

# 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.

- Small Compact Surface Mountable Package with J-Bend Leads
- Rectangular Package for Automated Handling
- Highly Stable Oxide Passivated Junction
- Very Low Forward Voltage Drop (0.55 Volts Max @ 1.0 A,  $T_J = 25^{\circ}\text{C}$ )
- Excellent Ability to Withstand Reverse Avalanche Energy Transients
- Guardring for Stress Protection

## Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 95 mg (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes:  $260^{\circ}\text{C}$  Max. for 10 Seconds
- Shipped in 12 mm Tape and Reel, 2500 units per reel
- Cathode Polarity Band
- Marking: B14

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	40	Volts
Average Rectified Forward Current $T_L = 115^{\circ}\text{C}$	$I_F(AV)$	1.0	Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	40	Amps
Operating Junction Temperature	$T_J$	- 65 to +125	$^{\circ}\text{C}$

## THERMAL CHARACTERISTICS

Thermal Resistance — Junction to Lead ( $T_L = 25^{\circ}\text{C}$ )	$R_{\theta JL}$	12	$^{\circ}\text{C/W}$
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## ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (1) ( $i_F = 1.0\text{ A}$ , $T_J = 25^{\circ}\text{C}$ )	$V_F$	0.6	Volts
Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_J = 25^{\circ}\text{C}$ ) (Rated dc Voltage, $T_J = 100^{\circ}\text{C}$ )	$i_R$	1.0 10	mA

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

**MBRS140T3**

Motorola Preferred Device

**SCHOTTKY BARRIER  
RECTIFIERS  
1.0 AMPERE  
40 VOLTS**



**CASE 403A-03  
SMB**

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

Rev 3



# MBRS140T3

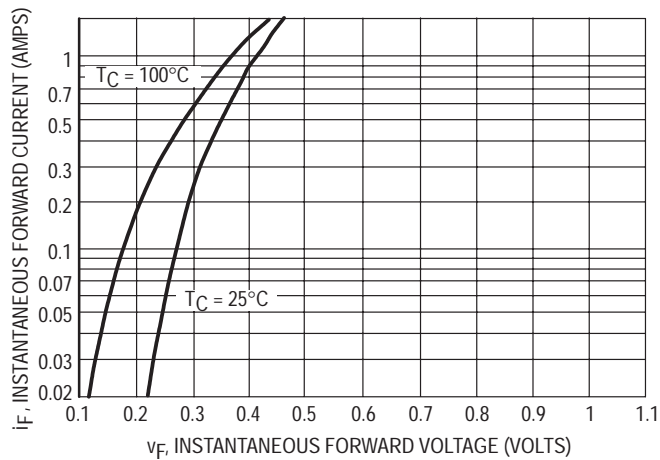


Figure 1. Typical Forward Voltage

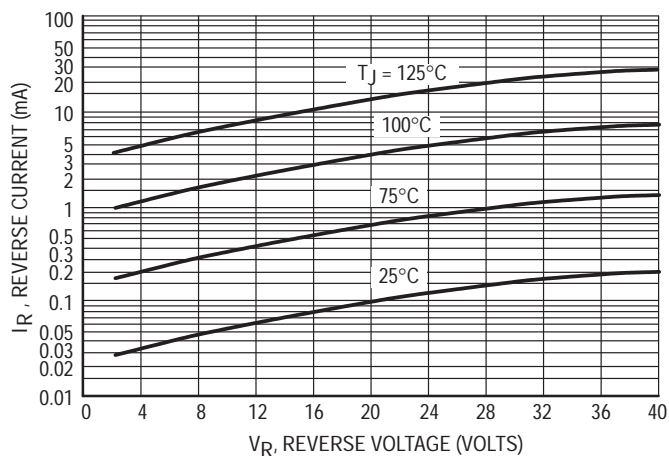


Figure 2. Typical Reverse Current

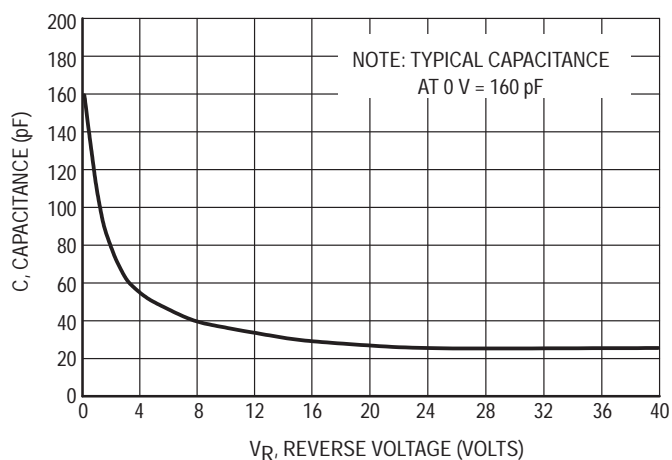


Figure 3. Typical Capacitance

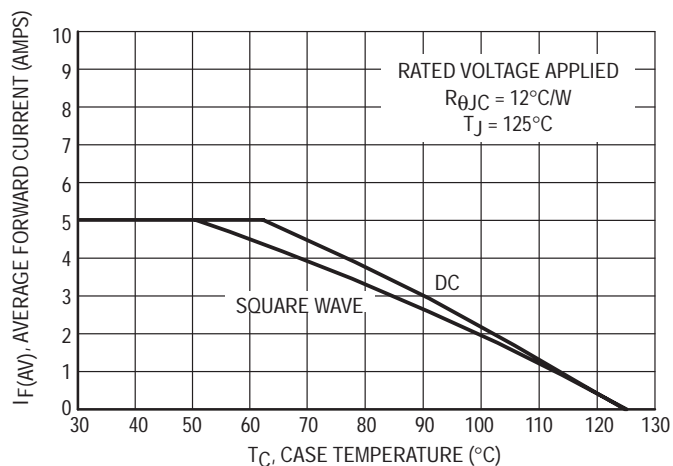


Figure 4. Current Derating (Case)

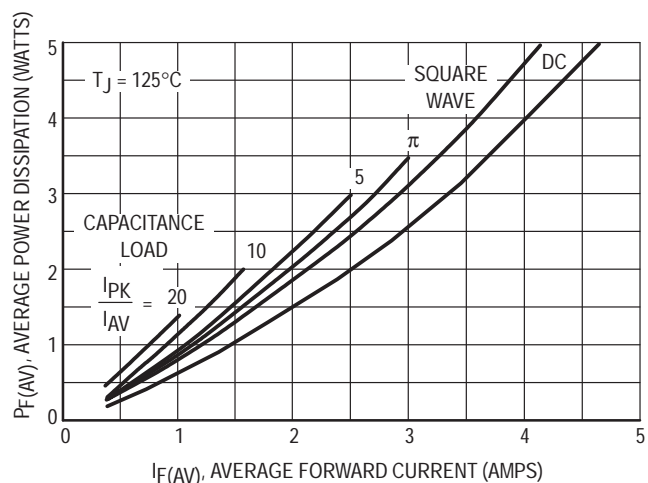
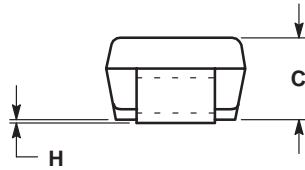
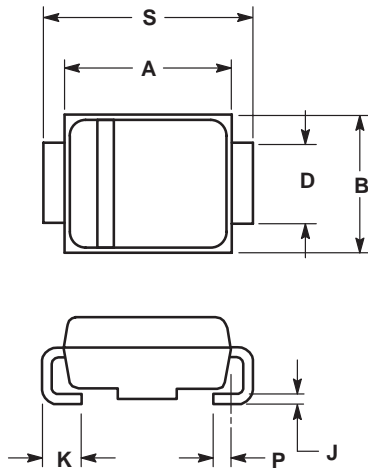


Figure 5. Power Dissipation

## PACKAGE DIMENSIONS




## 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

**CASE 403A-03  
ISSUE D**

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