

To all our customers

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

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.

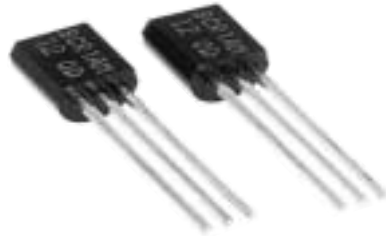
Note : Mitsubishi Electric will continue the business operations of high frequency & optical devices and power devices.

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

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LOW POWER USE
GLASS PASSIVATION TYPE

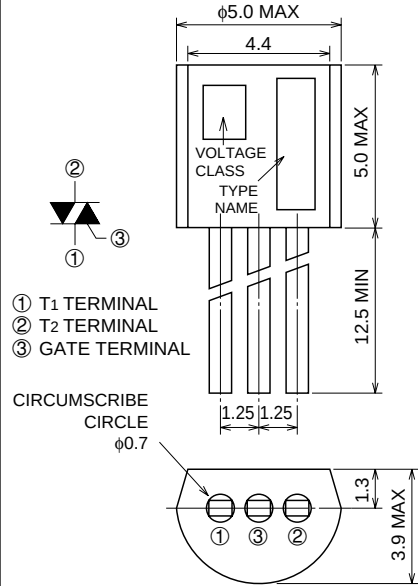
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- I_T (RMS) 1A
- V_{DRM} 600V
- $I_{FGT I}$, $I_{RGT I}$, $I_{RGT III}$ 5mA (3mA) *5
- $I_{FGT III}$ 10mA

OUTLINE DRAWING

Dimensions
in mm



JEDEC : TO-92

APPLICATION

Contactless AC switches, heating, refrigerator, washing machine, electric fan, vending machines, trigger circuit for low and medium triac, solid state relay, 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, $T_c=56^\circ\text{C}$ *3	1.0	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	10	A
I^2_t	I^2_t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	0.41	A ² 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		1	A
T_j	Junction temperature		-40 ~ +125	°C
T_{stg}	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	0.23	g

*1. Gate open.

Mar. 2002

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ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IdRM	Repetitive peak off-state current	T _J =125°C, V _{DRM} applied	—	—	1.0	mA
V _{TM}	On-state voltage	T _C =25°C, I _{TM} =1.5A, Instantaneous measurement	—	—	1.6	V
V _{FGT} I	Gate trigger voltage *2	T _J =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	—	—	2.0	V
V _{RGT} I			—	—	2.0	V
V _{RGT} III			—	—	2.0	V
V _{FGT} III			—	—	2.0	V
I _{FGT} I	Gate trigger current *2	T _J =25°C, V _D =6V, R _L =6Ω, R _G =330Ω	—	—	5	mA
I _{RGT} I			—	—	5*5	mA
I _{RGT} III			—	—	5*5	mA
I _{FGT} III			—	—	10	mA
V _{GD}	Gate non-trigger voltage	T _J =125°C, V _D =1/2V _{DRM}	0.1	—	—	V
R _{th} (j-c)	Thermal resistance	Junction to case *3	—	—	50	°C/W
(dv/dt) _c	Critical-rate of rise of off-state commutating voltage *4	T _J =125°C	2	—	—	V/μs

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

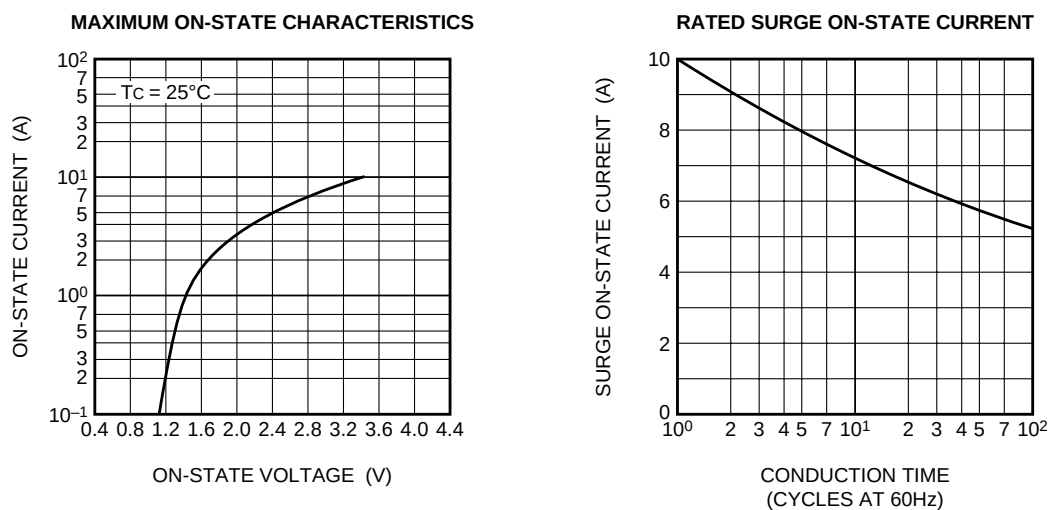
*3. Case temperature is measured at the T₂ terminal 1.5mm away from the molded case.

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

*5. High sensitivity (I_{GT} ≤ 3mA) is also available. (I_{GT} item ①)

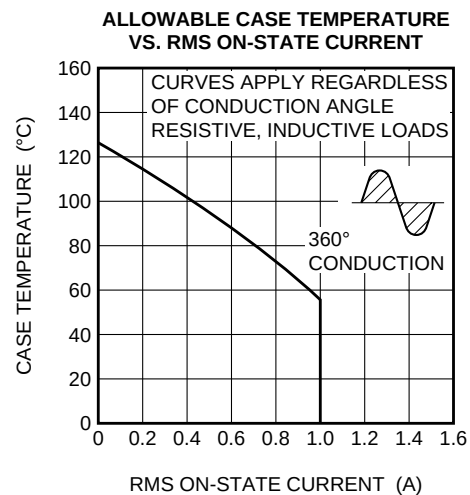
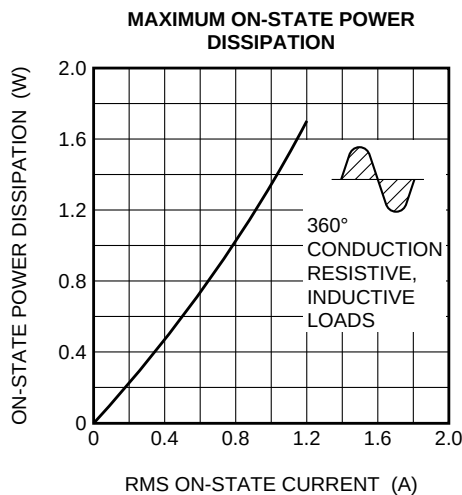
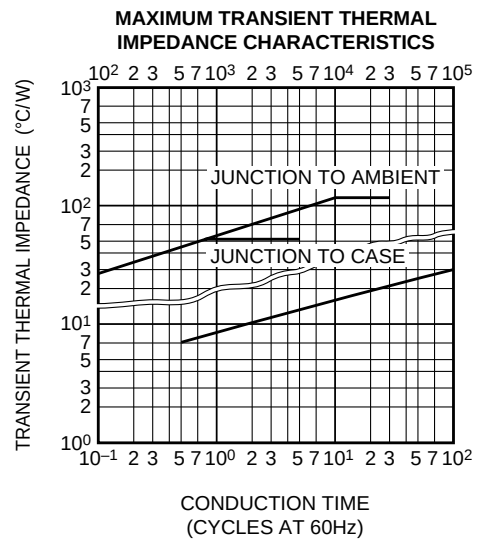
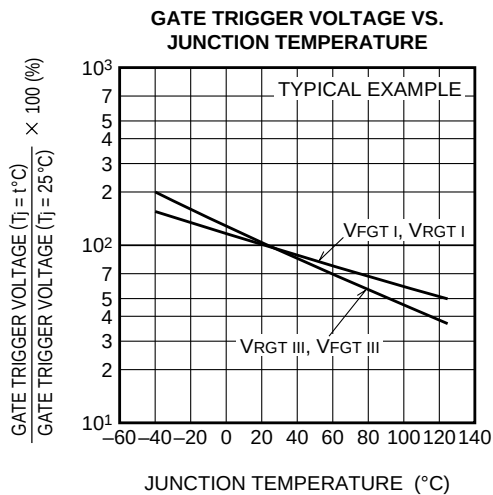
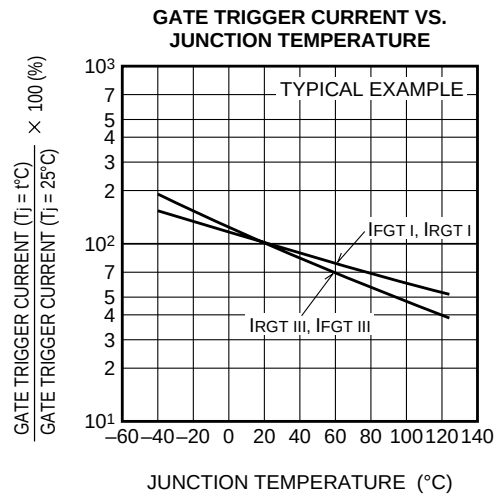
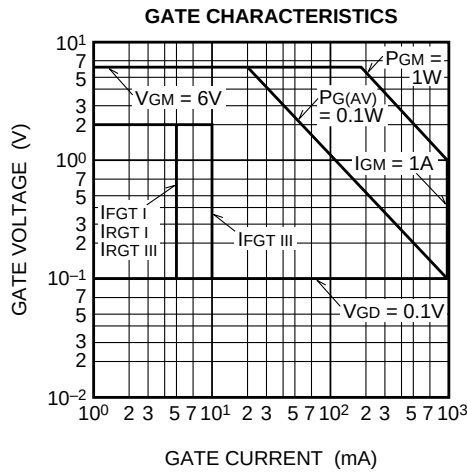
Test conditions	Commutating voltage and current waveforms (inductive load)
1. Junction temperature T _J =125°C 2. Rate of decay of on-state commutating current (di/dt) _c =-0.5A/ms 3. Peak off-state voltage V _D =400V	

PERFORMANCE CURVES



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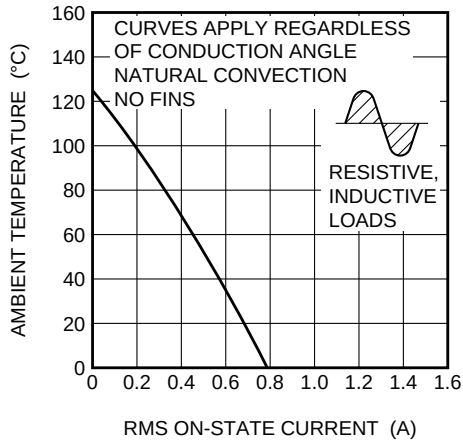
LOW POWER USE
GLASS PASSIVATION TYPE



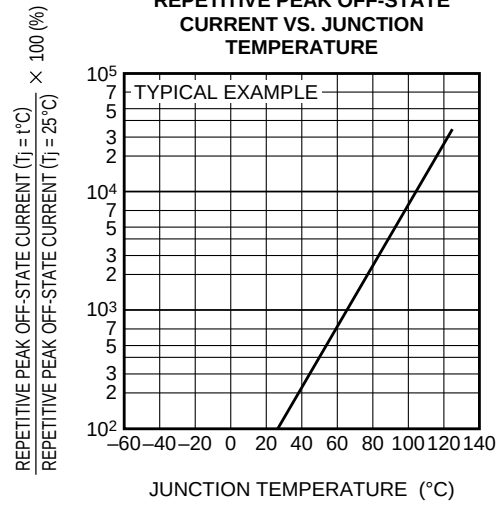
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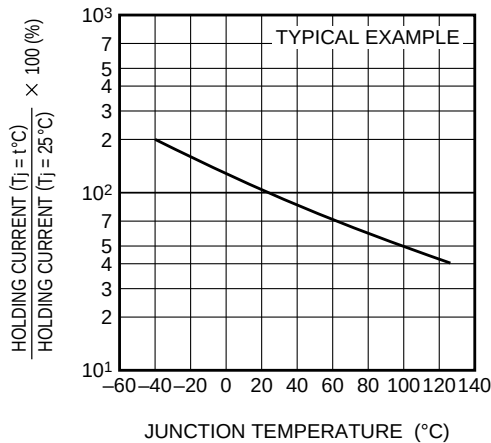
ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT



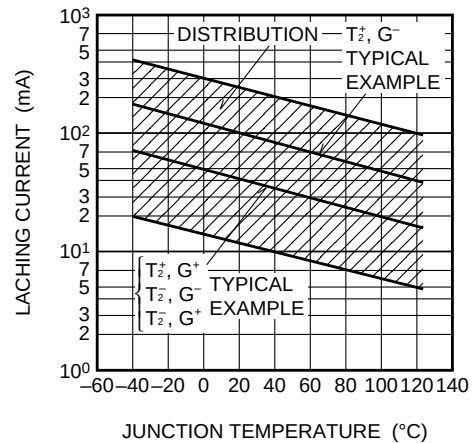
REPETITIVE PEAK OFF-STATE
CURRENT VS. JUNCTION
TEMPERATURE



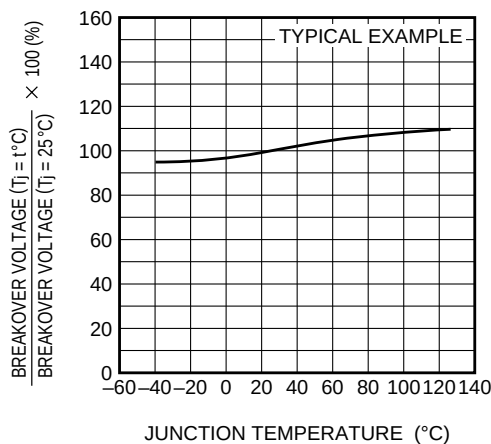
HOLDING CURRENT VS.
JUNCTION TEMPERATURE



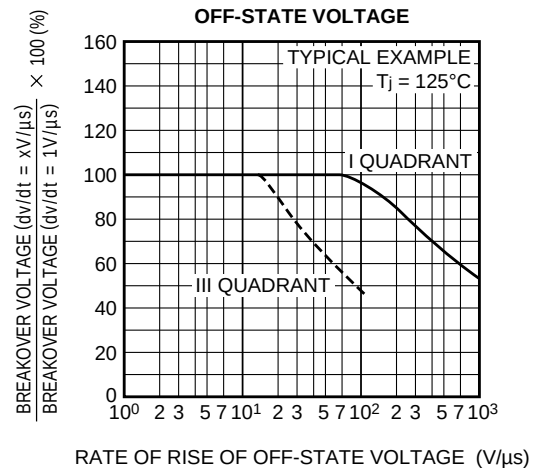
LATCHING CURRENT VS.
JUNCTION TEMPERATURE



BREAKOVER VOLTAGE VS.
JUNCTION TEMPERATURE

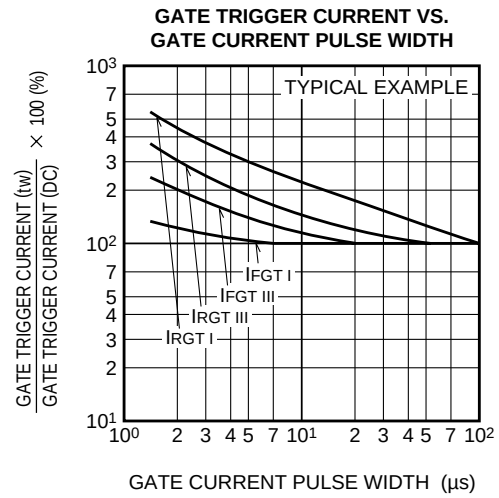
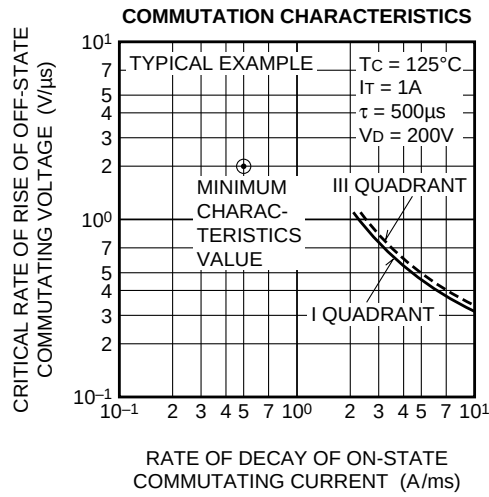


BREAKOVER VOLTAGE VS.
RATE OF RISE OF
OFF-STATE VOLTAGE



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LOW POWER USE
GLASS PASSIVATION TYPE



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

