

# MBRS360T3

Preferred Devices

## Surface Mount Schottky Power Rectifier

This device employs 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.

### Features

- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guard-Ring for Stress Protection
- Pb-Free Package is Available

### Mechanical Characteristics

- Case: Epoxy, Molded, Epoxy Meets UL 94 V-0
- 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
- Polarity: Notch in Plastic Body Indicates Cathode Lead
- Device Meets MSL 1 Requirements
- ESD Ratings: Machine Model, A  
Human Body Model, 1B

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	60	V
Average Rectified Forward Current	$I_{F(AV)}$	3.0 @ $T_L = 137^\circ\text{C}$ 4.0 @ $T_L = 127^\circ\text{C}$	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	125	A
Storage Temperature Range	$T_{stg}$	- 65 to +175	°C
Operating Junction Temperature (Note 1)	$T_J$	- 65 to +175	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .

## SCHOTTKY BARRIER RECTIFIERS 3.0 AMPERES, 60 VOLTS



SMC  
CASE 403  
PLASTIC

### MARKING DIAGRAM



B36 = Specific Device Code  
A = Assembly Location  
Y = Year  
WW = Work Week  
▪ = Pb-Free Package  
(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
MBRS360T3	SMC	2500/Tape & Reel
MBRS360T3G	SMC (Pb-Free)	2500/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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

# MBRS360T3

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Lead (Note 2)	$R_{\theta JL}$	11	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (Note 2)	$R_{\theta JA}$	164	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (Note 3)	$R_{\theta JA}$	71	$^{\circ}\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 4) ( $i_F = 3.0\text{ A}$ , $T_J = 25^{\circ}\text{C}$ )	$V_F$	0.740	V
Maximum Instantaneous Reverse Current (Note 4) (Rated dc Voltage, $T_J = 25^{\circ}\text{C}$ ) (Rated dc Voltage, $T_J = 100^{\circ}\text{C}$ )	$i_R$	0.15 10	mA

- Mounted with minimum recommended pad size, PC Board FR4.
- 1 inch square pad size (1 x 0.5 inch for each lead) on FR4 board.
- Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

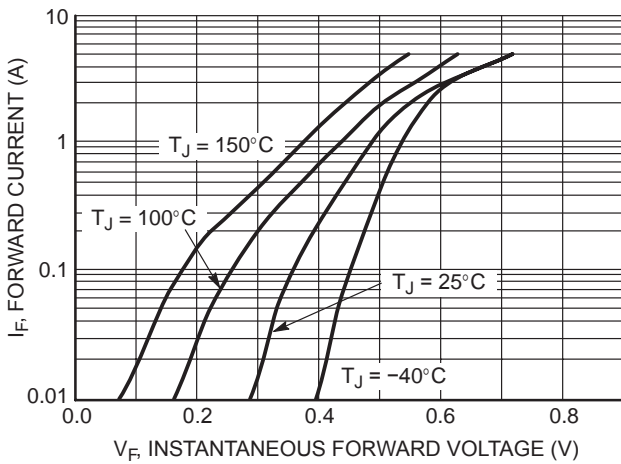


Figure 1. Typical Forward Voltage

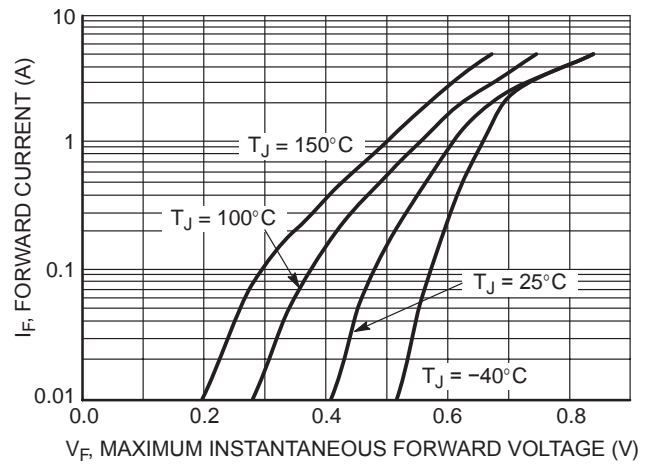


Figure 2. Maximum Forward Voltage

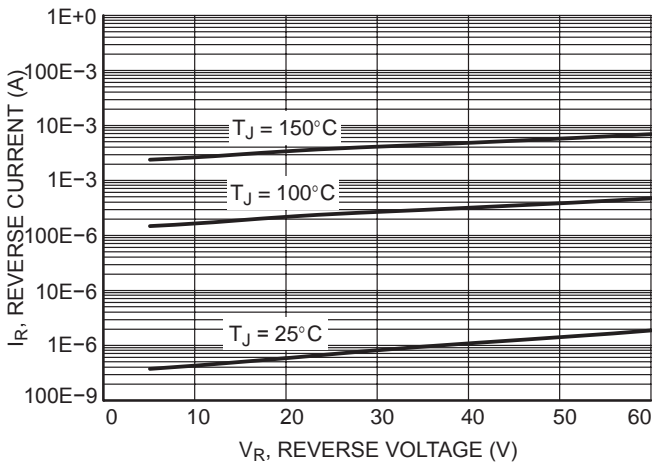


Figure 3. Typical Reverse Current

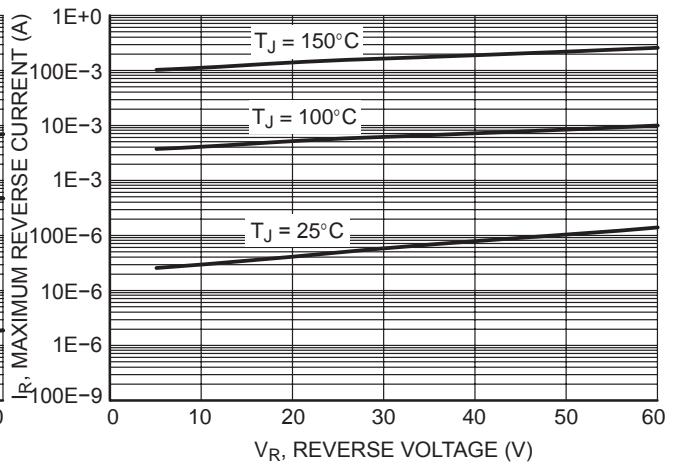


Figure 4. Maximum Reverse Current

# MBRS360T3

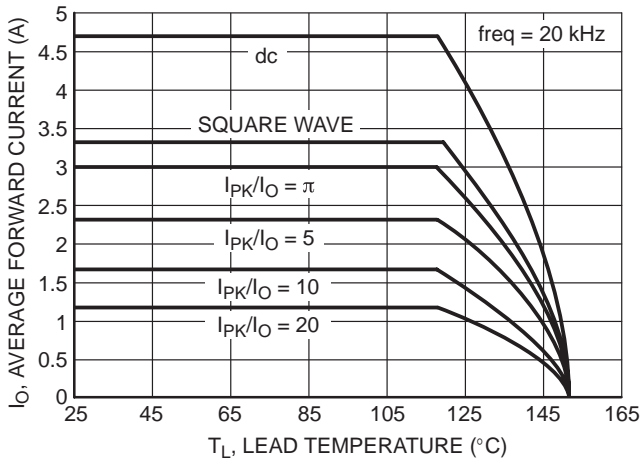


Figure 5. Current Derating

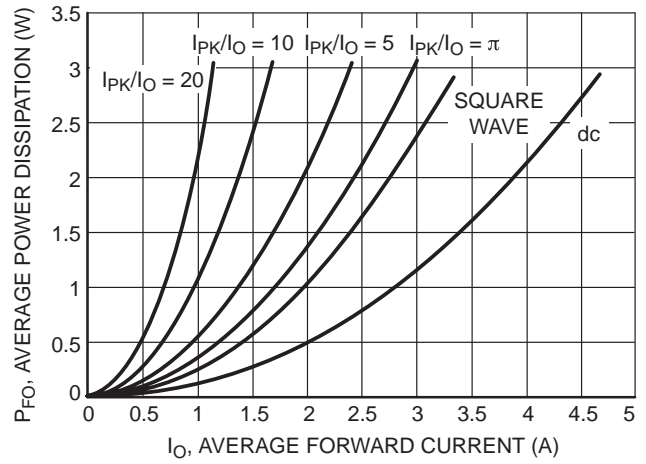


Figure 6. Forward Power Dissipation

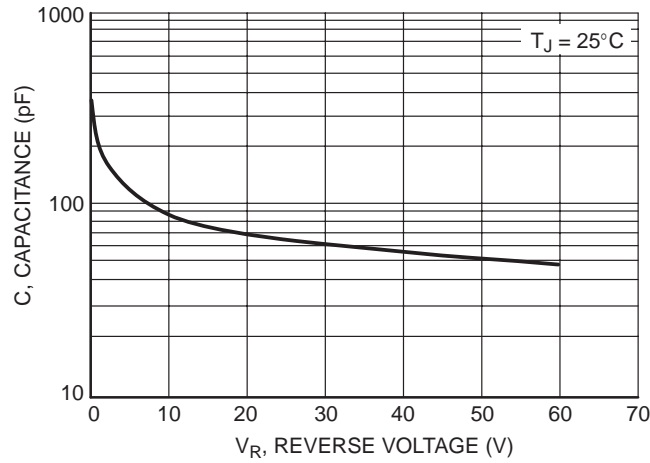


Figure 7. Typical Capacitance

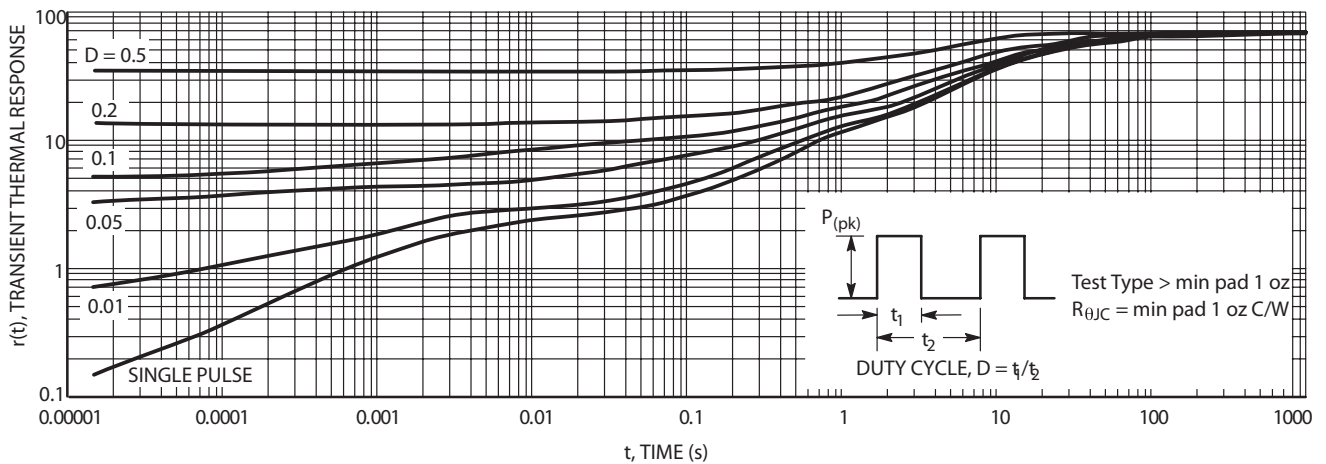
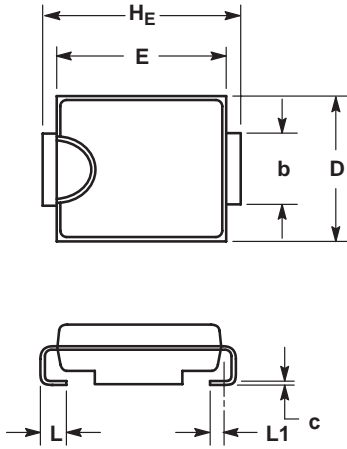


Figure 8. Thermal Response

# MBRS360T3

## PACKAGE DIMENSIONS

SMC  
PLASTIC PACKAGE  
CASE 403-03  
ISSUE E

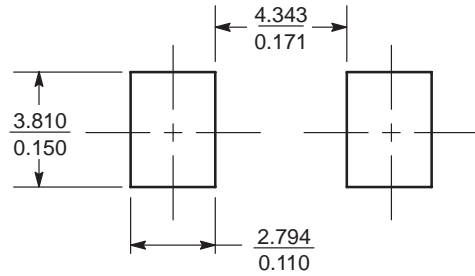


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. D DIMENSION SHALL BE MEASURED WITHIN DIMENSION P.
4. 403-01 THRU -02 OBSOLETE, NEW STANDARD 403-03.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.90	2.13	2.41	0.075	0.084	0.095
A1	0.05	0.10	0.15	0.002	0.004	0.006
b	2.92	3.00	3.07	0.115	0.118	0.121
c	0.15	0.23	0.30	0.006	0.009	0.012
D	5.59	5.84	6.10	0.220	0.230	0.240
E	6.60	6.86	7.11	0.260	0.270	0.280
HE	7.75	7.94	8.13	0.305	0.313	0.320
L	0.76	1.02	1.27	0.030	0.040	0.050
L1	0.51 REF			0.020 REF		

### SOLDERING FOOTPRINT\*



SCALE 4:1  $\left(\frac{\text{mm}}{\text{inches}}\right)$