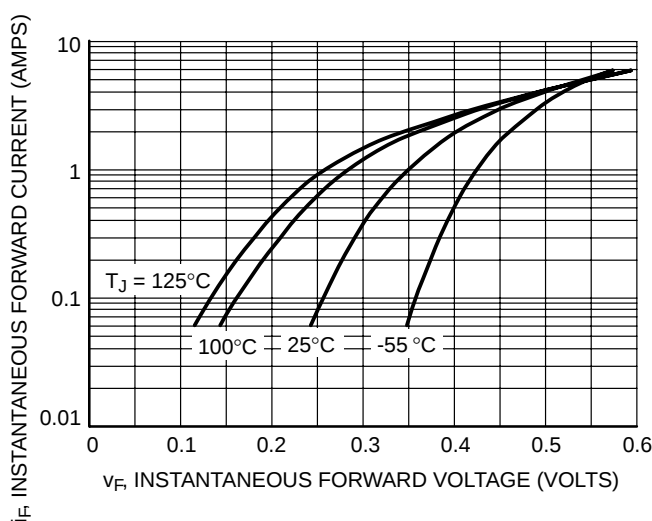


Figure 1. Typical Forward Voltage

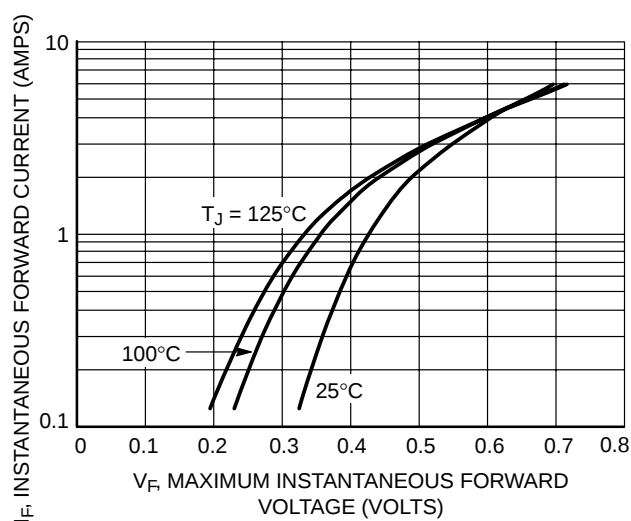


Figure 2. Maximum Forward Voltage

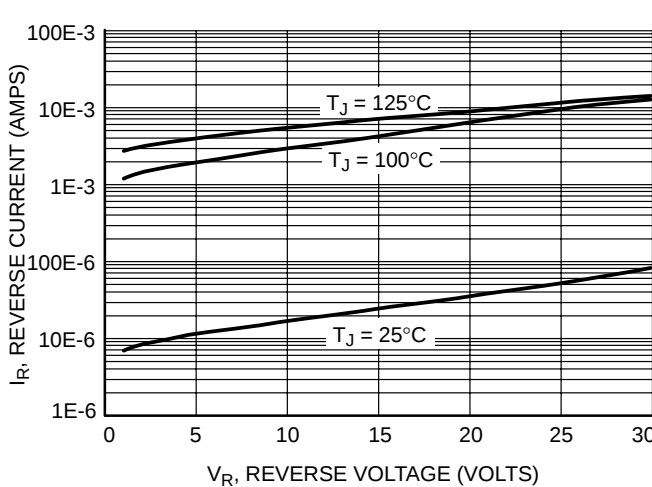


Figure 3. Typical Reverse Current

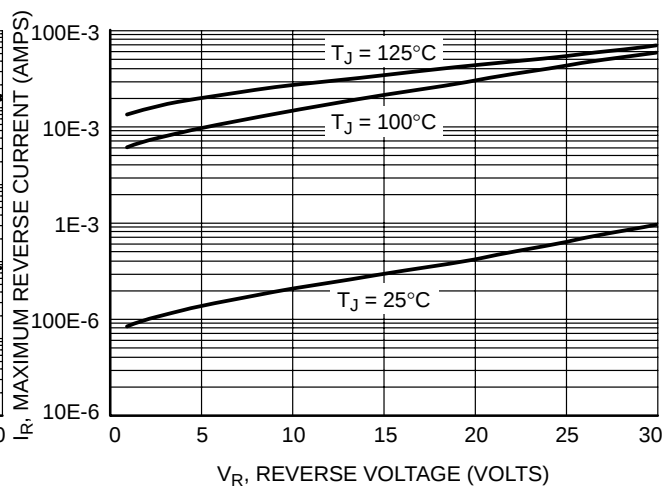


Figure 4. Maximum Reverse Current

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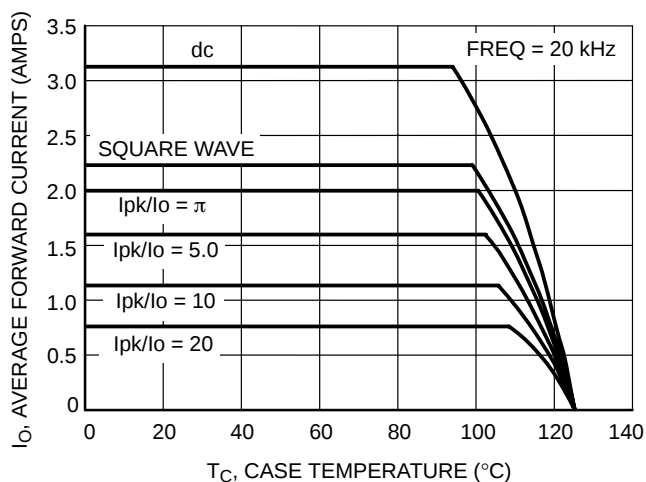


Figure 5. Current Derating Per Leg

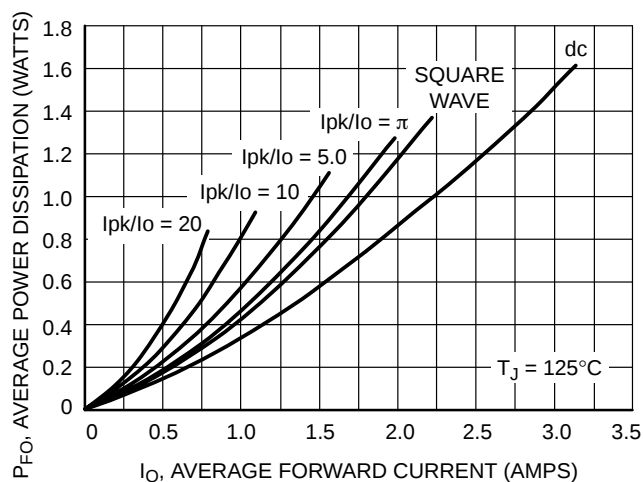


Figure 6. Forward Power Dissipation Per Leg

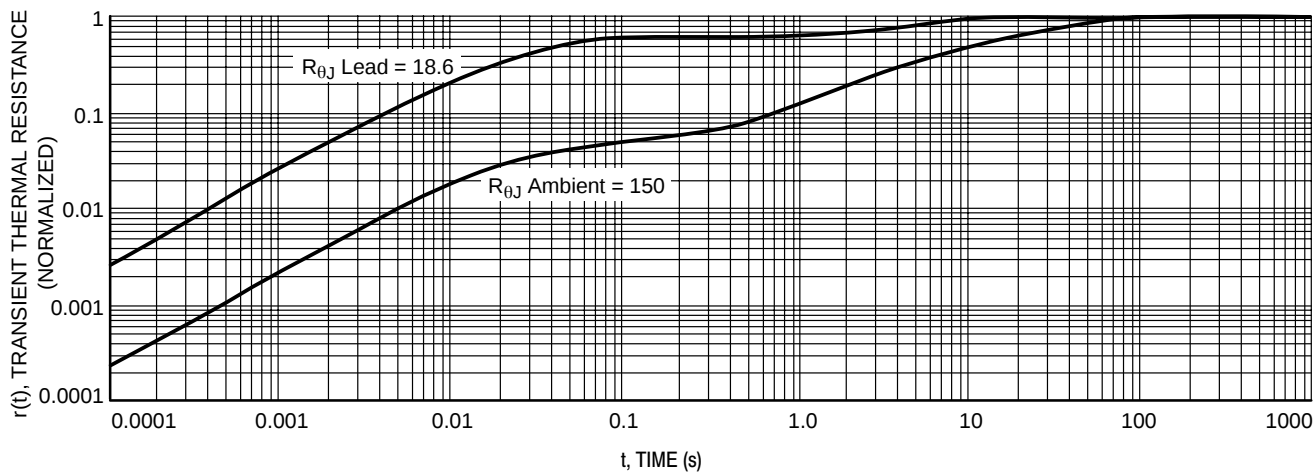
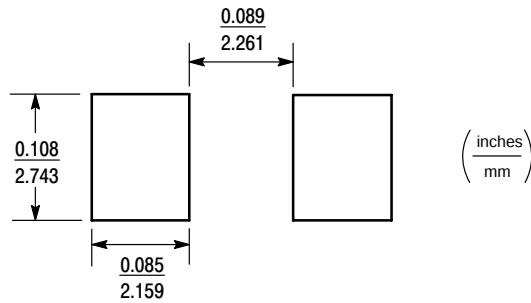


Figure 7. Thermal Response

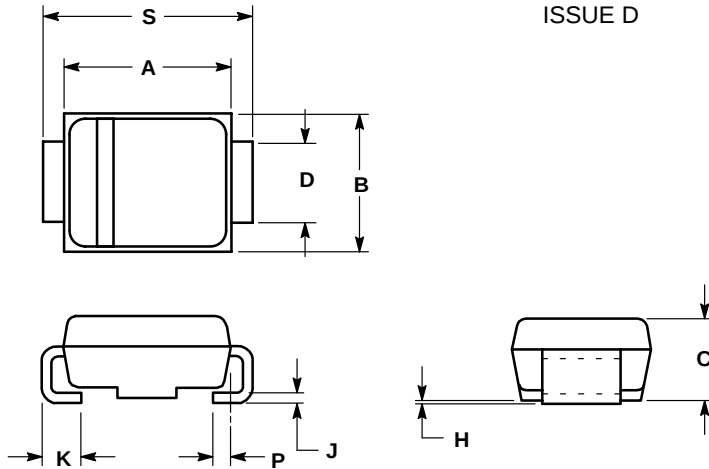
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MINIMUM SOLDER PAD SIZES



PACKAGE DIMENSIONS

SMB PLASTIC PACKAGE CASE 403A-03 ISSUE D



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.160	0.180	4.06	4.57
B	0.130	0.150	3.30	3.81
C	0.075	0.095	1.90	2.41
D	0.077	0.083	1.96	2.11
H	0.0020	0.0060	0.051	0.152
J	0.006	0.012	0.15	0.30
K	0.030	0.050	0.76	1.27
P	0.020	REF	0.51	REF
S	0.205	0.220	5.21	5.59

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