

# DSF1A THRU DSF1J

## 1.0A Surface Mount Super Fast Rectifiers-50-600V

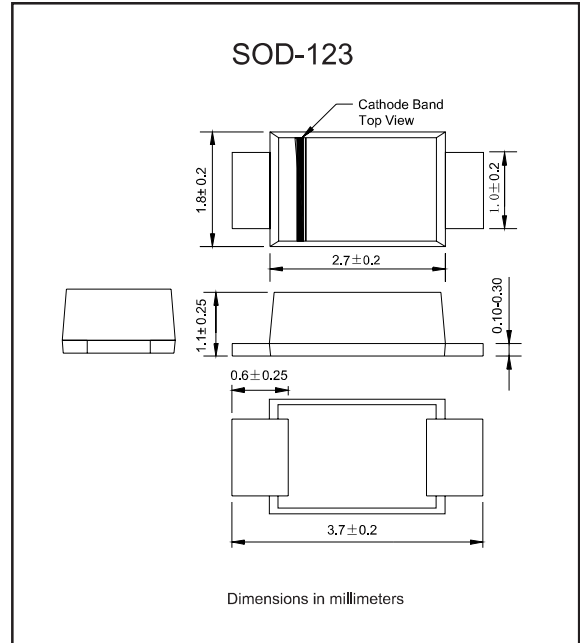
### Features

- ◆ Glass passivated device
- ◆ Ideal for surface mounted applications
- ◆ Low reverse leakage
- ◆ Metallurgically bonded construction
- ◆ High temperature soldering guaranteed:  
250°C/10 seconds, 0.375"(9.5mm) lead length,  
5 lbs. (2.3kg) tension
- ◆ Compliant to RoHS Directive 2011/65/EU
- ◆ Compliant to Halogen-free

### Mechanical data

- ◆ **Case**: JEDEC SOD-123 molded plastic body over passivated chip
- ◆ **Terminals**: Plated axial leads, 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<sub>A</sub>=25°C unless otherwise noted)

| PARAMETER                  | CONDITIONS   | Symbol           | MIN. | TYP. | MAX. | UNIT |
|----------------------------|--|------------------|------|------|------|------|
| Forward rectified current  | See Fig.2  | I <sub>O</sub>   |      |      | 1.0  | A    |
| Forward surge current      | 8.3ms single half sine-wave (JEDEC methode)              | I <sub>FSM</sub> |      |      | 25   | A    |
| Reverse current            | V <sub>R</sub> = V <sub>RRM</sub> T <sub>A</sub> = 25°C  | I <sub>R</sub>   |      |      | 5.0  | μA   |
|                            | V <sub>R</sub> = V <sub>RRM</sub> T <sub>A</sub> = 100°C |                  |      |      | 50   |      |
| Thermal resistance         | Junction to ambient<br>NOTE 1                            | R <sub>θJA</sub> |      | 85   |      | °C/W |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage                 | C <sub>J</sub>   |      | 10   |      | pF   |
| Storage temperature        |  | T <sub>STG</sub> | -65  |      | +150 | °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) |
|---------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|--|
| DSF1A   | 50                                    | 35                                    | 50                                  | 0.95                                | 35                                    | -55 to +150                                  |
| DSF1B   | 100                                   | 70                                    | 100                                 |                                     |                                       |  |
| DSF1C   | 150                                   | 105                                   | 150                                 |                                     |                                       |  |
| DSF1D   | 200                                   | 140                                   | 200                                 |                                     |                                       |  |
| DSF1E   | 300                                   | 210                                   | 300                                 | 1.25                                | 35                                    | -55 to +150                                  |
| DSF1G   | 400                                   | 280                                   | 400                                 |                                     |                                       |  |
| DSF1J   | 600                                   | 420                                   | 600                                 |                                     |                                       |  |

- \*1 Repetitive peak reverse voltage
- \*2 RMS voltage
- \*3 Continuous reverse voltage
- \*4 Maximum forward voltage@I<sub>F</sub>=1.0A
- \*5 Maximum Reverse recovery time, note 2

Note: 1.P.C.B. mounted with 0.2x0.2"(5.0x5.0mm) copper pad areas  
2. Reverse recovery time test condition, I<sub>F</sub>=0.5A, I<sub>R</sub>=1.0A, I<sub>RR</sub>=0.25A

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## Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

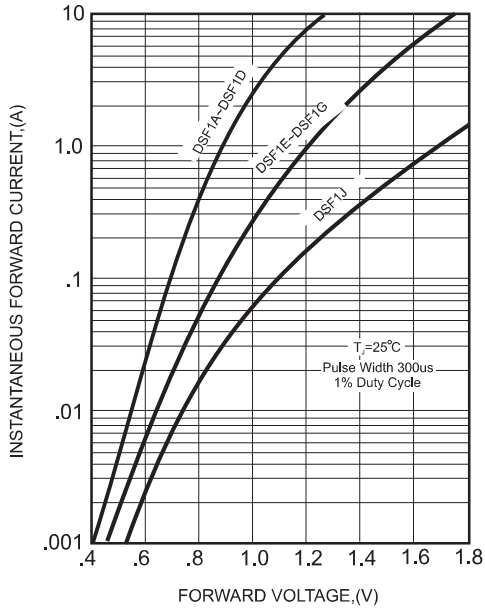


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

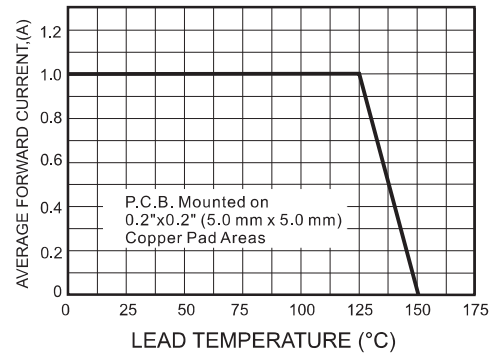


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

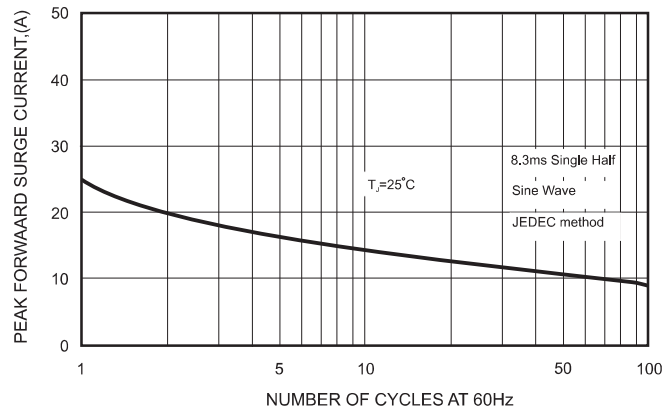
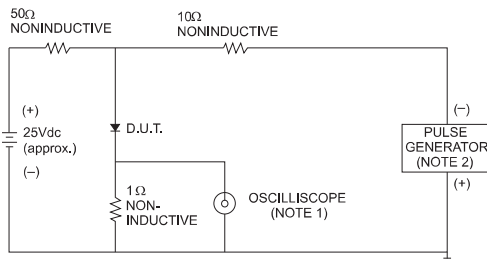


FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



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

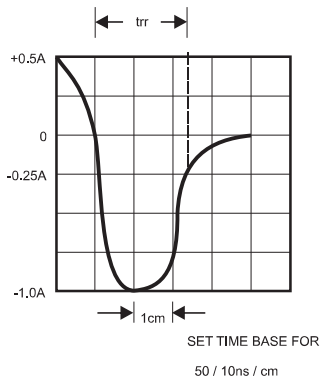
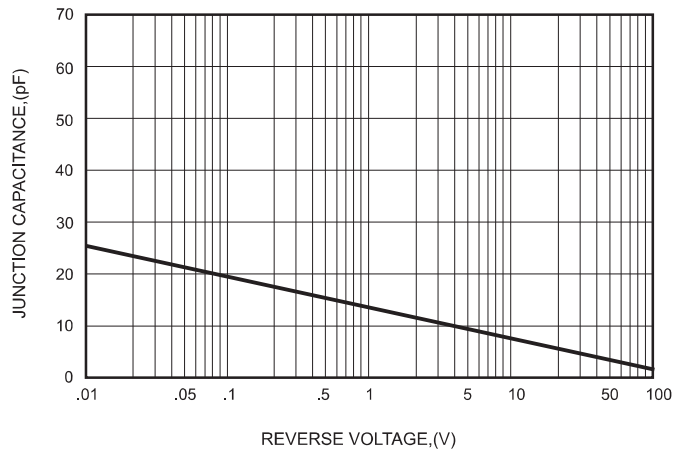




FIG.5-TYPICAL JUNCTION CAPACITANCE



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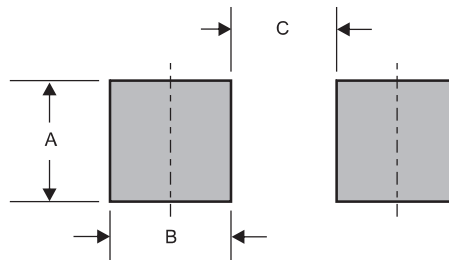
## Pinning information

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

## Marking

| Type number | Marking code |
|-------------|--------------|
| DSF1A       | E1A          |
| DSF1B       | E1B          |
| DSF1C       | E1C          |
| DSF1D       | E1D          |
| DSF1E       | E1E          |
| DSF1G       | E1G          |
| DSF1J       | E1J          |

## Suggested solder pad layout



Dimensions in inches and (millimeters)

| PACKAGE | A            | B            | C            |
|---------|--------------|--------------|--------------|
| SOD-123 | 0.075 (1.90) | 0.055 (1.40) | 0.075 (1.90) |