

Vishay General Semiconductor

Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

PRIMARY 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





- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency



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ROHS COMPLIANT

- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- 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-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

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 (Fig. 1)	T _L = 150 °C T _L = 125 °C	I _{F(AV)}	1.0 2.0		Α	
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)	I _F = 1.0 A	T _J = 25 °C T _J = 150 °C	V _F	V _F 1.25 1.05		V
Maximum instantaneous reverse current at rated DC blocking voltage ⁽¹⁾		T _J = 25 °C T _J = 150 °C	I _R	-	.0 50	μΑ
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}	50		ns
Maximum reverse recovery time	$I_F = 1.0 \text{ A}, \text{ dI/dt} = 50 \text{ A/}\mu\text{s},$ $V_R = 30 \text{ V}, I_{rr} = 10 \% I_{RM}$		t _{rr}	75		ns
Maximum forward recovery time	I_F = 1.0 A, dI/dt = 100 A/ μ s, recovery to 1.0 V		t _{fr}	5	0	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	$R_{ heta JL}$	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 and reel		
MURS160-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel		
MURS160HE3/52T (1)	0.096	52T	750	7" diameter plastic tape and reel		
MURS160HE3/5BT (1)	0.096	5BT	3200	13" diameter plastic tape and reel		

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

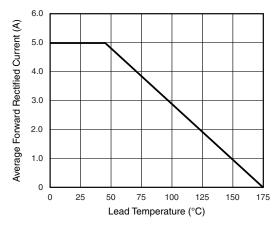


Figure 1. Forward Current Derating Curve

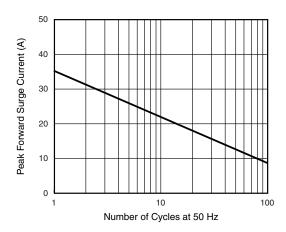


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current



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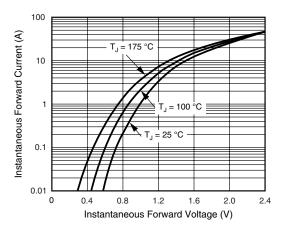


Figure 3. Typical Instantaneous Forward Characteristics

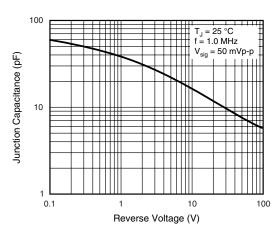


Figure 5. Typical Junction Capacitance

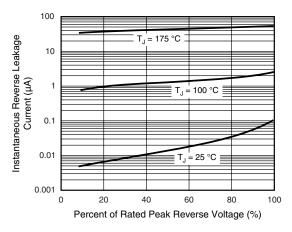
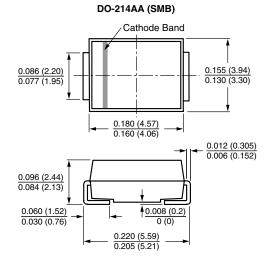
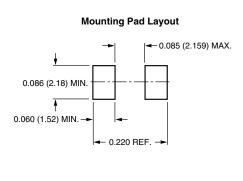


Figure 4. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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