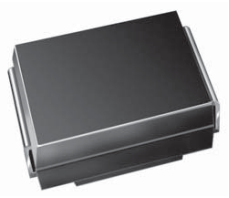
USB260

New Product **Vishay General Semiconductor**

Surface Mount Ultrafast Plastic Rectifier

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 max.	150 °C



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
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEE 2002/96/EC

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

Typical Applications

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

Maximum Ratings

(T_A = 25 °C unless otherwise specified)

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 A, L = 10 mH, T_J = 25 °C	E_{AS}	20	mJ
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to + 150	°C

Electrical Characteristics

(T_A = 25 °C unless otherwise specified)

Parameters	Test condition		Symbol	Typ.	Max.	Unit
Breakdown voltage	at I_R = 10 µA	T_J = 25 °C	$V_{(BR)}$	600 (minimum)		V
Instantaneous forward voltage (1)	at I_F = 1 A	T_J = 25 °C	V_F	1.25	-	V
	at I_F = 2.0 A	T_J = 25 °C		1.5	1.6	
		T_J = 125 °C		1.0	1.1	
Maximum reverse current (1)	at V_R = 600 V	T_J = 25 °C	I_R	-	5.0	µA
		T_J = 125 °C		30	100	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	30		ns
Typical junction capacitance	at 4.0 V, 1 MHz		C_J	45		pF

Notes:

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

Thermal Characteristics

(T_A = 25 °C unless otherwise specified)

Parameters	Symbol	USB260	Unit
Typical thermal resistance (1)	$R_{\theta JA}$	45	°C/W
	$R_{\theta JL}$	10	

Notes:

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

Ordering Information

Preferred P/N	Unit Weight (g)	Preferred Package Code	Base Quantity	Delivery Mode
USB260-E3/52T	0.093	52T	750	7" Diameter Plastic Tape & Reel
USB260-E3/5BT	0.093	5BT	3200	13" Diameter Plastic Tape & Reel

Ratings and Characteristics Curves

(T_A = 25 °C unless otherwise noted)

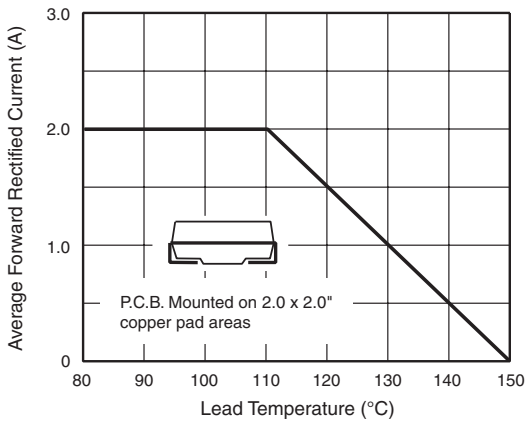


Figure 1. Maximum Forward Current Derating Curve

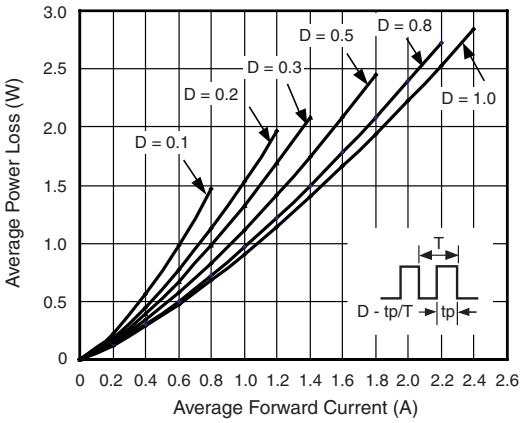


Figure 2. Forward Power Loss Characteristics

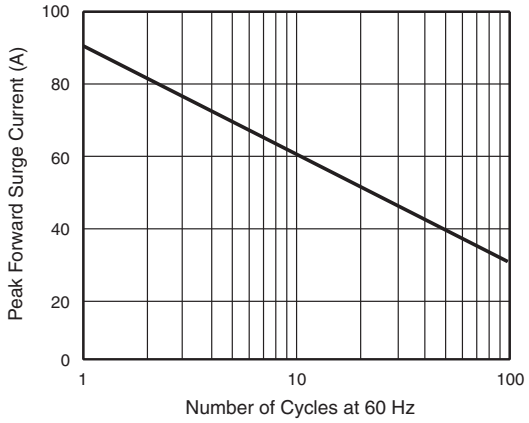


Figure 3. Maximum Non-Repetitive Peak Forward Surge Current

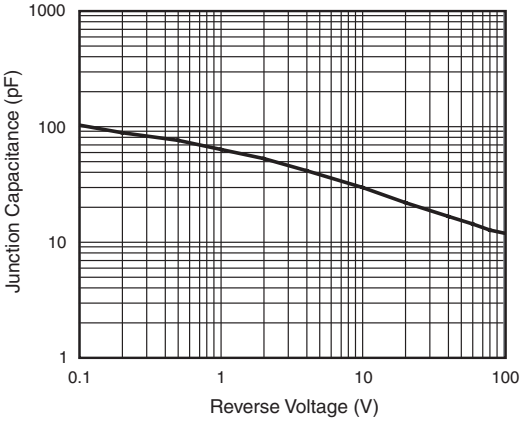


Figure 6. Typical Junction Capacitance

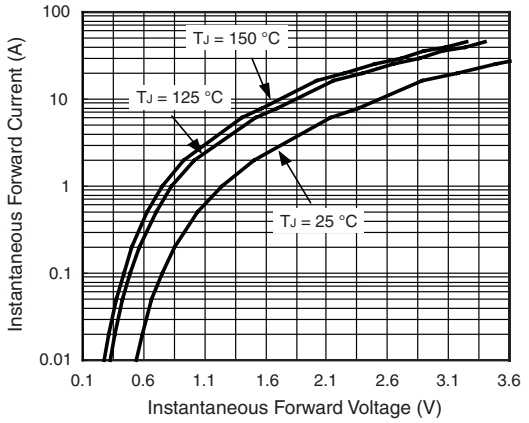


Figure 4. Typical Instantaneous Forward Characteristics

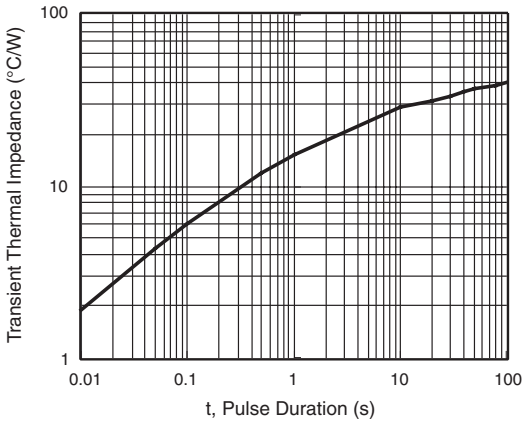


Figure 7. Typical Transient Thermal Impedance

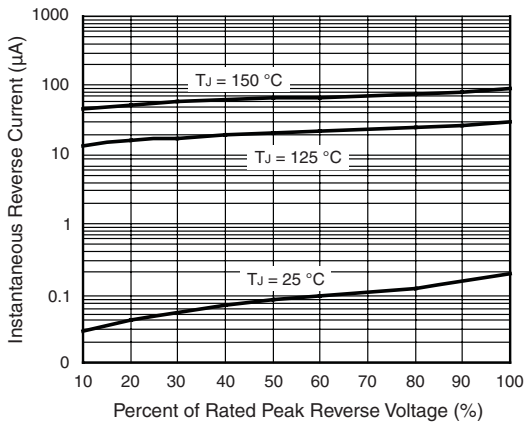
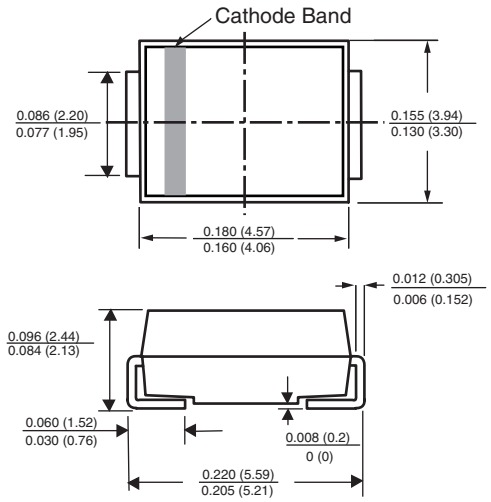


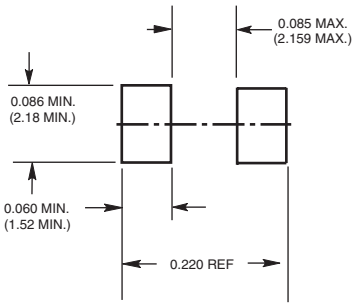
Figure 5. Typical Reverse Leakage Characteristics

Package outline dimensions in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout



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