

Features

- The plastic package carries UL Flammability Classification 94V-0
- For surface mounted applications
- Low reverse leakage
- Built-in strain relief, ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed: 260°C/10 seconds at terminals



SMA (DO-214AC)

Mechanical Characteristics

- **Case:** SMA package molded plastic body over passivated chip
- **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026
- **Polarity:** Color band denotes cathode end
- **Mounting Position:** Any

Absolute Maximum Ratings and Electrical Parameters (TA=25°C unless otherwise specified)

PARAMETER		SYMBOL	1N4004	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	400	V
Maximum RMS voltage		V_{RMS}	280	V
Maximum DC blocking voltage		V_{DC}	400	V
Maximum average forward rectified current		I_{AV}	1	A
Peak forward surge current (NOTE1)		I_{FSM}	30	A
Maximum instantaneous forward voltage at 1A		V_F	1.1	V
Maximum DC reverse current at rated DC blocking voltage	$T_A=25\text{ }^{\circ}\text{C}$	I_R	5	μA
	$T_A=100\text{ }^{\circ}\text{C}$	I_{RT}	50	μA
Typical junction capacitance (NOTE 2)		C_J	15	pF
Typical Thermal Resistance Junction to Ambient (NOTE3)		$R_{\theta JA}$	75	$^{\circ}\text{C/W}$
Typical Thermal Resistance Junction to Lead (NOTE3)		$R_{\theta JL}$	25	$^{\circ}\text{C/W}$
Operating Temperature Range		T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 to 150	$^{\circ}\text{C}$

Note1: 8.3ms single half sine-wave superimposed on rated load

Note2: Measured at 1MHz and applied reverse voltage of 4.0V DC.

Note3: PCB. mounted with 5×5mm copper pad areas

Rating And Characteristic Curves (TA=25°C unless otherwise noted)

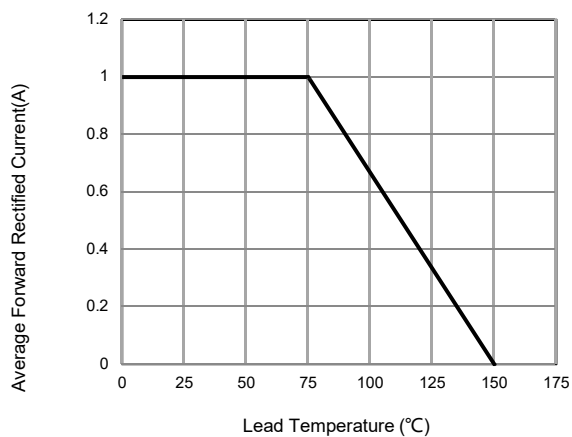


Fig. 1 - Forward Current Derating Curve

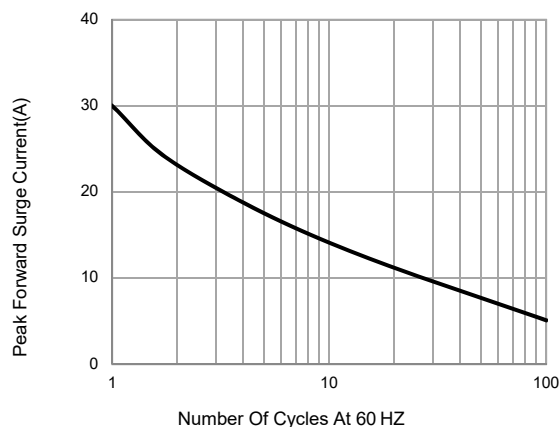


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

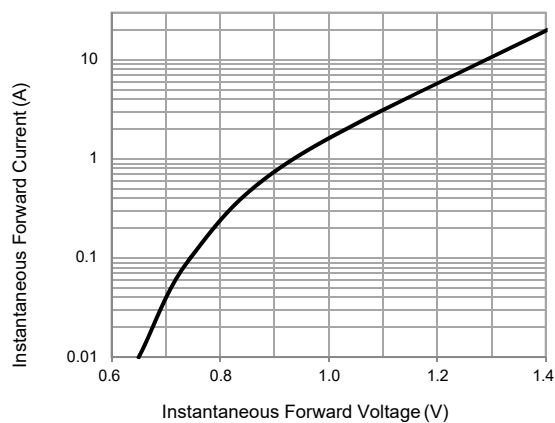


Fig. 3 - Typical Instantaneous Forward Characteristics

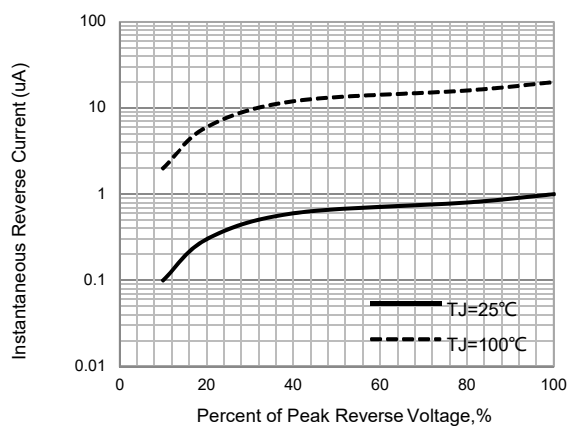


Fig. 4 - Typical Reverse Characteristics

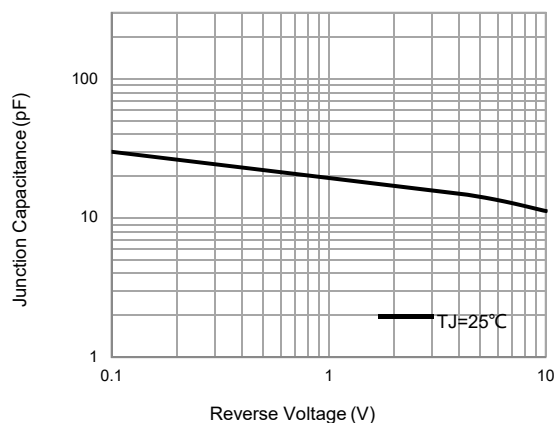


Fig. 5 - Typical Junction Capacitance

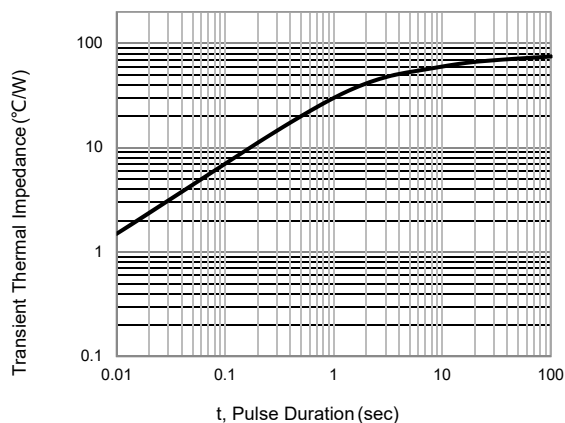
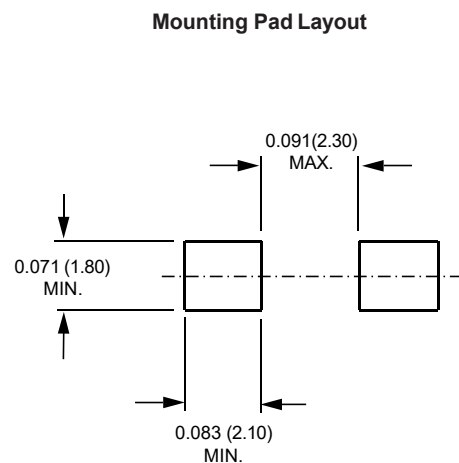
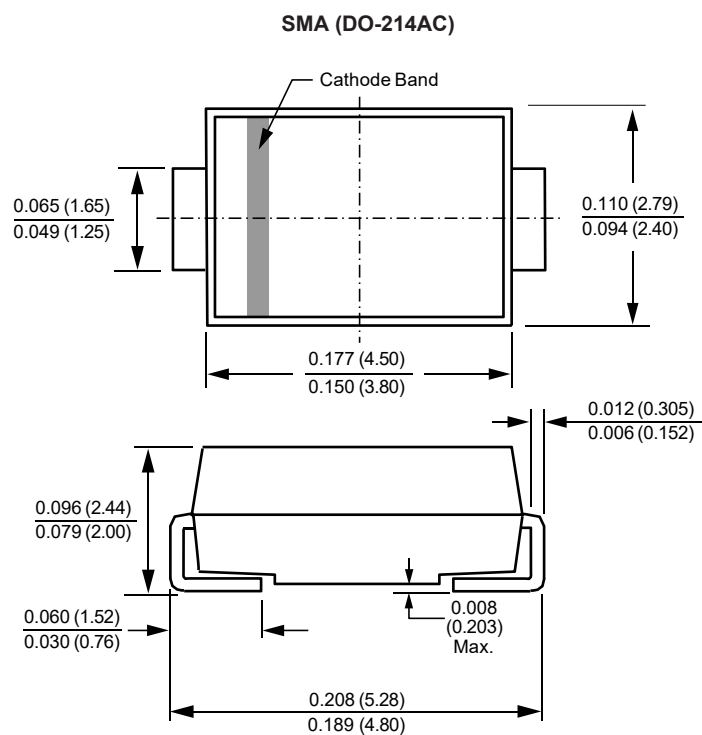
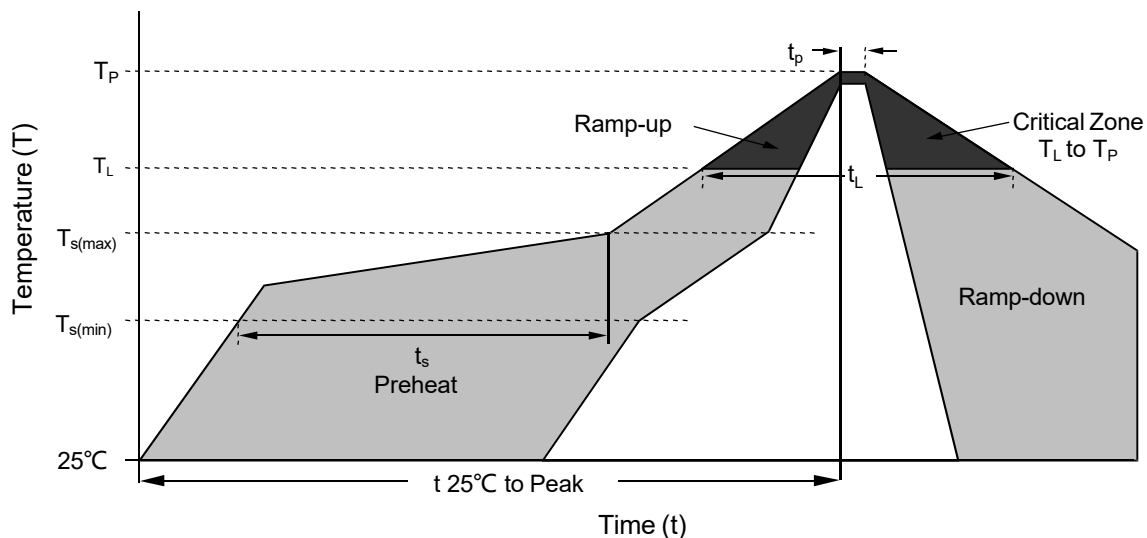


Fig. 6 - Typical Transient Thermal Impedance

Package Outline Dimensions in inches (millimeters)



Soldering Parameters



Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 – 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C