

Vishay General Semiconductor

Surface Mount Ultrafast Plastic Rectifier

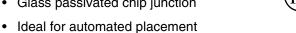


DO-214AA (SMB)

MAJOR RATINGS AND CHARACTERISTICS				
I _{F(AV)}	1.0 A			
V _{RRM}	400 V, 600 V			
I _{FSM}	35 A			
t _{rr}	50 ns			
V _F	1.05 V			
T _j max.	175 °C			

FEATURES

Glass passivated chip junction



- · Ultrafast reverse recovery time
- · Low switching losses, high efficiency
- 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 WEEE 2002/96/EC

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer 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 reli-

ability grade (AEC Q101 qualified)

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MURS140	MURS160	UNIT
Device marking code		MG	MJ	
Maximum repetitive peak reverse voltage	V_{RRM}	400	600	V
Working peak reverse voltage	V_{RWM}	400	600	V
Maximum DC blocking voltage	V _{DC}	400	600	V
Maximum average forward rectified current at (see Fig. 1) $\frac{T_L = 150 ^{\circ}\text{C}}{T_L = 125 ^{\circ}\text{C}}$	I _{F(AV)}	1.0 2.0		А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	35		А
Operating junction and storage temperature range	T _J , T _{STG}	- 65 to + 175		°C

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	TEST CONDITIONS	SYMBOL	MURS140 MURS160	UNIT
Maximum instantaneous forward voltage (1)	$\begin{array}{ll} \text{at I}_F = 1.0 \text{ A}, & T_j = 25 \text{ °C} \\ \text{at I}_F = 1.0 \text{ A}, & T_j = 150 \text{ °C} \end{array}$	V _F	1.25 1.05	V
Maximum instantaneous reverse current at rated DC blocking voltage ⁽¹⁾	$T_j = 25 ^{\circ}\text{C}$ $T_j = 150 ^{\circ}\text{C}$	I _R	5.0 150	μΑ
Maximum reverse recovery time	at $I_F = 0.5 \text{ A}$, $I_R = 1.0 \text{ A}$, $I_{rr} = 0.25 \text{ A}$	t _{rr}	50	ns
Maximum reverse recovery time	at $I_F = 1.0$ A, di/dt = 50 A/ μ s, $V_R = 30$ V, $I_{rr} = 10$ % I_{RM}	t _{rr}	75	ns
Maximum forward recovery time	at $I_F = 1.0$ A, di/dt = 100 A/ μ s, recovery to 1.0 V	t _{fr}	50	ns

Note:

(1) Pulse test: t_p = 300 μs pulse, duty cycle \leq 2 %

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	MURS140	MURS160	UNIT
Typical thermal resistance junction to ambient	$R_{ hetaJL}$	13		C/W

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS160-E3/52T	0.096	52T	750	7" Diameter Plastic Tape & Reel
MURS160-E3/5BT	0.096	5BT	3200	13" Diameter Plastic Tape & Reel
MURS160HE3/52T (1)	0.096	52T	750	7" Diameter Plastic Tape & Reel
MURS160HE3/5BT (1)	0.096	5BT	3200	13" Diameter Plastic Tape & Reel

Note:

RATINGS AND CHARACTERISTICS CURVES

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

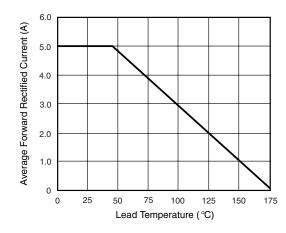


Figure 1. Forward Current Derating Curve

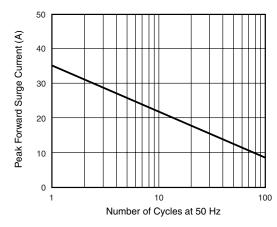


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ Automotive grade AEC Q101 qualified



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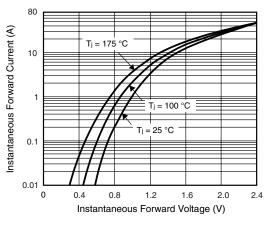


Figure 3. Typical Instantaneous Forward Characteristics

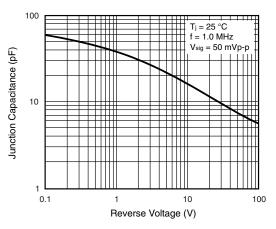


Figure 5. Typical Junction Capacitance

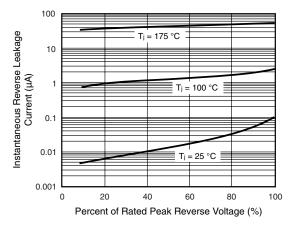
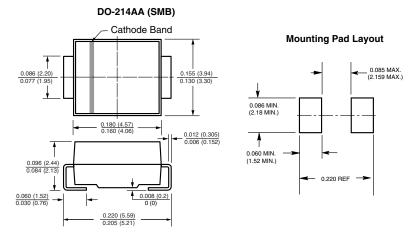


Figure 4. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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