

To our customers,

Old Company Name in Catalogs and Other Documents

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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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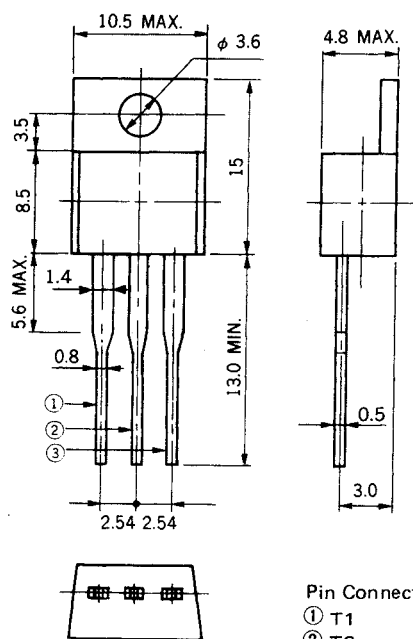
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AC16DGM to AC16FGM

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 ($T_c = 100^\circ C$)			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 ² S	
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			$^\circ C$	
Storage Temperature	T_{stg}	-40 to +125			$^\circ C$	

ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$)

ITEM		SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT	NOTE
Peak Off-State Current		I_{DRM}	$V_{\text{DM}} = V_{\text{DRM}}$	$T_j = 25^\circ\text{C}$	—	—	0.1	mA	—
				$T = 125^\circ\text{C}$	—	—	2		
On-State Voltage		V_{TM}	$I_{\text{TM}} = 25\text{ A}$		—	—	1.4	V	See Fig. 1
Critical Rate of Rise of Off-state Voltage		dv/dt	$T_j = 125^\circ\text{C}$ $V_{\text{DM}} = \frac{2}{3} V_{\text{DRM}}$		—	100	—	V/ μs	—
DC Gate Trigger Current	I	I_{GT}	$V_{\text{DM}} = 12\text{ V}$ $R_L = 30\ \Omega$	$T_2+, G+$	—	—	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}	$V_{\text{DM}} = 12\text{ V}$ $R_L = 30\ \Omega$	$T_2+, G+$	—	—	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}	$T_j = 125^\circ\text{C}$ $V_{\text{DM}} = \frac{1}{2} V_{\text{DRM}}$		0.3	—	—	V	—
DC Holding Current		I_{H}	$V_{\text{D}} = 24\text{ V}$		—	30	—	mA	
Critical Rate of Rise of Commutating Off-State Voltage		$(dv/dt)_c$	$T_j = 125^\circ\text{C}$, $I_{\text{TM}} = 22\text{ A}$ $(di_{\text{T}}/dt)_c = -8\text{ A/ms}$ $V_{\text{D}} = 400\text{ V}$		10	—	—	V/ μs	
Thermal Resistance		$R_{\text{th}(j-c)}$	Junction-to-Case		—	—	1.5	$^\circ\text{C/W}$	See Fig. 13

Trigger Mode & Test Circuit

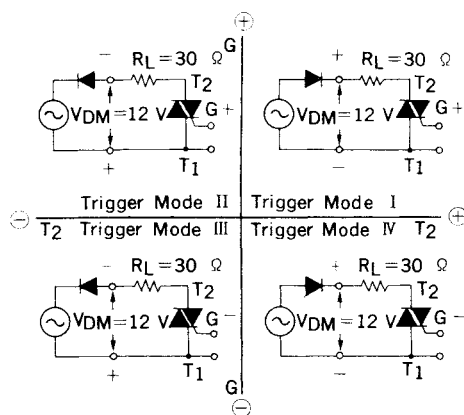


Fig. 1 $i_T - v_T$ CHARACTERISTIC

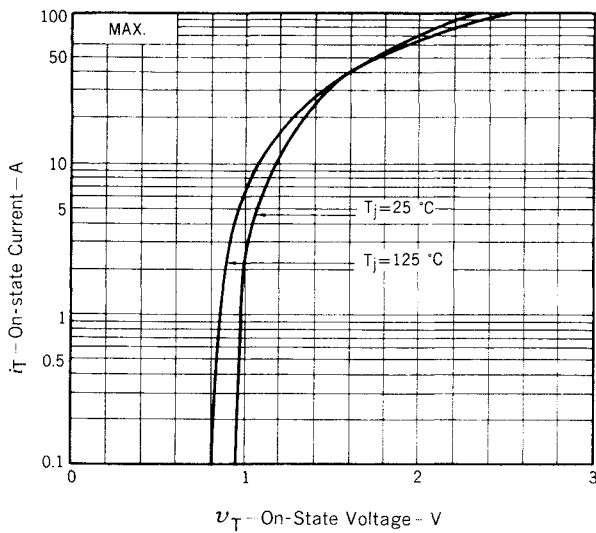


Fig. 2 I_{TSM} RATING

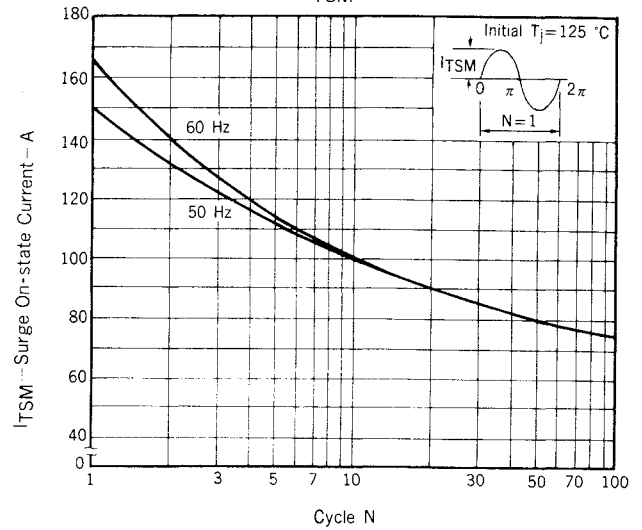


Fig. 3 $V_G - I_G$ RATING

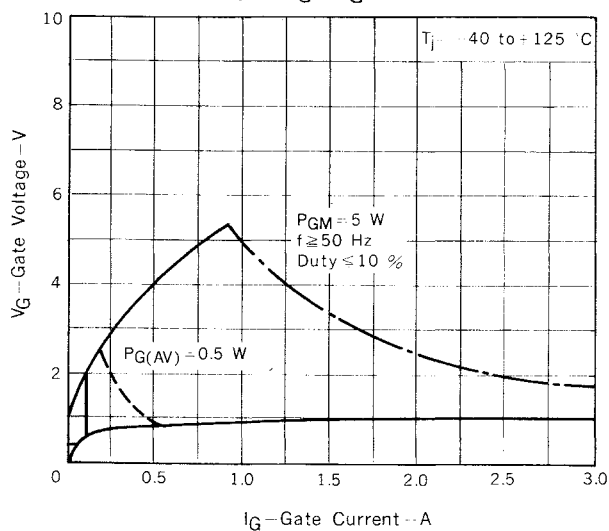


Fig. 4 $V_{GT} - I_{GT}$ CHARACTERISTIC

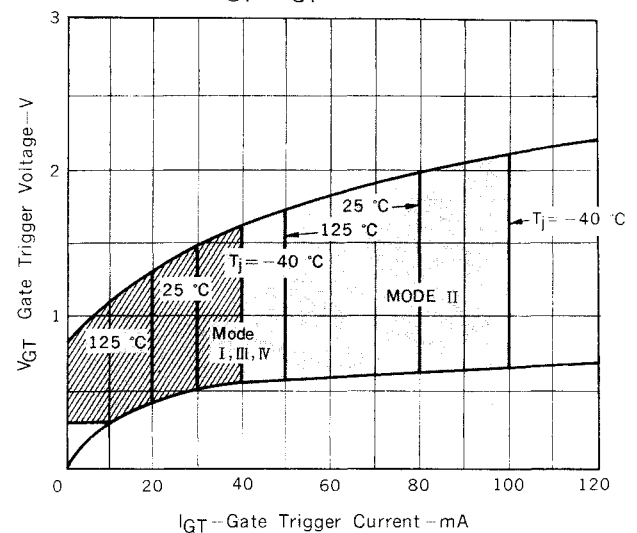


Fig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTION

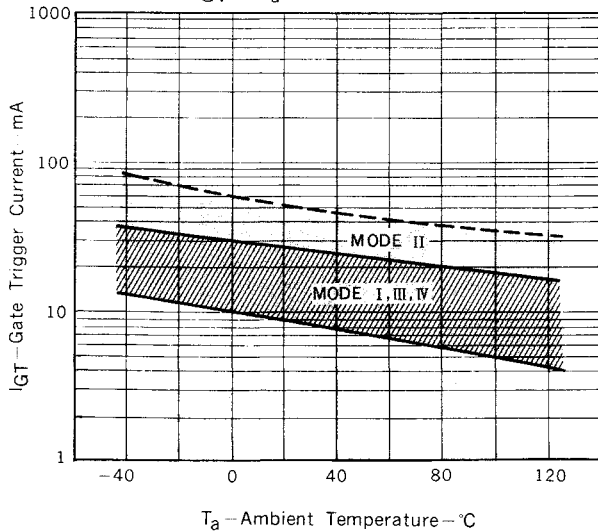


Fig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTION

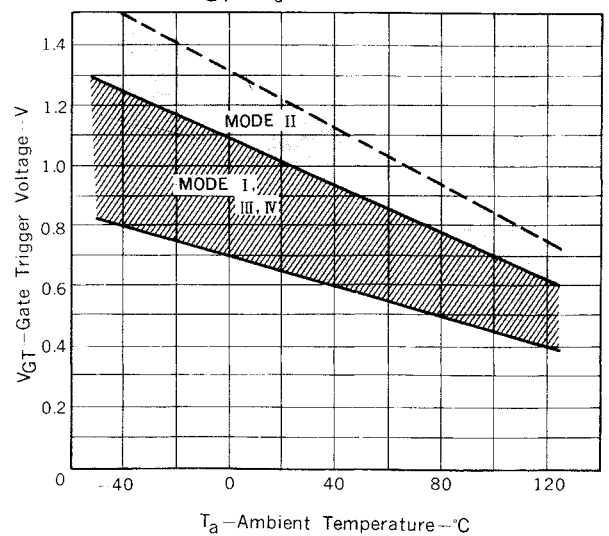


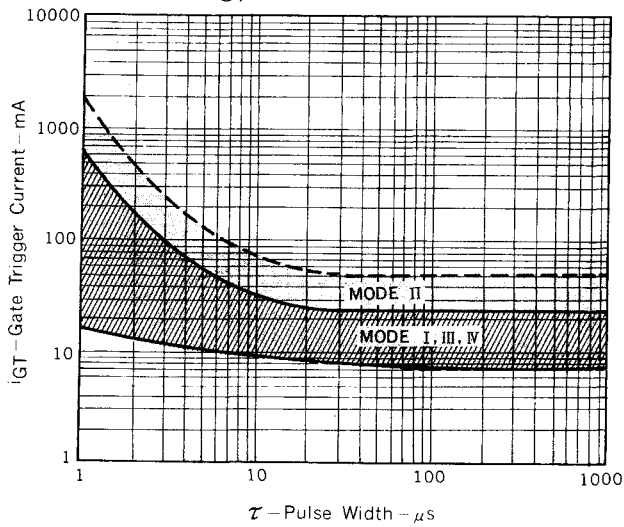
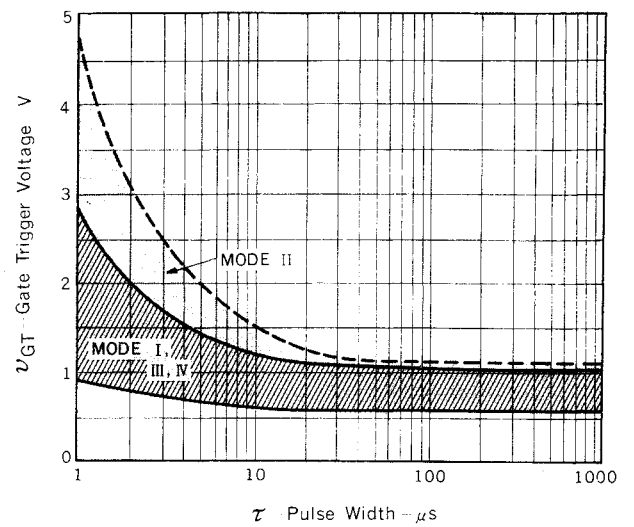
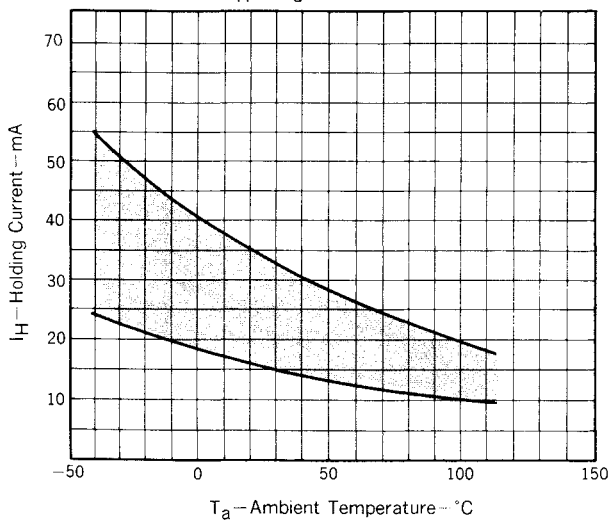
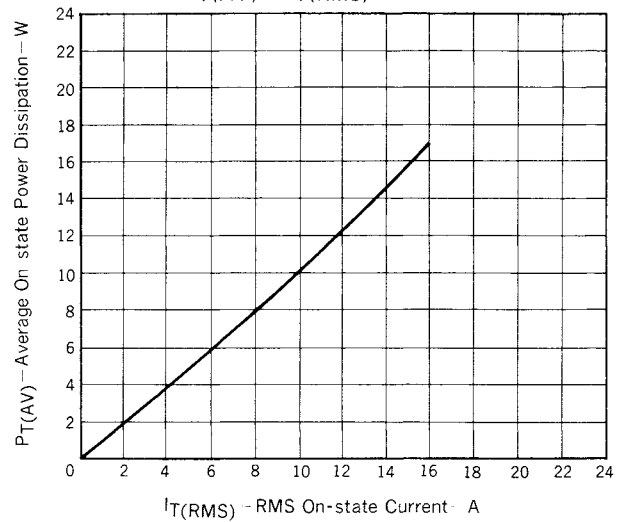
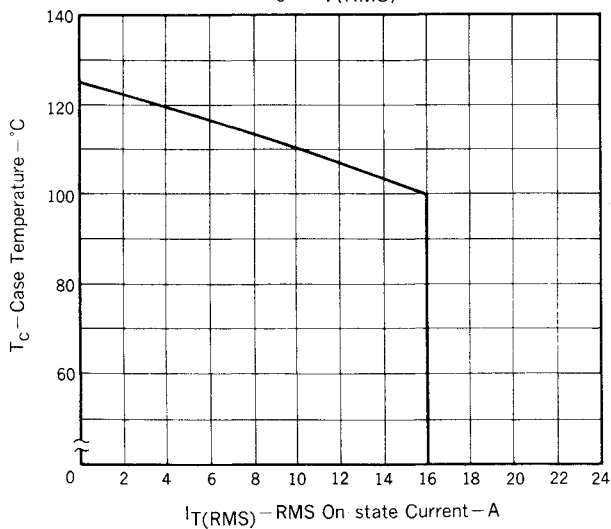
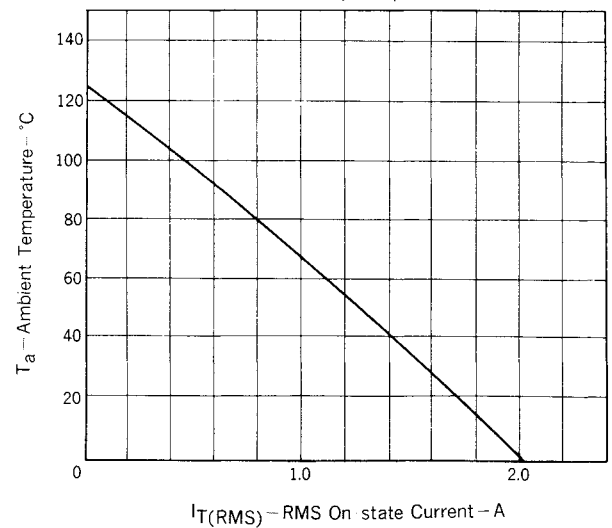
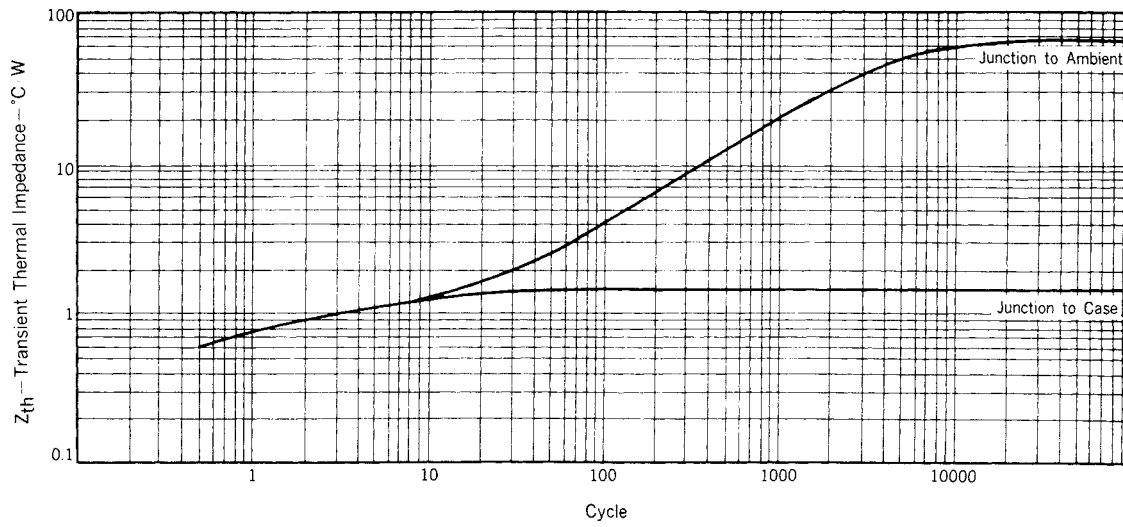
Fig. 7 $i_{GT} - \tau$ TYPICAL DISTRIBUTIONFig. 8 $v_{GT} - \tau$ TYPICAL DISTRIBUTIONFig. 9 $I_H - T_a$ CHARACTERISTICFig. 10 $P_{T(AV)} - I_{T(RMS)}$ CHARACTERISTICFig. 11 $T_c - I_{T(RMS)}$ RATINGFig. 12 $T_a - I_{T(RMS)}$ RATING

Fig. 13 Z_{th} CHARACTERISTIC



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