

Surface-Mount Ultrafast Plastic Rectifier


SMB (DO-214AA)

Cathode  Anode

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


RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



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

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-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

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)	$I_{F(AV)}$	1.0	2.0	A	
$T_L = 125$ °C					
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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

Note

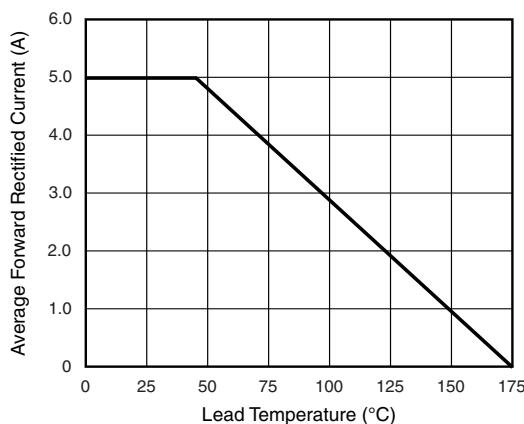
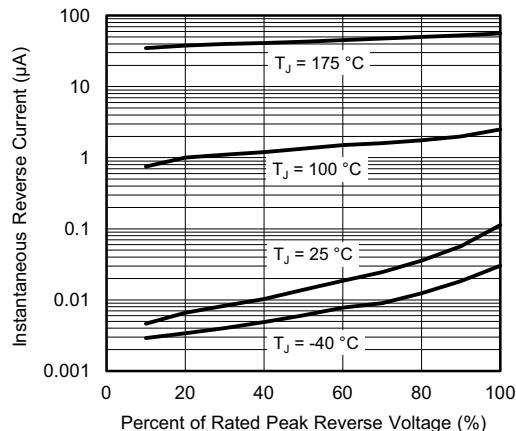
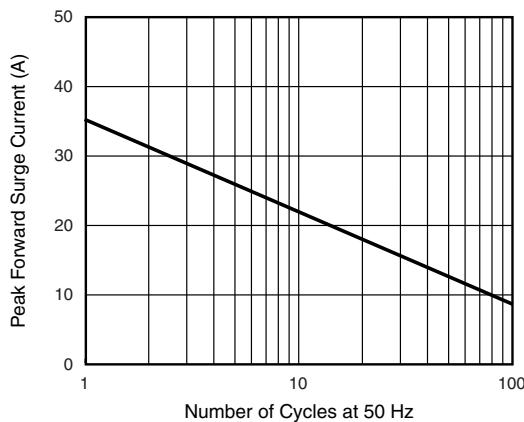
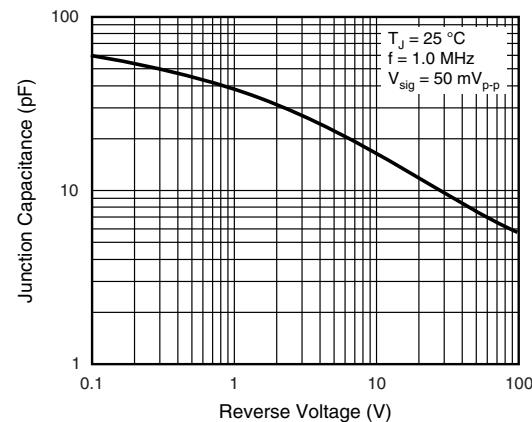
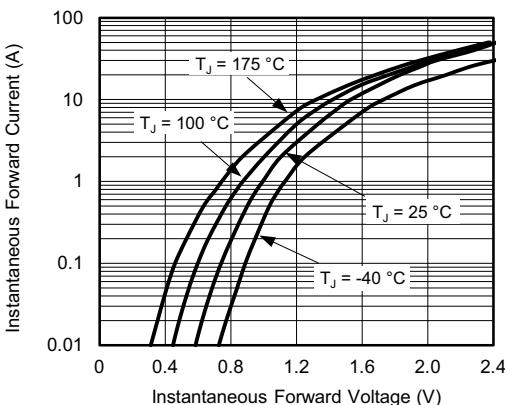
⁽¹⁾ Pulse test: $t_p = 300 \mu\text{s}$ pulse, duty cycle $\leq 2\%$

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

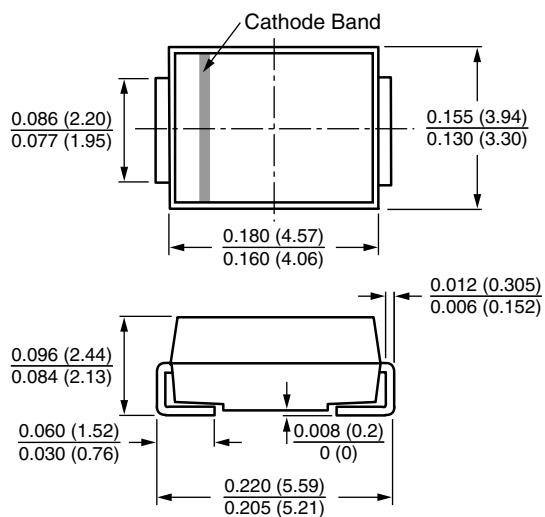
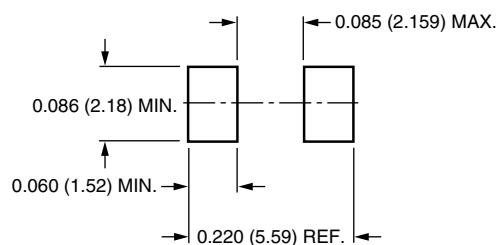
PARAMETER	SYMBOL	MURS140	MURS160	UNIT
Typical thermal resistance, junction to lead	$R_{\theta JL}$	13		$^\circ\text{C}/\text{W}$

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS160-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 ($T_A = 25^\circ\text{C}$ 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)

SMB (DO-214AA)

Mounting Pad Layout


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