

**SURFACE MOUNT GLASS PASSIVATED  
SUPER FAST SILICON RECTIFIER**  
VOLTAGE RANGE 50 to 600 Volts CURRENT 1.0 Ampere

**FEATURES**

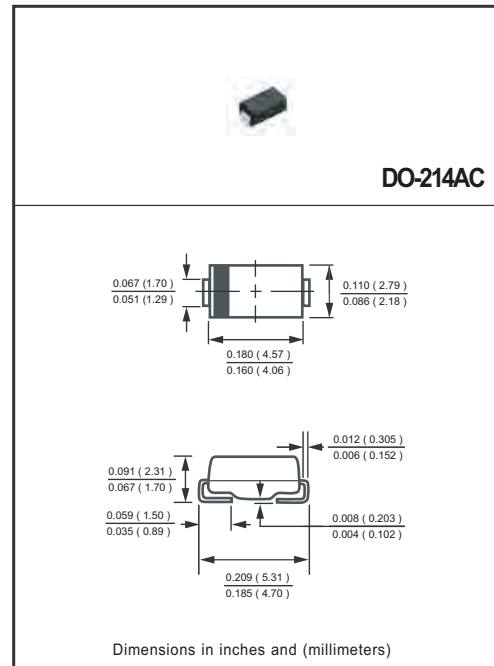
- \* Glass passivated device
- \* Ideal for surface mounted applications
- \* Low leakage current
- \* Metallurgically bonded construction
- \* Halogen-free

**MECHANICAL DATA**

- \* Epoxy : Device has UL flammability classification 94V-0
- \* Mounting position: Any
- \* Weight: 0.057 gram

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.  
Resistive or inductive load.



**MAXIMUM RATINGS (@ TA=25 °C unless otherwise noted)**

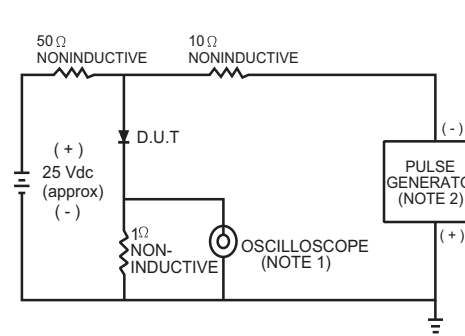
RATINGS	SYMBOL	ES1A	ES1B	ES1C	ES1D	ES1E	ES1G	ES1J	UNITS
Maximum Recurrent Peak Reverse Voltage	V <sub>RRM</sub>	50	100	150	200	300	400	600	Volts
Maximum RMS Voltage	V <sub>RMS</sub>	35	70	105	140	210	280	420	Volts
Maximum DC Blocking Voltage	V <sub>DC</sub>	50	100	150	200	300	400	600	Volts
Maximum Average Forward Rectified Current at T <sub>A</sub> = 55°C	I <sub>o</sub>	1.0							Amps
Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method)	I <sub>FSM</sub>	30							Amps
Typical Current Square Time	I <sup>2</sup> T	3.7							A <sup>2</sup> S
Typical Thermal Resistance (Note 4)	R <sub>θJA</sub>	85							°C/W
	R <sub>θJL</sub>	35							
Typical Junction Capacitance (Note 2)	C <sub>J</sub>	15					10		pF
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to + 150							°C

**ELECTRICAL CHARACTERISTICS (@TA=25 °C unless otherwise noted)**

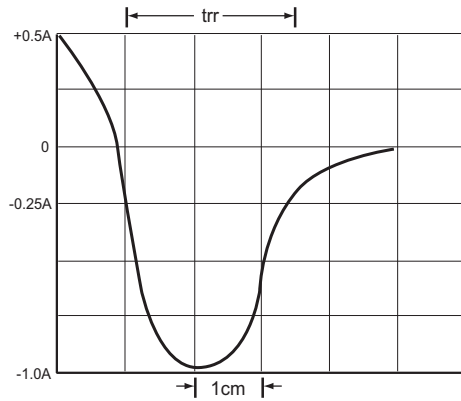
CHARACTERISTICS	SYMBOL	ES1A	ES1B	ES1C	ES1D	ES1E	ES1G	ES1J	UNITS	
Maximum Instantaneous Forward Voltage at 1.0ADC	V <sub>F</sub>	0.95			1.25		1.70		Volts	
Maximum DC Reverse Current at Rated DC Blocking Voltage	I <sub>R</sub>	@T <sub>A</sub> = 25°C							0.5	μAmps
		@T <sub>A</sub> = 150°C							2.0	mAmps
Maximum Reverse Recovery Time (Note 1)	t <sub>rr</sub>	35							nSec	

- NOTES : 1. Reverse Recovery Test Conditions: I<sub>F</sub> = 0.5A, I<sub>R</sub> = -1.0A, I<sub>RR</sub> = -0.25A  
 2. Measured at 1 MHz and applied reverse voltage of 4.0 volts  
 3. Thermal Resistance : Mounted on PCB.

## RATING AND CHARACTERISTICS CURVES ( ES1A THRU ES1J )



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



SET TIME BASE FOR 14/1 ns/cm

FIG.1 TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

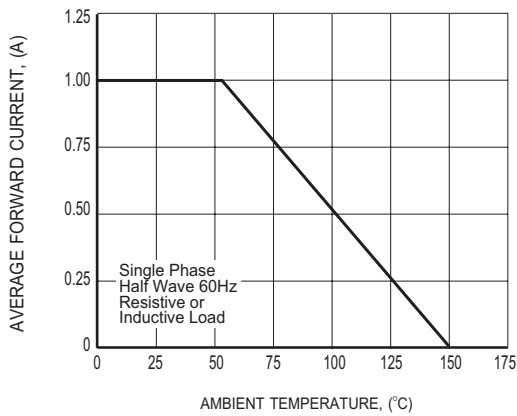


FIG.2 TYPICAL FORWARD CURRENT DERATING CURVE

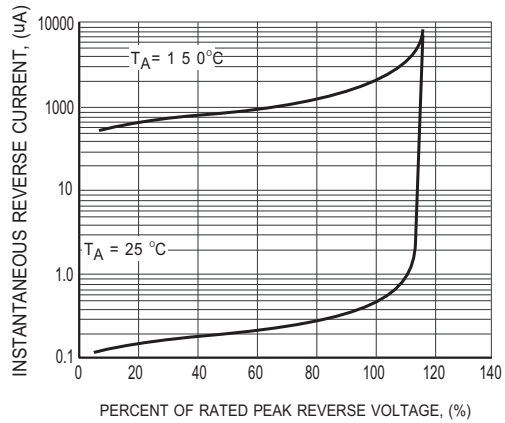


FIG.3 MAXIMUM REVERSE CHARACTERISTICS

## RATING AND CHARACTERISTICS CURVES ( ES1A THRU ES1J )

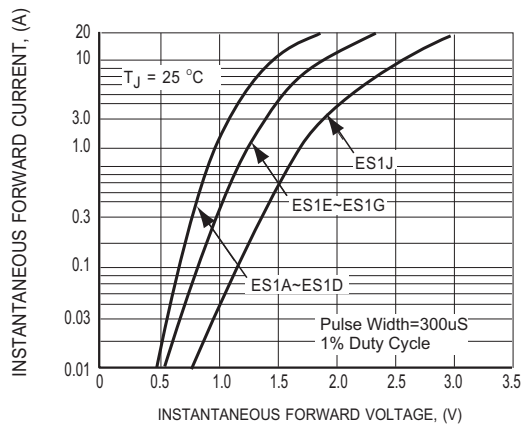


FIG.4 MAXIMUM INSTANTANEOUS FORWARD CHARACTERISTICS

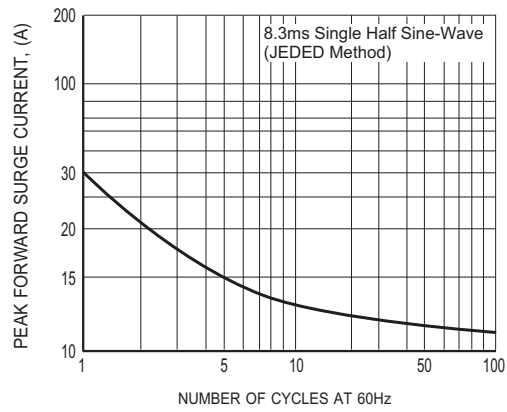


FIG.5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

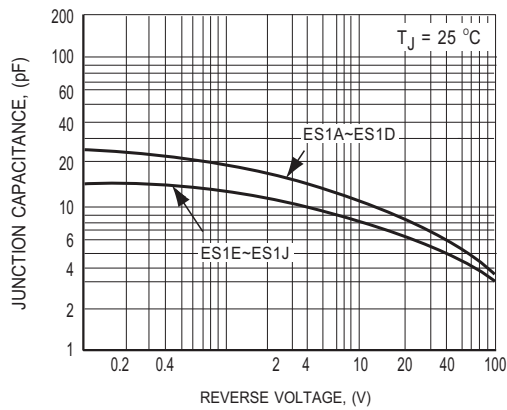
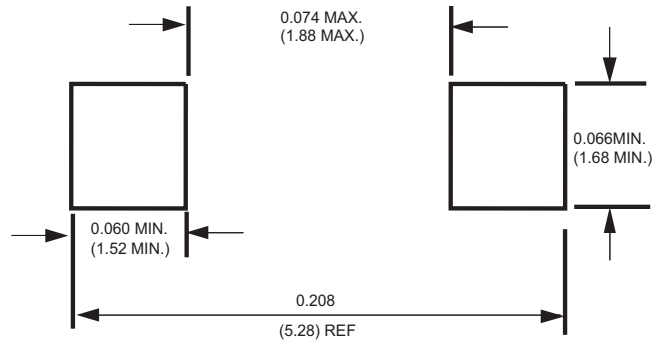


FIG.6 TYPICAL JUNCTION CAPACITANCE

## Mounting Pad Layout



Dimensions in inches and (millimeters)

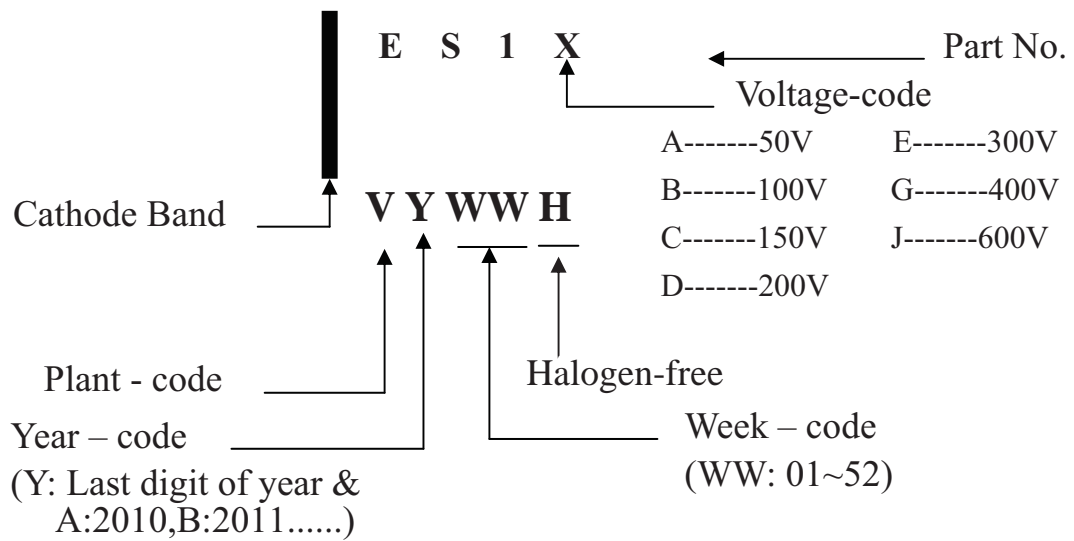


## Attachment information about ES1X

### 1. Internal Circuit



### 2. Marking on the body





## **Attachment information about ES1X**

### **3. Items marked on the reel box and carton**

#### **3.1 On the reel (for -T & -W)**

**CUSTOMER**

**TYPE**

**QUANTITY**

**LOT NO.**

**Q.A.**

**REMARK**

#### **3.2 On the box (for -T & -W)**

**TYPE**

**QUANTITY**

**LOT NO.**

**Q.A.**

#### **3.3 On the carton**

**CUSTOMER**

**TYPE**

**QUANTITY**

**LOT NO.**

**REMARK**

## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMA	-W	7,500	15,000	---	---	330	360*355*360	120,000	15.2

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMA	-T	2,000	8,000	---	---	178	390*205*310	64,000	7.8