MURS140-M3, MURS160-M3

Vishay General Semiconductor

ROHS

HALOGEN

FREE

Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

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	DO-214AA (SMB)				
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
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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

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)	T _L = 150 °C	1	1	.0	Δ.	
	T _L = 125 °C	I _{F(AV)}	2.0		A	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	35		А	
Operating junction and storage temperature range		T _J , T _{STG}	-65 to +175		°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MURS140	MURS160	UNIT
Maximum instantaneous forward voltage	I _F = 1.0 A	T _J = 25 °C	V _F ⁽¹⁾	1.25	V	
waxiinum instantaneous forward voltage	I _F = 1.0 A	T _J = 150 °C		1.05		
Maximum instantaneous reverse current at		T _J = 25 °C	I _R ⁽¹⁾	5.0		μA
rated DC blocking voltage		T _J = 150 °C	T _J = 150 °C		150	
	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	50		ns
Maximum reverse recovery time	I _F = 1.0 A, dl/dt = 50 A/μs, V _R = 30 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}	5	0	ns

Note

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MURS140	MURS160	UNIT	
Typical thermal resistance, junction to lead	$R_{ heta JL}$	13		°C/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		

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RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

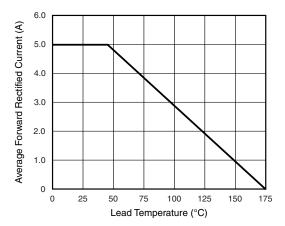
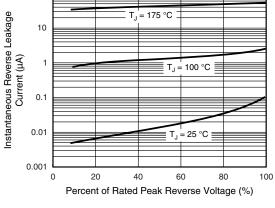


Fig. 1 - Forward Current Derating Curve



100

Fig. 4 - Typical Reverse Leakage Characteristics

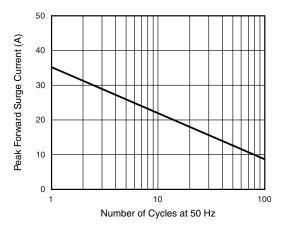


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

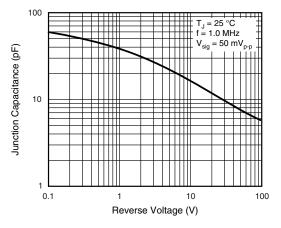


Fig. 5 - Typical Junction Capacitance

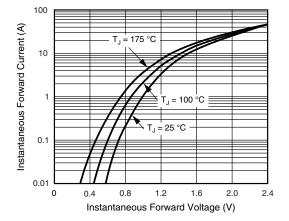


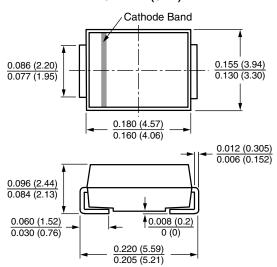
Fig. 3 - Typical Instantaneous Forward Characteristics



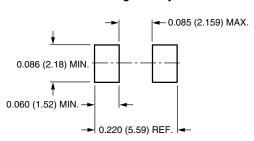
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout





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