

MBRM110E

Surface Mount Schottky Power Rectifier

POWERMITE®

Power Surface Mount Package

The Schottky Powermite employs the Schottky Barrier principle with a barrier metal and epitaxial construction that produces optimal forward voltage drop–reverse current tradeoff. The advanced packaging techniques provide for a highly efficient micro miniature, space saving surface mount Rectifier. With its unique heatsink design, the Powermite has the same thermal performance as the SMA while being 50% smaller in footprint area, and delivering one of the lowest height profiles, < 1.1 mm in the industry. Because of its small size, it is 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 application where performance and size are critical.

Features:

- Low I_R Extends Battery Life
- Low Profile – Maximum Height of 1.1 mm
- Small Footprint – Footprint Area of 8.45 mm²
- 150°C Operating Junction Temperature
- Low Thermal Resistance with Direct Thermal Path of Die on Exposed Cathode Heat Sink

Mechanical Characteristics:

- Powermite is JEDEC Registered as D0–216AA
- Case: Molded Epoxy
- Epoxy Meets UL 94V–O at 1/8"
- Weight: 62 mg (approximately)
- Lead and Mounting Surface Temperature for Soldering Purposes. 260°C Maximum for 10 Seconds

MAXIMUM RATINGS

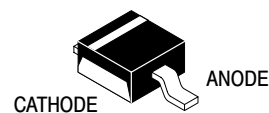
Please See the Table on the Following Page



ON Semiconductor™

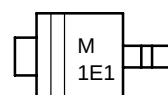
<http://onsemi.com>

SCHOTTKY BARRIER RECTIFIER 1.0 AMPERES 10 VOLTS



POWERMITE
CASE 457
PLASTIC

MARKING DIAGRAM



1E1 = Device Code
M = Date Code

ORDERING INFORMATION

Device	Package	Shipping
MBRM110ET1	POWERMITE	3,000/Tape & Reel
MBRM110ET3	POWERMITE	12,000/Tape & Reel

MBRM110E

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 ($T_L = 100^\circ\text{C}$)	I_O	1.0	A
Non-Repetitive Peak Surge Current (Non-Repetitive peak surge current, halfwave, single phase, 60 Hz)	I_{FSM}	50	A
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature	T_J	-55 to +150	$^\circ\text{C}$
Voltage Rate of Change (Rated V_R , $T_J = 25^\circ\text{C}$)	dv/dt	10,000	$\text{V}/\mu\text{s}$

THERMAL CHARACTERISTICS

Thermal Resistance – Junction-to-Lead (Anode) (Note 1)	R_{tjl}	35	$^\circ\text{C}/\text{W}$
Thermal Resistance – Junction-to-Tab (Cathode) (Note 1)	R_{tjtab}	23	
Thermal Resistance – Junction-to-Ambient (Note 1)	R_{tja}	277	

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 0.1\text{ A}$) ($I_F = 1.0\text{ A}$) ($I_F = 2.0\text{ A}$)	V_F	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	V
		0.455	0.360	
		0.530	0.455	
		0.595	0.540	
Maximum Instantaneous Reverse Current (Note 2) ($V_R = 5.0\text{ V}$) ($V_R = 10\text{ V}$)	I_R	$T_J = 25^\circ\text{C}$	$T_J = 100^\circ\text{C}$	μA
		0.5	300	
		1.0	500	

1. Mounted with minimum recommended pad size, PC Board FR4, See Figures 8 and 9.
2. Pulse Test: Pulse Width $\leq 250\text{ }\mu\text{s}$, Duty Cycle $\leq 2\%$.

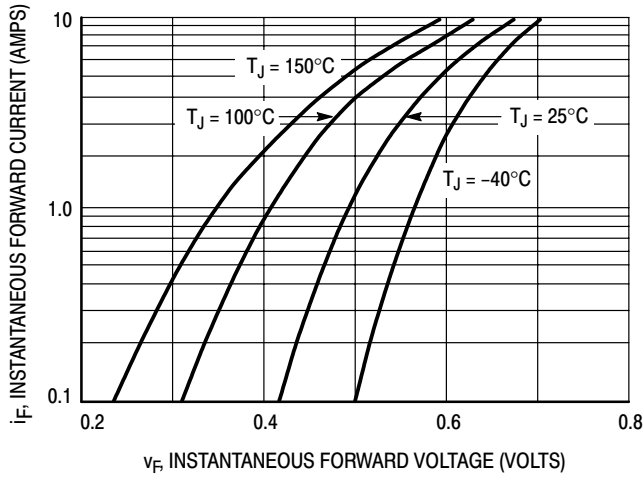


Figure 1. Typical Forward Voltage

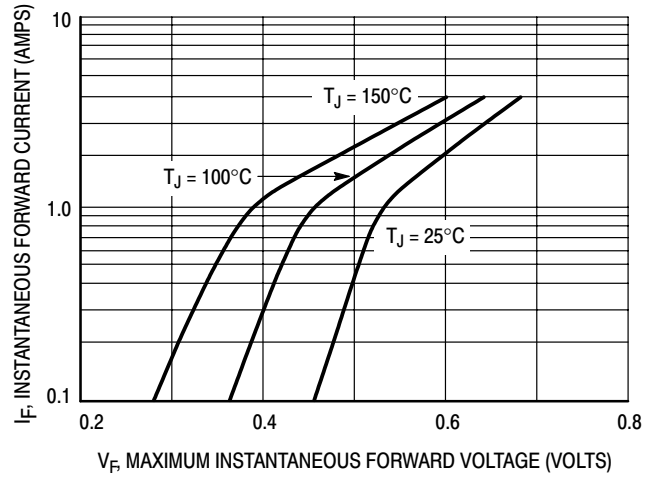


Figure 2. Maximum Forward Voltage

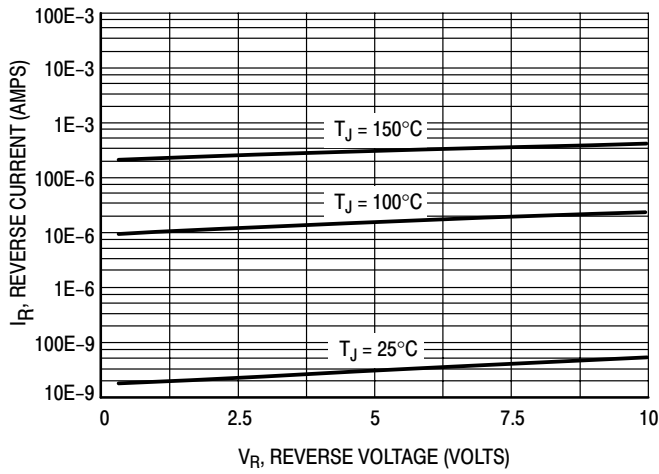


Figure 3. Typical Reverse Current

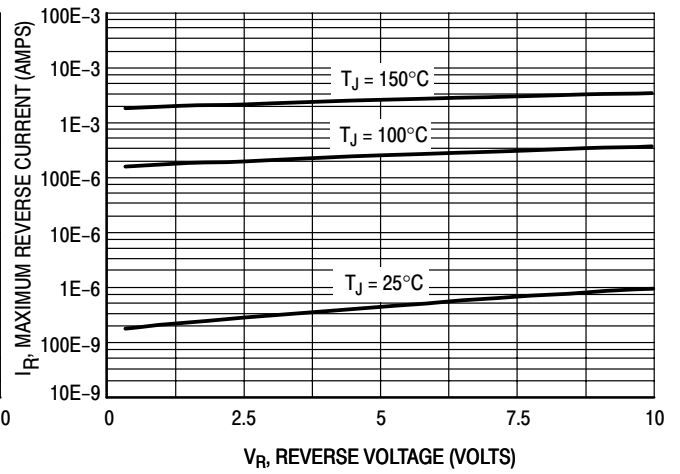


Figure 4. Maximum Reverse Current

MBRM110E

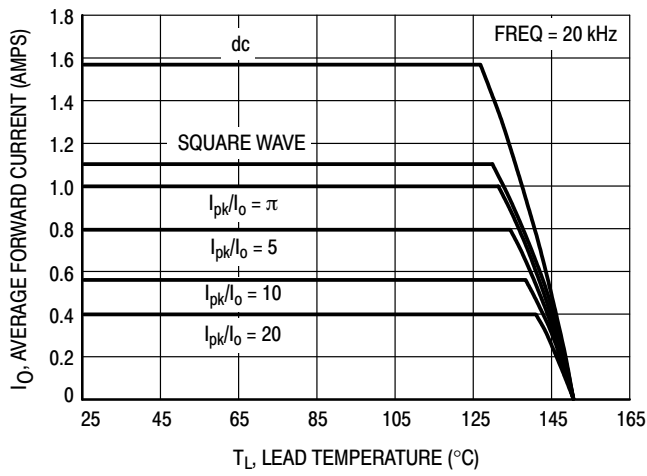


Figure 5. Current Derating

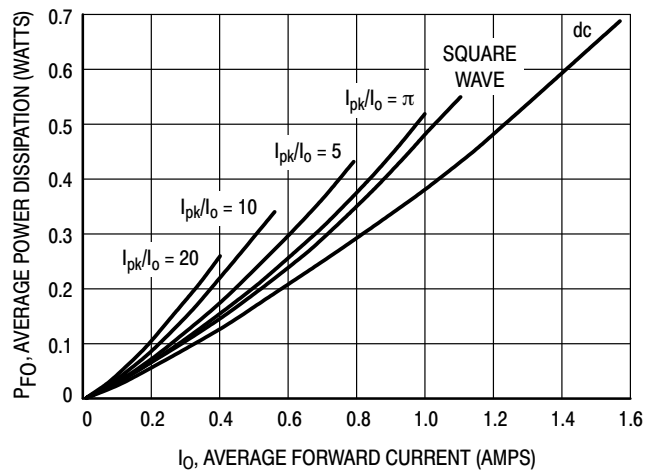


Figure 6. Forward Power Dissipation

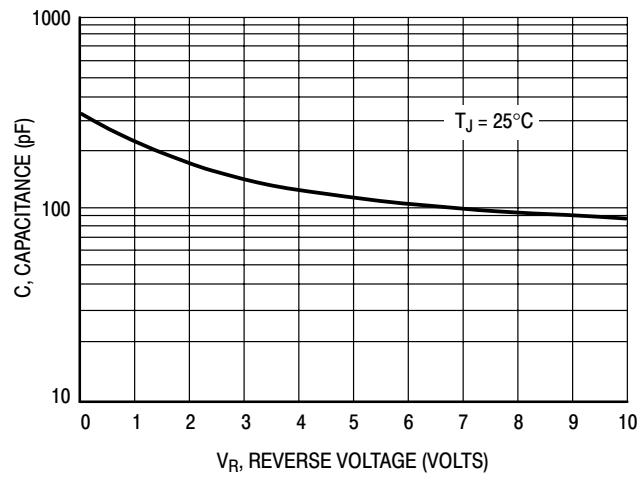


Figure 7. Capacitance

MBRM110E

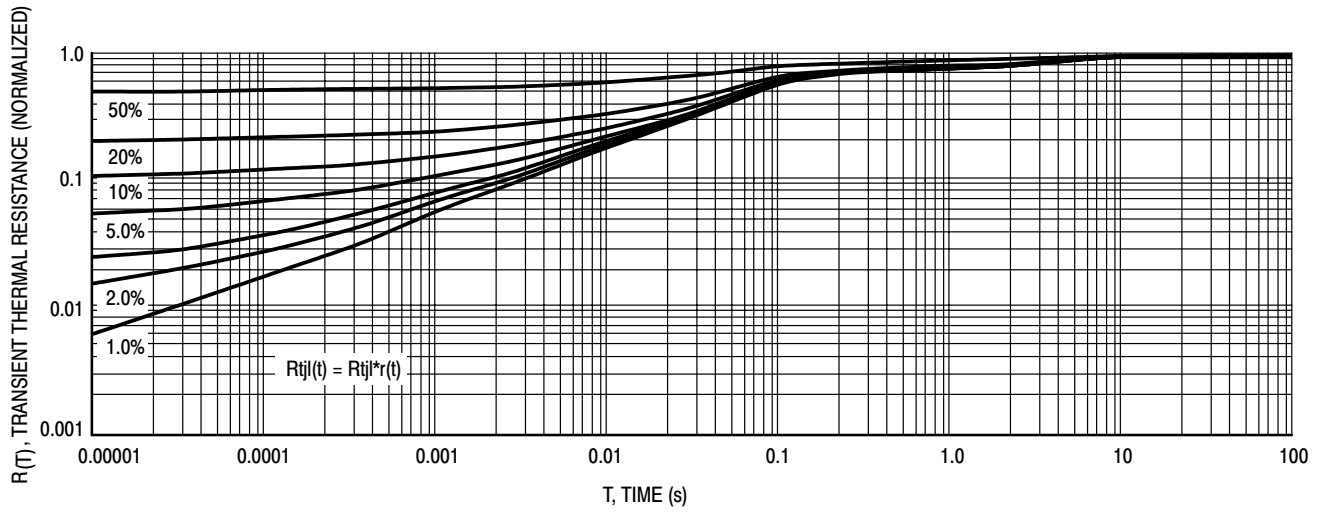


Figure 8. Thermal Response Junction to Lead

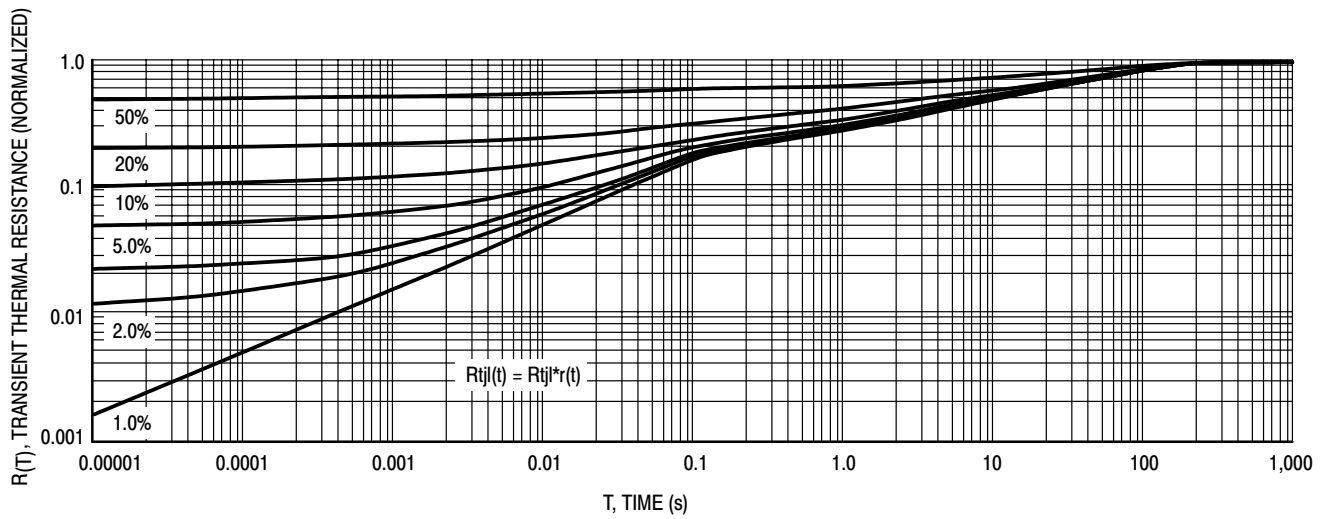
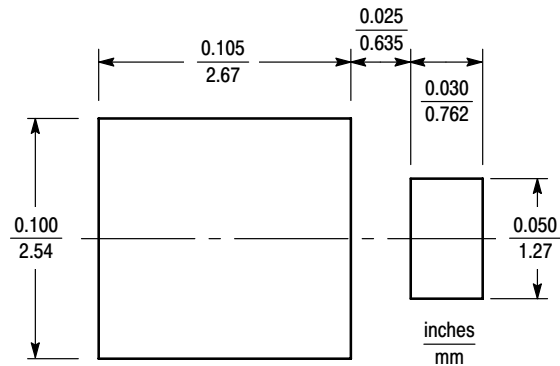


Figure 9. Thermal Response Junction to Ambient

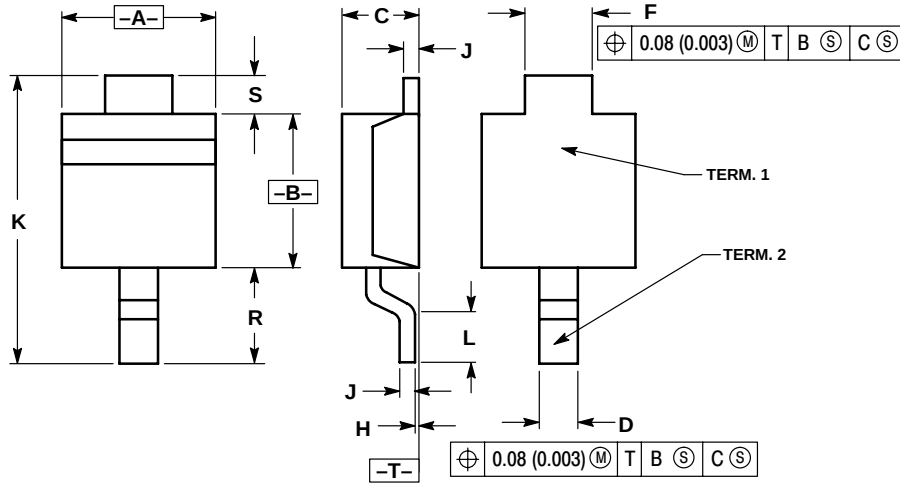


Minimum Recommended Footprint

MBRM110E

PACKAGE DIMENSIONS

POWERMITE PLASTIC PACKAGE CASE 457-04 ISSUE D



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.75	2.05	0.069	0.081
B	1.75	2.18	0.069	0.086
C	0.85	1.15	0.033	0.045
D	0.40	0.69	0.016	0.027
F	0.70	1.00	0.028	0.039
H	-0.05	+0.10	-0.002	+0.004
J	0.10	0.25	0.004	0.010
K	3.60	3.90	0.142	0.154
L	0.50	0.80	0.020	0.031
R	1.20	1.50	0.047	0.059
S	0.50 REF		0.019 REF	

Notes

POWERMITE is a registered trademark of and used under a license from MicroSemi Corporation

ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer.

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: ONlit@hibbertco.com

N. American Technical Support: 800-282-9855 Toll Free USA/Canada

JAPAN: ON Semiconductor, Japan Customer Focus Center
4-32-1 Nishi-Gotanda, Shinagawa-ku, Tokyo, Japan 141-0031
Phone: 81-3-5740-2700
Email: r14525@onsemi.com

ON Semiconductor Website: <http://onsemi.com>

For additional information, please contact your local Sales Representative.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9