

Vishay General Semiconductor

Surface Mount Ultrafast Plastic Rectifier



DO-214AA (SMB)

PRIMARY CHARACTERISTICS			
I _{F(AV)}	1.0 A		
V_{RRM}	200 V		
I _{FSM}	40 A		
t _{rr}	25 ns		
V _F	0.71 V		
T _J max.	175 °C		

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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

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

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test, HE3 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	VALUE	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 = 155 °C	I _{F(AV)}	1.0	А
	T _L = 145 °C		2.0	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load		I _{FSM}	40	Α
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	VALUE	UNIT
Maximum instantaneous forward voltage	1 10 4	T _J = 25 °C	V _F ⁽¹⁾	0.875	V
	I _F = 1.0 A	T _J = 150 °C		0.71	
Maximum instantaneous reverse current		T _J = 25 °C	I _R ⁽¹⁾	2.0	
at rated DC blocking voltage		T _J = 150 °C	50	μΑ	
Maximum reverse recovery time	$I_F = 0.5 A, I_R = 0.5 A$	1.0 A, I _{rr} = 0.25 A	t _{rr}	25	ns
Maximum reverse recovery time	I _F = 1.0 A, dI/dt = 50 A/μs, V _R = 30 V, I _{rr} = 10 % I _{RM}		t _{rr}	35	ns
Maximum forward recovery time	$I_F = 1.0$ A, $dI/dt = 100$ A/ μ s, recovery to 1.0 V		t _{fr}	25	ns

Note

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

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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
MURS120-E3/52T	0.096	52T	750	7" diameter plastic tape and reel
MURS120-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel
MURS120HE3/52T (1)	0.096	52T	750	7" diameter plastic tape and reel
MURS120HE3/5BT (1)	0.096	5BT	3200	13" diameter plastic tape and reel

Note

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25$ °C unless otherwise noted)

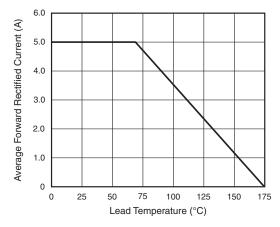


Fig. 1 - Forward Current Derating Curve

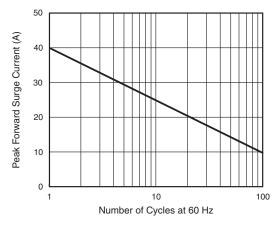


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified



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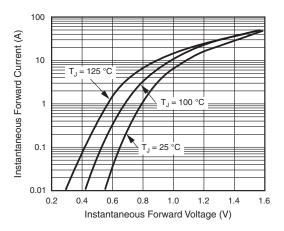


Fig. 3 - Typical Instantaneous Forward Characteristics

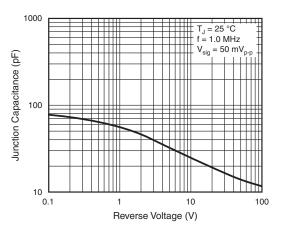


Fig. 5 - Typical Junction Capacitance

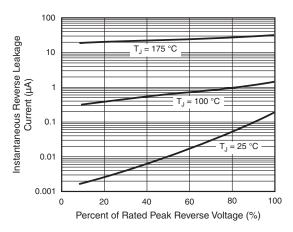
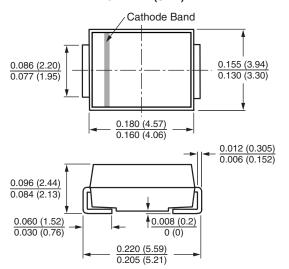
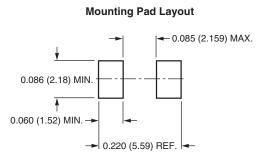


Fig. 4 - Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)







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