

Surface Mount Ultrafast Plastic Rectifier


DO-214AA (SMB)

FEATURES

- Glass passivated 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


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: DO-214AA (SMB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	400 V, 600 V
I_{FSM}	35 A
t_{rr}	50 ns
V_F	1.20 V
$T_J \text{ max.}$	175 °C
Package	DO-214AA (SMB)
Diode variation	Single die

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MURS240	MURS260	UNIT
Device marking codes		M2G	M2J	
Maximum repetitive peak reverse voltage	V_{RRM}	400	600	V
Maximum average forward rectified current at $T_L = 125\text{ °C}$ (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}	35		A
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	TEST CONDITIONS	SYMBOL	MURS240	MURS260	UNIT
Maximum instantaneous forward voltage	$I_F = 2.0\text{ A}$ $T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	$V_F^{(1)}$	1.45 1.20		V
Maximum instantaneous reverse current	Rated V_R $T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	$I_R^{(2)}$	5.0 150		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}	50		ns
Maximum reverse recovery time	$I_F = 1.0\text{ A}$, $dI/dt = 50\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 10\% I_{RM}$	t_{rr}	75		ns
Maximum forward recovery time	$I_F = 1.0\text{ A}$, $dI/dt = 100\text{ A}/\mu\text{s}$, recovery to 1.0 V	t_{fr}	50		ns

Notes(1) Pulse test: $t_p = 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$ (2) Pulse test: Pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	SYMBOL	MURS240	MURS260	UNIT
Typical thermal resistance junction to lead	$R_{\theta JL}$	15		$^{\circ}\text{C}/\text{W}$

Note

(1) Units mounted on PCB with 30 mm x 30 mm copper pad areas

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS240-E3/52T	0.093	52T	750	7" diameter plastic tape and reel
MURS240-E3/5BT	0.093	5BT	3200	13" diameter plastic tape and reel
MURS240HE3/52T ⁽¹⁾	0.093	52T	750	7" diameter plastic tape and reel
MURS240HE3/5BT ⁽¹⁾	0.093	5BT	3200	13" diameter plastic tape and reel
MURS240HE3_A/H ⁽¹⁾	0.093	H	750	7" diameter plastic tape and reel
MURS240HE3_A/I ⁽¹⁾	0.093	I	3200	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

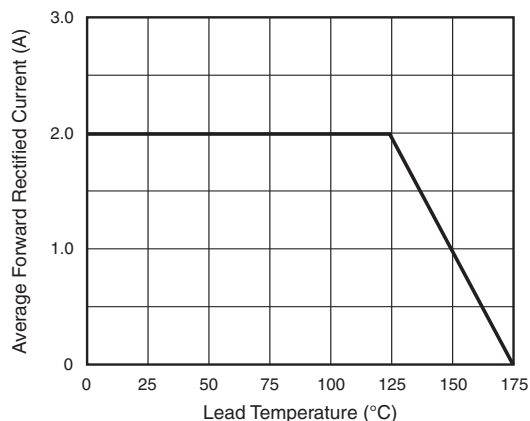
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

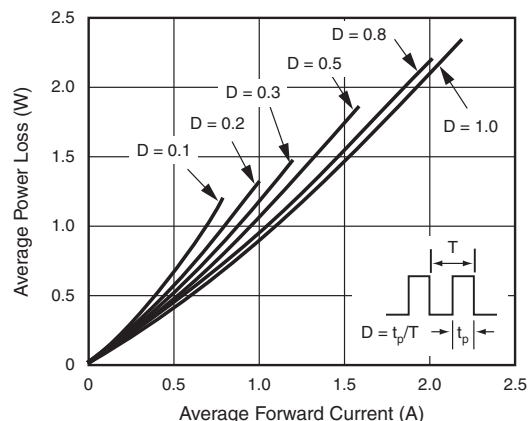


Fig. 2 - Forward Power Loss Characteristics

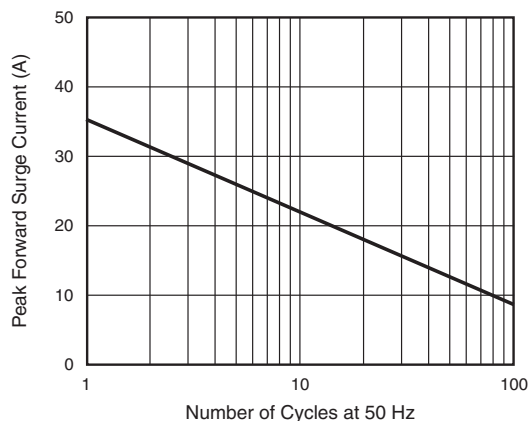


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

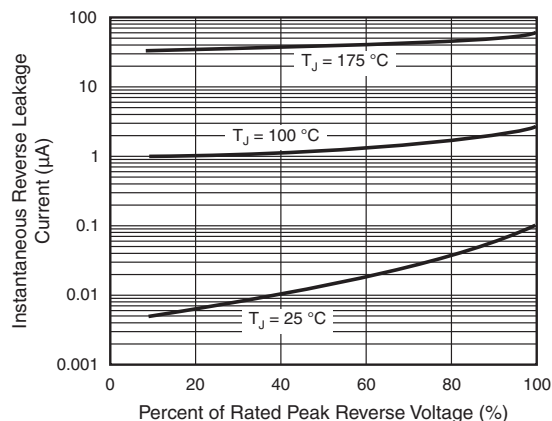


Fig. 5 - Typical Reverse Leakage Characteristics

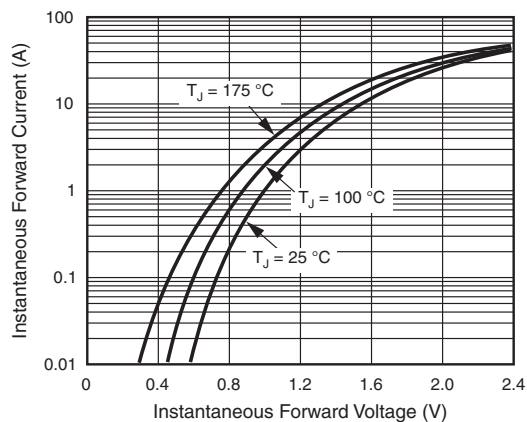


Fig. 4 - Typical Instantaneous Forward Characteristics

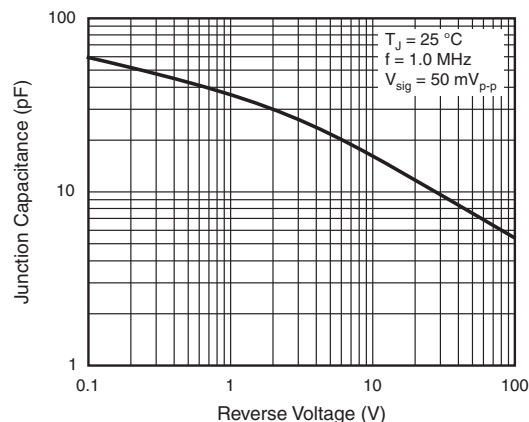
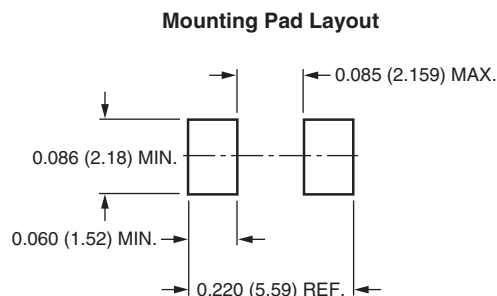
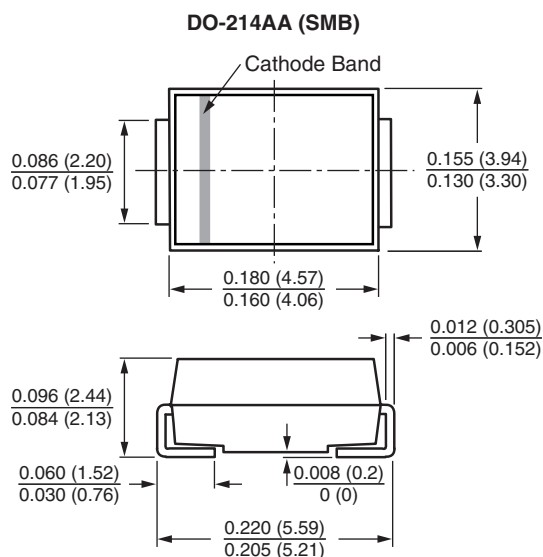


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)




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