

Surface-Mount Ultrafast Plastic Rectifier


SMB (DO-214AA)

 Cathode  Anode 

LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

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
Package	SMB (DO-214AA)
Circuit configuration	Single

FEATURES

- Glass passivated pellet chip junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT

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: SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified ("_X" denotes revision code e.g. A, B,.....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 2 whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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	
Maximum DC blocking voltage	V_{DC}	400	600	
Maximum average forward rectified current at (Fig. 1)	$I_{F(AV)}$	$T_L = 150\text{ °C}$		A
		$T_L = 125\text{ °C}$		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	35		
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175		°C



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS	MURS140	MURS160	UNIT
Maximum instantaneous forward voltage	$V_F^{(1)}$	$I_F = 1.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	1.25	V
			$T_J = 150\text{ }^\circ\text{C}$	1.05	
Maximum instantaneous reverse current at DC blocking voltage	$I_R^{(2)}$	Rated V_R	$T_J = 25\text{ }^\circ\text{C}$	5.0	μA
			$T_J = 150\text{ }^\circ\text{C}$	150	
Maximum reverse recovery time	t_{rr}	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		50	ns
		$I_F = 1.0\text{ A}, dI/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$		75	
Maximum forward recovery time	t_{fr}	$I_F = 1.0\text{ A}, dI/dt = 100\text{ A}/\mu\text{s},$ recovery to 1.0 V		50	

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MURS140	MURS160	UNIT
Typical thermal resistance, junction to lead	$R_{\theta JL}$		13	$^\circ\text{C}/\text{W}$

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_A/H ⁽¹⁾	0.096	H	750	7" diameter plastic tape and reel
MURS160HE3_A/I ⁽¹⁾	0.096	I	3200	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified



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

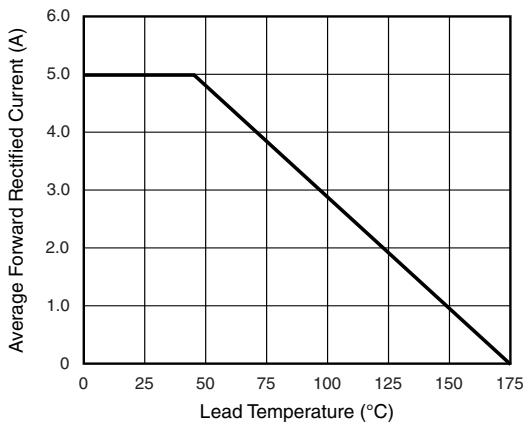


Fig. 1 - Forward Current Derating Curve

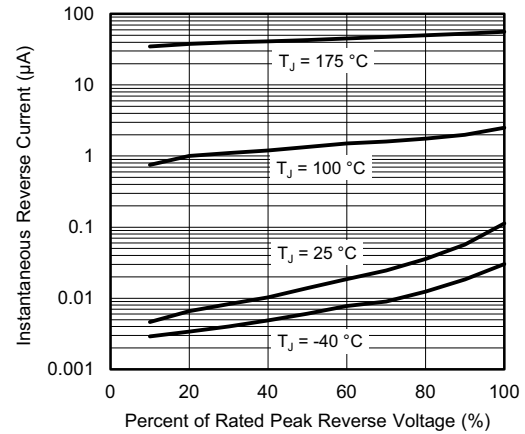


Fig. 4 - Typical Reverse Leakage Characteristics

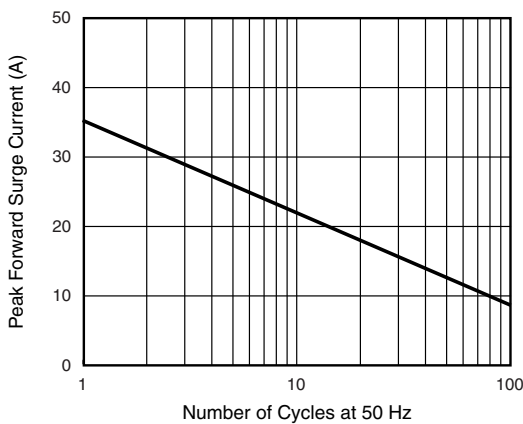


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

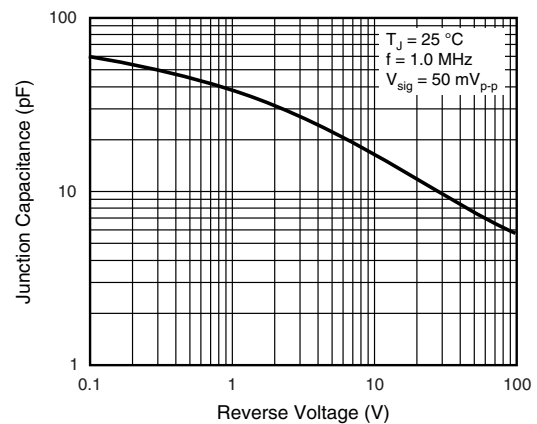


Fig. 5 - Typical Junction Capacitance

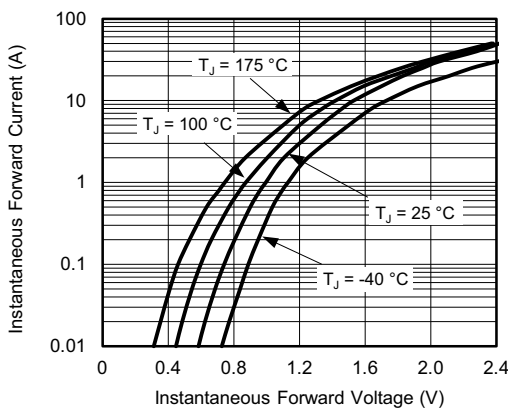
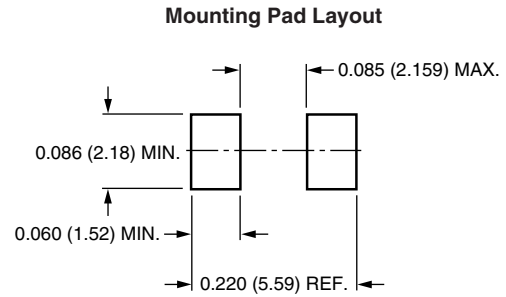
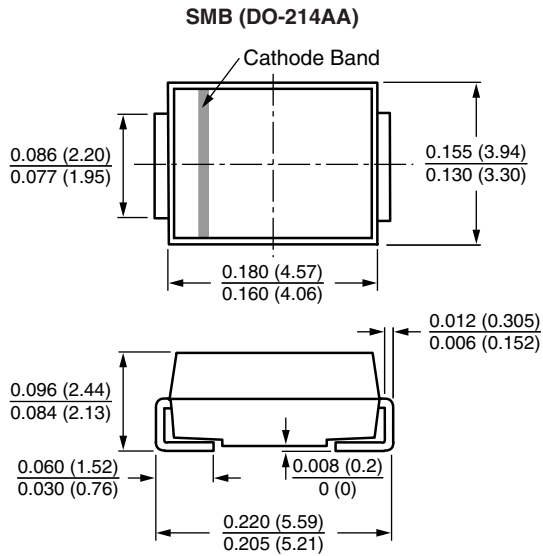


Fig. 3 - Typical Instantaneous Forward Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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