



## SURFACE MOUNT SUPER FAST RECTIFIER

**ES1K**

VOLTAGE RANGE	800 Volts
CURRENT	1.0 Ampere



### Features

- Glass passivated chip
- Plastic package has underwriters 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: JEDEC 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 $T_A=115^\circ C$ <sup>(NOTE 1)</sup>	$I_{(AV)}$	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 $T_A = 25^\circ C$	$I_R$	5.0	$\mu A$
Maximum DC Reverse Current at rated DC blocking voltage at $T_A = 125^\circ C$		200	
Maximum Reverse Recovery Time <sup>(NOTE 3)</sup>	$T_{RR}$	35	nS
Typical Junction Capacitance <sup>(NOTE 2)</sup>	$C_J$	50	pF
Typical Thermal Resistance <sup>(NOTE 1)</sup>	$R_{\theta JA}$	70	$^\circ C/W$
	$R_{\theta JL}$	28	
Operating Junction Temperature	$T_J$	-55 to +150	$^\circ C$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ C$

#### Notes:

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

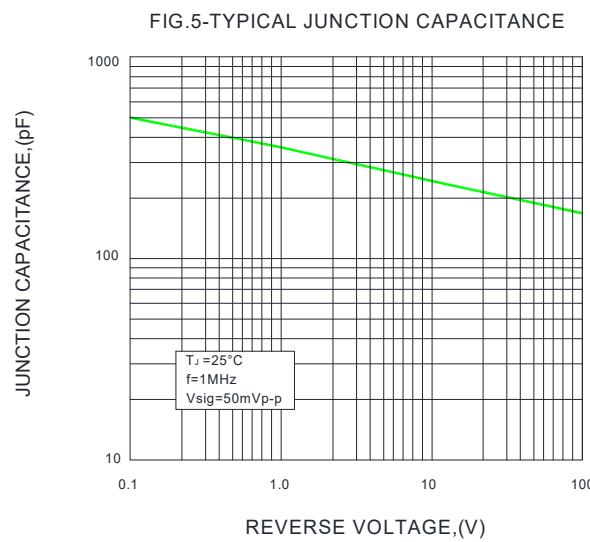
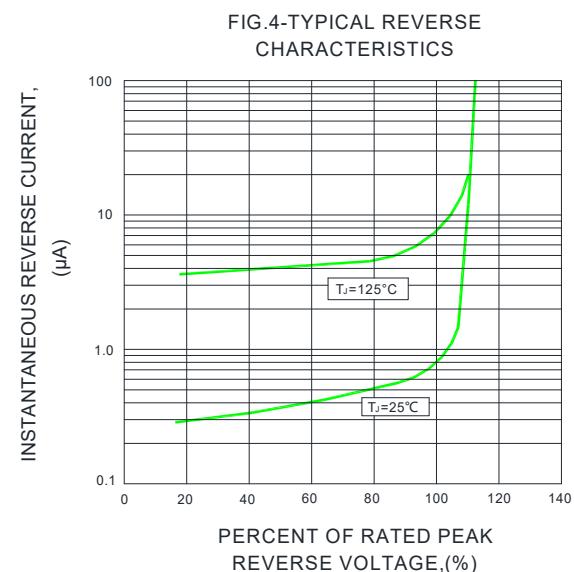
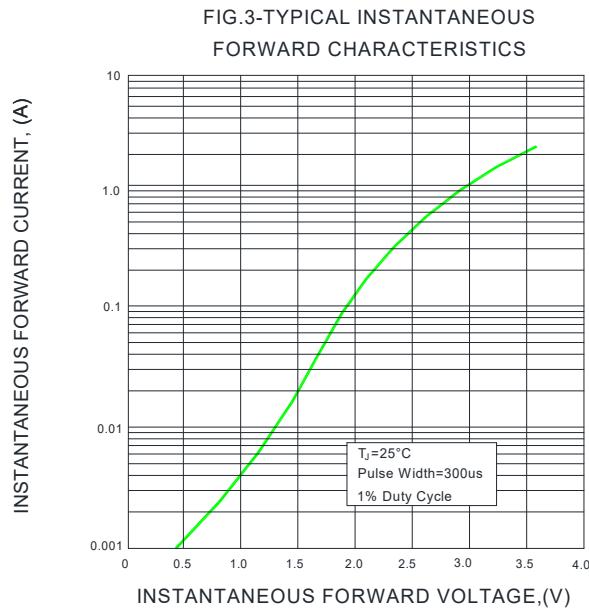
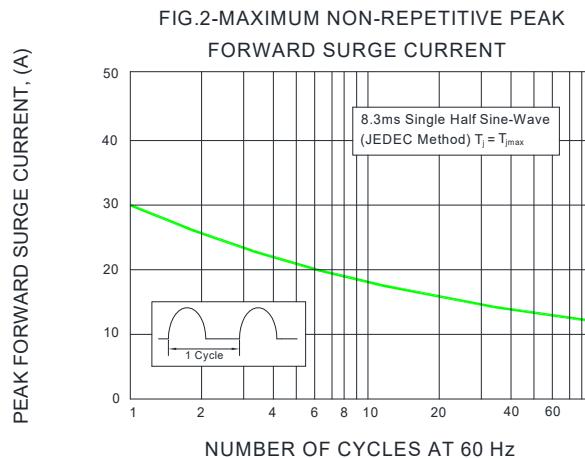
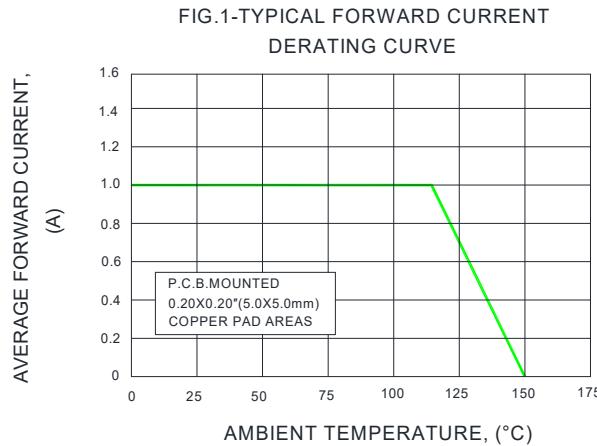


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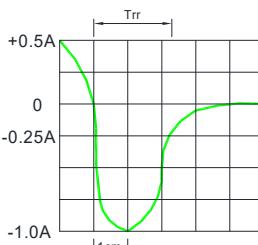
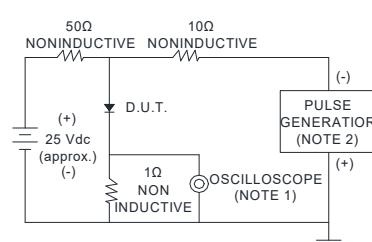
ES1K

VOLTAGE RANGE 800 Volts  
CURRENT 1.0 Ampere

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



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



NOTES : 1.Rise Time=7ns max. Input Impedance=1 megohm. 22pF  
2.Rise time=10ns max. Source Impedance=50 ohms

SET TIME BASE FOR 50/100ns/cm



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VOLTAGE RANGE

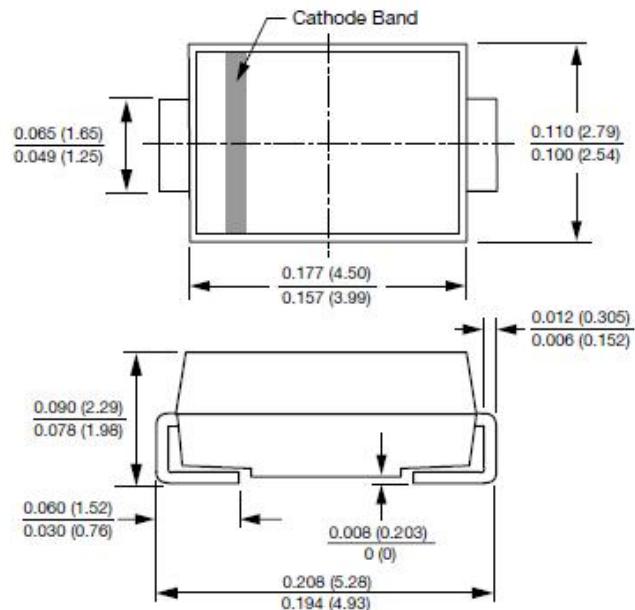
800 Volts

CURRENT

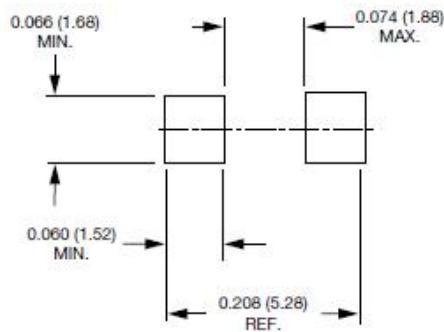
1.0 Ampere

Package Outline Dimensions in inches (millimeters)

**DO-214AC (SMA)**



**Mounting Pad Layout**





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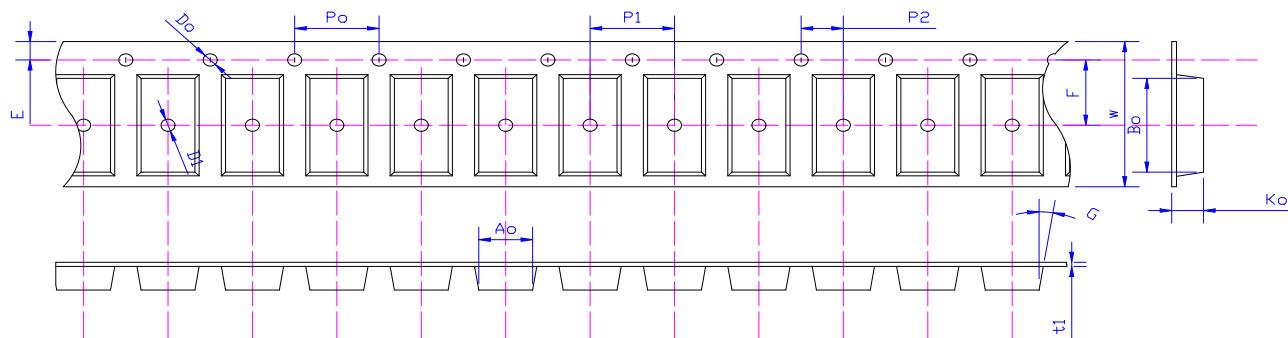
VOLTAGE RANGE

800 Volts

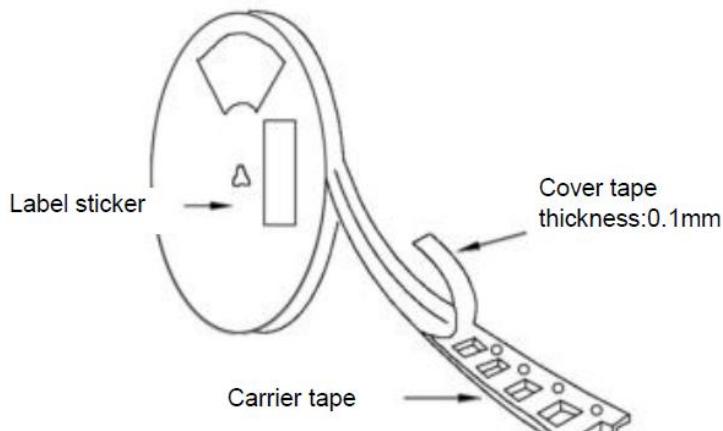
CURRENT

1.0 Ampere

### Package Reel Information



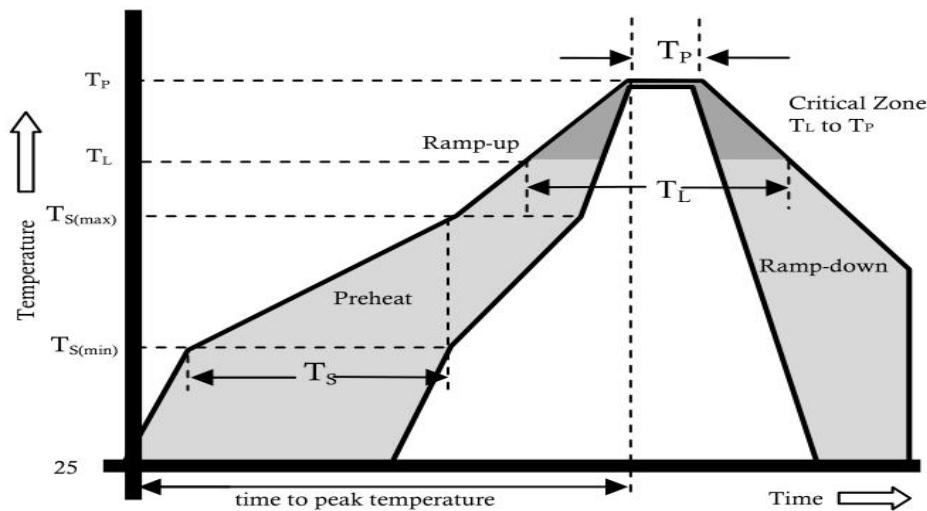
Specifications	Ao	Bo	Ko	Po	W	t1
SMA	$2.55 \pm 0.10$	$5.10 \pm 0.10$	$2.36 \pm 0.10$	$4.00 \pm 0.1$	$12.0 \pm 0.05$	$0.23 \pm 0.02$



DEVICE TYPE	Tape Width	13"Reel			07"Reel			
		Q'TY/REEL(pcs)	BOX/CARTOON	Q'TY/CARTON (pcs)	Q'TY/REEL(pcs)	REEL/BOX	BOX/CARTOON	Q'TY/CARTON (pcs)
SMA	12mm	5000	8	80000	1500	2	16	48000



## 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.
$T_s(\text{max})$ to $T_l$ - Ramp-up Rate		3°C/sec. Max.
Reflow	Temperature ( $T_l$ )(Liquidus)	+217°C
	Temperature ( $T_p$ )	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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### Disclaimer

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