

Features

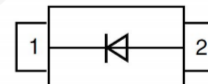
- Schottky barrier diodes
- Low forward voltage drop
- High Junction Temperature
- Moisture sensitivity: level 1, per J-STD-020
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0



SMB(DO-214AA)

Applications

For use in low voltage, high frequency inverters, free wheeling, and polarity protection application



Absolute Maximum Ratings

Ratings at 25 °C, ambient temperature unless otherwise specified

Parameter	Symbol	MBRS2040LT3G-JSM	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	40	V
Maximum RMS voltage	V_{RMS}	40	V
Maximum DC blocking voltage	V_{DC}	40	V
Maximum average forward rectified current	$I_{F(AV)}$	2.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	70	A
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 125	°C

Electrical Characteristics

($T_A = 25\text{ °C}$ unless otherwise specified)

Parameter	Test Conditions	Symbol	MBRS2040LT3G-JSM	Unit
Maximum instantaneous forward voltage	$I_F=4A, T_A=25\text{ °C}$	V_F	0.5	V
Maximum DC reverse current at rated DC blocking voltage	$T_A=25\text{ °C}$	I_R	0.8	mA
	$T_A=125\text{ °C}$		20	
Typical junction capacitance	4.0 V, 1 MHz	C_J	110	pF

Thermal Characteristics

Parameter	Symbol	MBRS2040LT3G-JSM	Unit
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	78	°C/W
	$R_{\theta JC}$	22.5	
	$R_{\theta JI}$	22.5	

Note1: Thermal resistance from junction to lead, mounted on PCB with 5.0×5.0mm copper pads

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship, Quantity	Green
MBRS2040LT3G-JSM	SMB(DO-214AA)	BKJL	-55 to 125 °C	3	T&R, 2500	Rohs

Typical Characteristics ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

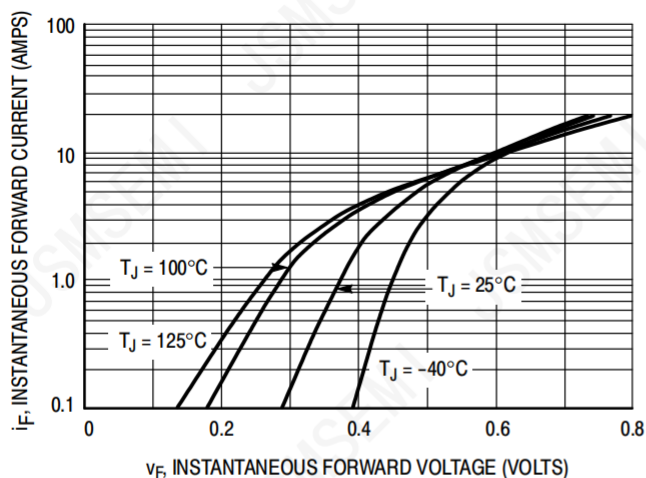


Figure 1. Typical Forward Voltage

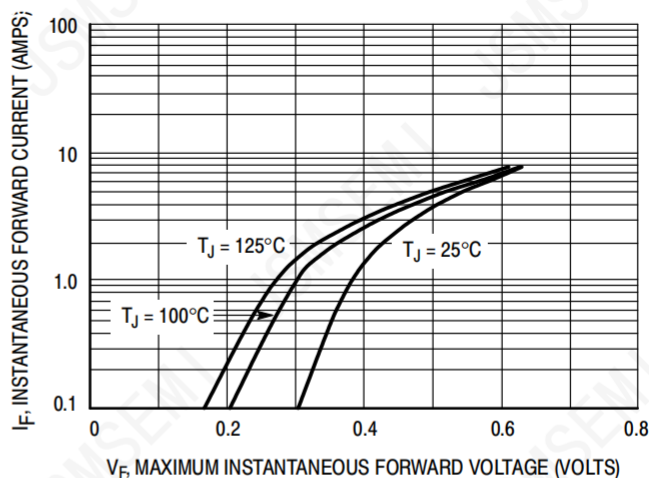


Figure 2. Maximum Forward Voltage

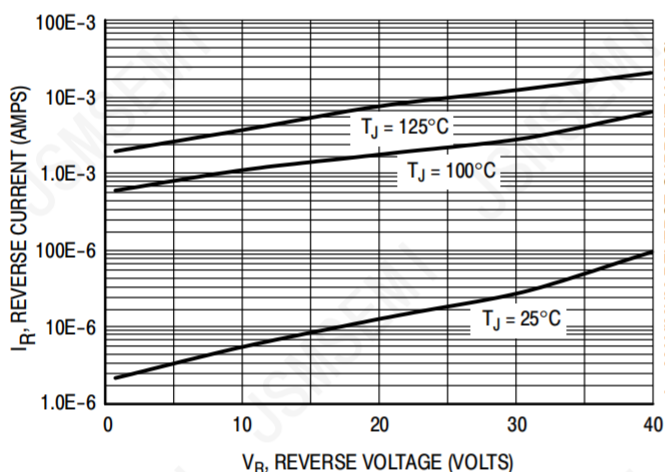


Figure 3. Typical Reverse Current

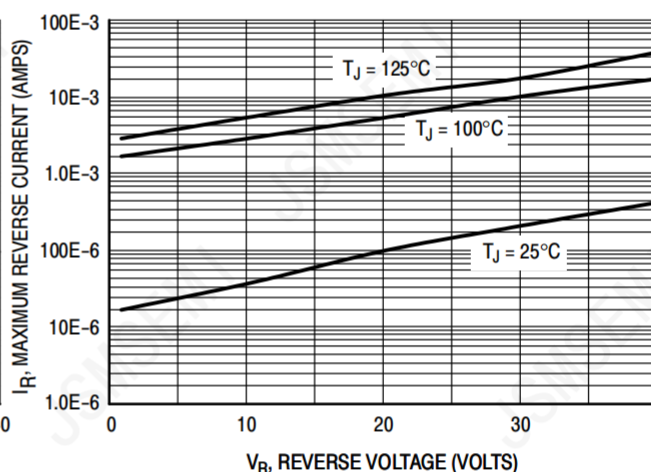


Figure 4. Maximum Reverse Current

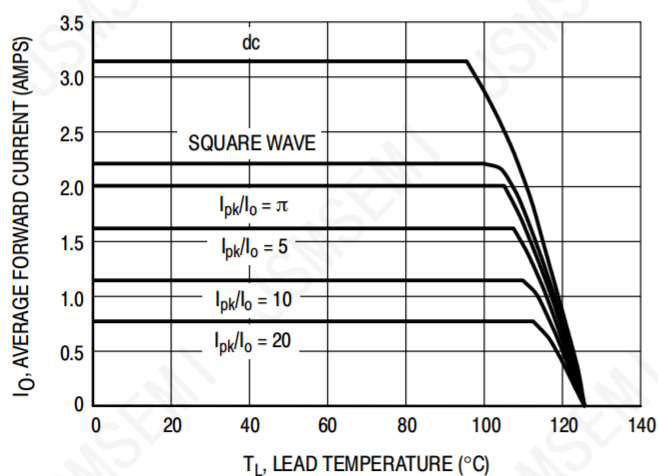


Figure 5. Current Derating

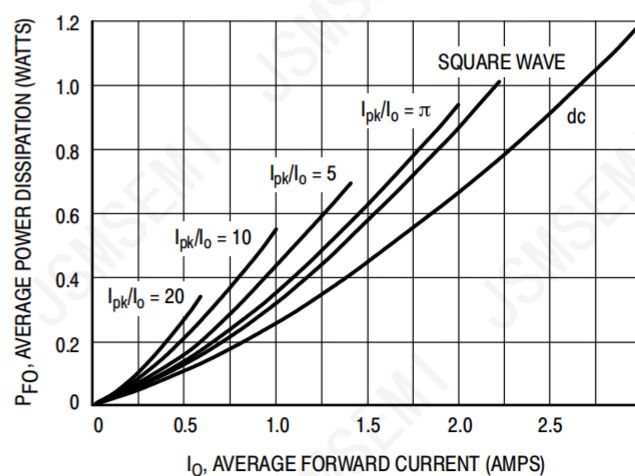


Figure 6. Forward Power Dissipation

Typical Characteristics ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise specified)

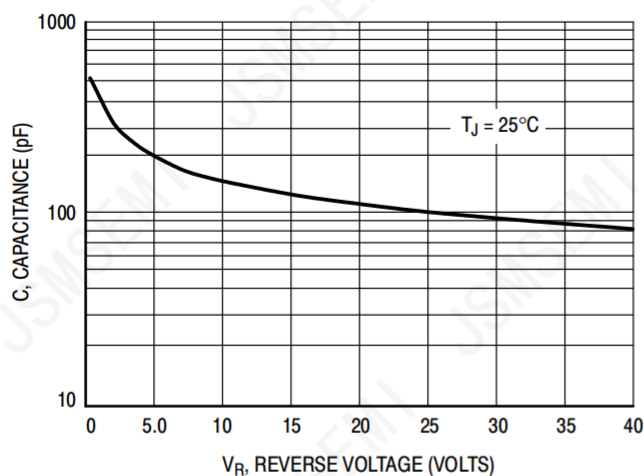


Figure 7. Capacitance

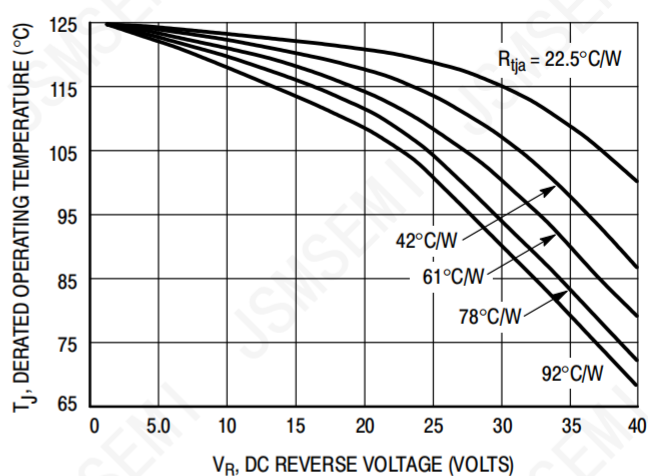


Figure 8. Typical Operating Temperature Derating*

* Reverse power dissipation and the possibility of thermal runaway must be considered when operating this device under any reverse voltage conditions. Calculations of T_J therefore must include forward and reverse power effects. The allowable operating T_J may be calculated from the equation:

$$T_J = T_{Jmax} - r(t)(P_f + P_r) \text{ where}$$

$r(t)$ = thermal impedance under given conditions,
 P_f = forward power dissipation, and
 P_r = reverse power dissipation

This graph displays the derated allowable T_J due to reverse bias under DC conditions only and is calculated as $T_J = T_{Jmax} - r(t)P_r$, where $r(t) = R_{thJA}$. For other power applications further calculations must be performed.

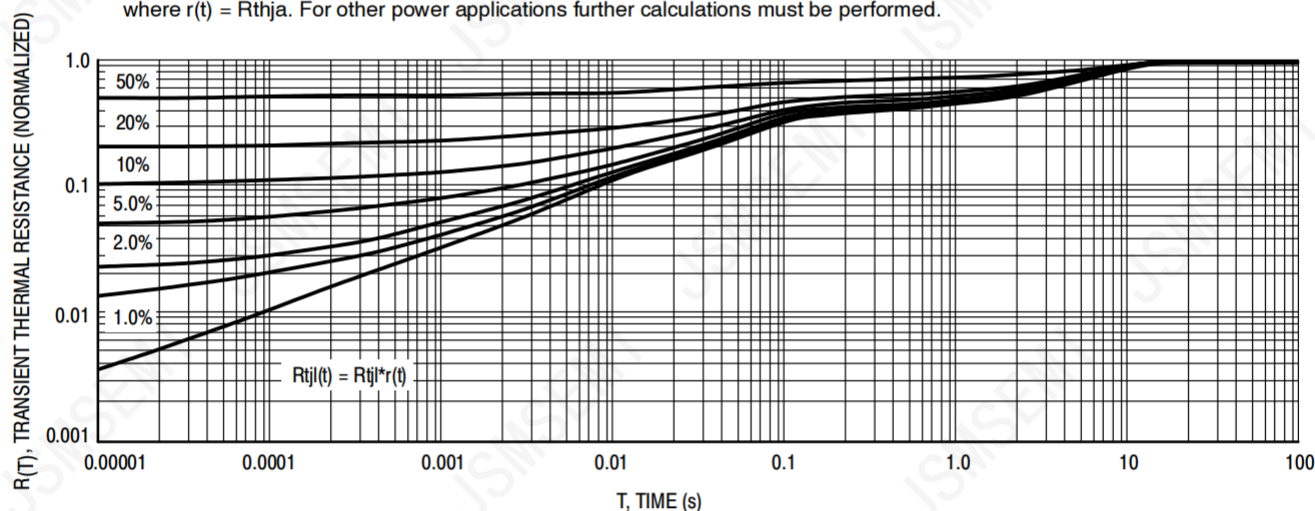
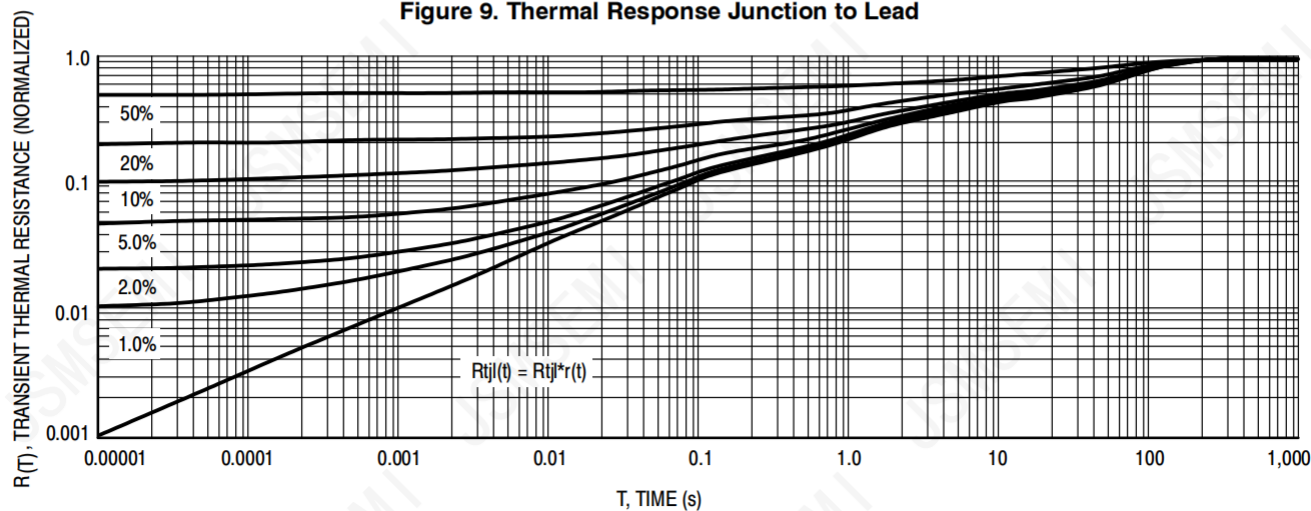


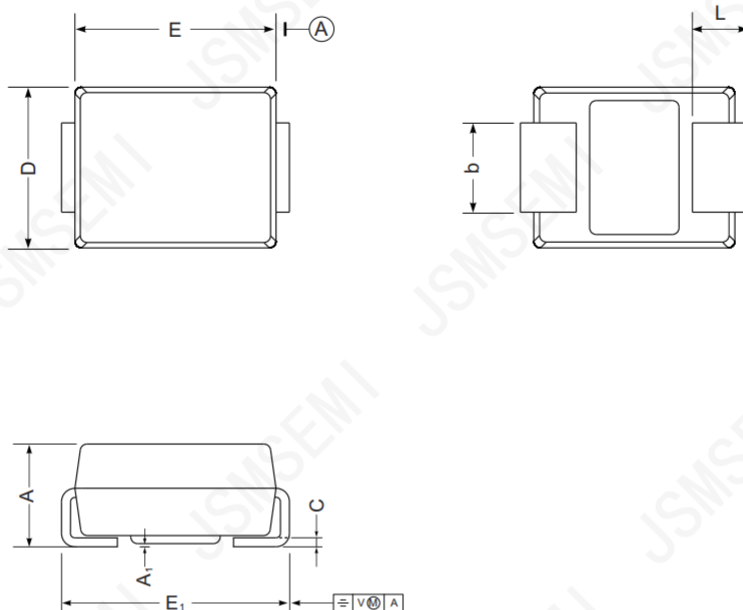
Figure 9. Thermal Response Junction to Lead



Package Information

SMB(DO-214AA)

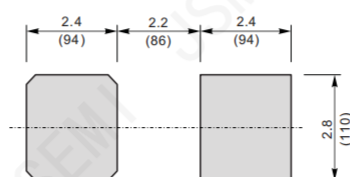
Plastic surface mounted package; 2 leads



SMB mechanical data

UNIT		A	E	D	E ₁	A ₁	L	C	b
mm	max	2.44	4.70	3.94	5.59	0.20	1.5	0.305	2.11
	min	2.13	4.06	3.3	5.08	0.05	0.8	0.152	1.91
mil	max	96	185	155	220	7.9	59	12	83
	min	84	160	130	200	2.0	32	6	75

The recommended mounting pad size



Unit : $\frac{\text{mm}}{(\text{mil})}$

Revision History

Rev.	Change	Date
V1.0	Initial version	6/27/2021

Important Notice

JSMSEMI Semiconductor (JSMSEMI) PRODUCTS ARE NEITHER DESIGNED NOR INTENDED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS UNLESS THE SPECIFIC JSMSEMI PRODUCTS ARE SPECIFICALLY DESIGNATED BY JSMSEMI FOR SUCH USE. BUYERS ACKNOWLEDGE AND AGREE THAT ANY SUCH USE OF JSMSEMI PRODUCTS WHICH JSMSEMI HAS NOT DESIGNATED FOR USE IN MILITARY AND/OR AEROSPACE, AUTOMOTIVE OR MEDICAL DEVICES OR SYSTEMS IS SOLELY AT THE BUYER' S RISK.

JSMSEMI assumes no liability for application assistance or customer product design. Customers are responsible for their products and applications using JSMSEMI products.

Resale of JSMSEMI products or services with statements diferent from or beyond the parameters stated by JSMSEMI for that product or service voids all express and any implied warranties for the associated JSMSEMI product or s ervice. JSMSEMI is not responsible or liable for any such statements.

JSMSEMI All Rights Reserved. Information and data in this document are owned by JSMSEMI wholly and may not be edited, reproduced, or redistributed in any way without the express written consent from JSMSEMI.

Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the JSMSEMI product that you intend to use.

For additional information please contact Kevin@jsmsemi.com or visit www.jsmsemi.com