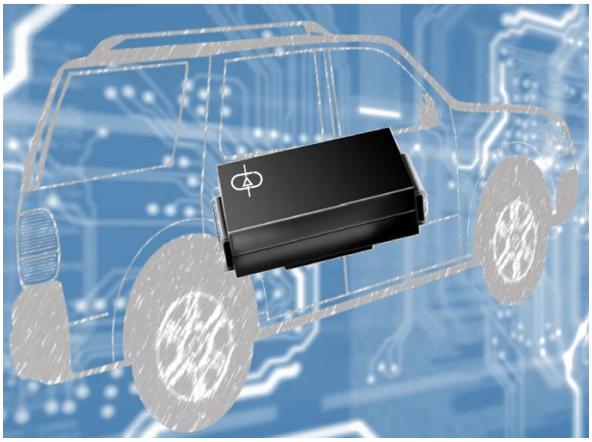
SURFACE MOUNT ULTRA FAST RECTIFIER

DESCRIPTION:



The ALPAMUS1M is Surface Mount Ultra Fast Rectifier with High forward surge capability in Low profile package, low switching losses and it has high efficiency operation.

ALPAMUS1M is **AEC-Q101 approved** and meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C use in freewheeling application in switching mode converters and inverters for automotive.

FEATURES:

- **AEC-Q101 approved.**
- Low profile package.
- Ideal for automated placement.
- Glass passivated pallet chip junction.
- 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.
- HALOGEN Free.
- RoHS Compliant.
- REACH Compliant.

APPLICATIONS:

- Automotive application.

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**ALPAMUS1M**	**UNIT**
Maximum repetitive peak reverse voltage	V_{RRM}	1000	V
Maximum RMS voltage	V_{RMS}	700	V
Maximum DC blocking voltage	V_{DC}	1000	V
Maximum average forward rectified current at T_L = 110 °C	$I_{F(AV)}$	1.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30	A
Operating and storage temperature range	T_J, T_{STG}	-55 to +150	°C

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
I_{FSM}	30 A
t_{rr}	50 ns, 75 ns
V_F at I_F	1.0 V, 1.7 V
T_J max.	150 °C
Package	SMA (DO-214AC)
Diode variations	Single

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**ALPAMUS1M**	**UNIT**
Maximum thermal resistance	$R_{\theta JA}$ (1)	75	°C/W
	$R_{\theta JL}$ (1)	27	
Note (1) PCB mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad area			

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**ALPAMUS1M**	**UNIT**
Maximum instantaneous forward voltage	1.0 A	V_F (1)	1.7	V
Maximum DC reverse current at rated DC blocking voltage	T_A = 25 °C	I_R	10	µA
	T_A = 100 °C		50	
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A	t_{rr}	75	ns
Typical junction capacitance	4.0 V, 1 MHz	C_J	10	pF
Note (1) Pulse test: 300 µs pulse width, 1 % duty cycle				

TYPICAL DEVICE CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

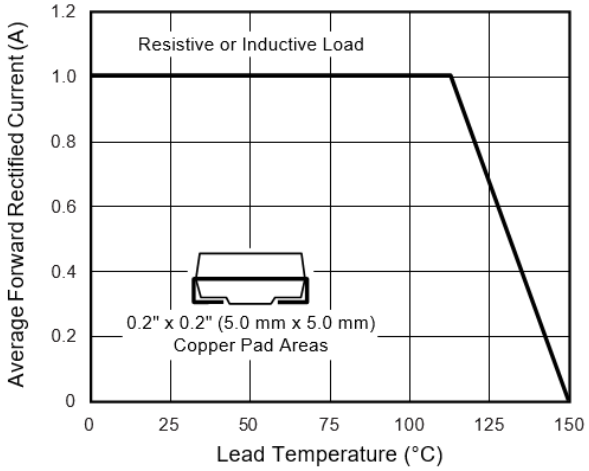


Fig.1 Forward Current Derating Curve

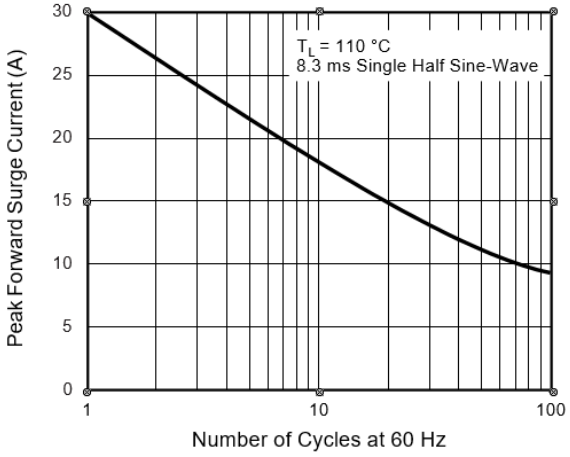


Fig.2 Maximum Non-Repetitive Peak Forward Surge Current

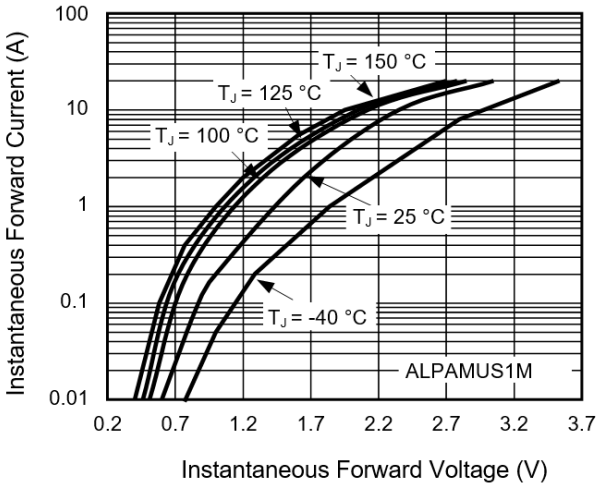


Fig.3 Typical Instantaneous Forward Characteristics

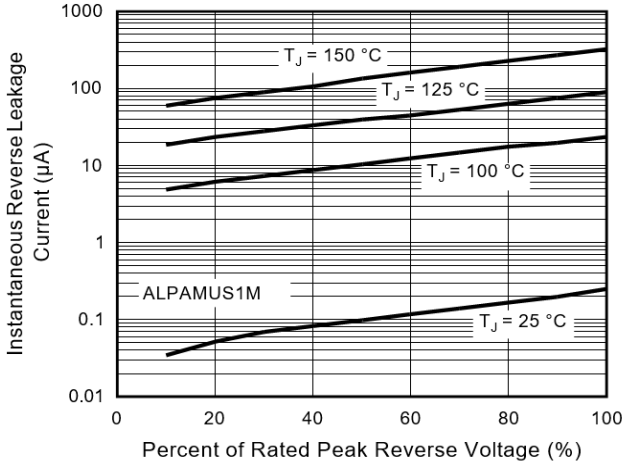


Fig.4 Typical Reverse Leakage Characteristics

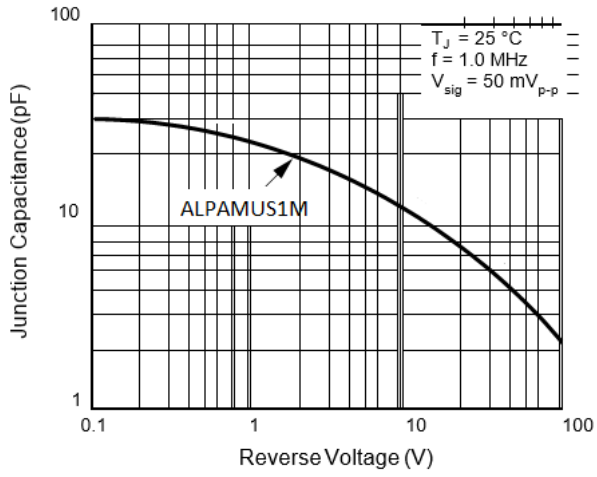


Fig.5 Typical Junction Capacitance

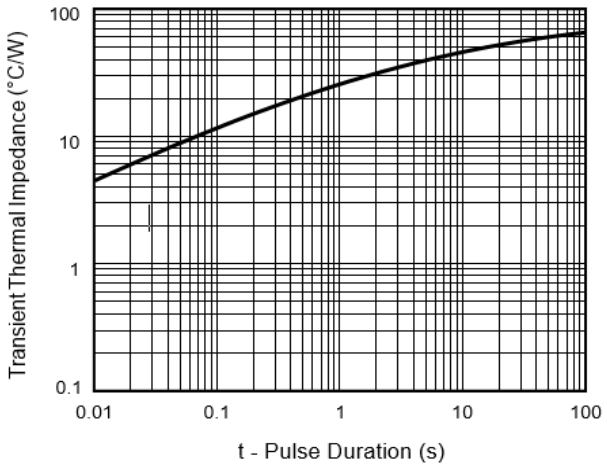
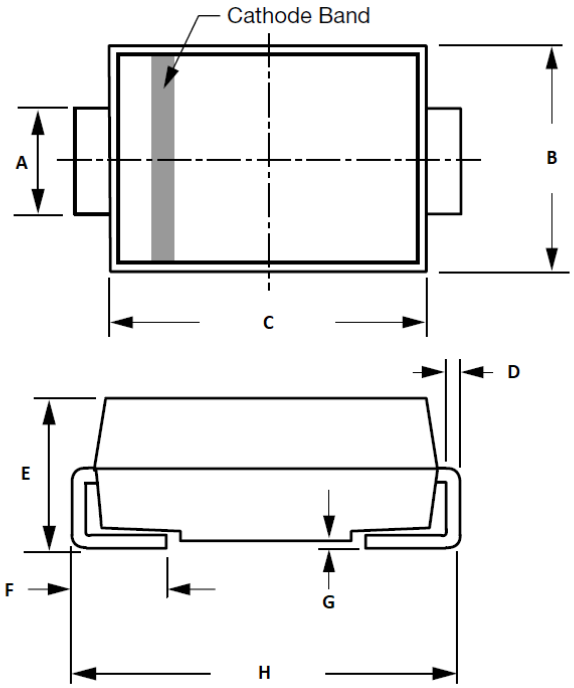


Fig.6 Typical Transient Thermal Impedance

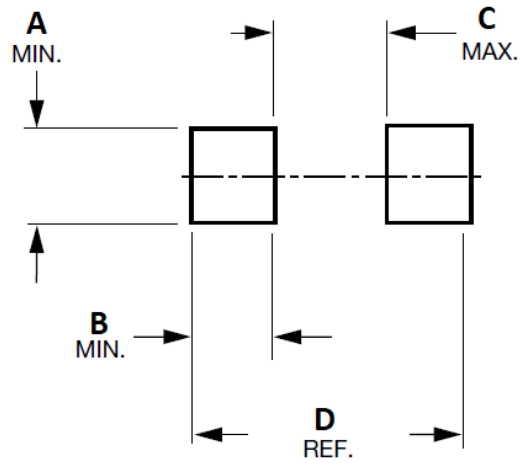
PACKAGE INFORMATION

DO-214AC (SMA)



OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.25	1.65	0.049	0.065
B	2.54	2.79	0.100	0.110
C	3.99	4.50	0.157	0.177
D	0.152	0.305	0.006	0.012
E	1.98	2.29	0.078	0.090
F	0.76	1.52	0.030	0.060
G	0	0.203	0	0.008
H	4.93	5.28	0.194	0.208

NOTES
- Controlling dimension: millimeters.
- Dimensioning and tolerances per ANSI Y14.5M, 1985.
- Dimensions are exclusive of mold flash and metal burrs.



PAD LAYOUT DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.68	-	0.066	-
B	1.52	-	0.060	-
C	-	1.88	-	0.074
D	5.28	-	0.208	-

NOTES
1. Controlling dimension: millimeters.

CUSTOMER NOTE:

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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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