

TOSHIBA Rectifier Silicon Diffused Type

# CMG02

## General-Purpose Rectifier Applications

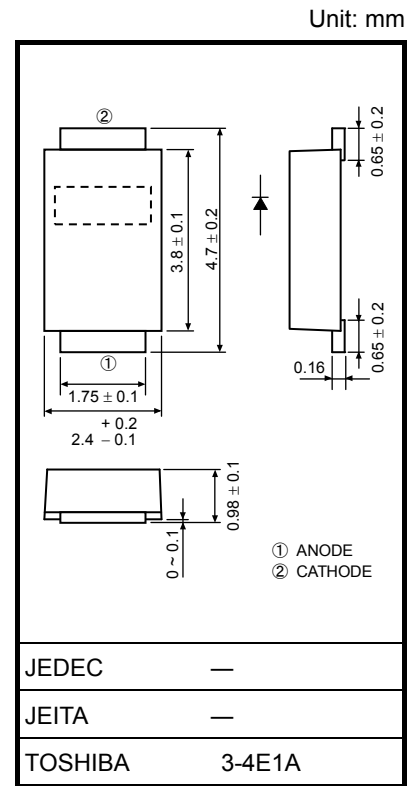
- Average forward current:  $I_F(AV) = 2.0\text{ A}$
- Repetitive peak reverse voltage:  $V_{RRM} = 400\text{ V}$
- Suitable for high-density board assembly due to the use of a small surface-mount package, M-FLAT™

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

Characteristics	Symbol	Rating	Unit
Repetitive peak reverse voltage	$V_{RRM}$	400	V
Average forward current	$I_F(AV)$	2.0	A
Non-repetitive peak surge current	$I_{FSM}$	80 (50 Hz)	A
Junction temperature	$T_j$	-40 to 150	°C
Storage temperature	$T_{stg}$	-40 to 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).



Weight: 0.023 g (typ.)

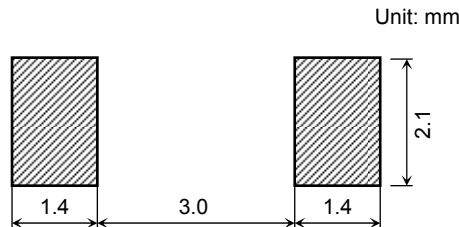
## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Peak forward voltage	$V_{FM(1)}$	$I_{FM} = 1.0\text{ A}$	—	0.86	—	V
	$V_{FM(2)}$	$I_{FM} = 2.0\text{ A}$	—	0.9	1.1	V
Peak repetitive reverse current	$I_{RRM}$	$V_{RRM} = 400\text{ V}$	—	—	10	μA
Thermal resistance (junction to ambient)	$R_{th(j-a)}$	Device mounted on a ceramic board (board size: 50 mm × 50 mm) (soldering land: 2 mm × 2 mm) (board thickness: 0.64 mm)	—	—	60	°C/W
		Device mounted on a glass-epoxy board (board size: 50 mm × 50 mm) (soldering land: 6 mm × 6 mm) (board thickness: 1.6 mm)	—	—	110	
		Device mounted on a glass-epoxy board (board size: 50 mm × 50 mm) (soldering land: 2.1 mm × 1.4 mm) (board thickness: 1.6 mm)	—	—	180	
Thermal resistance (junction to lead)	$R_{th(j-l)}$	—	—	—	16	°C/W

**Marking**

Abbreviation Code	Part No.
G2	CMG02

**Standard Soldering Pad**



**Handling Precaution**

Absolute maximum ratings 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.

VRRM: We recommend that the worst case voltage, including surge voltage, be no greater than 80% of the absolute maximum rating of VRRM for a DC circuit and be no greater than 50% of that of VRRM for an AC circuit.

VRRM has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.

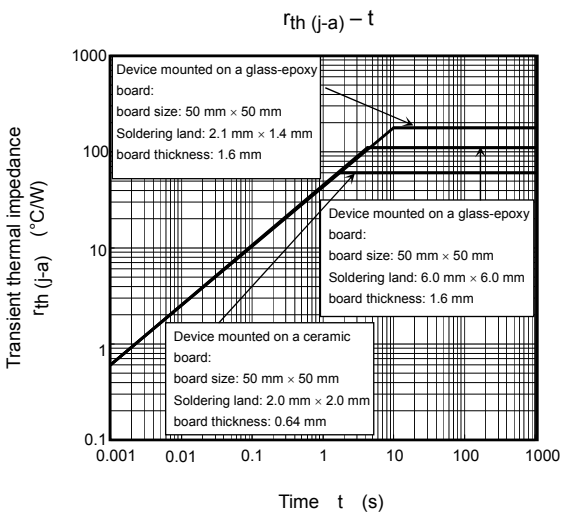
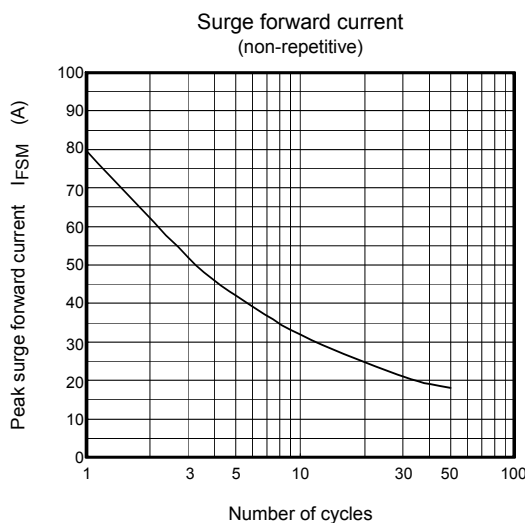
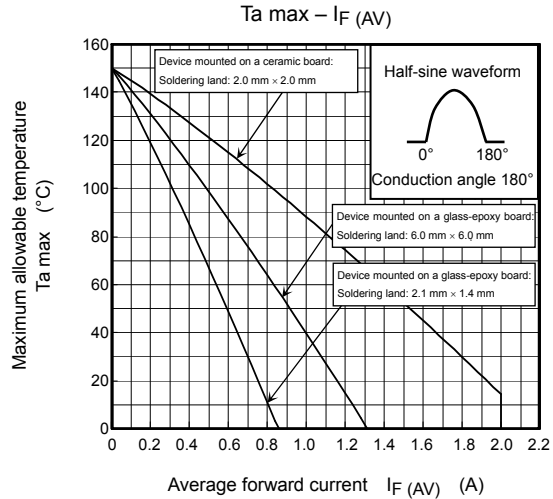
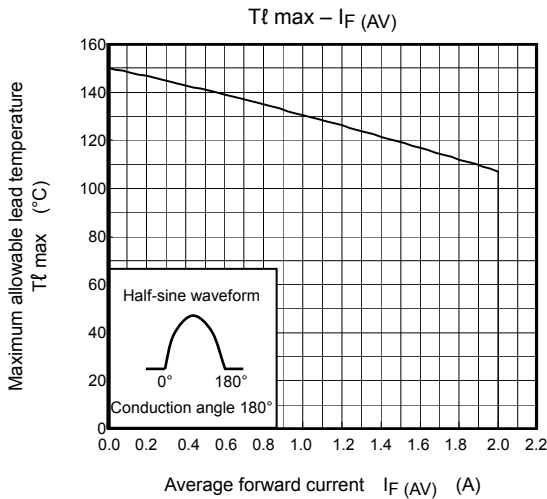
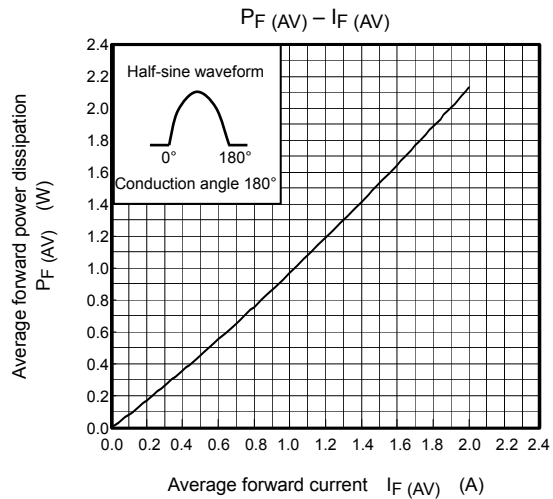
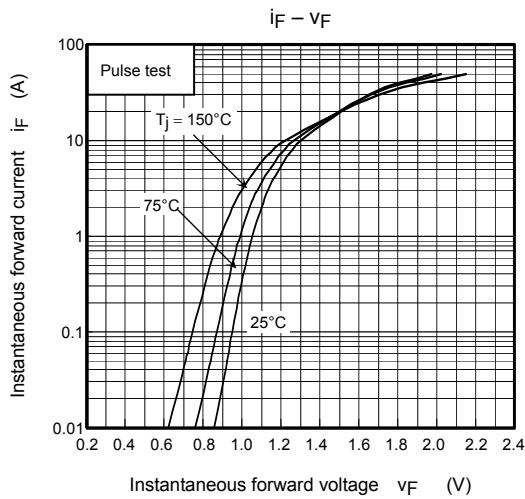
IF(AV): We recommend that the worst case current be no greater than 80% of the absolute maximum rating of IF(AV). Carry out adequate heat design. If you can't design a circuit with excellent heat radiation, set the margin by using an allowable Tamax-IF (AV) curve.

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 Tj 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.



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