

## Surface Mount Ultrafast Plastic Rectifier


**DO-214AA (SMB)**

**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

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

### 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-M3 - halogen-free, RoHS-compliant, and commercial grade

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

M3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

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
$T_J \text{ max.}$	175 °C
Package	DO-214AA (SMB)
Diode variations	Single die

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER		SYMBOL	MURS140	MURS160	UNIT
Device marking code			MG	MJ	
Maximum repetitive peak reverse voltage		V <sub>RRM</sub>	400	600	V
Working peak reverse voltage		V <sub>RWM</sub>	400	600	V
Maximum DC blocking voltage		V <sub>DC</sub>	400	600	V
Maximum average forward rectified current at (fig. 1)	T <sub>L</sub> = 150 °C	I <sub>F(AV)</sub>	1.0		A
	T <sub>L</sub> = 125 °C		2.0		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I <sub>FSM</sub>	35		A
Operating junction and storage temperature range		T <sub>J</sub> , T <sub>STG</sub>	-65 to +175		°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MURS140	MURS160	UNIT
Maximum instantaneous forward voltage	I <sub>F</sub> = 1.0 A	T <sub>J</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	1.25		V
		T <sub>J</sub> = 150 °C		1.05		
Maximum instantaneous reverse current at rated DC blocking voltage		T <sub>J</sub> = 25 °C	I <sub>R</sub> <sup>(1)</sup>	5.0		μA
		T <sub>J</sub> = 150 °C		150		
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	50		ns
	I <sub>F</sub> = 1.0 A, dI/dt = 50 A/μs, V <sub>R</sub> = 30 V, I <sub>rr</sub> = 10 % I <sub>RM</sub>			75		
Maximum forward recovery time	I <sub>F</sub> = 1.0 A, dI/dt = 100 A/μs, recovery to 1.0 V		t <sub>fr</sub>	50		ns

**Note**

<sup>(1)</sup> Pulse test:  $t_p = 300\text{ }\mu\text{s}$  pulse, duty cycle  $\leq 2\%$

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

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS160-M3/52T	0.096	52T	750	7" diameter plastic tape and reel
MURS160-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel



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

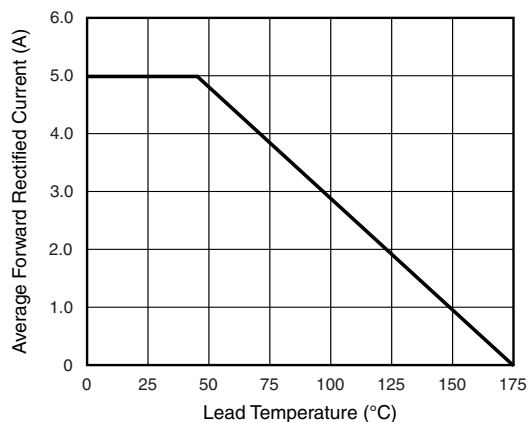


Fig. 1 - Forward Current Derating Curve

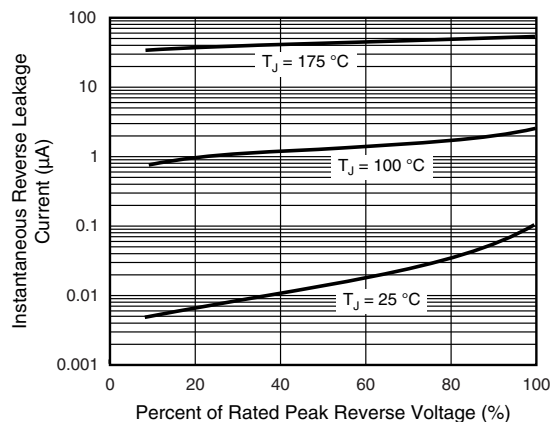


Fig. 4 - Typical Reverse Leakage Characteristics

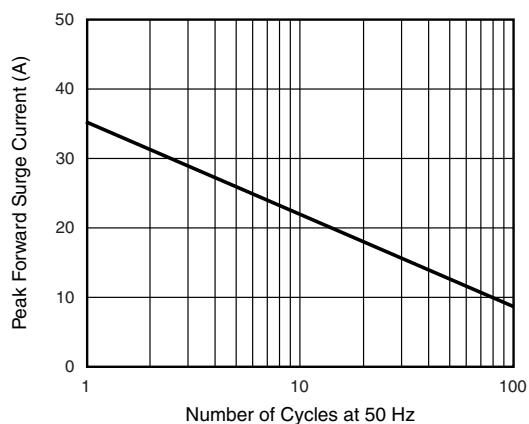


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

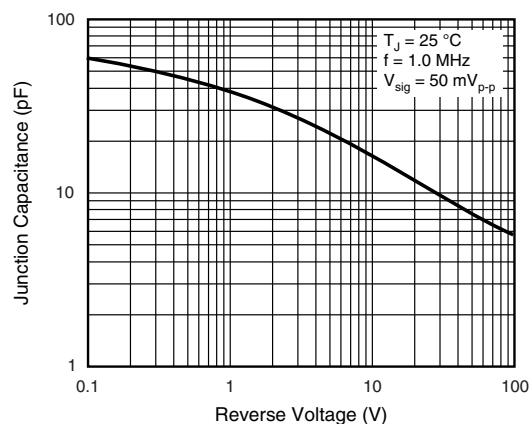


Fig. 5 - Typical Junction Capacitance

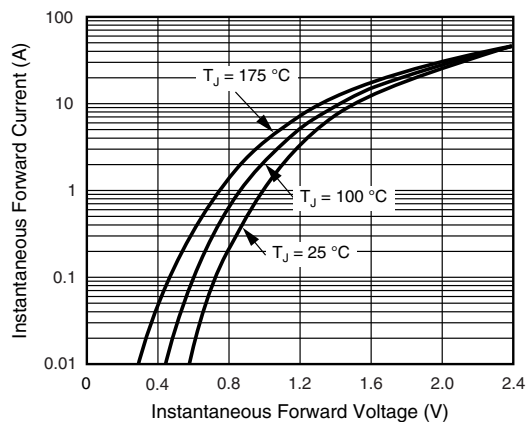
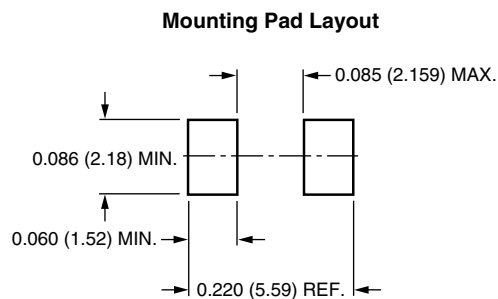
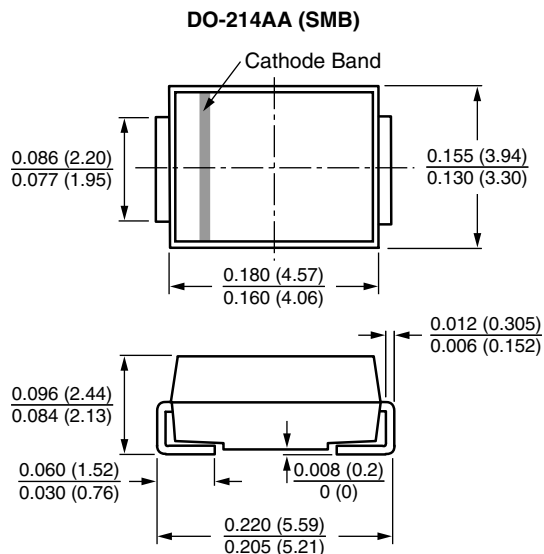


Fig. 3 - Typical Instantaneous Forward Characteristics



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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