To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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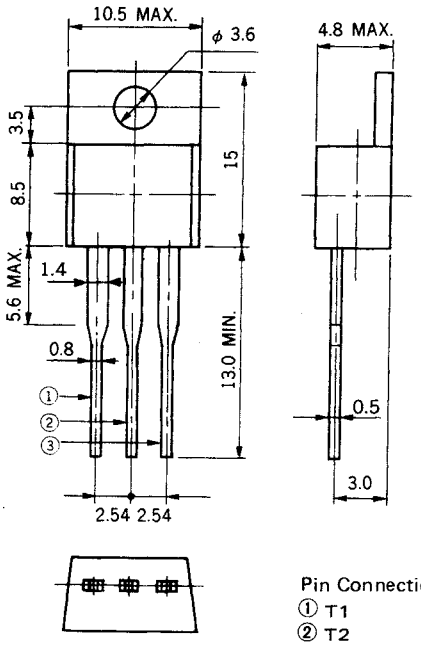
RENESAS

TRIACS

AC16DGM to AC16FGM

16 A MOLD TRIAC

PACKAGE DIMENSIONS
in millimeters



Pin Connection
① T1
② T2
③ Gate

The AC16DGM to AC16FGM are all diffused mold type TRIAC granted RMS On-state current 16 Amps, with rated voltages up to 600 Volts.

FEATURES

- 150 A Surge Current
- TO-220AB mold package
- Low cost

APPLICATIONS

Motor speed control,
Lamp dimmer, Temperature controllers,
Various solid state switches, etc.

MAXIMUM RATINGS

ITEM	SYMBOL	AC16DGM	AC16EGM	AC16FGM	UNIT	NOTE
Repetitive Peak-off Voltage	V_{DRM}	400	500	600	V	
Non-Repetitive Peak-off Voltage	V_{DSM}	500	600	700	V	
RMS On-state Current	$I_{T(RMS)}$	16 (T_c = 100 °C)			A	See Fig. 11, 12
Surge On-state Current	I_{TSM}	150 (50 Hz Non-repetitive)			A	See Fig. 2
Fusing Current	$\int i_T^2 dt$	100			A^2S	
Peak Gate Power Dissipation	P_{GM}	5			W	
Average Gate Power Dissipation	$P_{G(AV)}$	0.5			W	
Peak Gate Current	I_{GM}	±3			A	
Junction Temperature	T_j	−40 to +125			°C	
Storage Temperature	T_{stg}	−40 to +125			°C	

NEC Corporation

ELECTRICAL CHARACTERISTICS (T_j = 25 °C)

ITEM		SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT	NOTE
Peak Off-State Current		I_{DRM}	$V_{DM}=V_{DRM}$	T_j=25 °C	–	–	0.1	mA	–
				T =125 °C	–	–	2		
On-State Voltage		V_{TM}	I_{TM} =25 A		–	–	1.4	V	See Fig. 1
Critical Rate of Rise of Off-state Voltage		dv/dt	T_j=125 °C $V_{DM}=\frac{2}{3}V_{DRM}$		–	100	–	V/μs	–
DC Gate Trigger Current	I	I_{GT}	V_{DM}=12 V R_L=30 Ω	T_2+, G+	–	–	30	mA	See Fig. 3, 4, 5, 7
	II			T_2−, G+	–	–	80		
	III			T_2−, G−	–	–	30		
	IV			T_2+, G−	–	–	30		
DC Gate Trigger Voltage	I	V_{GT}	V_{DM}=12 V R_L=30 Ω	T_2+, G+	–	–	1.5	V	See Fig. 3, 4, 6, 8
	II			T_2−, G+	–	–	2.0		
	III			T_2−, G−	–	–	1.5		
	IV			T_2+, G−	–	–	1.5		
Gate Non-Trigger Voltage		V_{GD}	T_j=125 °C $V_{DM}=\frac{1}{2}V_{DRM}$		0.3	–	–	V	–
DC Holding Current		I_H	V_D=24 V		–	30	–	mA	
Critical Rate of Rise of Commutating Off-State Voltage		(dv/dt)c	T_j=125 °C, I_{TM} = 22 A $(di_T/dt)_c$=−8 A/ms V_D = 400 V		10	–	–	V/μs	
Thermal Resistance		$R_{th(j-c)}$	Junction-to-Case		–	–	1.5	°C/W	See Fig. 13

Trigger Mode & Test Circuit

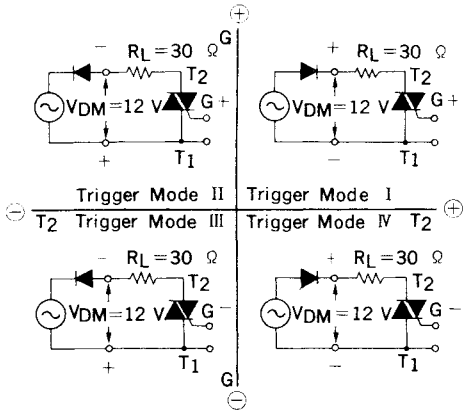


Fig. 1 $i_T - v_T$ CHARACTERISTIC

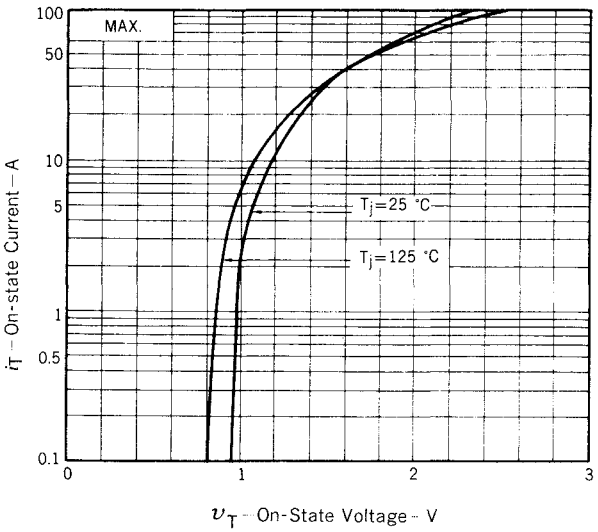


Fig. 2 I_{TSM} RATING

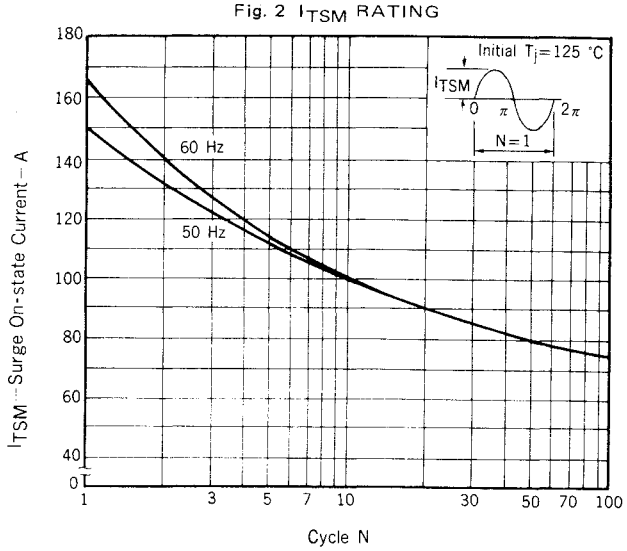


Fig. 3 $V_G - I_G$ RATING

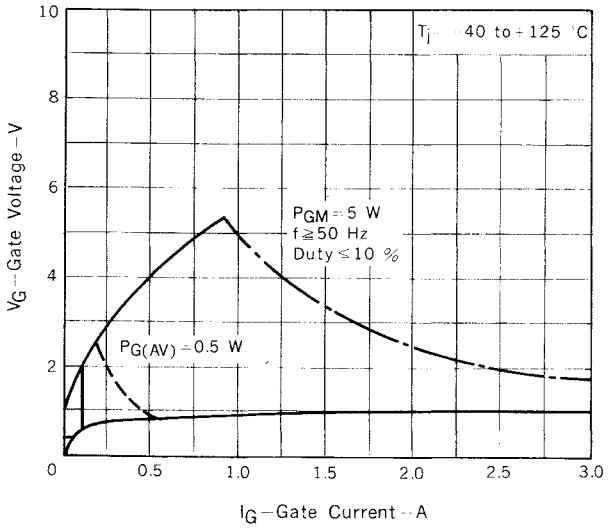


Fig. 4 $V_{GT} - I_{GT}$ CHARACTERISTIC

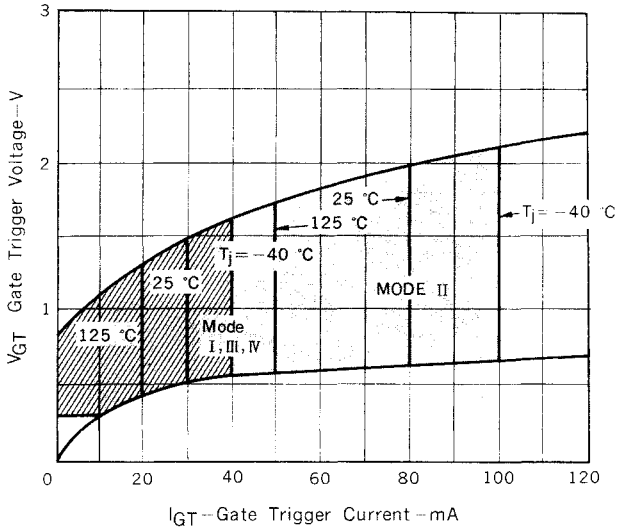


Fig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTION

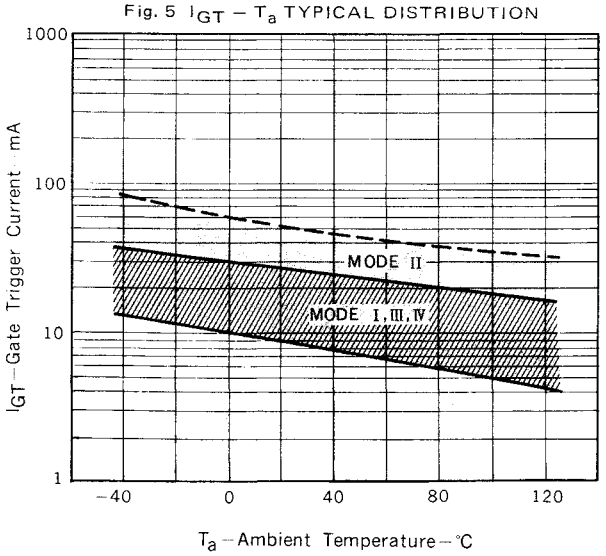


Fig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTION

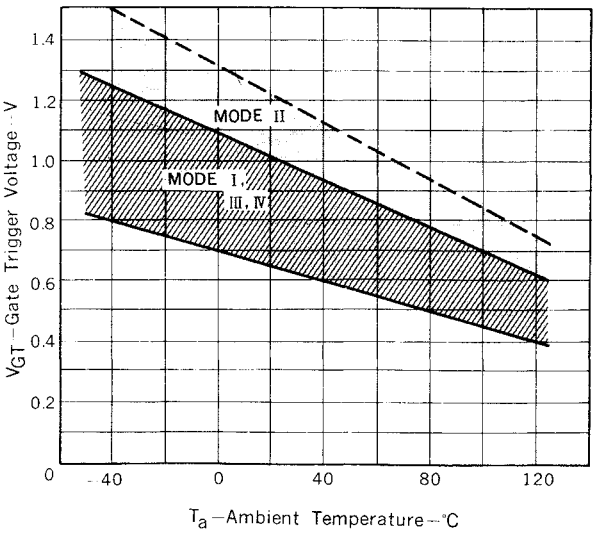


Fig. 7 $i_{GT} - \tau$ TYPICAL DISTRIBUTION

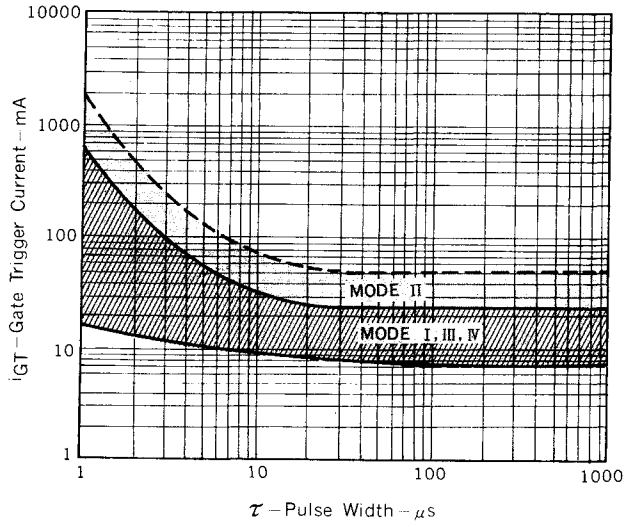


Fig. 8 $v_{GT} - \tau$ TYPICAL DISTRIBUTION

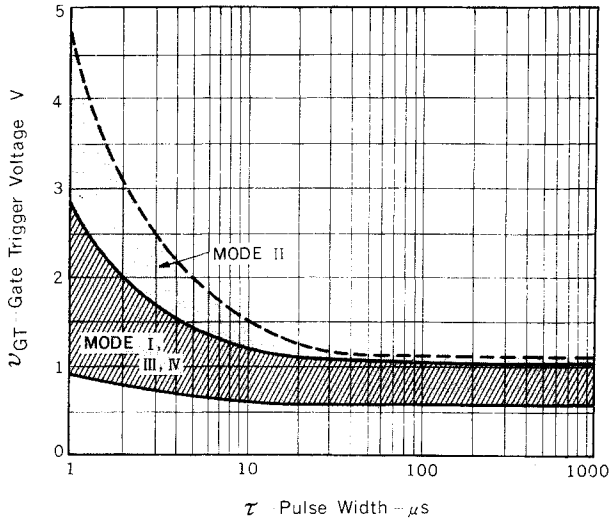


Fig. 9 $I_H - T_a$ CHARACTERISTIC

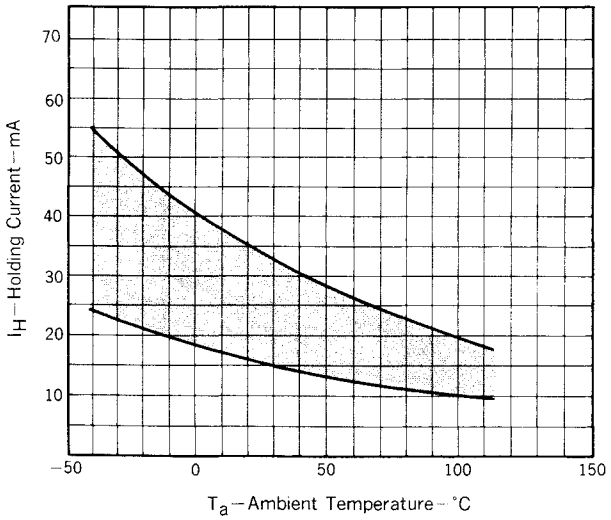


Fig. 10 $P_{T(AV)} - I_{T(RMS)}$ CHARACTERISTIC

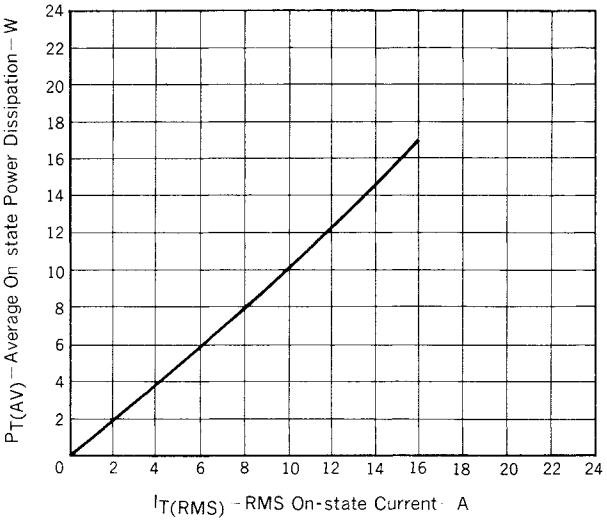


Fig. 11 $T_c - I_{T(RMS)}$ RATING

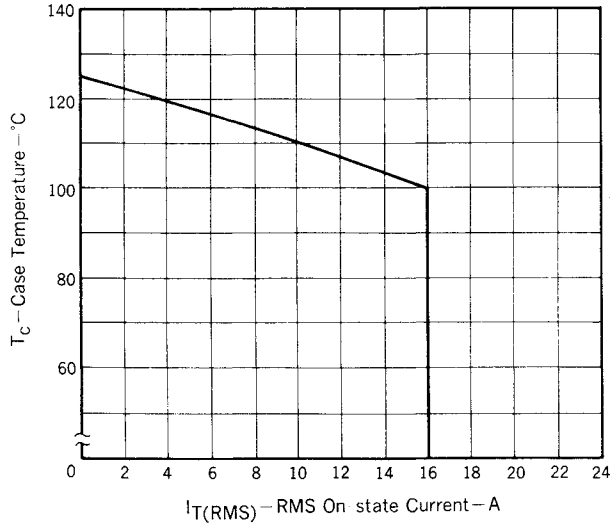


Fig. 12 $T_a - I_{T(RMS)}$ RATING

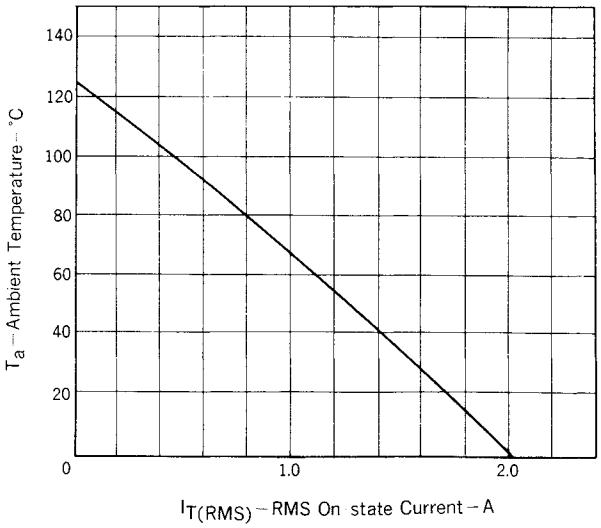
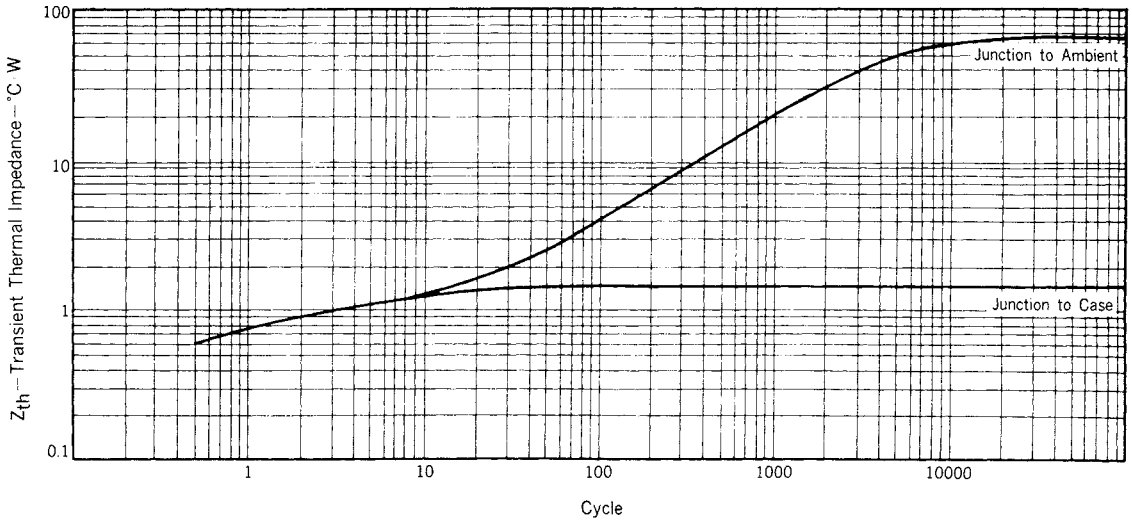


Fig. 13 Z_{th} CHARACTERISTIC



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SC–1036
OCT.–1–85M
Printed in Japan