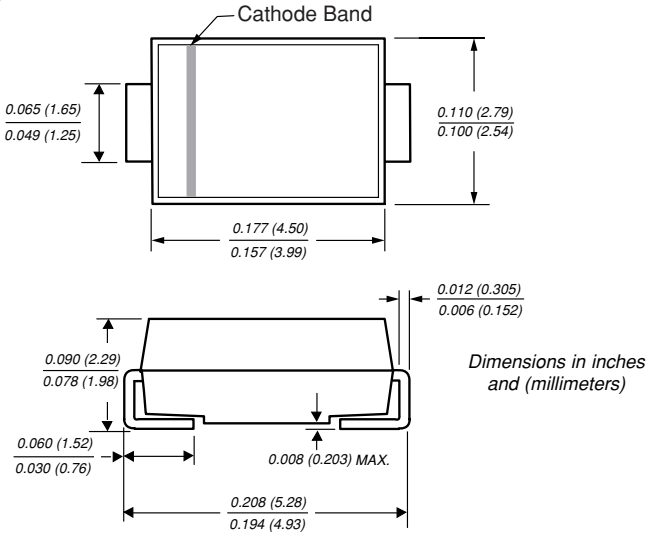
Surface Mount Ultrafast Plastic Rectifiers

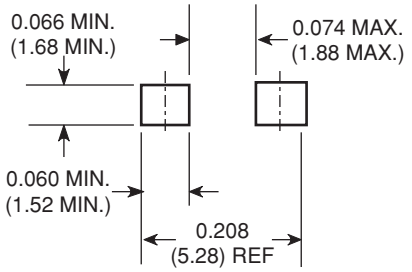
DO-214AC (SMA)



Dimensions in inches and (millimeters)

Reverse Voltage 50 to 200 V
Forward Current 1.0 A
Reverse Recovery Time 15 ns

Mounting Pad Layout



Mechanical Data

Case: JEDEC DO-214AC molded plastic body over passivated chip
Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
Polarity: Color band denotes cathode end
Weight: 0.002 oz., 0.064 g

Features

- Plastic package has Underwriters Laboratories Flammability Classification 94V-0
- For surface mount applications
- Glass passivated chip junctions
- Low profile package
- Easy pick and place
- Ultrafast recovery times for high efficiency
- Low forward voltage, low power loss
- Built-in strain relief, ideal for automated placement
- High temperature soldering guaranteed: 250°C/10 seconds on terminals

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	ES1A	ES1B	ES1C	ES1D	Unit
Device marking code		EA	EB	EC	ED	
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	V
Maximum average forward rectified current at T_L = 120°C	$I_{F(AV)}$	1.0				A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	30				A
Typical thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JL}$	85 35				°C/W
Operating junction and storage temperature range	T_J, T_{STG}	–55 to +150				°C

Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

Maximum instantaneous forward voltage at 0.6A(2) at 1.0A	V_F	0.865 0.920	V
Maximum DC reverse current T_A=25°C at rated DC blocking voltage T_A=100°C	I_R	5.0 100	µA
Max. reverse recovery time I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A	t_{rr}	15	ns
Maximum reverse recovery time T_J=25°C I_F = 0.6A, V_R = 30V, di/dt = 50A/µs, I_{rr} =10% I_{RM} T_J=100°C	t_{rr}	25 35	ns
Maximum stored charge T_J=25°C T_A=25°C I_F = 0.6A, V_R = 30V, di/dt = 50A/µs, I_{rr} =10% I_{RM} T_A=100°C	Q_{rr}	10 25	nC
Typical junction capacitance at 4.0V, 1MHz	C_J	7.0	pF

Notes: (1) Units mounted on P.C.B. 5.0 x 5.0mm (0.013mm thick) land areas
(2) Pulse test: 300µs pulse width, 1% duty cycle

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 1 – Maximum Forward Current Derating Curve

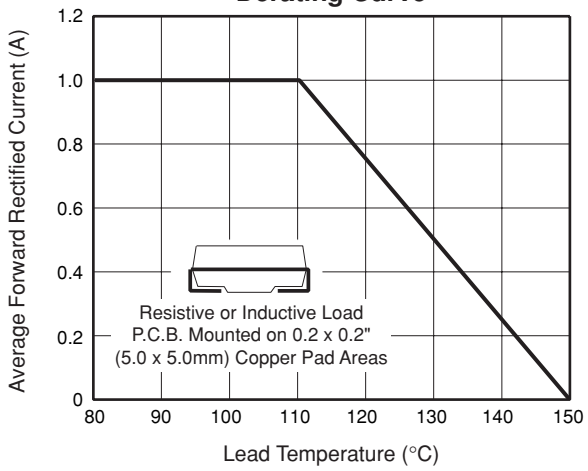


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

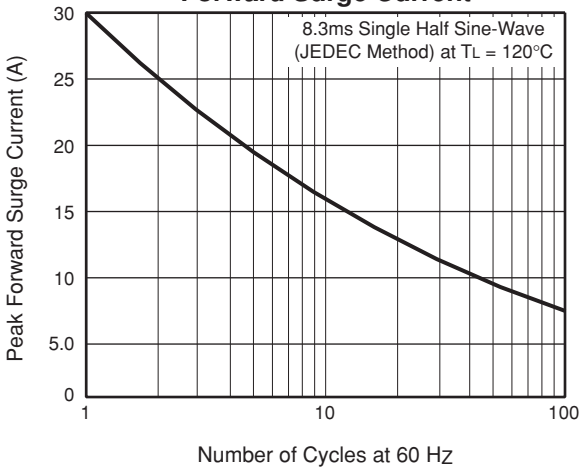


Fig. 3 – Typical Instantaneous Forward Characteristics

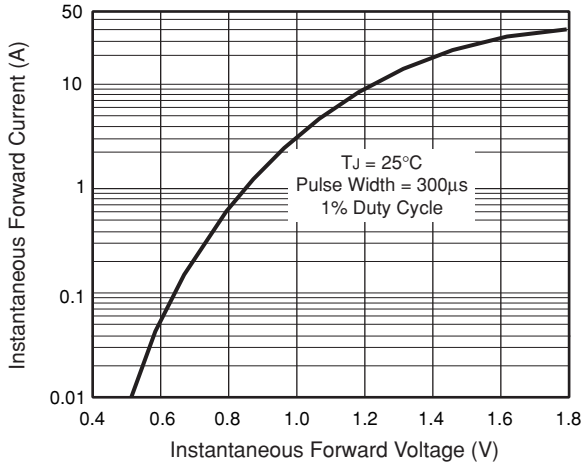


Fig. 4 – Typical Reverse Leakage Characteristics

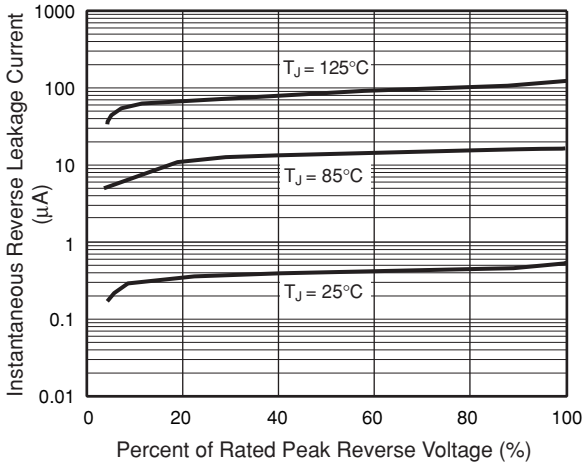


Fig. 5 – Typical Junction Capacitance

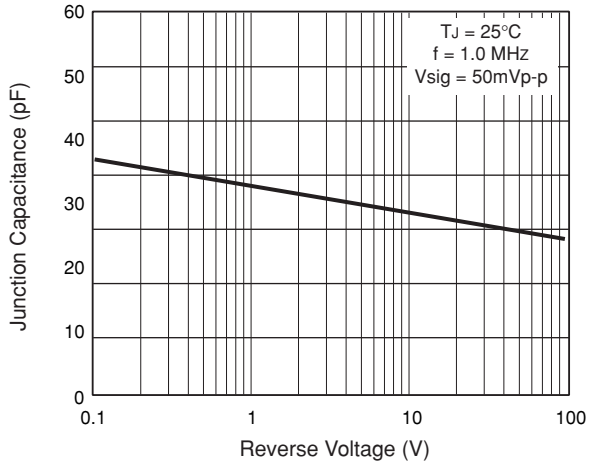


Fig. 6 – Typical Thermal Impedance