

# CRH01

## Switching Mode Power Supply Applications

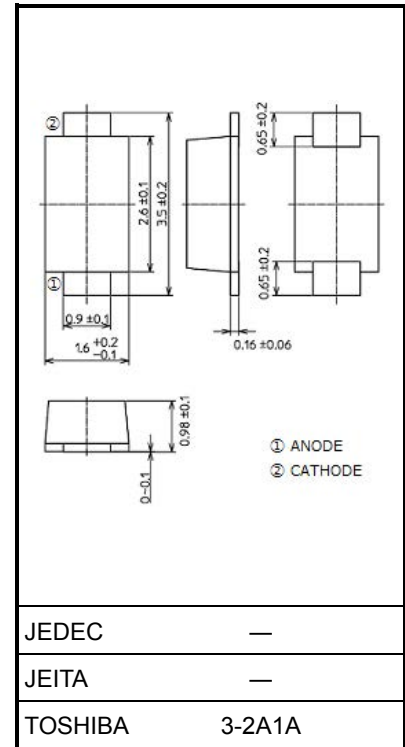
- Repetitive peak reverse voltage :  $V_{RRM} = 200 \text{ V}$
- Average forward current :  $I_F (AV) = 1 \text{ A}$
- Peak forward voltage :  $V_{FM} = 0.98 \text{ V (Max.)}$
- Very Fast Reverse-Recovery Time :  $t_{rr} = 35 \text{ ns (Max.)}$
- Suitable for compact assembly due to small surface-mount package “S-FLAT™” (Toshiba package name)

## Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Repetitive peak reverse voltage	$V_{RRM}$	200	V
Average forward current	$I_F (AV)$	1	A
Non-repetitive peak forward surge current	$I_{FSM}$	15 (50 Hz)	A
Junction temperature	$T_j$	-40 to 150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-40 to 150	$^\circ\text{C}$

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).

Unit: mm



Weight: 0.013 g (typ.)

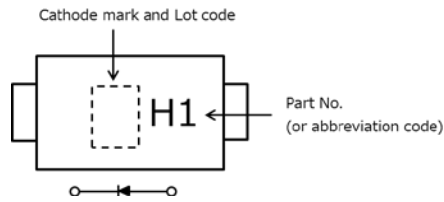
## Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Peak forward voltage	$V_{FM} (1)$	$I_{FM} = 0.1 \text{ A (pulse test)}$	—	0.71	—	V
	$V_{FM} (2)$	$I_{FM} = 0.7 \text{ A (pulse test)}$	—	0.86	—	
	$V_{FM} (3)$	$I_{FM} = 1 \text{ A (pulse test)}$	—	0.90	0.98	
Repetitive peak reverse current	$I_{RRM}$	$V_{RRM} = 200 \text{ V (pulse test)}$	—	—	10	$\mu\text{A}$
Reverse recovery time	$t_{rr}$	$I_F = 1 \text{ A, } di/dt = -30 \text{ A}/\mu\text{s}$	—	—	35	ns
Forward recovery time	$t_{fr}$	$I_F = 1 \text{ A}$	—	—	100	ns
Thermal resistance (junction to ambient)	$R_{th} (j-a)$	Device mounted on a ceramic board board size : 50 mm × 50 mm soldering land size : 2 mm × 2 mm board thickness : 0.64 mm	—	—	65	$^\circ\text{C}/\text{W}$
		Device mounted on a glass-epoxy board board size : 50 mm × 50 mm soldering land size : 6 mm × 6 mm board thickness : 1.6 mm	—	—	130	

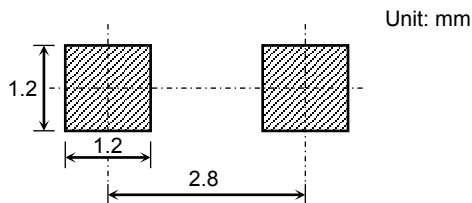
Start of commercial production  
1999-07

## Marking

Abbreviation Code	Part No.
H1	CRH01



## Land pattern dimensions for reference only



## Handling Precaution

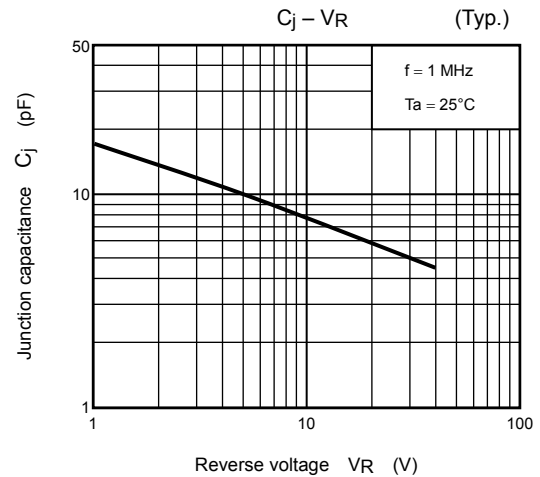
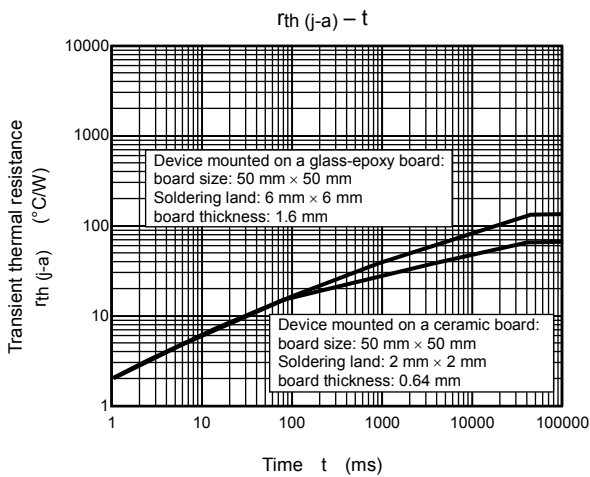
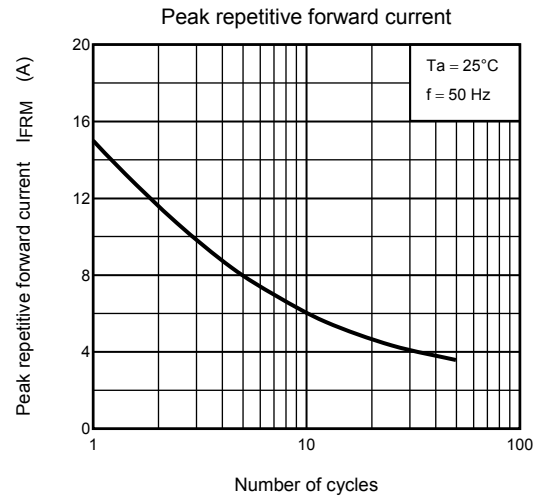
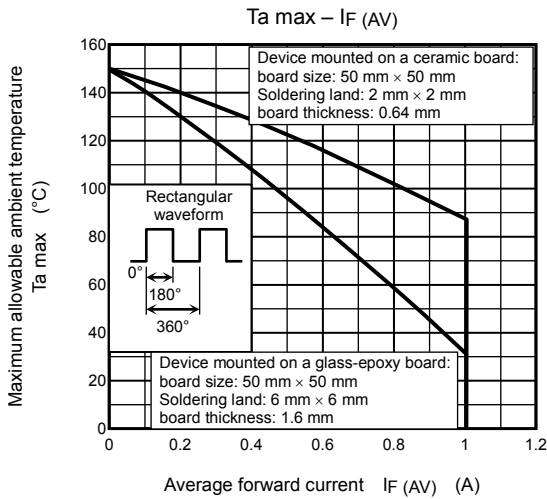
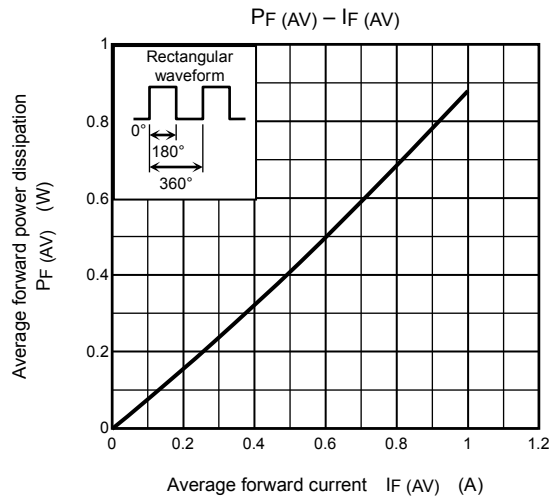
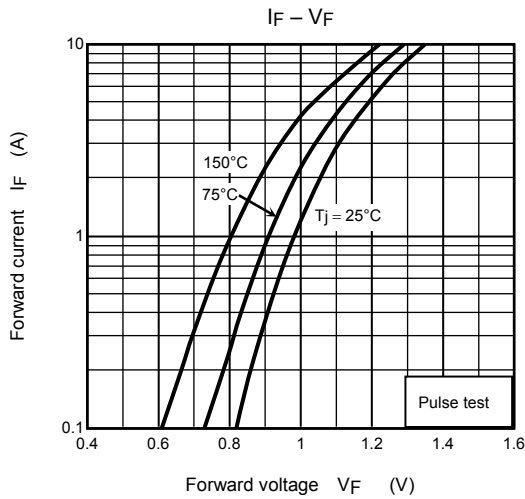
- The absolute maximum ratings are rated values that must not be exceeded during operation, even for an instant. The following are the recommended general derating methods for designing a circuit board using this device.

**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) and  $T_j$  be below 120°C. When using this device, take the margin into consideration by using an allowable  $T_a$  max-IF (AV) curve.

**IFSM** :This rating specifies peak non-repetitive forward surge current. This only applies to an abnormal operation, which seldom occurs during the lifespan of a device.

**$T_j$**  :Derate device parameters in proportion to this rating in order to ensure high reliability. We recommend that the junction temperature ( $T_j$ ) of a device be kept below 120°C.
- Thermal resistance (junction-to-ambient) varies with the mounting conditions of a device on a circuit board. An appropriate thermal resistance value should be used, considering the circuit board design and land pattern dimensions (provided for reference only).
- For other design considerations, see the Rectifiers databook or the Toshiba website.



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