

SS12F THRU SS120F

VOLTAGE RANGE 20 to 200 Volts  
CURRENT 1.0 Ampere

Features

SMAF



- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Metal silicon junction,majority carrier conduction
- Low power loss,high efficiency
- Built-in strain relief,ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed: 260 C/10 seconds at terminals



Mechanical Data

- Case: Transfer molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead :Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Color band denotes cathode end
- Weight: 0.00095ounce, 0.028grams

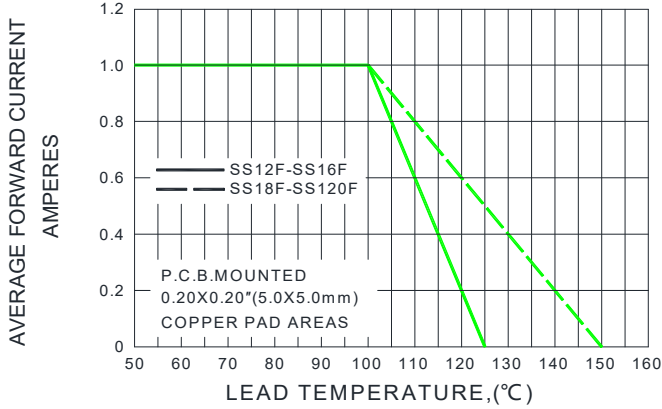
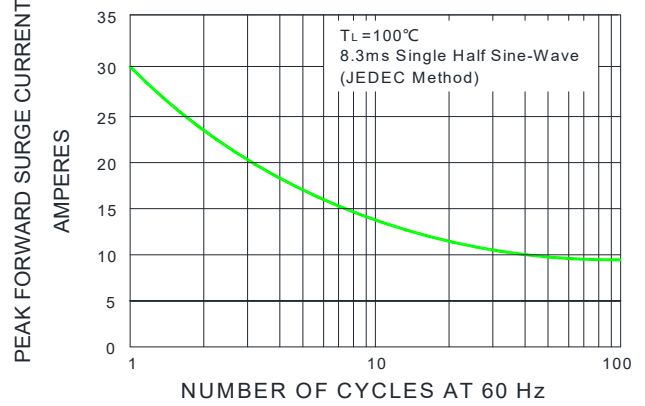
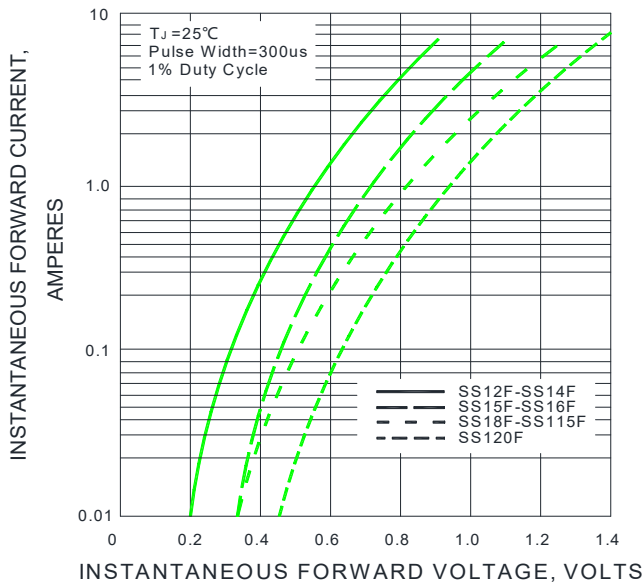
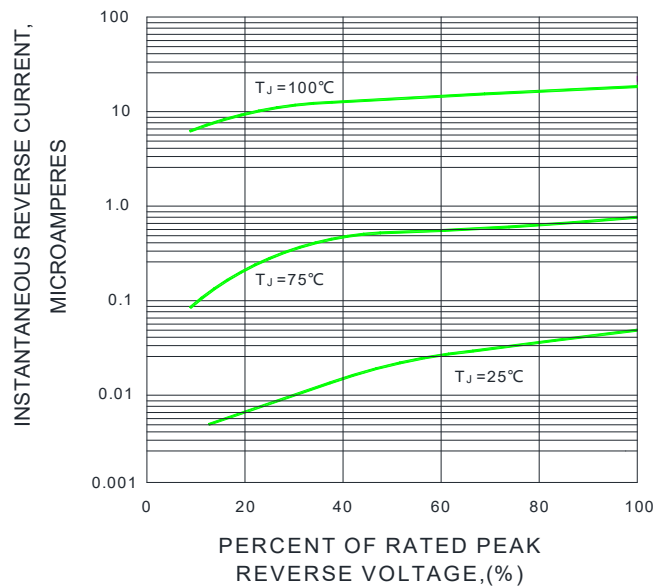
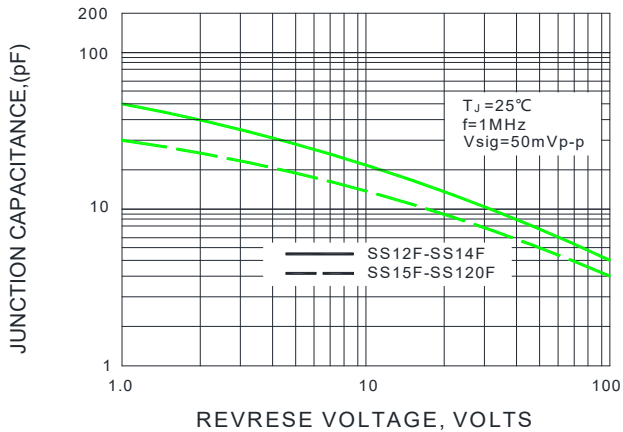
Maximum Ratings and Electrical Characteristics

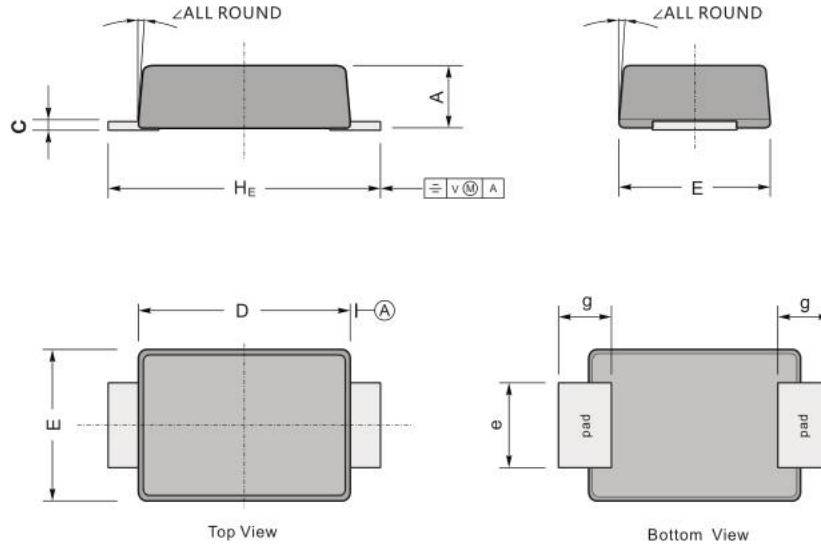
- Ratings at 25°C ambient temperature unless otherwise specified
- Single phase, half wave, 60Hz, resistive or inductive load
- For capacitive load derate current by 20%

| TYPE NUMBER                                                                                      | SYMBOL S               | SS 12F        | SS 14F | SS 15F | SS 16F | SS 18F | SS 110F | SS 115F       | SS 120F | UNIT  |    |
|--------------------------------------------------------------------------------------------------|------------------------|---------------|--------|--------|--------|--------|---------|---------------|---------|-------|----|
| Maximum Repetitive Peak Reverse Voltage                                                          | V <sub>RRM</sub>       | 20            | 40     | 50     | 60     | 80     | 100     | 150           | 200     | Volts |    |
| Maximum RMS Voltage                                                                              | V <sub>RMS</sub>       | 14            | 28     | 35     | 42     | 56     | 70      | 105           | 140     | Volts |    |
| Maximum DC Blocking Voltage                                                                      | V <sub>DC</sub>        | 20            | 40     | 50     | 60     | 80     | 100     | 150           | 200     | Volts |    |
| Maximum Average Forward Rectified Current at T <sub>L</sub> see figure 1 T <sub>L</sub> =100°C   | I <sub>(AV)</sub>      | 1.0           |        |        |        |        |         |               |         | Amps  |    |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC method) | I <sub>FSM</sub>       | 30            |        |        |        |        |         |               |         | Amps  |    |
| Maximum Instantaneous Forward Voltage @ 1.0A(Note1)                                              | V <sub>F</sub>         | 0.55          | 0.70   |        | 0.85   |        | 0.90    |               | Volts   |       |    |
| Maximum DC Reverse Current at rated DC Blocking Voltage per element                              | T <sub>A</sub> = 25°C  | 0.1           |        |        |        |        |         |               | 0.01    | mA    |    |
|                                                                                                  | T <sub>A</sub> = 100°C | 20.0          |        |        |        | 10.0   |         | 2.0           |         |       |    |
| Typical Thermal Resistance (Note 2)                                                              | R <sub>θJA</sub>       | 80            |        |        |        |        |         |               |         | °C/W  |    |
|                                                                                                  | R <sub>θJL</sub>       | 32            |        |        |        |        |         |               |         |       |    |
| Diode junction capacitance (Note 3)                                                              | C <sub>J</sub>         | 260           |        |        | 150    |        |         |               |         | pF    |    |
| Operating Junction Temperature                                                                   | T <sub>J</sub>         | (-55 to +150) |        |        |        |        |         | (-65 to +175) |         | °C    |    |
| Storage Temperature Range                                                                        | T <sub>STG</sub>       | (-55 to +150) |        |        |        |        |         |               |         |       | °C |

Notes:

1. Pulse test:300µs pulse width,1% duty cycle.
2. Unit mounted on P.C.B. with 0.20"×0.20"(5.00mm×5.00mm) copper pads.
3. f=1MHz and applied 4V DC reverse voltage.

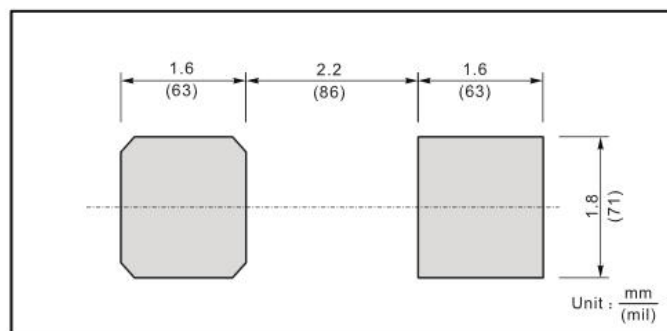
**SS12F THRU SS120F**
**VOLTAGE RANGE 20 to 200 Volts**  
**CURRENT 1.0 Ampere**
**Ratings and Characteristic Curves (TA=25°C unless otherwise noted)**
**FIG.1-FORWARD CURRENT DERATING CURVE**

**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**


**Package Outline Dimensions in inches (millimeters)**


| UNIT |     | A    | C    | D    | E    | e    | g    | H <sub>E</sub> | ∠    |
|------|-----|------|------|------|------|------|------|----------------|------|
| mm   | max | 1.10 | 0.20 | 3.70 | 2.70 | 1.60 | 1.20 | 4.90           | 5-7° |
|      | min | 0.90 | 0.12 | 3.30 | 2.40 | 1.30 | 0.80 | 4.40           |      |
| mil  | max | 43   | 7.90 | 146  | 106  | 63   | 47   | 193            |      |
|      | min | 35   | 4.70 | 130  | 94   | 51   | 31   | 173            |      |

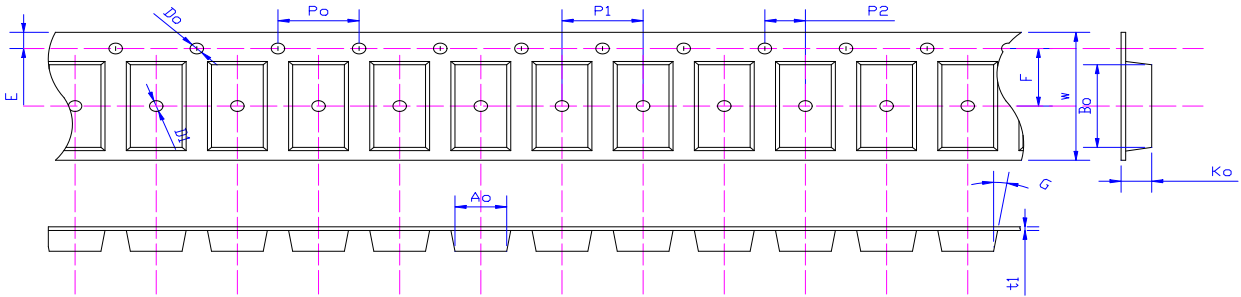
**The Recommended Mounting Pad Size**
**Marking**

| Type number | Marking code |
|-------------|--------------|
| SS12F       | SS12F        |
| SS14F       | SS14F        |
| SS15F       | SS15F        |
| SS16F       | SS16F        |
| SS18F       | SS18F        |
| SS110F      | SS110F       |
| SS115F      | SS115F       |
| SS120F      | SS120F       |

**The recommended mounting pad size**


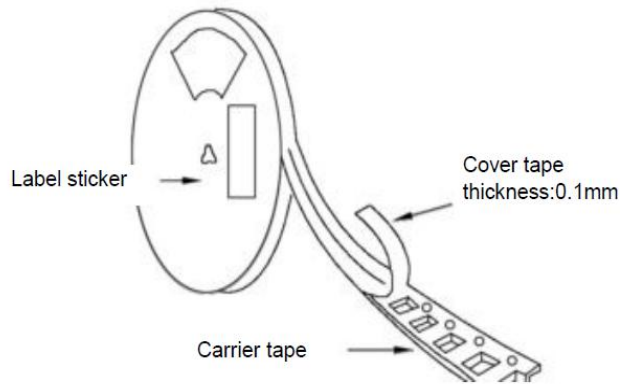
## Packing Requirments

- PS black anti-static carrier tape packing

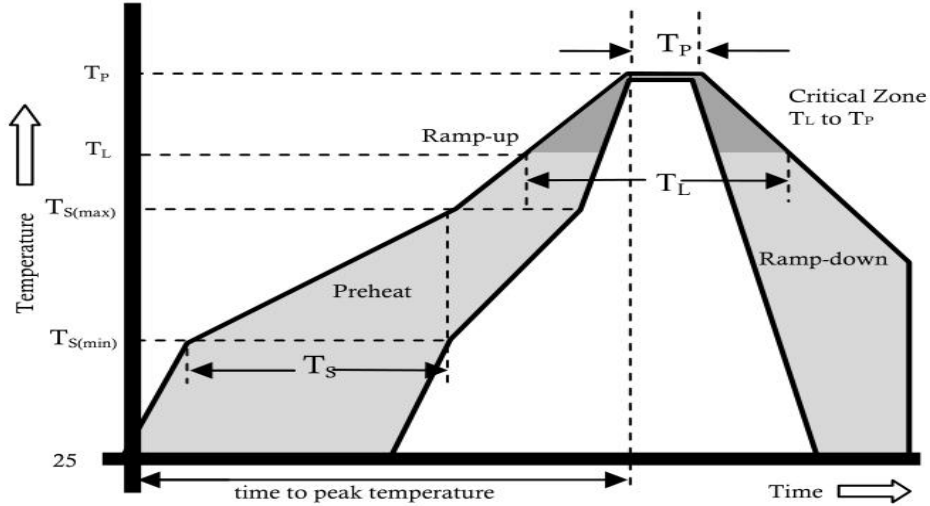


| Specifications | $A_o$           | $B_o$           | $K_o$           | $P_o$          | $W$             | $t_1$           |
|----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|
| SMAFL          | $2.83 \pm 0.10$ | $4.90 \pm 0.10$ | $1.45 \pm 0.10$ | $4.00 \pm 0.1$ | $12.0 \pm 0.05$ | $0.23 \pm 0.02$ |

- 13" antistatic plastic reel



| DEVICE TYPE | 13" Reel       |          |             |                  |
|-------------|----------------|----------|-------------|------------------|
|             | Q'TY/REEL(pcs) | REEL/BOX | BOX/CARTOON | Q'TY/CARTON(pcs) |
| SMAFL       | 10000          | 2        | 8           | 160000           |

**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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