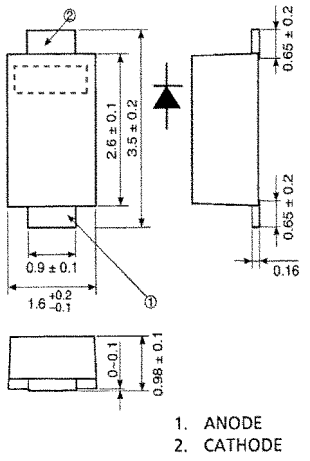
TOSHIBA Rectifier Silicon Diffused Type

# CRG01, CRG02

General Purpose Rectifier Applications

Unit: mm

- Average forward current: $I_{F\ (AV)}$ = 0.7 A
- Repetitive peak reverse voltage: $V_{RRM}$ = 100 V, 400 V
- Suitable for compact assembly due to small surface-mount package "S−FLAT™" (Toshiba package name)




| | |
|---|---|
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 3-2A1A |

Weight: 0.013 g (typ.)

## Absolute Maximum Ratings (Ta = 25°C)

| Characteristics | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Repetitive peak reverse voltage | CRG01 | $V_{RRM}$ | 100 | V |
| | CRG02 | | 400 | |
| Average forward current | | $I_{F(AV)}$ | 0.7 | A |
| Peak one cycle surge forward current (non-repetitive) | | $I_{FSM}$ | 15 (50 Hz) | A |
| | | | 16.5 (60 Hz) | |
| Junction temperature | | $T_j$ | −40~150 | °C |
| Storage temperature | | $T_{stg}$ | −40~150 | °C |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

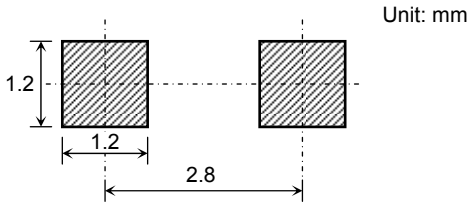
## Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Typ. | Max | Unit |
|---|---|---|---|---|---|
| Peak forward voltage | $V_{FM\ (1)}$ | $I_{FM}$ = 0.1 A | 0.88 | — | V |
| | $V_{FM\ (2)}$ | $I_{FM}$ = 0.7 A | — | 1.1 | |
| | $V_{FM\ (3)}$ | $I_{FM}$ = 1.0 A | 1.1 | — | |
| Repetitive peak reverse current | $I_{RRM}$ | $V_{RRM}$ = Rated | — | 10 | μA |
| Thermal resistance | $r_{th\ (j-a)}$ | Device mounted on a ceramic board (soldering land: 2 mm × 2 mm) | — | 65 | °C/W |
| | | Device mounted on a glass-epoxy board (soldering land: 6 mm × 6 mm) | — | 130 | |

## Marking

| Abbreviation Code | Part No. |
|---|---|
| G1 | CRG01 |
| G2 | CRG02 |

## Standard Soldering Pad




## Handling Precaution

The absolute maximum ratings denote the absolute maximum ratings, which are rated values and must not be exceeded during operation, even for an instant. The following are the general derating methods that we recommend when you design a circuit with a device.

$V_{RRM}$: We recommend that the worst case voltage, including surge voltage, be no greater than 80% of the absolute maximum rating of $V_{RRM}$ for a DC circuit and be no greater than 50% of that of $V_{RRM}$ for an AC circuit. $V_{RRM}$ has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.

$I_{F(AV)}$: We recommend that the worst case current be no greater than 80% of the absolute maximum rating of $I_{F(AV)}$. Carry out adequate heat design. If you can't design a circuit with excellent heat radiation, set the margin by using an allowable Tamax-$I_{F(AV)}$ curve.

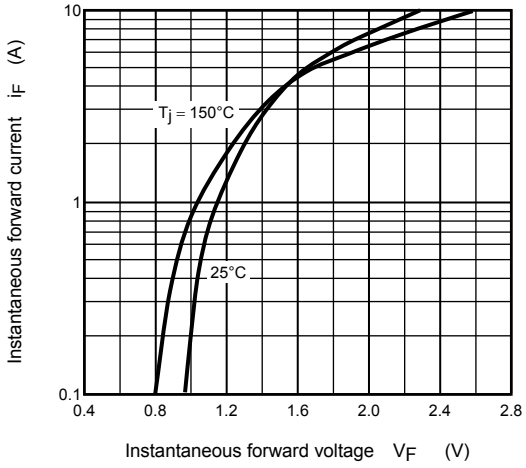
This rating specifies the non-repetitive peak current in one cycle of a 50-Hz sine wave, condition angle 180. Therefore, this is only applied for an abnormal operation, which seldom occurs during the lifespan of the device.

We recommend that a device be used at a Tj of below 120°C under the worst load and heat radiation conditions.

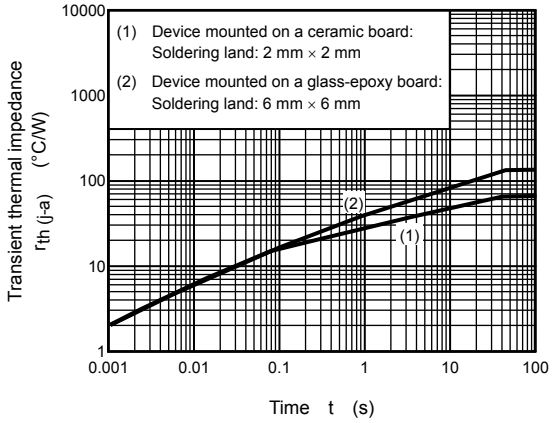
Thermal resistance between junction and ambient fluctuates depending on the device's mounting condition. When using a device, design a circuit board and a soldering land size to match the appropriate thermal resistance value.

Please refer to the Rectifiers databook for further information.

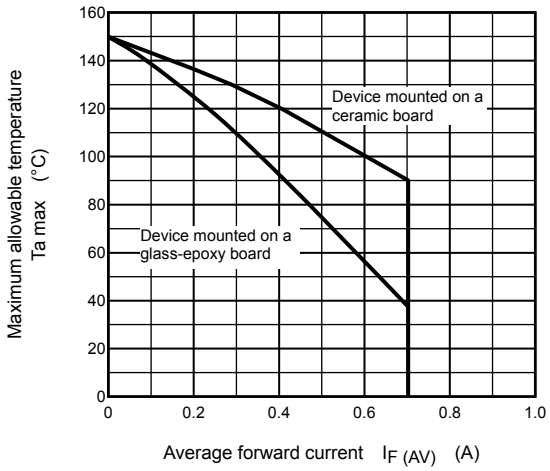
$i_F - v_F$




$r_{th\ (j\text{-}a)} - t$

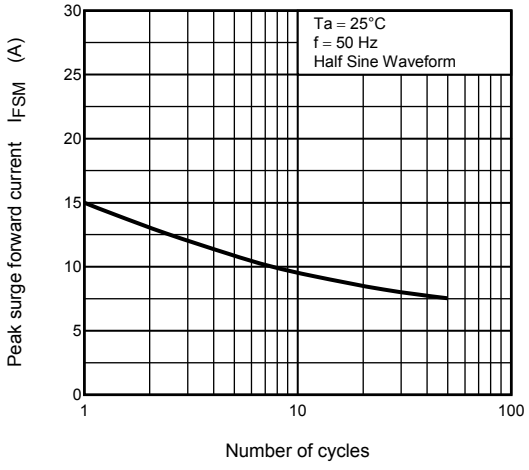



Ta max – $I_{F\ (AV)}$




| | Device mounted on a ceramic board | Device mounted on a glass-epoxy board |
|---|---|---|
| Soldering land | 2 mm□ | 6 mm□ |
| Board size | 50 mm□ | 50 mm□ |
| Board | 0.64 t | 1.6 t |

Surge forward current
(non-repetitive)



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20070701-EN

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