

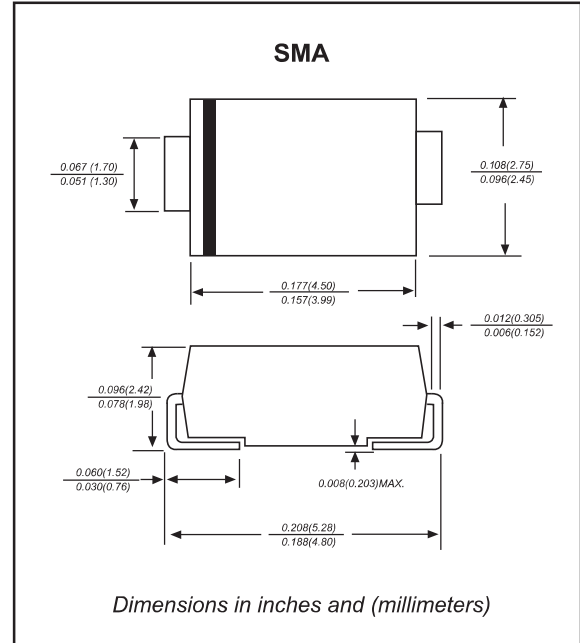
### Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Super fast switching for high efficiency
- ◆ 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
- ◆ Glass passivated chip junction
- ◆ Compliant to RoHS Directive 2011/65/EU

### Mechanical data

- ◆ **Case:** JEDEC DO-214AC molded plastic body
- ◆ **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ **Polarity:** Color band denotes cathode end
- ◆ **Mounting Position:** Any

### Package outline



### Maximum ratings and Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

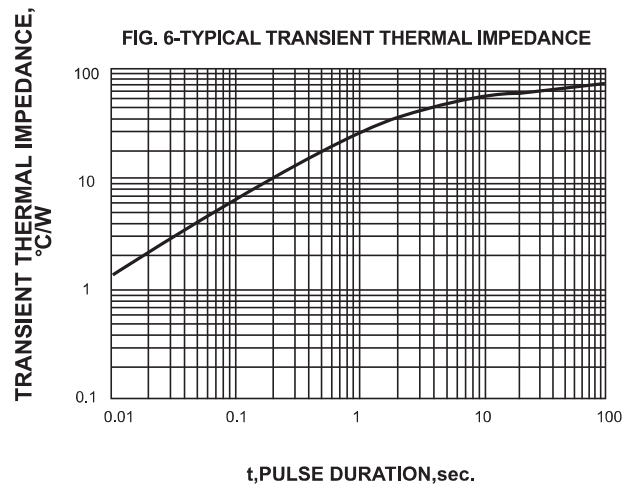
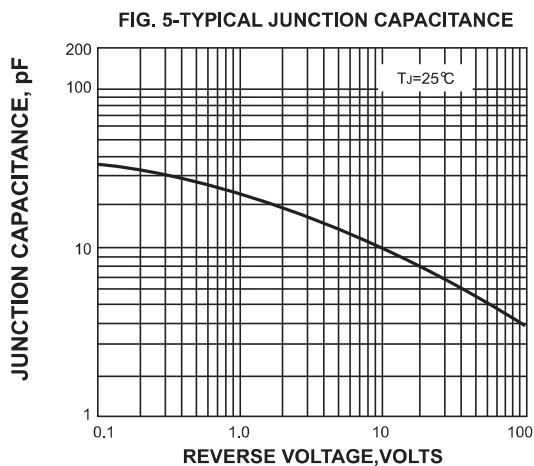
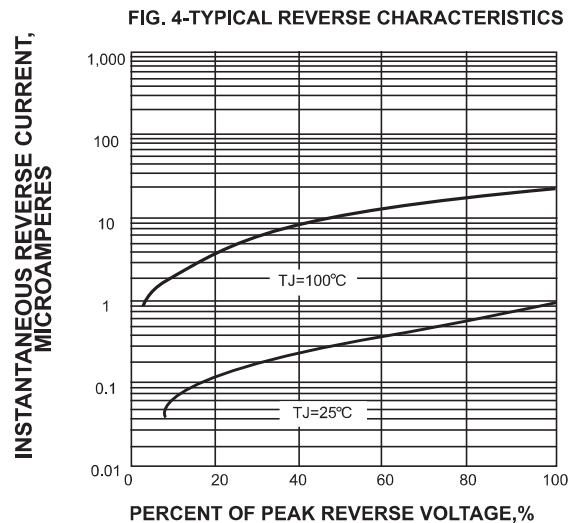
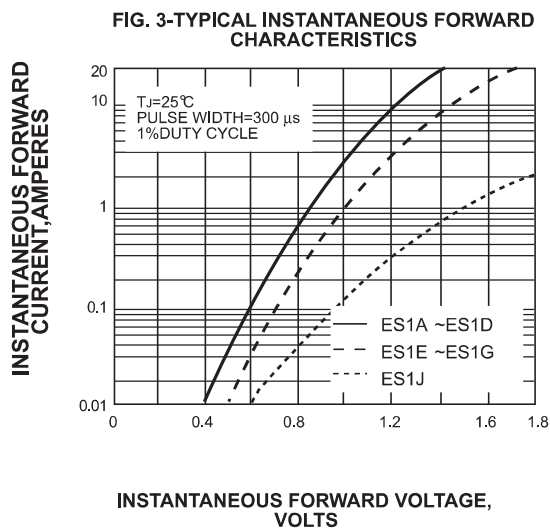
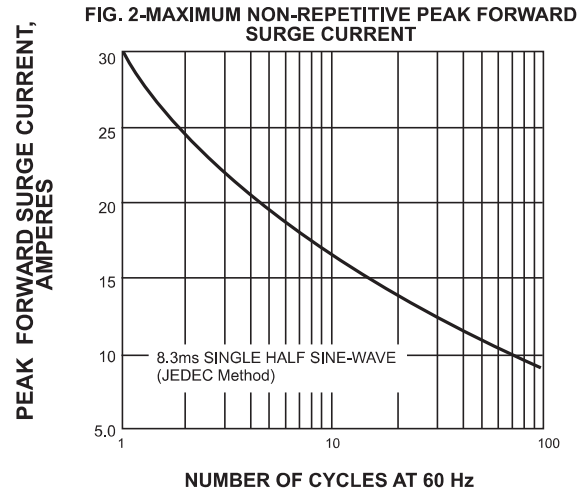
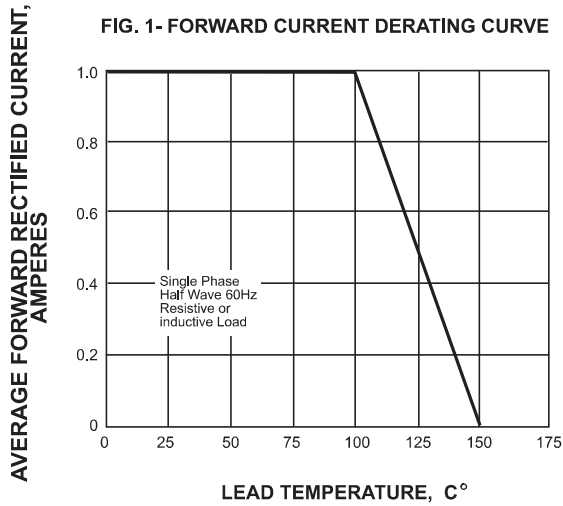
| PARAMETER                  | CONDITIONS                                      | Symbol          | MIN. | TYP. | MAX. | UNIT                 |
|----------------------------|-------------------------------------------------|-----------------|------|------|------|----------------------|
| Forward rectified current  | See Fig.2                                       | $I_O$           |      |      | 1.0  | A                    |
| Forward surge current      | 8.3ms single half sine-wave (JEDEC methode)     | $I_{FSM}$       |      |      | 30   | A                    |
| Reverse current            | $V_R = V_{RRM} \quad T_A = 25^{\circ}\text{C}$  | $I_R$           |      |      | 5.0  | $\mu\text{A}$        |
|                            | $V_R = V_{RRM} \quad T_A = 100^{\circ}\text{C}$ |                 |      |      | 100  |                      |
| Thermal resistance         | Junction to ambient<br>NOTE 1                   | $R_{\theta JA}$ |      | 75   |      | $^{\circ}\text{C/W}$ |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage        | $C_J$           |      | 15   |      | pF                   |
| Storage temperature        |                                                 | $T_{STG}$       | -55  |      | +150 | $^{\circ}\text{C}$   |

| SYMBOLS | V <sub>RRM</sub> <sup>*1</sup><br>(V) | V <sub>RMS</sub> <sup>*2</sup><br>(V) | V <sub>R</sub> <sup>*3</sup><br>(V) | V <sub>F</sub> <sup>*4</sup><br>(V) | t <sub>rr</sub> <sup>*5</sup><br>(ns) | Operating temperature<br>T <sub>J</sub> , (°C) |
|---------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|------------------------------------------------|
| ES1A    | 50                                    | 35                                    | 50                                  | 0.95                                | 35                                    | -55 to +150                                    |
| ES1B    | 100                                   | 70                                    | 100                                 |                                     |                                       |                                                |
| ES1C    | 150                                   | 105                                   | 150                                 |                                     |                                       |                                                |
| ES1D    | 200                                   | 140                                   | 200                                 |                                     |                                       |                                                |
| ES1E    | 300                                   | 210                                   | 300                                 | 1.25                                |                                       |                                                |
| ES1G    | 400                                   | 280                                   | 400                                 |                                     |                                       |                                                |
| ES1J    | 600                                   | 420                                   | 600                                 | 1.70                                |                                       |                                                |

- \*1 Repetitive peak reverse voltage
- \*2 RMS voltage
- \*3 Continuous reverse voltage
- \*4 Maximum forward voltage@ $I_F=1.0\text{A}$
- \*5 Maximum Reverse recovery time, note 2

**Note:** 1.P.C.B. mounted with 2.0x2.0" (5.0x5.0cm) copper pad areas  
2. Reverse recovery time test condition,  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{RR}=0.25\text{A}$

### Rating and characteristic curves



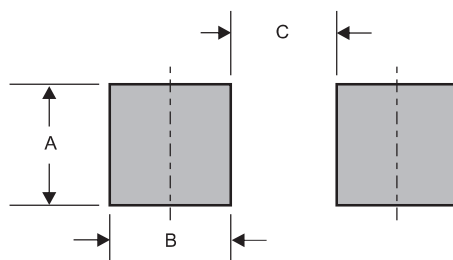
## Pinning information

| Pin                        | Simplified outline                                                                | Symbol                                                                              |
|----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pin1 cathode<br>Pin2 anode |  |  |

## Marking

| Type number                                          | Marking code                                         | Example                                                                                                                          |
|------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| ES1A<br>ES1B<br>ES1C<br>ES1D<br>ES1E<br>ES1G<br>ES1J | ES1A<br>ES1B<br>ES1C<br>ES1D<br>ES1E<br>ES1G<br>ES1J | <p>For Halogen Device</p>  <p>Marking code</p> |

## Suggested solder pad layout

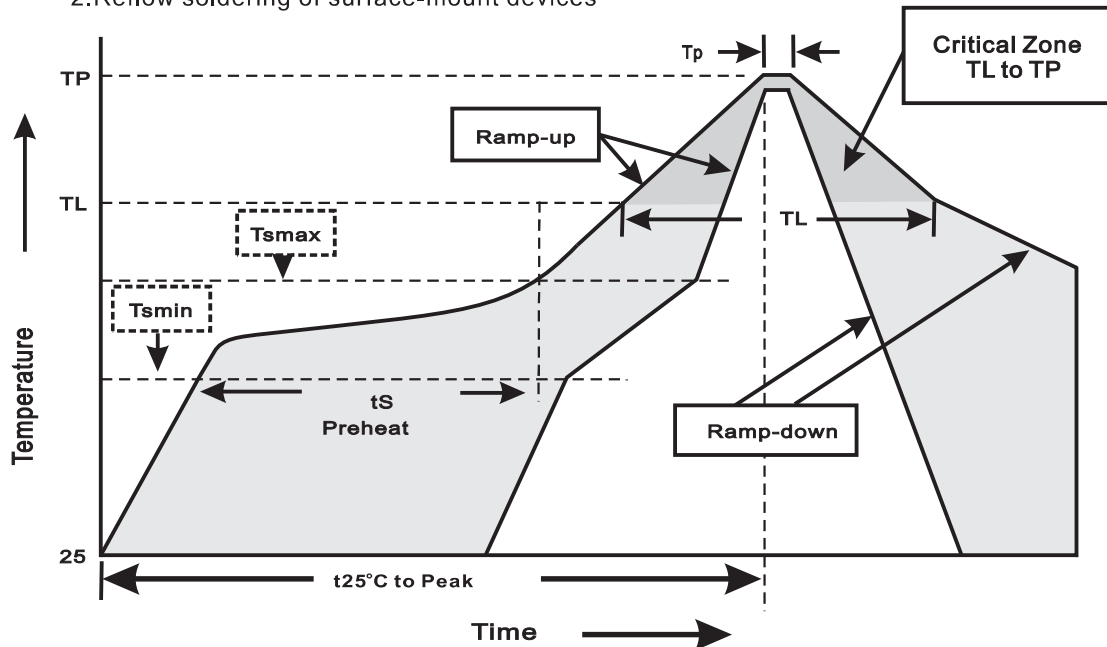


Dimensions in inches and (millimeters)

| PACKAGE | A            | B            | C            |
|---------|--------------|--------------|--------------|
| SMA     | 0.110 (2.80) | 0.063 (1.60) | 0.087 (2.20) |

### Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



#### 3.Reflow soldering

| Profile Feature                                                                        | Soldering Condition         |
|----------------------------------------------------------------------------------------|-----------------------------|
| Average ramp-up rate(TL to TP)                                                         | <3°C/sec                    |
| Preheat<br>-Temperature Min(Tsmin)<br>-Temperature Max(Tsmax)<br>-Time(min to max)(ts) | 150°C<br>200°C<br>60~120sec |
| Tsmax to TL<br>-Ramp-upRate                                                            | <3°C/sec                    |
| Time maintained above:<br>-Temperature(TL)<br>-Time(tL)                                | 217°C<br>60~260sec          |
| Peak Temperature(TP)                                                                   | 255°C-0/+5°C                |
| Time within 5°C of actual Peak Temperature(tp)                                         | 10~30sec                    |
| Ramp-down Rate                                                                         | <6°C/sec                    |
| Time 25°C to Peak Temperature                                                          | <6minutes                   |