



SURFACE MOUNT SUPER FAST RECTIFIER

ES1K

VOLTAGE RANGE 800 Volts
CURRENT 1.0 Ampere



Features

- Glass passivated chip
- Plastic package has underwrites laboratory flammability Classification 94V-0
- For surface mounted applications
- Low profile package
- Built-in strain relief, ideal for automated placement
- Glass Passivated chip junction
- High temperature soldering:250°C/10 second at terminals



DO-214AC (SMA)

Mechanical Data

- Case: JEDED DO-214AC molded plastic over glass passivated chip
- Terminals: Solder plated, Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.0024ounce, 0.068 gram

Maximum Ratings and Electrical Characteristics

- Ratings at 25°C ambient temperature unless otherwise specified.
- Single phase, half wave, 60Hz, resistive or inductive load.
- For capacitive load derate current by 20%.

TYPE NUMBER	SYMBOLS	ES1K	UNIT
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	800	Volts
Maximum RMS Voltage	V_{RMS}	560	Volts
Maximum DC Blocking Voltage	V_{DC}	800	Volts
Maximum Average Forward Rectified Current At $T_A=115^{\circ}\text{C}$ (NOTE 1)	$I_{(AV)}$	1.0	Amps
Peak Forward Surge Current 8.3ms single half sine wave superimposed on rated load (JEDEC Method)	I_{FSM}	30	Amps
Maximum Instantaneous Forward Voltage at 1.0A	V_F	3.0	Volts
Maximum DC Reverse Current at rated DC blocking voltage at	$T_A = 25^{\circ}\text{C}$	5.0	μA
	$T_A = 125^{\circ}\text{C}$	200	
Maximum Reverse Recovery Time (NOTE 3)	T_{RR}	35	nS
Typical Junction Capacitance (NOTE 2)	C_J	50	pF
Typical Thermal Resistance (NOTE 1)	$R_{\theta JA}$	70	$^{\circ}\text{C}/\text{W}$
	$R_{\theta JL}$	28	
Operating Junction Temperature	T_J	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Notes:

1. Thermal resistance from Junction to ambient and from junction to lead mounted on P.C.B.with0.3×0.3"(8.0 × 8.0mm) copper pad areas.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V
3. Test conditions $I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $IRR = 0.25\text{A}$

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Ratings and Characteristic Curves ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

FIG.1-TYPICAL FORWARD CURRENT
DERATING CURVE

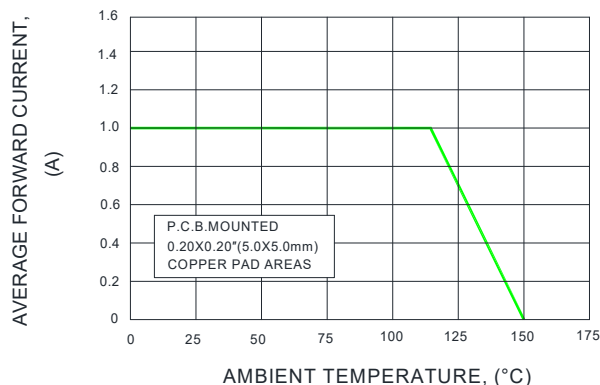


FIG.2-MAXIMUM NON-REPETITIVE PEAK
FORWARD SURGE CURRENT

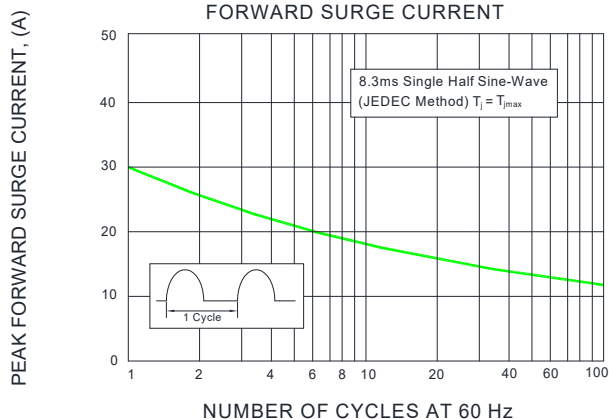


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

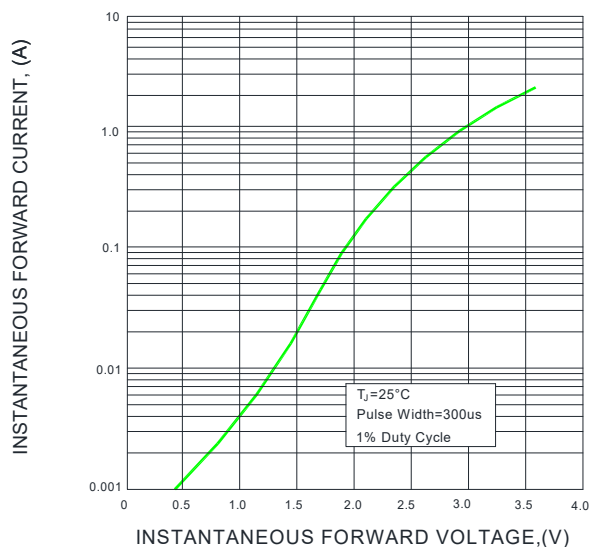


FIG.4-TYPICAL REVERSE CHARACTERISTICS

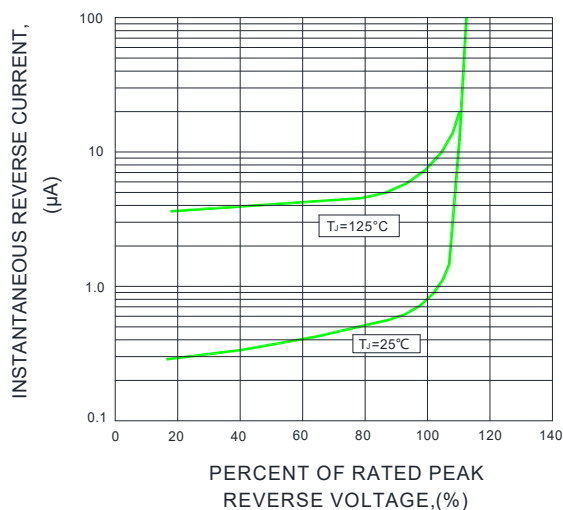
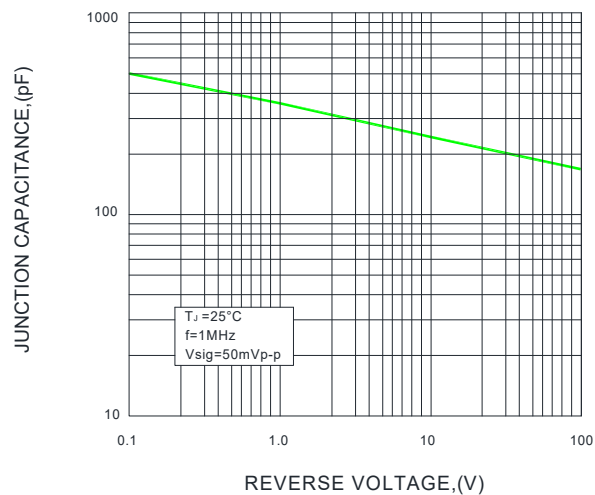
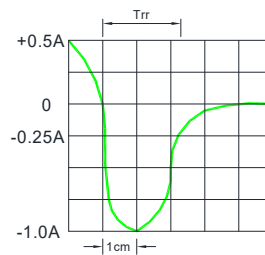
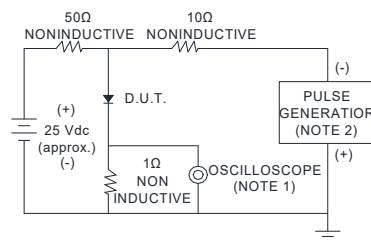


FIG.5-TYPICAL JUNCTION CAPACITANCE



F1G.6-TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC



NOTES : 1. Rise Time = 7 ns max. Input Impedance = 1 MΩ, 22 pF
2. Rise time = 10 ns max. Source Impedance = 50 Ω

SET TIME BASE FOR
50/100ns/cm

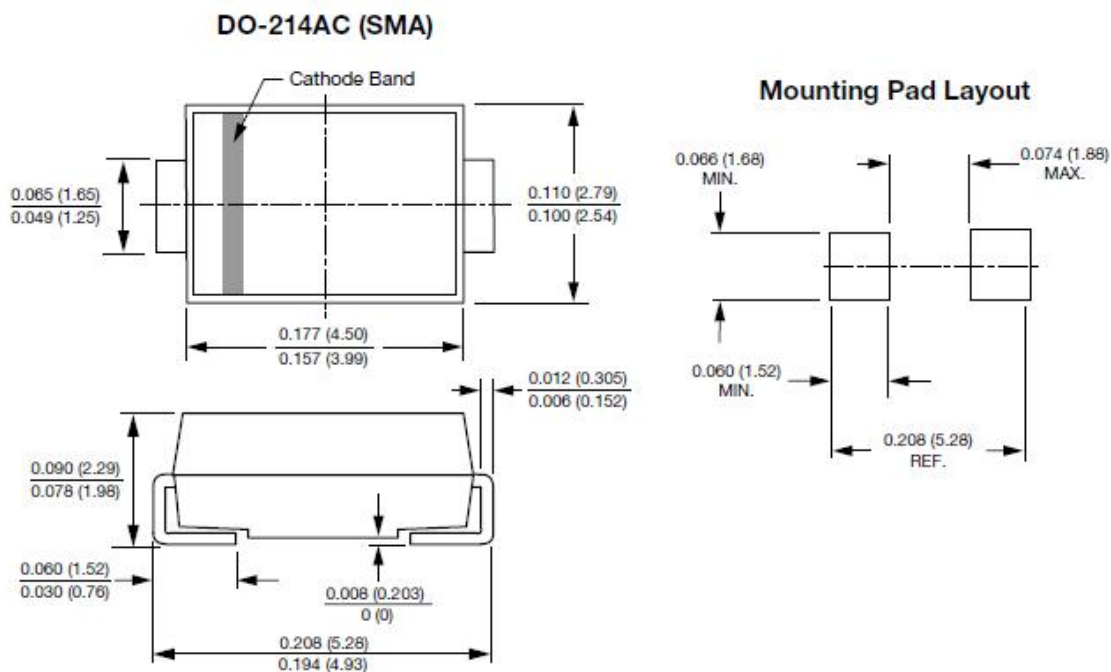


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Package Outline Dimensions in inches (millimeters)





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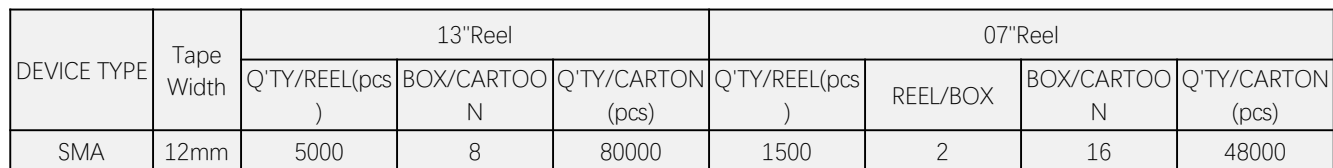
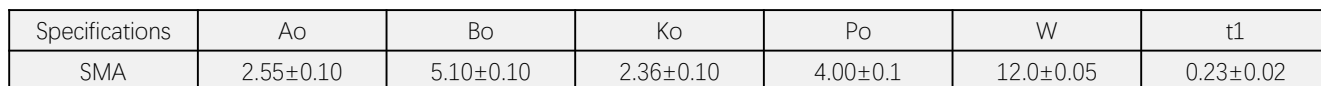
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Package Reel Information





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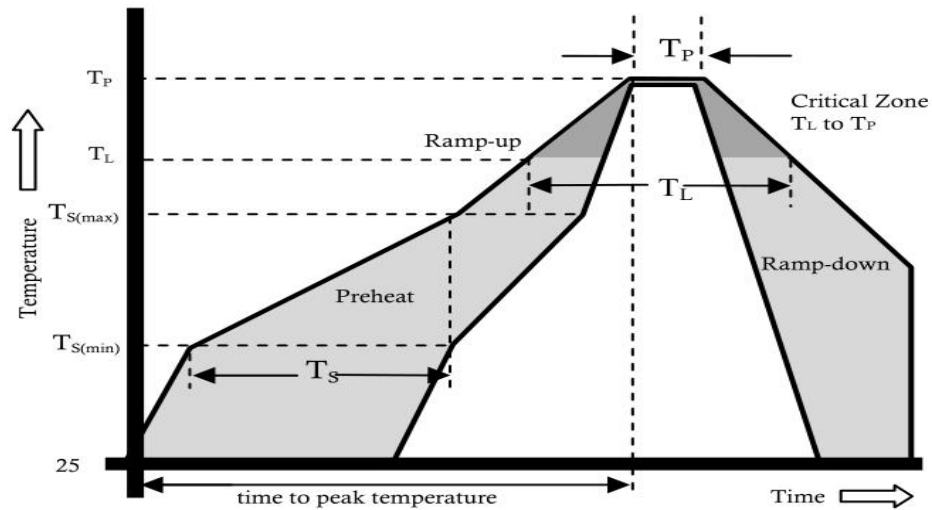
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Reflow Profile



Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60-180 secs.
Average ramp up rate(Liquidus Temp(T_L) to peak)		3°C/sec. Max.
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max.
Reflow	Temperature (T_L)(Liquidus)	+217°C
	Temperature (T_L)	60-150 secs.
Peak Temp (T_P)		+(260+0/-5)°C
Time within 5°C of actual Peak Temp (T_P)		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp (T_P)		8 min. Max.
Do not exceed		+260°C



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