

# MBRS410LT3

Preferred Device

## Surface Mount Schottky Power Rectifier

...employing the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as free wheeling and polarity protection diodes, in surface mount applications where compact size and weight are critical to the system. Typical applications are ac/dc and dc-dc converters, reverse battery protection, and "Oring" of multiple supply voltages and any other application where performance and size are critical.

- Ultra Low  $V_F$
- 1st in the Market Place with a 10  $V_R$  Schottky Rectifier
- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guarding for Stress Protection

### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 217 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped in 16 mm Tape and Reel, 2500 units per reel
- Polarity: Notch in Plastic Body Indicates Cathode Lead
- ESD Ratings: Machine Model = C  
Human Body Model = 3B
- Marking: B4L1

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	10	V
Average Rectified Forward Current (@ $T_L = 110^\circ\text{C}$ )	$I_O$	4.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	150	A
Operating Junction Temperature	$T_J$	-65 to +125	°C



ON Semiconductor™

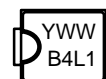
<http://onsemi.com>

**SCHOTTKY BARRIER  
RECTIFIERS  
4.0 AMPERES  
10 VOLTS**



SMC  
CASE 403  
PLASTIC

### MARKING DIAGRAM



Y = Year  
WW = Work Week  
B4L1 = Device Code

### ORDERING INFORMATION

Device	Package	Shipping
MBRS410LT3	SMC	2500/Tape & Reel

**Preferred** devices are recommended choices for future use and best overall value.

# MBRS410LT3

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Min Pad (Note 2)	1 Inch Pad	Unit
Thermal Resistance – Junction–to–Lead	$R_{\theta JL}$	12	7.0	$^{\circ}C/W$
Thermal Resistance – Junction–to–Ambient	$R_{\theta JA}$	109	59	

## ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 1)  ( $I_F = 2.0$ A) ( $I_F = 4.0$ A) ( $I_F = 8.0$ A)	$V_F$	$T_J = 25^{\circ}C$	$T_J = 100^{\circ}C$	V
		0.31	0.200	
		0.33	0.225	
Maximum Instantaneous Reverse Current (Note 1)  (Rated dc Voltage, $V_R = 5.0$ V) (Rated dc Voltage, $V_R = 10$ V)	$I_R$	$T_J = 25^{\circ}C$	$T_J = 100^{\circ}C$	mA
		2.0	100	
		5.0	200	

1. Pulse Test: Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2\%$ .
2. Mounted with Minimum Recommended Pad Size, PC Board FR4.

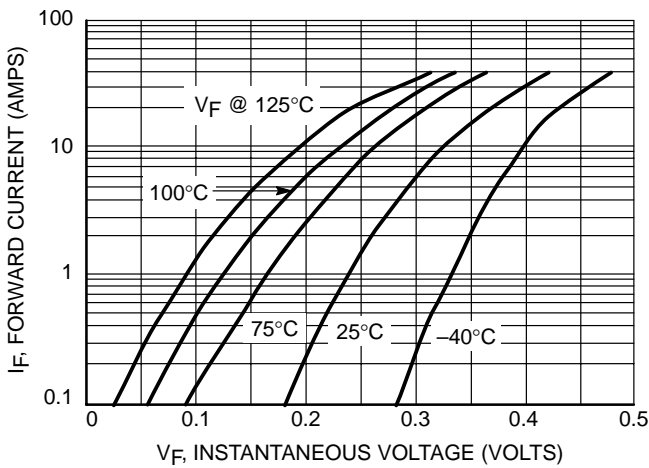


Figure 1. Typical Forward Voltage

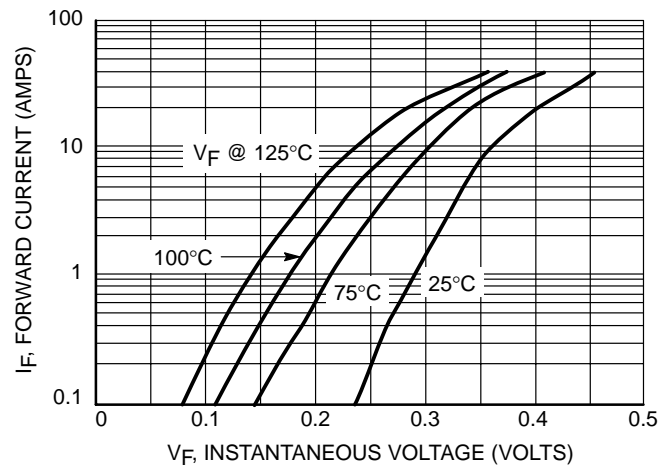


Figure 2. Maximum Forward Voltage

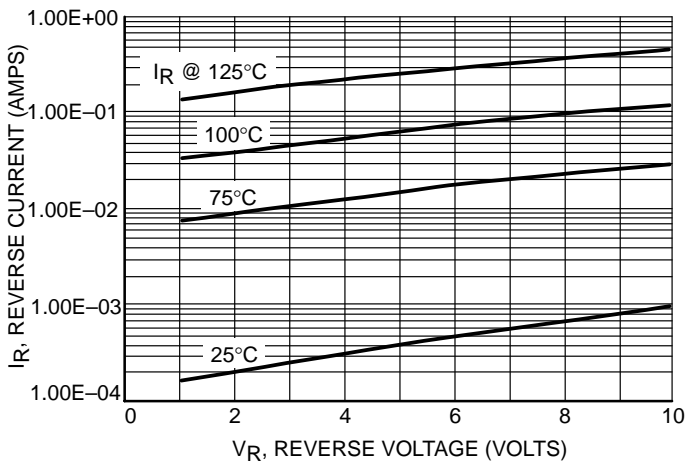


Figure 3. Typical Reverse Current

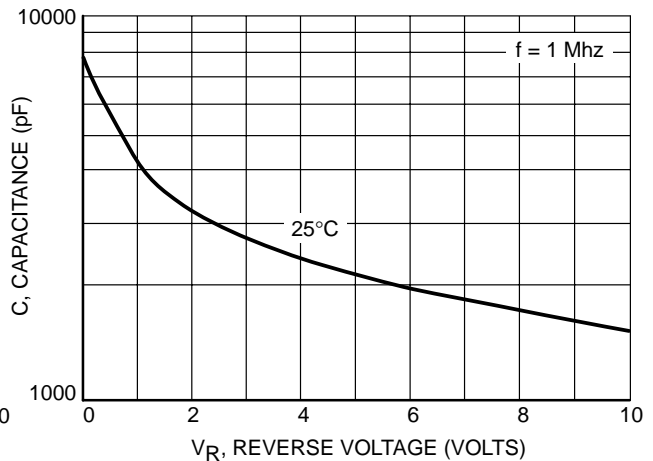


Figure 4. Typical Capacitance

# MBRS410LT3

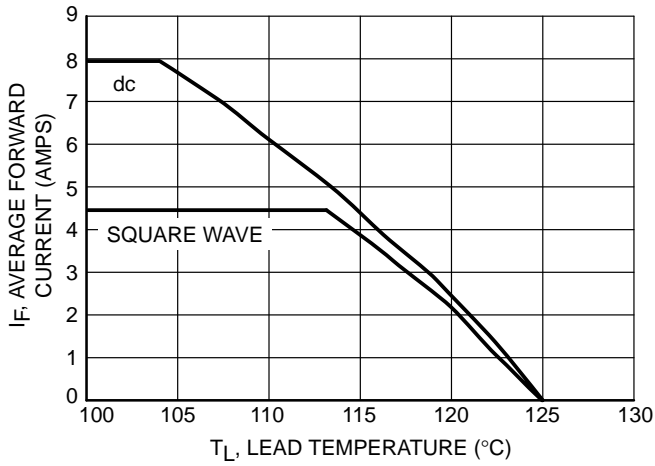


Figure 5. Current Derating (Junction-to-Lead)

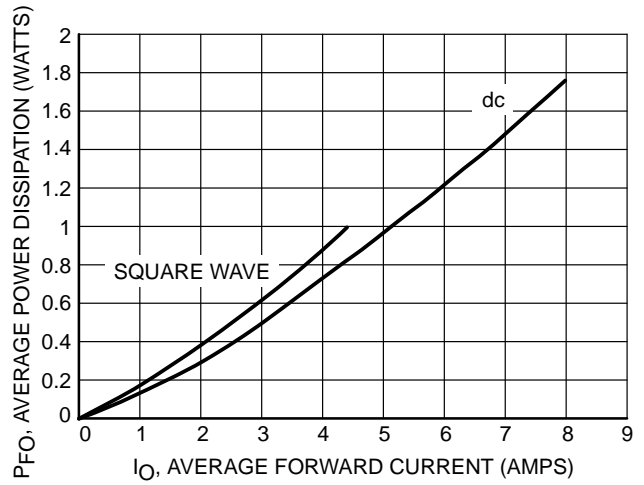


Figure 6. Forward Power Dissipation

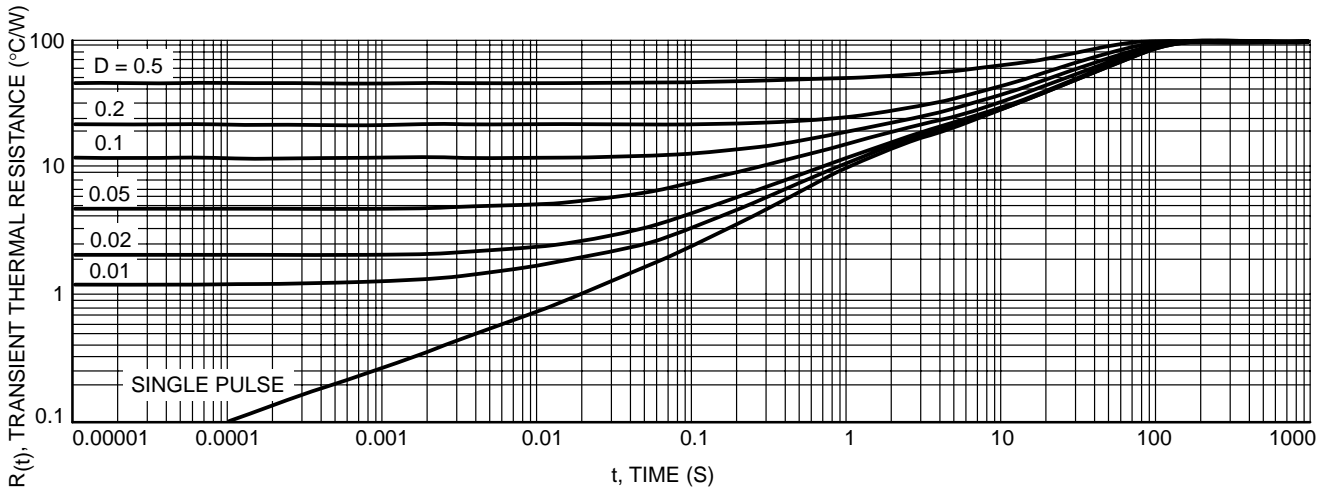


Figure 7. Thermal Response, Junction to Ambient (min pad)

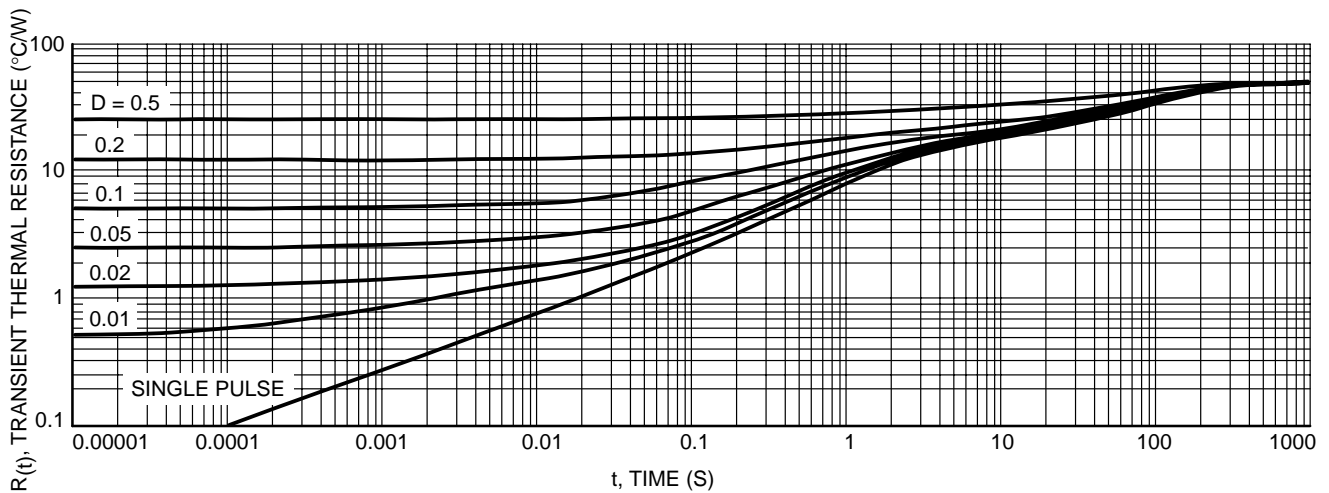
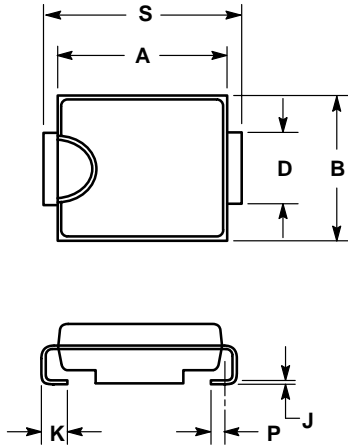


Figure 8. Thermal Response, Junction to Ambient (1 inch pad)

# MBRS410LT3


## PACKAGE DIMENSIONS

SMC  
PLASTIC PACKAGE  
CASE 403-03  
ISSUE B



- 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	0.260	0.280	6.60	7.11
B	0.220	0.240	5.59	6.10
C	0.075	0.095	1.90	2.41
D	0.115	0.121	2.92	3.07
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	0.305	0.320	7.75	8.13

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