

Product Preview

Medium Power Surface Mount Products

1A Schottky Rectifier

Powermite® Package

Powermite devices are an advanced series of high performance, Schottky rectifiers in a micro miniature, space saving surface mount package. These miniature surface mount rectifiers feature low V_F and low leakage in a very small package. The Powermite package is roughly 50% smaller and lower profile than any existing two leaded, 1 amp surface mount rectifier packages and slightly larger than the industry standard SOT-23. Powermite rectifiers are designed for use in low voltage applications where efficiency, low leakage and size/height are important. Because of their small size they are ideal for use in portable and battery powered products such as cellular and cordless phones, chargers, notebook computers, printers, PDAs and PCMCIA cards. Typical applications are ac/dc and dc-dc converters, reverse battery protection, and "Oring" of multiple supply voltages and any other applications where performance and size are critical.

Features

- Low Profile – maximum height of 1.1 mm
- Small Footprint – Footprint area of 8.45 mm²
- Low V_F Provides Higher Efficiency and Extends Battery Life
- Supplied in 12mm tape and reel – 12,000 units per reel
- Powermite is JEDEC Registered as DO-216AA

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Maximum Reverse Voltage MBRM5817T3 MBRM5819T3	V_{RRM}	20 40	V
Maximum Average Output Current $T_{TAB1} = 100^\circ\text{C}$	$I_F(AV)$	1.0	A
Thermal Resistance — Junction to TAB1 — Junction to Bottom	$R_{\theta JT}$ $R_{\theta JB}$	30 10	$^\circ\text{C/W}$
Non-Repetitive Sinusoidal Surge Current (8.3ms)	I_{FSM}	50	A
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Temperature for Soldering Purposes, 10 seconds maximum	T_L	260	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

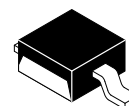
Test	Symbol	Value	Unit
Maximum Forward Voltage ⁽¹⁾ , $I_{FM} = 0.1\text{A}$ MBRM5817T3 MBRM5819T3	V_{FM}	0.36 0.39	V
Maximum Forward Voltage ⁽¹⁾ , $I_{FM} = 1.0\text{A}$ MBRM5817T3 MBRM5819T3	V_{FM}	0.45 0.55	V
Maximum Forward Voltage ⁽¹⁾ , $I_{FM} = 3.0\text{A}$ MBRM5817T3 MBRM5819T3	V_{FM}	0.65 0.85	V
Maximum Reverse Current ⁽¹⁾ , $V_R = \text{Max Rating}$ MBRM5817T3 MBRM5819T3	I_{RM}	1.0 1.0	mA
Typical Junction Capacitance MBRM5817T3 MBRM5819T3	C	105 60	pF

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$.

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MBRM5817T3
MBRM5819T3

**SCHOTTKY BARRIER
RECTIFIERS
1 AMPERE
20 & 40 VOLTS**



CASE 457-01

TYPICAL ELECTRICAL CHARACTERISTICS

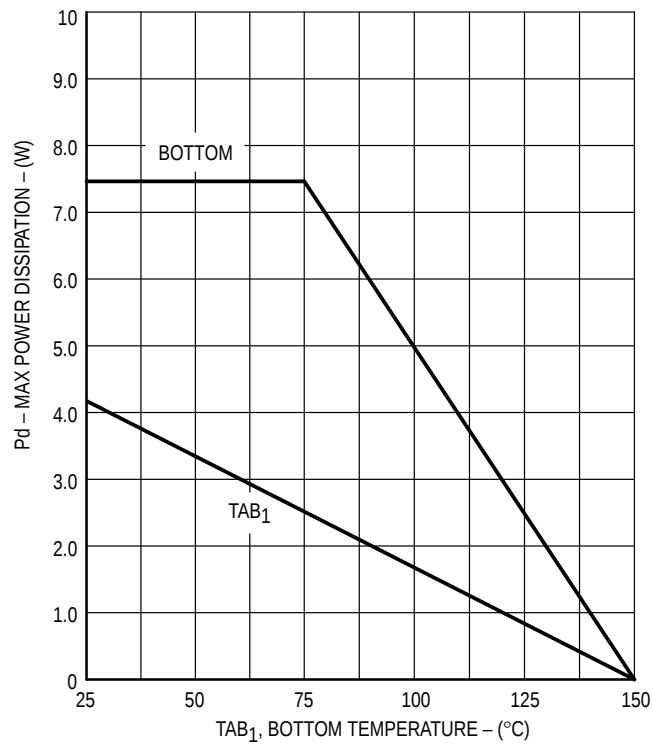
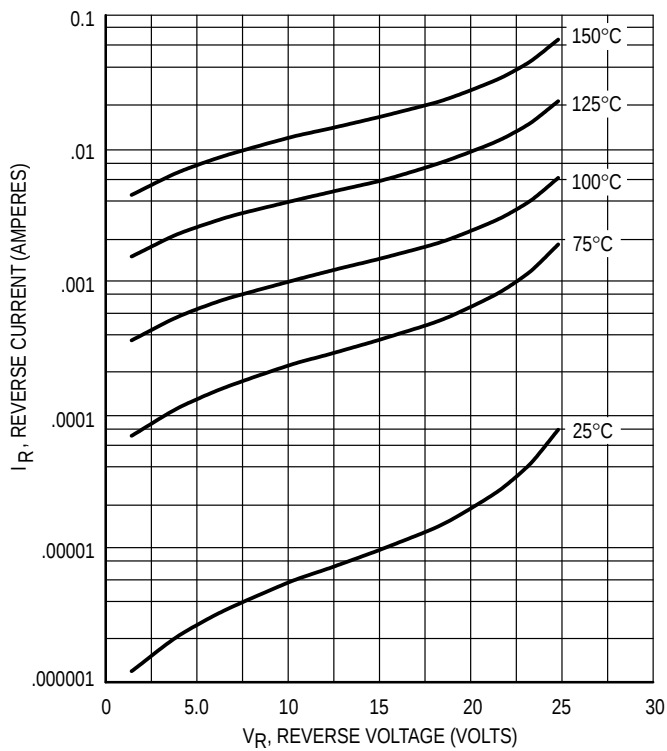
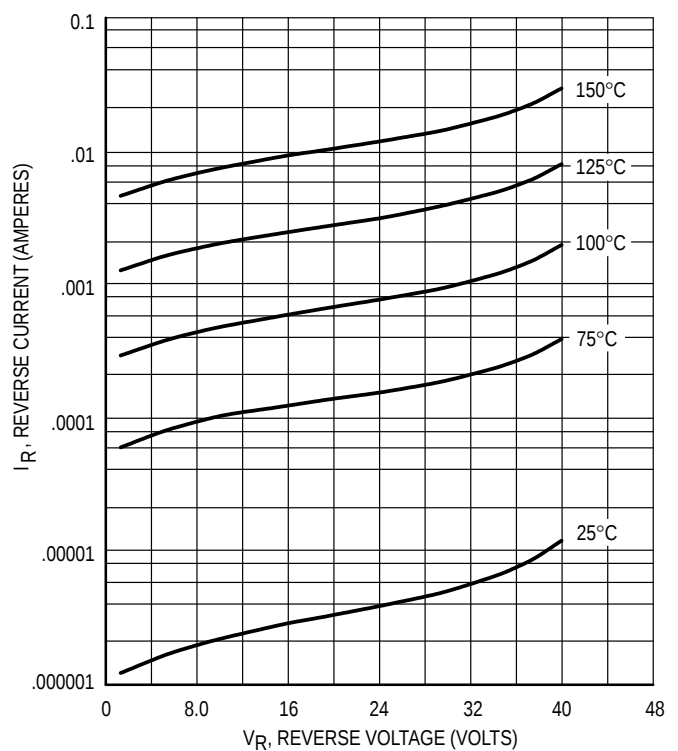


Figure 1. Power Rating for Powermite

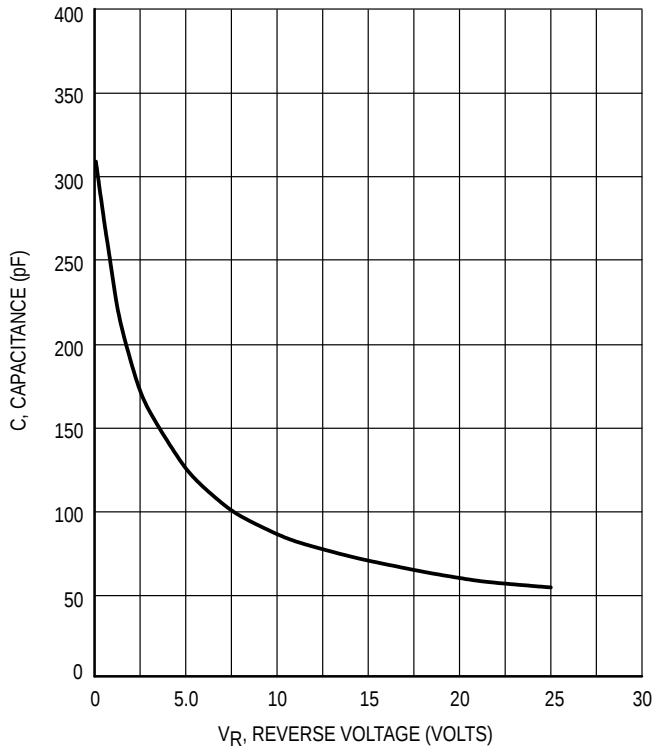


**Figure 2. MBRM5817T3 Schottky Powermite
Typical Reverse Current vs. Voltage**

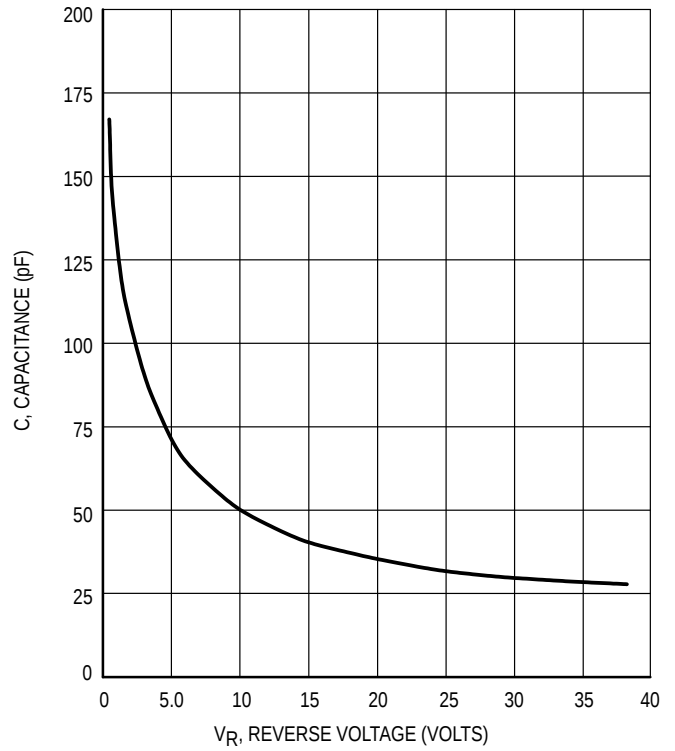


**Figure 3. MBRM5819T3 Schottky Powermite
Typical Reverse Current vs. Voltage**

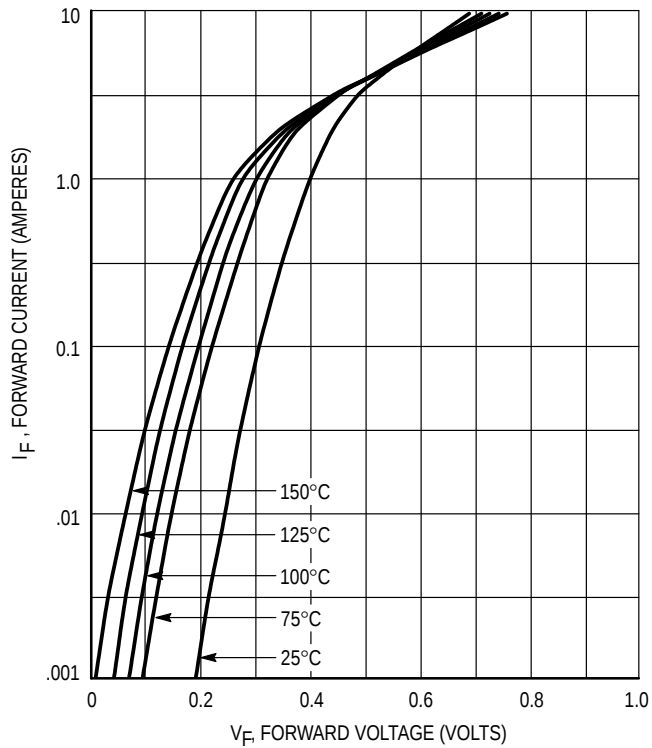
TYPICAL ELECTRICAL CHARACTERISTICS



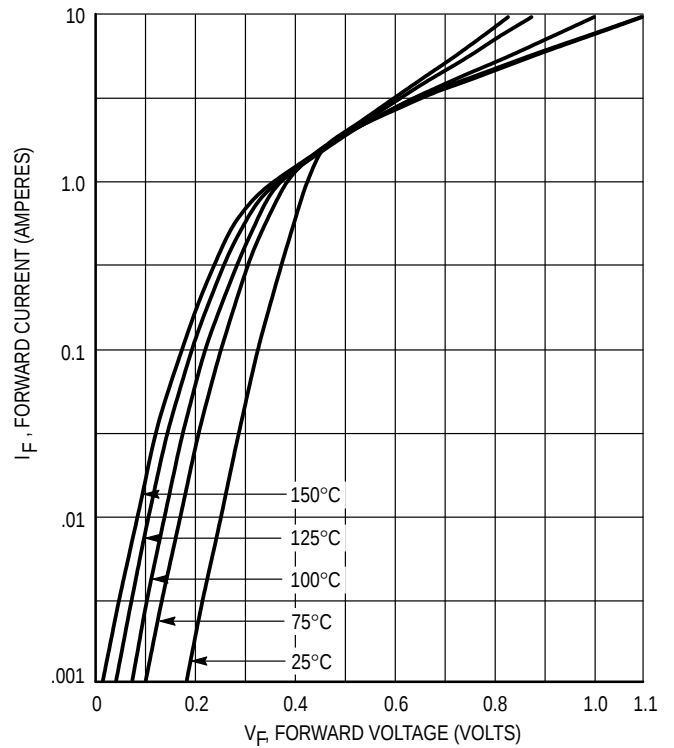
**Figure 4. MBRM5817T3 Schottky Powermite
Typical Junction Capacitance**



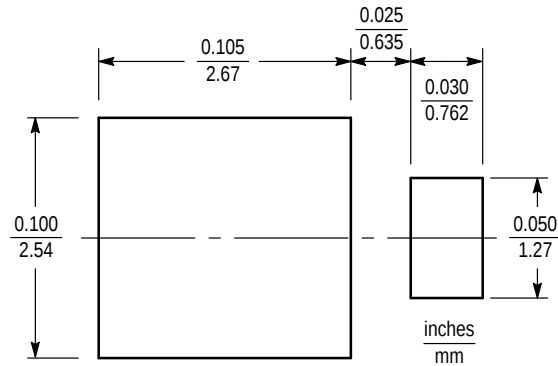
**Figure 5. MBRM5819T3 Schottky Powermite
Typical Junction Capacitance**



**Figure 6. MBRM5817T3 Schottky Powermite
Typical Forward Voltage vs. Forward Current**

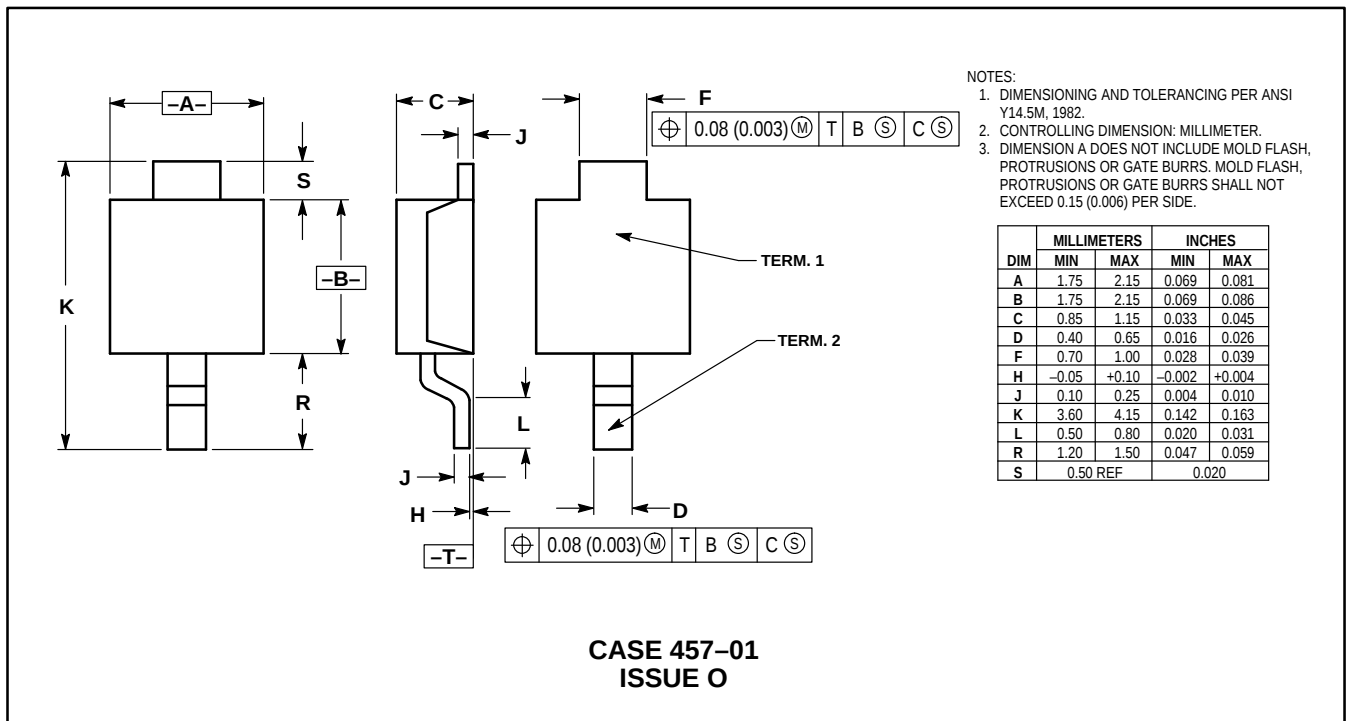


**Figure 7. MBRM5819T3 Schottky Powermite
Typical Forward Voltage vs. Forward Current**



Minimum Recommended Footprint

PACKAGE DIMENSIONS



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