

## Surface Mount Ultrafast Plastic Rectifier


**DO-214AB (SMC)**

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	200 V
$I_{FSM}$	125 A
$t_{rr}$	25 ns
$V_F$	0.71 V
$T_J \text{ max.}$	175 °C
Package	DO-214AB (SMC)
Diode variations	Single die

### 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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://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-214AB (SMC)

Molding compound meets UL 94 V-0 flammability rating  
 Base P/N-E3 - RoHS-compliant, commercial grade  
 Base P/NHE3\_X - RoHS-compliant and 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	MURS320	UNIT
Device marking code		MD	
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	V
Working peak reverse voltage	$V_{RWM}$	200	V
Maximum DC blocking voltage	$V_{DC}$	200	V
Maximum average forward rectified current at: (fig. 1)		$T_L = 140\text{ °C}$	3.0
		$T_L = 130\text{ °C}$	4.0
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	125	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +175	°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	MURS320	UNIT
Maximum instantaneous forward voltage	$I_F = 3.0\text{ A}$	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.875	V
	$I_F = 4.0\text{ A}$			0.890	
	$I_F = 3.0\text{ A}$	$T_J = 150\text{ }^\circ\text{C}$		0.710	
Maximum instantaneous reverse current at rated DC blocking voltage			$I_R^{(1)}$	5.0	$\mu\text{A}$
				$T_J = 150\text{ }^\circ\text{C}$	
Maximum reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$		$t_{rr}$	25	ns
Maximum reverse recovery time	$I_F = 1.0\text{ A}, dI/dt = 50\text{ A}/\mu\text{s}, V_R = 30\text{ V}, I_{rr} = 10\% I_{RM}$		$t_{rr}$	35	ns
Maximum forward recovery time	$I_F = 1.0\text{ A}, dI/dt = 100\text{ A}/\mu\text{s}, \text{recovery to } 1.0\text{ V}$		$t_{fr}$	25	ns

**Note**(1) Pulse test:  $t_p = 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2\%$ 

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	MURS320	UNIT
Typical thermal resistance junction to lead	$R_{\theta JL}$	11	$^\circ\text{C}/\text{W}$

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS320-E3/57T	0.211	57T	850	7" diameter plastic tape and reel
MURS320-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel
MURS320HE3_A/H <sup>(1)</sup>	0.211	H	850	7" diameter plastic tape and reel
MURS320HE3_A/I <sup>(1)</sup>	0.211	I	3500	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)

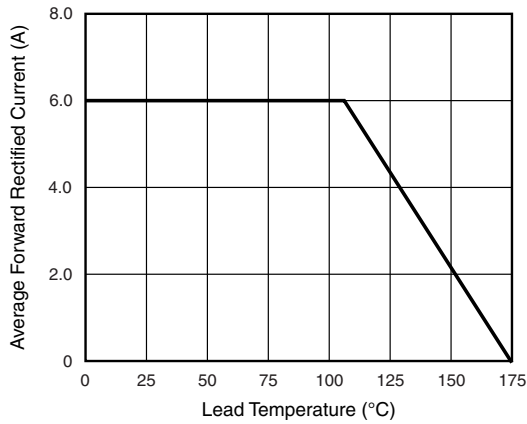


Fig. 1 - Forward Current Derating Curve

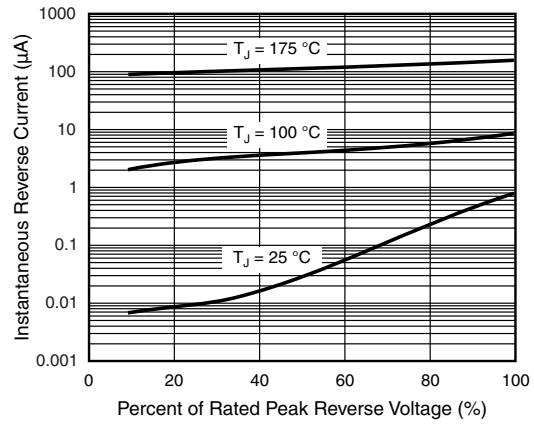


Fig. 4 - Typical Reverse Leakage Characteristics

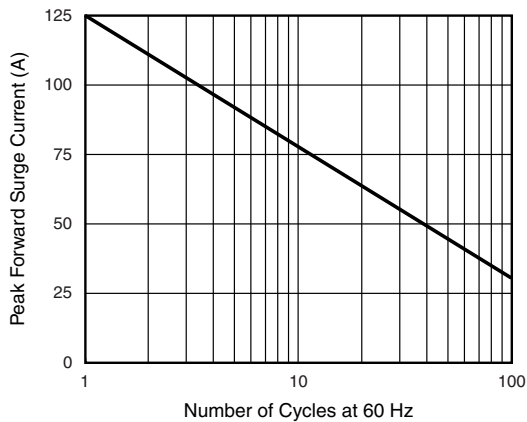


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

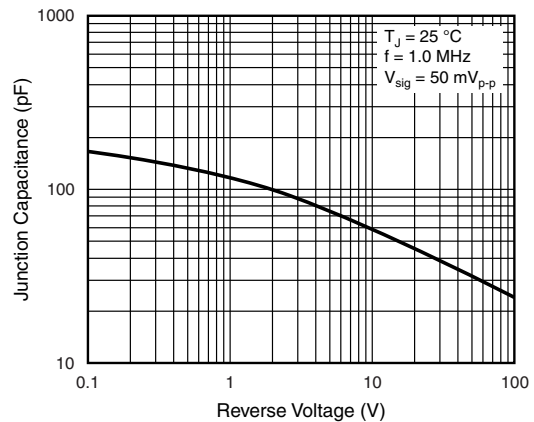


Fig. 5 - Typical Junction Capacitance

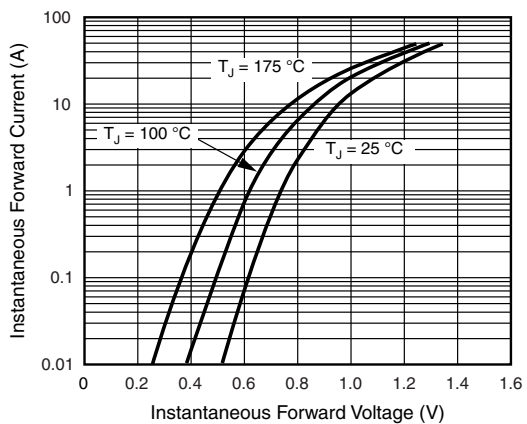
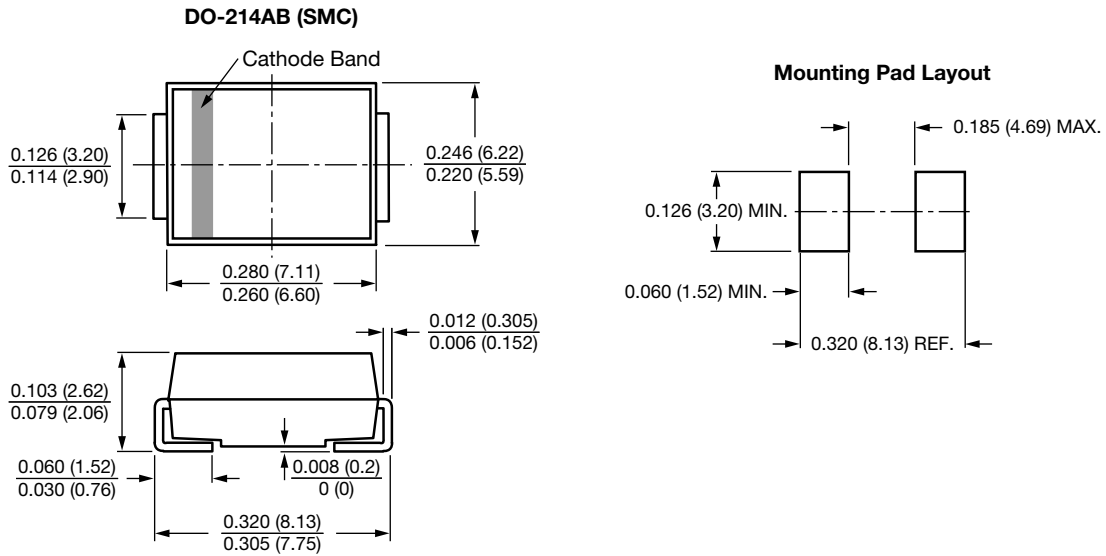


Fig. 3 - Typical Forward Voltage



**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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