

**1.0Amp. Surface Mount Ultra Fast Recovery Diodes**

# CSFR10XSF Series

## Features

- For surface mounted applications.
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- Low leakage current
- High surge capability
- High temperature soldering: 250°C/10 seconds at terminals
- Exceeds environmental standards of MIL-S-19500/228

## Mechanical Data

- Case: Molded plastic, JEDEC SOD-123/Mini SMA.
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Indicated by cathode band.
- Packaging: 12mm tape per EIA STD RS-481.
- Weight: 0.04 gram

## Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified. )

| Parameter                                                                                                                                                           | Symbol             | Type       |          |          |          |          |          |          | Units    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------|----------|----------|----------|----------|----------|----------|----------|
|                                                                                                                                                                     |                    | CSFR 101   | CSFR 102 | CSFR 103 | CSFR 104 | CSFR 105 | CSFR 106 | CSFR 107 |          |
| Repetitive peak reverse voltage                                                                                                                                     | V <sub>RRM</sub>   | 50         | 100      | 200      | 300      | 400      | 600      | 800      | V        |
| Maximum RMS voltage                                                                                                                                                 | V <sub>RMS</sub>   | 35         | 70       | 140      | 210      | 280      | 420      | 560      | V        |
| Maximum DC blocking voltage                                                                                                                                         | V <sub>R</sub>     | 50         | 100      | 200      | 300      | 400      | 600      | 800      | V        |
| Maximum instantaneous forward voltage, I <sub>F</sub> =1A (Note 1)                                                                                                  | V <sub>F</sub>     | 1          | 1        | 1        | 1.3      | 1.3      | 1.7      | 1.7      | V        |
| Reverse Recovery Time                                                                                                                                               | t <sub>rr</sub>    | 50         | 50       | 50       | 50       | 50       | 75       | 75       | ns       |
| Average forward rectified current @T <sub>A</sub> =50°C                                                                                                             | I <sub>O</sub>     | 1          |          |          |          |          |          |          | A        |
| Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method)                                                                   | I <sub>FSM</sub>   | 30         |          |          |          |          |          |          | A        |
| Maximum DC reverse current<br>V <sub>R</sub> =V <sub>RRM</sub> , T <sub>A</sub> =25°C (Note 1)<br>V <sub>R</sub> =V <sub>RRM</sub> , T <sub>A</sub> =125°C (Note 1) | I <sub>R</sub>     | 5<br>150   |          |          |          |          |          |          | μA<br>μA |
| Maximum thermal resistance, Junction to ambient                                                                                                                     | R <sub>th,JA</sub> | 42 (typ)   |          |          |          |          |          |          | °C/W     |
| Diode junction capacitance (Note 2)                                                                                                                                 | C <sub>J</sub>     | 20 (typ)   |          |          |          |          |          |          | pF       |
| Storage temperature                                                                                                                                                 | T <sub>stg</sub>   | -55 ~ +150 |          |          |          |          |          |          | °C       |
| Operating temperature                                                                                                                                               | T <sub>J</sub>     | -55 ~ +150 |          |          |          |          |          |          | °C       |

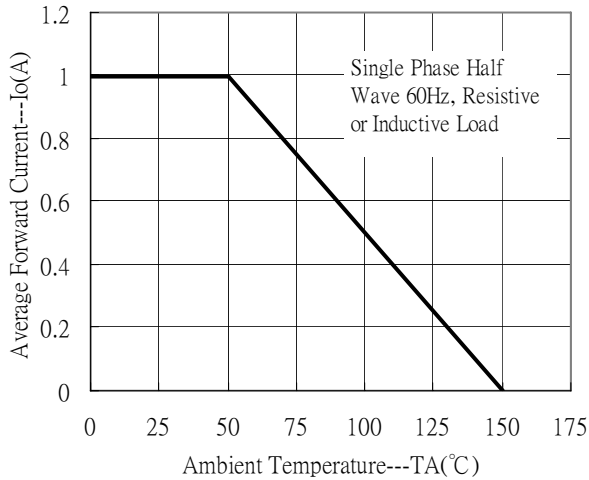
Notes : 1. Pulse test, pulse width=300 μ sec, 2% duty cycle

2. f=1MHz and applied 4.0V<sub>DC</sub> reverse voltage.

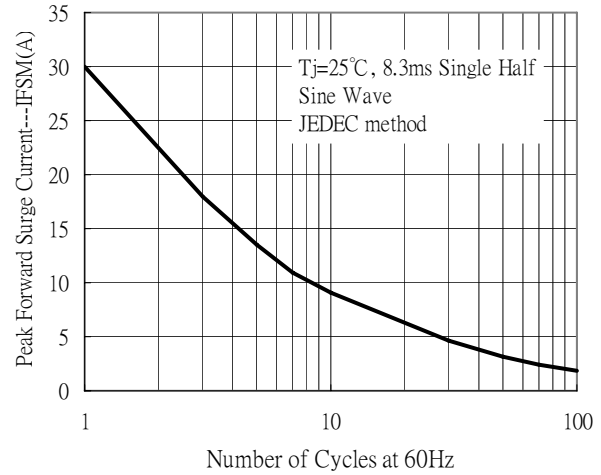


## Characteristic Curves

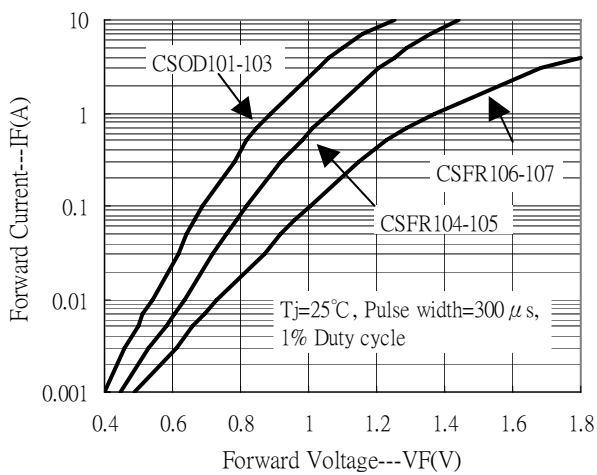
Forward Current Derating Curve



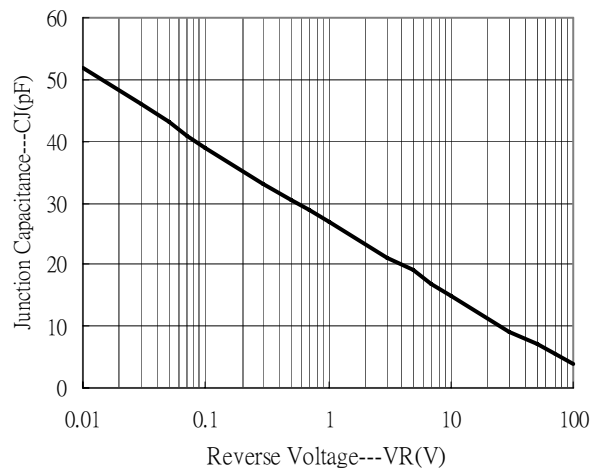
Maximum Non-Repetitive Forward Surge Current



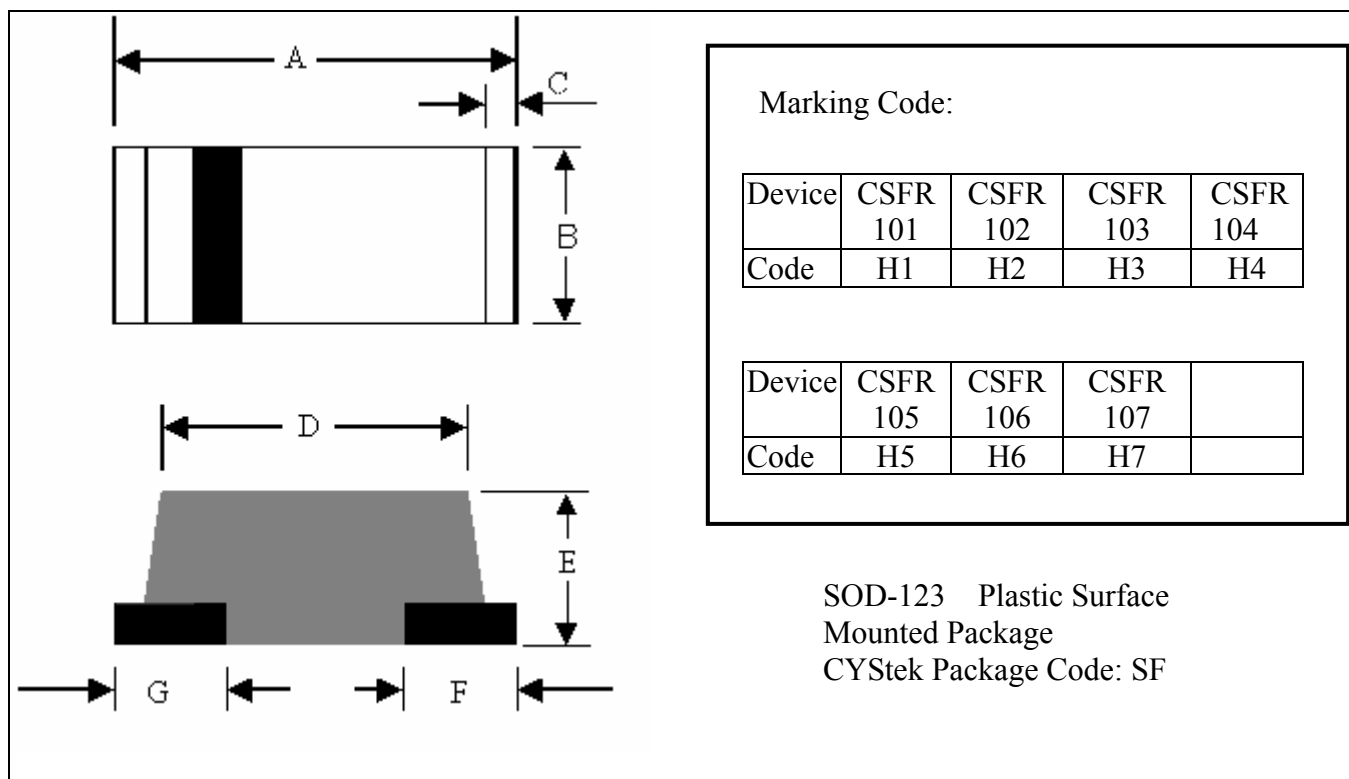
Forward Current vs Forward Voltage



Junction Capacitance vs Reverse Voltage



## SOD-123 Dimension



\*:Typical

| DIM | Inches     |       | Millimeters |      | DIM | Inches     |       | Millimeters |      |
|-----|------------|-------|-------------|------|-----|------------|-------|-------------|------|
|     | Min.       | Max.  | Min.        | Max. |     | Min.       | Max.  | Min.        | Max. |
| A   | 0.138      | 0.154 | 3.5         | 3.9  | E   | 0.051      | 0.067 | 1.3         | 1.7  |
| B   | 0.055      | 0.071 | 1.4         | 1.8  | F   | 0.035(typ) |       | 0.9(typ)    |      |
| C   | 0.012(typ) |       | 0.3(typ)    |      | G   | 0.035(typ) |       | 0.9(typ)    |      |
| D   | 0.110      | 0.126 | 2.8         | 3.2  | -   | -          | -     | -           | -    |

Notes : 1. Controlling dimension : millimeters.

2. Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

3. If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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