Surface Mount Ultrafast Plastic Rectifier

DO-214AA (SMB)

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-020C, LF max peak of 260 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

MAJOR RATINGS AND 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

TYPICAL APPLICATIONS

For use in high frequency rectification and free-wheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: DO-214AA (SMB)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

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 (see Fig. 1) T_L = 155 °C T_L = 145 °C	$I_{F(AV)}$	1.0 2.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	40	A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**VALUE**	**UNIT**
Maximum instantaneous forward voltage (1)	at I_F = 1.0 A, T_j = 25 °C at I_F = 1.0 A, T_j = 150 °C	V_F	0.875 0.71	V
Maximum instantaneous reverse current at rated DC blocking voltage (1)	T_j = 25 °C T_j = 150 °C	I_R	2.0 50	µA
Maximum reverse recovery time	at I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	t_{rr}	25	ns
Maximum reverse recovery time	at 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	at I_F = 1.0 A, di/dt = 100 A/µs, recovery to 1.0 V	t_{fr}	25	ns

Note:

(1) Pulse test: t_p = 300 µs, duty cycle ≤ 2 %

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VALUE**	**UNIT**
Typical thermal resistance junction to ambient	$R_{\theta JL}$	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 & Reel
MURS120-E3/5BT	0.096	5BT	3200	13" Diameter Plastic Tape & Reel
MURS120HE3/52T (1)	0.096	52T	750	7" Diameter Plastic Tape & Reel
MURS120HE3/5BT (1)	0.096	5BT	3200	13" Diameter Plastic Tape & Reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

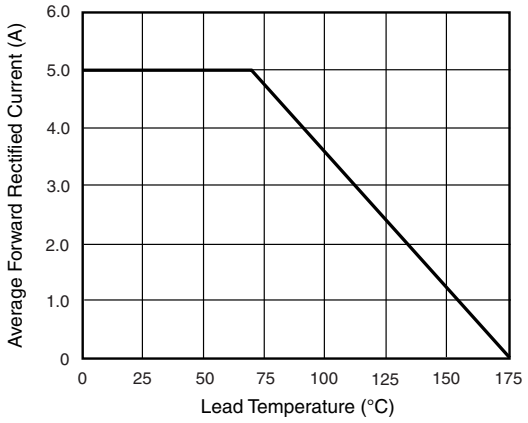


Figure 1. Forward Current Derating Curve

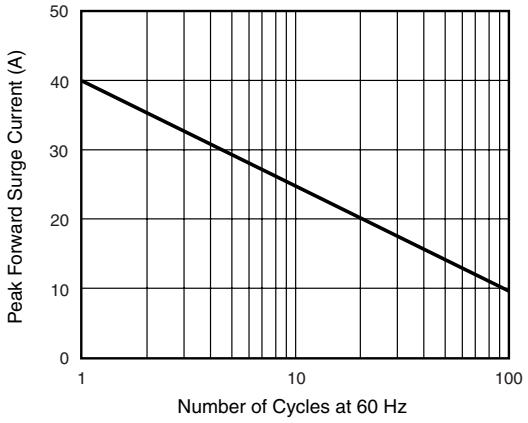


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

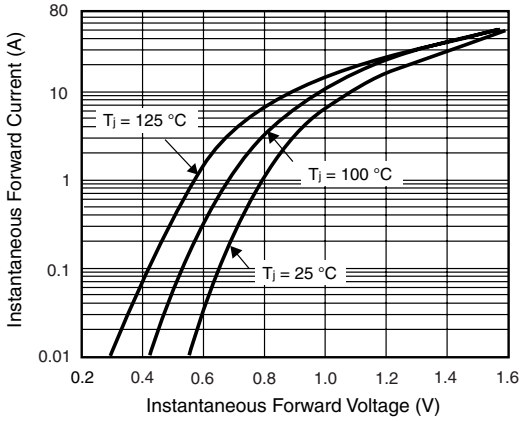


Figure 3. Typical Instantaneous Forward Characteristics

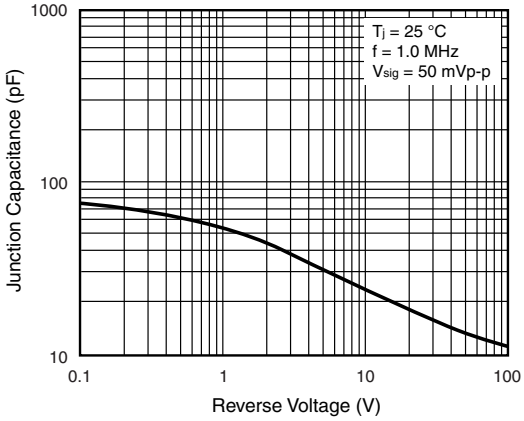


Figure 5. Typical Junction Capacitance

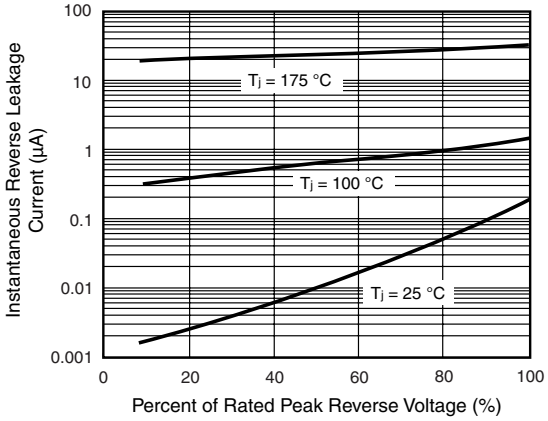
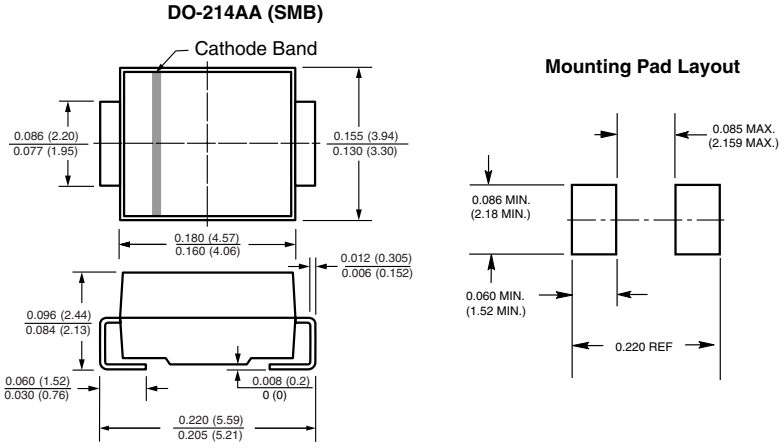


Figure 4. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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