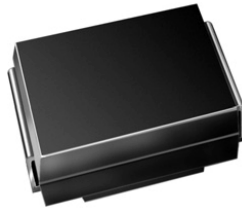


Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

FEATURES

- Glass passivated chip junction
- Ideal for automated placement
- Ultrafast recovery times for high efficiency
- Low forward voltage, low power losses
- High forward surge capability
- Meets MSL level 1, per J-STD-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high frequency rectification and free-wheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

MECHANICAL DATA

Case: DO-214AA (SMB)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

Polarity: Color band denotes cathode end

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	600 V
I_{FSM}	90 A
t_{rr}	30 ns
V_F	1.0 V
$T_j \text{ max.}$	150 °C

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)			
PARAMETERS	SYMBOL	USB260	UNIT
Device marking code		U60	
Maximum repetitive peak reverse voltage	V_{RRM}	600	V
Maximum RMS voltage	V_{RMS}	420	V
Maximum DC blocking voltage	V_{DC}	600	V
Maximum average forward rectified current (see Fig. 1)	$I_{F(AV)}$	2.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	90	A
Non-repetitive avalanche energy at $I_{AS} = 2.0 \text{ A}$, $L = 10 \text{ mH}$, $T_j = 25 \text{ °C}$	E_{AS}	20	mJ
Operating junction and storage temperature range	T_j, T_{STG}	- 55 to + 150	°C

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETERS	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	at $I_R = 10\text{ }\mu\text{A}$ $T_j = 25\text{ }^\circ\text{C}$	$V_{(BR)}$	600 (minimum)		V
Instantaneous forward voltage ⁽¹⁾	at $I_F = 1\text{ A}$ $T_j = 25\text{ }^\circ\text{C}$	V_F	1.25	-	V
	at $I_F = 2.0\text{ A}$ $T_j = 25\text{ }^\circ\text{C}$ $T_j = 125\text{ }^\circ\text{C}$		1.5 1.0	1.6 1.1	
Maximum reverse current ⁽¹⁾	at $V_R = 600\text{ V}$ $T_j = 25\text{ }^\circ\text{C}$ $T_j = 125\text{ }^\circ\text{C}$	I_R	- 30	5.0 100	μA
Maximum reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	t_{rr}	30		ns
Typical junction capacitance	at 4.0 V, 1 MHz	C_J	45		pF

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETERS	SYMBOL	USB260	UNIT
Typical thermal resistance ⁽¹⁾	$R_{\theta JA}$	45	$^\circ\text{C/W}$
	$R_{\theta JL}$	10	

Note:

(1) Units mounted on P.C.B. with 2.0 x 2.0" copper pad areas

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
USB260-E3/52T	0.096	52T	750	7" Diameter Plastic Tape & Reel
USB260-E3/5BT	0.096	5BT	3200	13" Diameter Plastic Tape & Reel
USB260HE3/52T ⁽¹⁾	0.096	52T	750	7" Diameter Plastic Tape & Reel
USB260HE3/5BT ⁽¹⁾	0.096	5BT	3200	13" Diameter Plastic Tape & Reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)

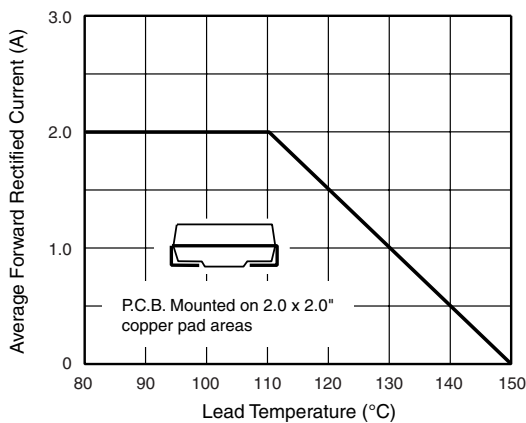


Figure 1. Maximum Forward Current Derating Curve

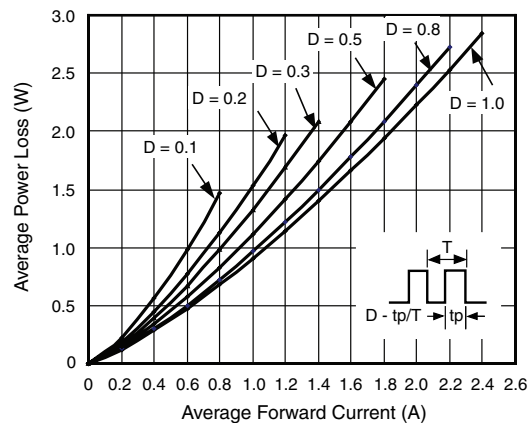


Figure 2. Forward Power Loss Characteristics

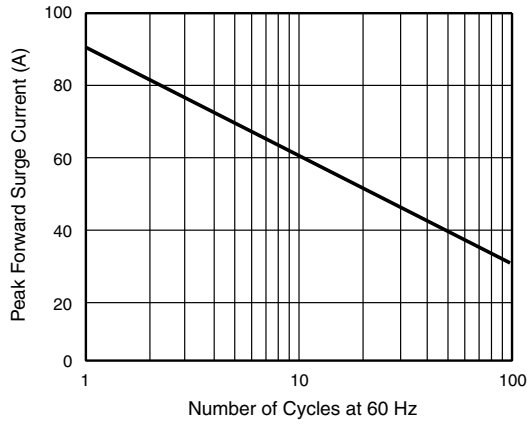


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

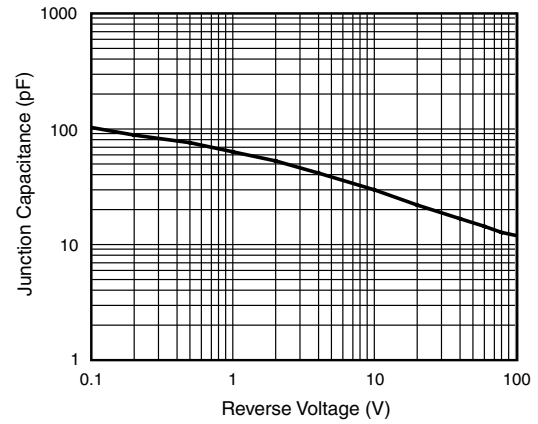


Figure 6. Typical Junction Capacitance

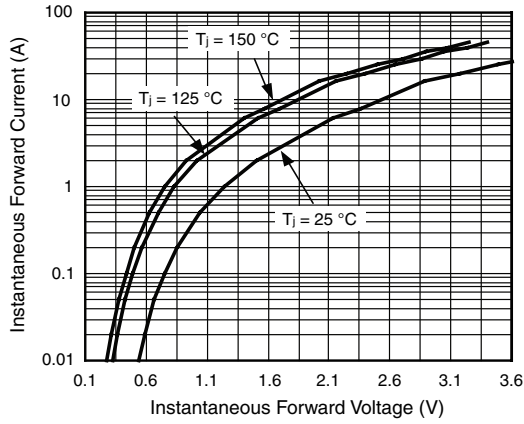


Figure 4. Typical Instantaneous Forward Characteristics

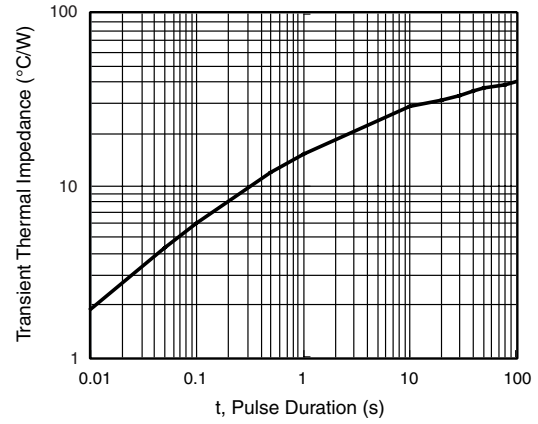


Figure 7. Typical Transient Thermal Impedance

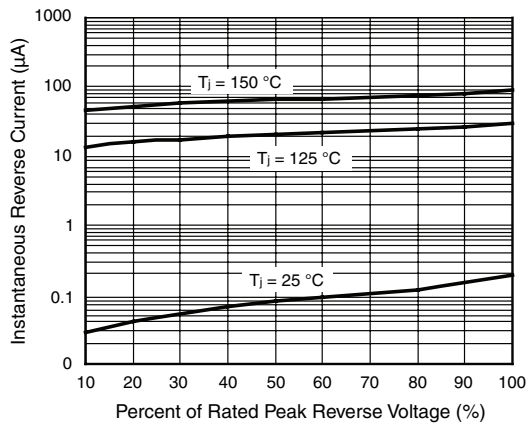
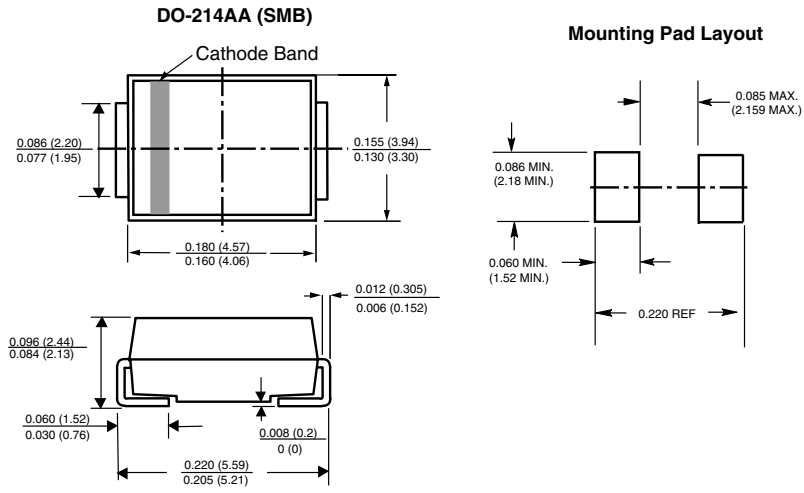


Figure 5. Typical Reverse Leakage Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.