

To all our customers

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## **Regarding the change of names mentioned in the document, such as Mitsubishi Electric and Mitsubishi XX, to Renesas Technology Corp.**

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The semiconductor operations of Hitachi and Mitsubishi Electric were transferred to Renesas Technology Corporation on April 1st 2003. These operations include microcomputer, logic, analog and discrete devices, and memory chips other than DRAMs (flash memory, SRAMs etc.) Accordingly, although Mitsubishi Electric, Mitsubishi Electric Corporation, Mitsubishi Semiconductors, and other Mitsubishi brand names are mentioned in the document, these names have in fact all been changed to Renesas Technology Corp. Thank you for your understanding. Except for our corporate trademark, logo and corporate statement, no changes whatsoever have been made to the contents of the document, and these changes do not constitute any alteration to the contents of the document itself.


Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

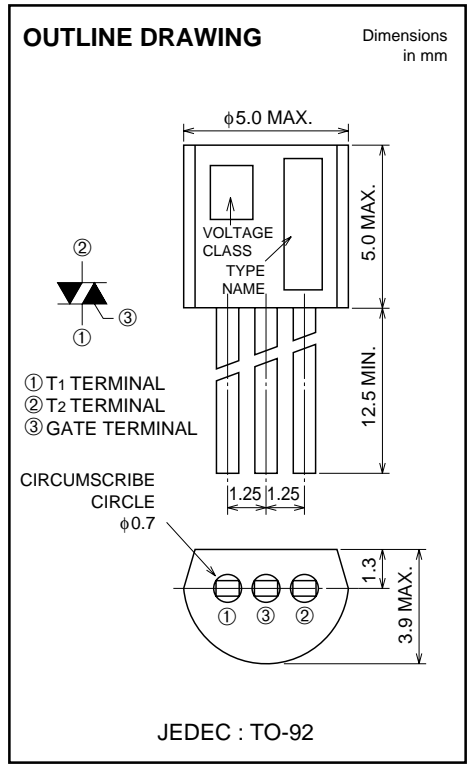
# BCR08AM

LOW POWER USE  
PLANAR PASSIVATION TYPE

**BCR08AM**



- $I_T$  (RMS) ..... 0.8A
- $V_{DRM}$  ..... 600V
- IRGT I, IRGT III ..... 5mA



## APPLICATION

Electric fan, air cleaner, other general purpose control applications

## MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		12		
$V_{DRM}$	Repetitive peak off-state voltage *1	600		V
$V_{DSM}$	Non-repetitive peak off-state voltage *1	720		V

Symbol	Parameter	Conditions	Ratings	Unit
$I_T$ (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=56^\circ\text{C}$	0.8	A
$I_{TSM}$	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	8	A
$I^2t$	$I^2t$ for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	0.26	$\text{A}^2\text{s}$
PGM	Peak gate power dissipation		1	W
PG (AV)	Average gate power dissipation		0.1	W
VGM	Peak gate voltage		6	V
IGM	Peak gate current		0.5	A
$T_j$	Junction temperature		-40 ~ +125	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-40 ~ +125	$^\circ\text{C}$
—	Weight	Typical value	0.23	g

\*1. Gate open.

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**ELECTRICAL CHARACTERISTICS**

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IDRM	Repetitive peak off-state current	T <sub>j</sub> =125°C, V <sub>DRM</sub> applied	—	—	1.0	mA
V <sub>TM</sub>	On-state voltage	T <sub>c</sub> =25°C, I <sub>TM</sub> =1.2A, Instantaneous measurement	—	—	2.0	V
V <sub>RGT I</sub>	Gate trigger voltage *2	T <sub>j</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	—	—	2.0	V
V <sub>RGT III</sub>			—	—	2.0	V
I <sub>RGT I</sub>	Gate trigger current *2	T <sub>j</sub> =25°C, V <sub>D</sub> =6V, R <sub>L</sub> =6Ω, R <sub>G</sub> =330Ω	—	—	5	mA
I <sub>RGT III</sub>			—	—	5	mA
V <sub>GD</sub>	Gate non-trigger voltage	T <sub>j</sub> =125°C, V <sub>D</sub> =1/2V <sub>DRM</sub>	0.1	—	—	V
R <sub>th(j-c)</sub>	Thermal resistance	Junction to case *3	—	—	60	°C/W
(dv/dt) <sub>c</sub>	Critical-rate of rise of off-state commutating voltage *4	T <sub>j</sub> =125°C	0.5	—	—	V/μs

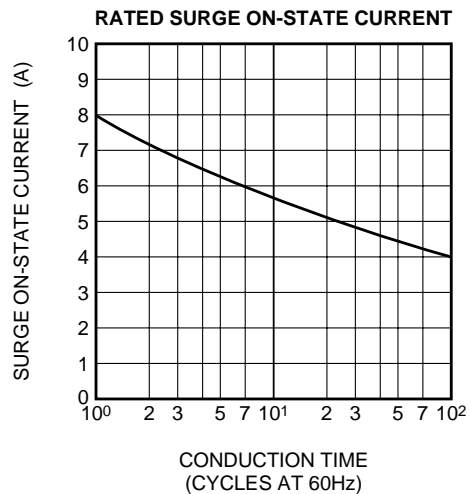
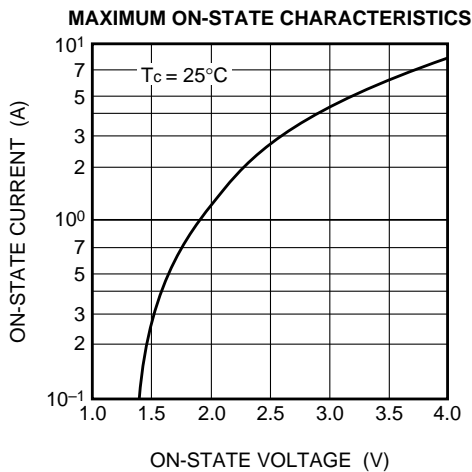
\*2. Measurement using the gate trigger characteristics measurement circuit.

\*3. Case temperature is measured at the T<sub>2</sub> terminal 1.5mm away from the molded case.

\*4. Test conditions of the critical-rate of rise of off-state commutating voltage is shown in the table below.

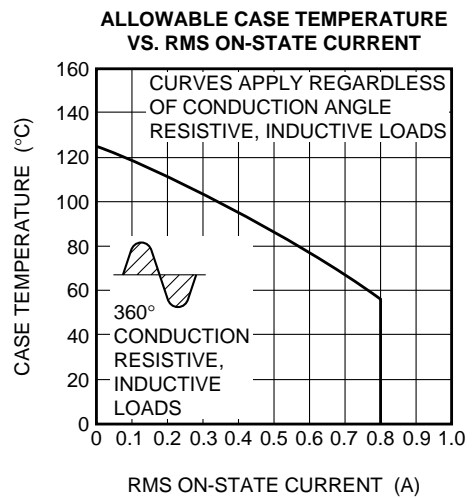
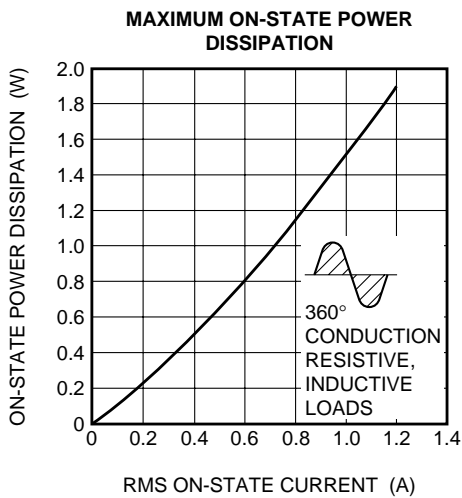
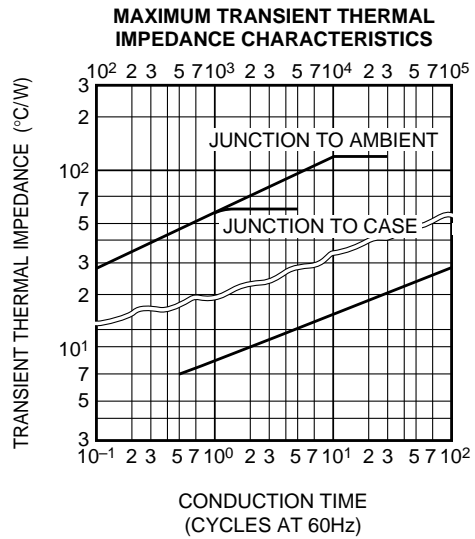
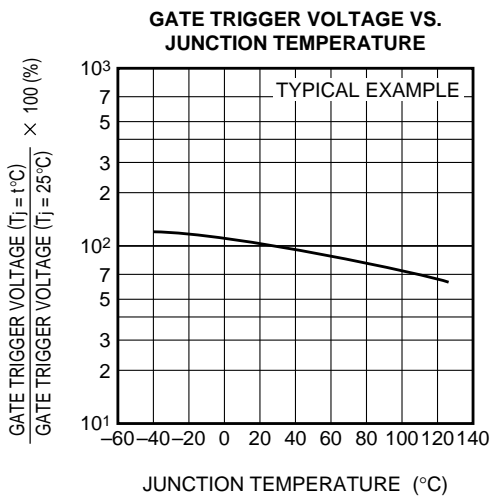
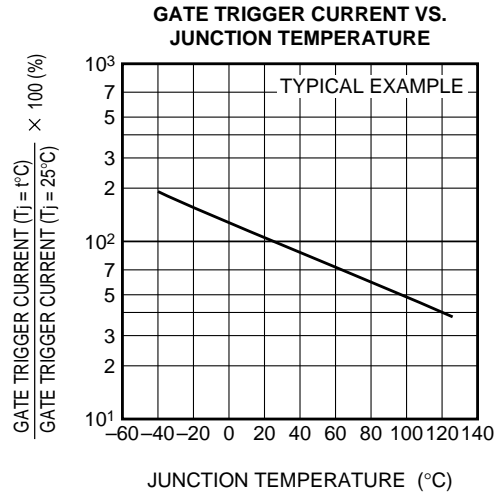
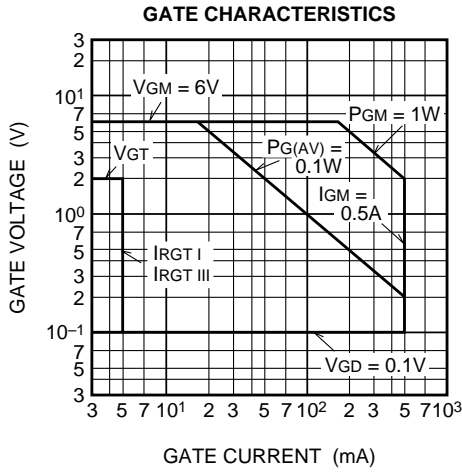
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T <sub>j</sub> =125°C  2. Rate of decay of on-state commutating current (di/dt) <sub>c</sub> =-0.4A/ms  3. Peak off-state voltage V <sub>D</sub> =400V	

**PERFORMANCE CURVES**



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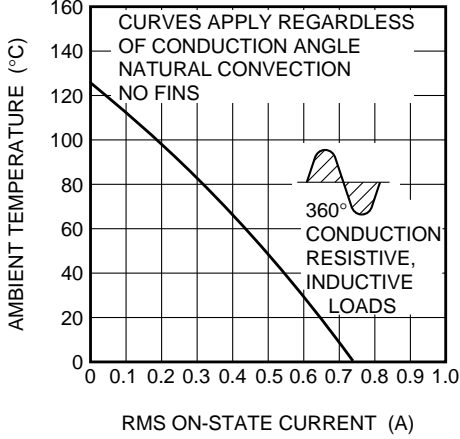
LOW POWER USE  
PLANAR PASSIVATION TYPE



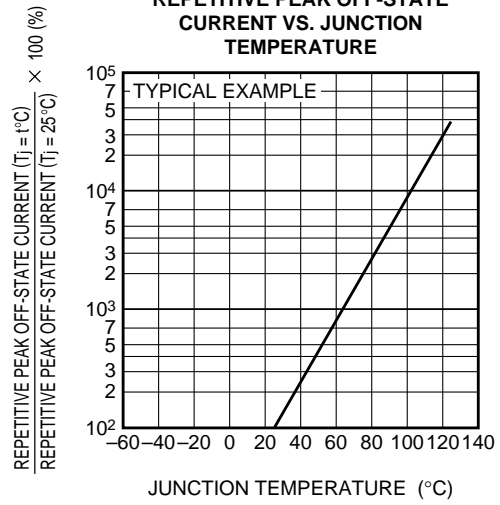
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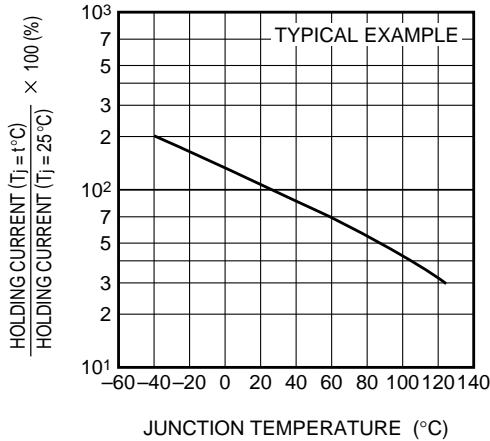
**ALLOWABLE AMBIENT TEMPERATURE VS. RMS ON-STATE CURRENT**



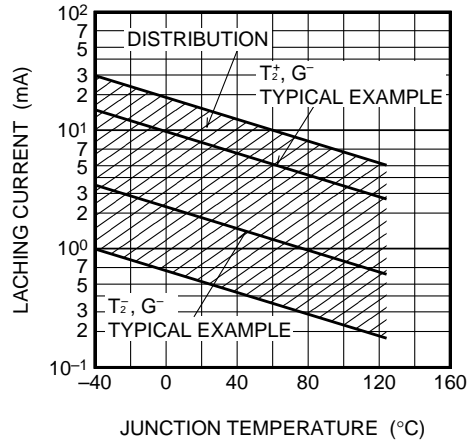
**REPETITIVE PEAK OFF-STATE CURRENT VS. JUNCTION TEMPERATURE**



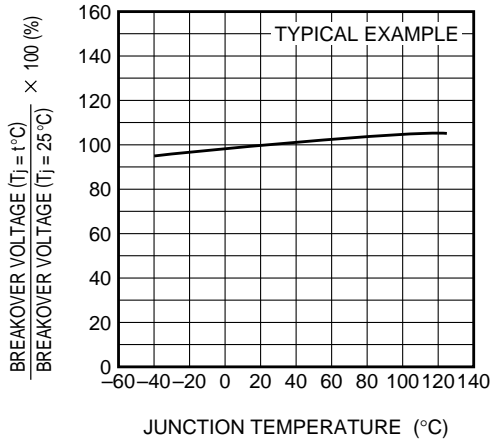
**HOLDING CURRENT VS. JUNCTION TEMPERATURE**



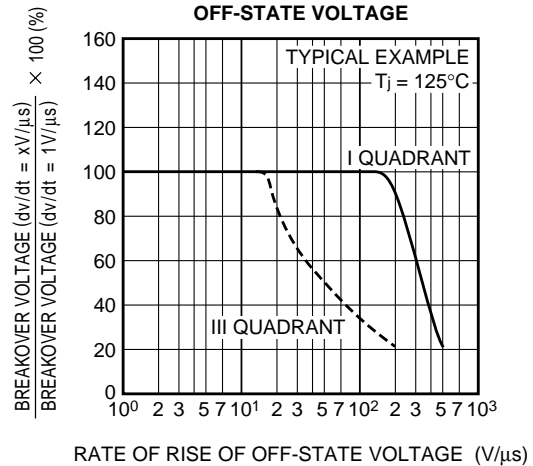
**LATCHING CURRENT VS. JUNCTION TEMPERATURE**



**BREAKOVER VOLTAGE VS. JUNCTION TEMPERATURE**

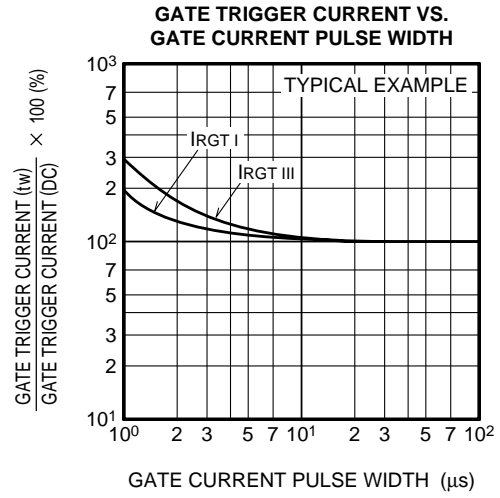
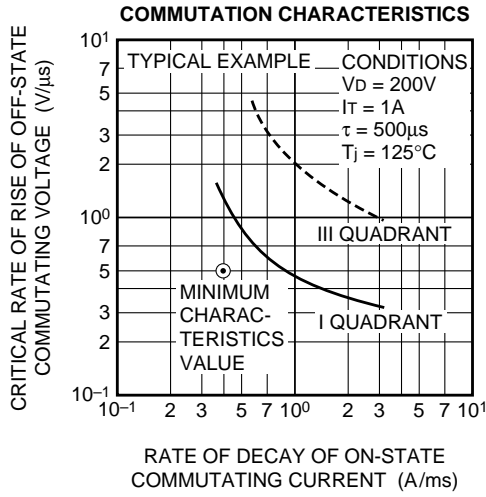


**BREAKOVER VOLTAGE VS. RATE OF RISE OF OFF-STATE VOLTAGE**



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LOW POWER USE  
PLANAR PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

