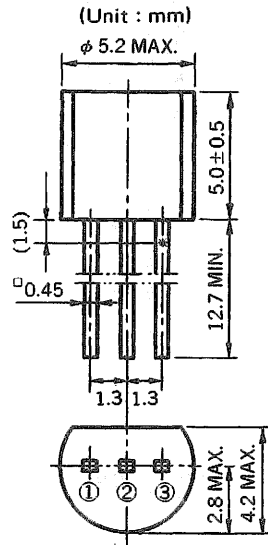


**1 A MOLD TRIAC**
**PACKAGE DIMENSIONS**

**Pin Connection**

1. T<sub>1</sub> Terminal
2. Gate
3. T<sub>2</sub> Terminal

\* Measure point of Case Temperature

**DESCRIPTION**

The AC01DGM is all diffused type TRIAC granted RMS On-state Current 1 Amps, with rated voltages up to 400 volts.

This is designed specifically to be driven by low-level logic in any gating mode.

**FEATURES**

- The AC01DGM offers sensitive gate specs of 3 and 5 mA, in all for quadrants.
- You can fill the gap between microprocessor controls and the power-output requirements.
- This is housed in the popular TO-92 package.
- The package features excellent environmental stress and temperature cycling.

**APPLICATIONS**

Solid-state relays, microprocessor interfacing, TTL logic and various solid-state switch designs alone or with larger TRIAC.

**MAXIMUM RATINGS**

ITEM	SYMBOL	MAXIMUM RATINGS	UNIT	NOTE
Repetitive Peak Off Voltage	V <sub>DRM</sub>	400	V	
Non-repetitive Peak Off Voltage	V <sub>DSM</sub>	500	V	
RMS On-State Current	I <sub>T(RMS)</sub>	1 (T <sub>c</sub> = 49 °C)	A	Fig. 11
Peak Surge On-State Current	I <sub>TSM</sub>	9 (50 Hz), 10 (60 Hz)	A	Fig. 2
Fusing Current	i <sup>2</sup> t	0.2 (1 ms ≤ t ≤ 10 ms)	A <sup>2</sup> s	
Peak Gate Power Dissipation	P <sub>GM</sub>	1 (f ≥ 50 Hz, Duty ≤ 10 %)	W	
Average Gate Power Dissipation	P <sub>G(AV)</sub>	0.1	W	
Peak Gate Current	I <sub>GM</sub>	±0.5 (f ≥ 50 Hz, Duty ≤ 10 %)	A	
Junction Temperature	T <sub>j</sub>	125	°C	
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C	

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

ITEM		SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	NOTE	
Peak Off-State Current		$I_{\text{DRM}}$	$V_{\text{DM}} = V_{\text{DRM}}$	$T_j = 25^\circ\text{C}$	—	10	$\mu\text{A}$		
				$T_j = 125^\circ\text{C}$	—	100			
On-State Voltage		$V_{\text{TM}}$	$I_{\text{TM}} = 1.2\text{ A}$	—	—	1.5	V	Fig. 1	
DC Gate Trigger Current	MODE I	$I_{\text{GT}}$	$V_{\text{DM}} = 12\text{ V}$ $R_L = 100\ \Omega$	G; Positive, $T_2$ ; Positive	—	—	3	mA	Fig. 5, 7
	II			G; Negative, $T_2$ ; Positive	—	—	5		
	III			G; Negative, $T_2$ ; Negative	—	—	3		
	IV			G; Positive, $T_2$ ; Negative	—	—	3		
DC Gate Trigger Voltage	MODE I	$V_{\text{GT}}$	$V_{\text{DM}} = 12\text{ V}$ $R_L = 100\ \Omega$	G; Positive, $T_2$ ; Positive	—	—	1.0	V	Fig. 6, 8
	II			G; Negative, $T_2$ ; Positive	—	—	1.5		
	III			G; Negative, $T_2$ ; Negative	—	—	1.0		
	IV			G, Positive, $T_2$ ; Negative	—	—	1.0		
Gate Non-Trigger Voltage		$V_{\text{GD}}$	$T_j = 125^\circ\text{C}, V_{\text{DM}} = \frac{1}{2} V_{\text{DRM}}$	0.1	—	—	V		
DC Holding Current		$I_{\text{H}}$	$V_{\text{D}} = 24\text{ V}, I_{\text{TM}} = 1\text{ A}$	—	2	5	mA		
Critical Rate of Rise of Off-State Voltage		$dv/dt$	$T_j = 125^\circ\text{C}, V_{\text{DM}} = \frac{2}{3} V_{\text{DRM}}$ Gate Open Circuited Exponential Waveform	—	50	—	V/ $\mu\text{s}$		
Critical Rate of Rise of Commutating Off-State Voltage		$(dv/dt)_c$	$T_j = 125^\circ\text{C}, I_{\text{TM}} = 1.2\text{ A}$ $(di_{\text{T}}/dt)_c = -0.5\text{ A/ms}$ $V_{\text{DM}} = 400\text{ V}$	0.5	—	—	V/ $\mu\text{s}$		
Steady State		$R_{\text{th}(j-c)}$	Junction to Case	—	—	65	$^\circ\text{C/W}$	Fig. 13	
Thermal Resistance		$R_{\text{th}(j-a)}$	Junction to Ambient	—	—	150	$^\circ\text{C/W}$		

CHARACTERISTICS

Fig. 1  $i_{\text{T}} - V_{\text{T}}$  CHARACTERISTIC

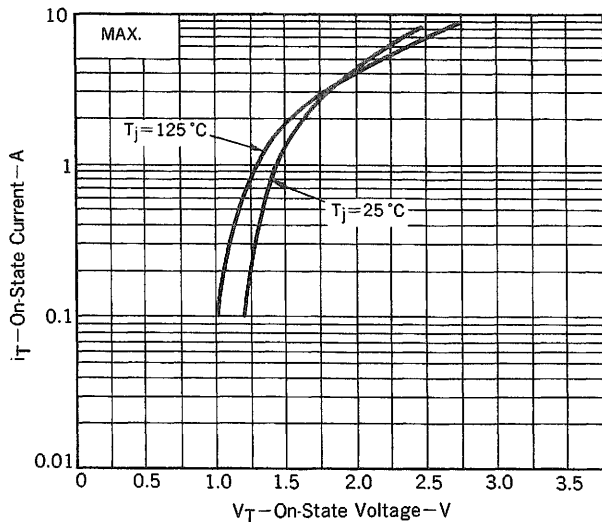


Fig. 2  $I_{\text{TSM}}$  RATING

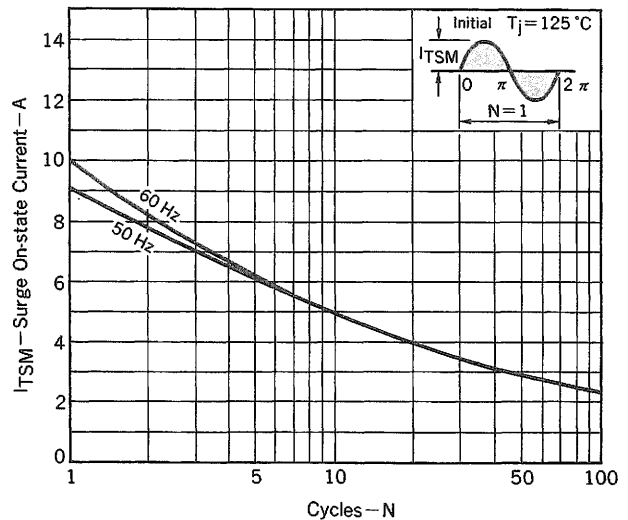


Fig. 3  $V_G - I_G$  RATING

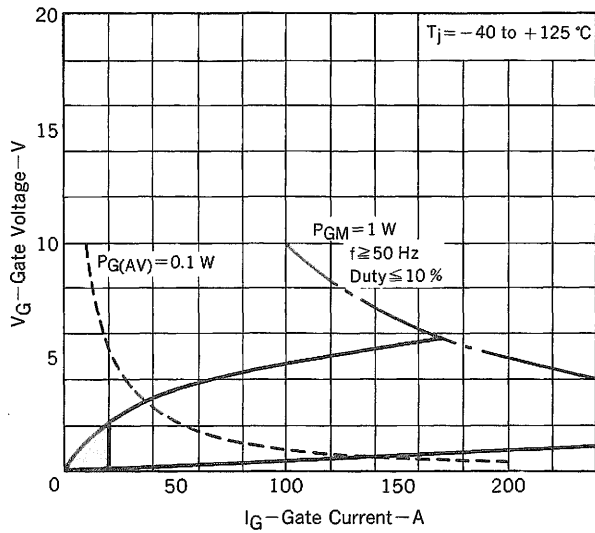


Fig. 4 GATE CHARACTERISTIC

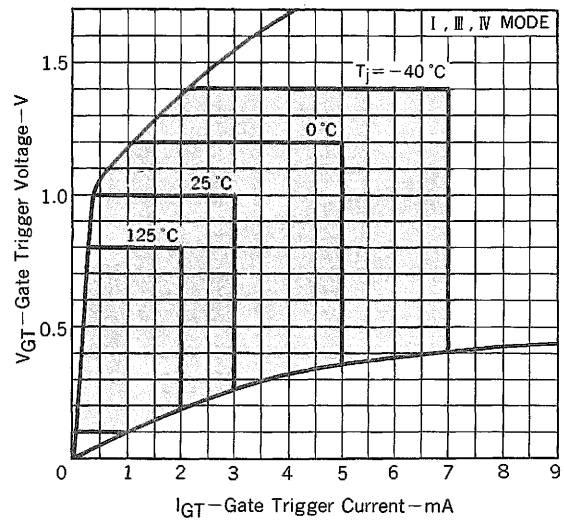


Fig. 5  $I_{GT} - T_a$  TYPICAL DISTRIBUTION

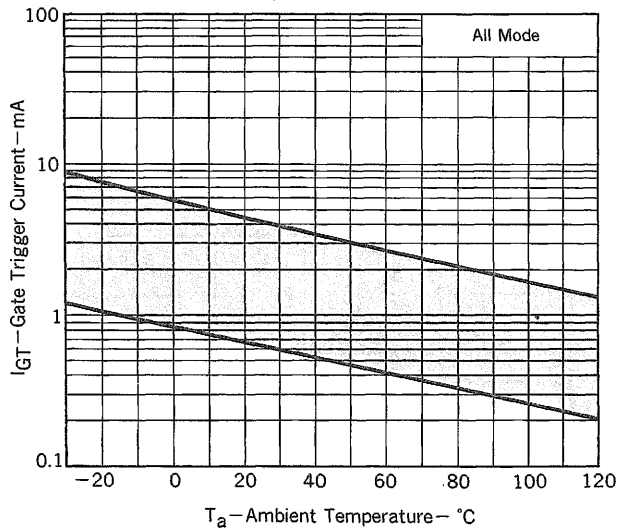


Fig. 6  $V_{GT} - T_a$  TYPICAL DISTRIBUTION

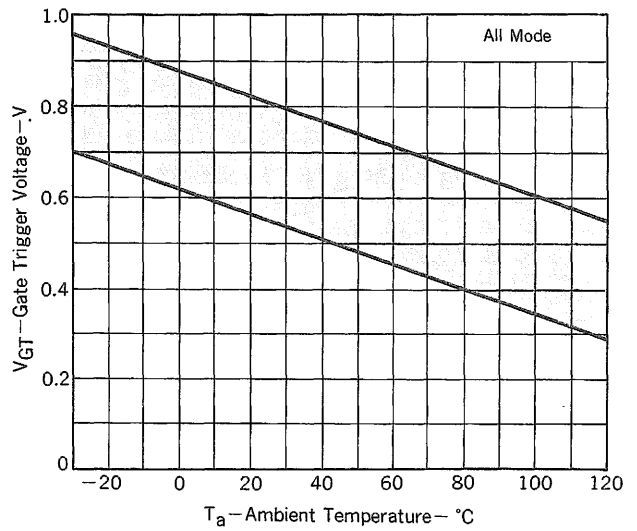


Fig. 7  $i_{GT} - \tau$  TYPICAL DISTRIBUTION

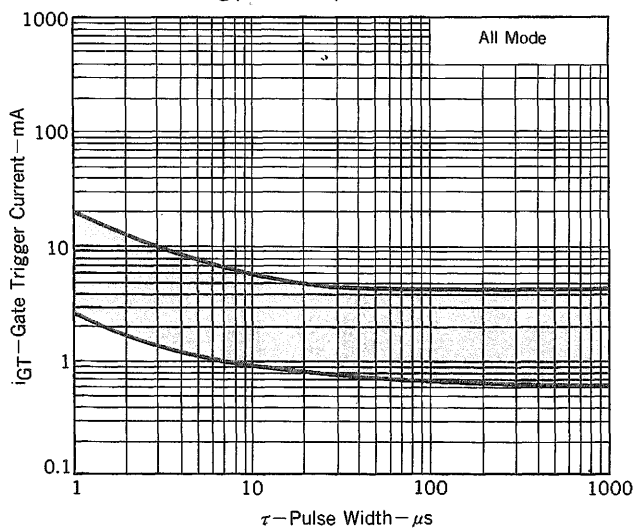


Fig. 8  $v_{GT} - \tau$  TYPICAL DISTRIBUTION

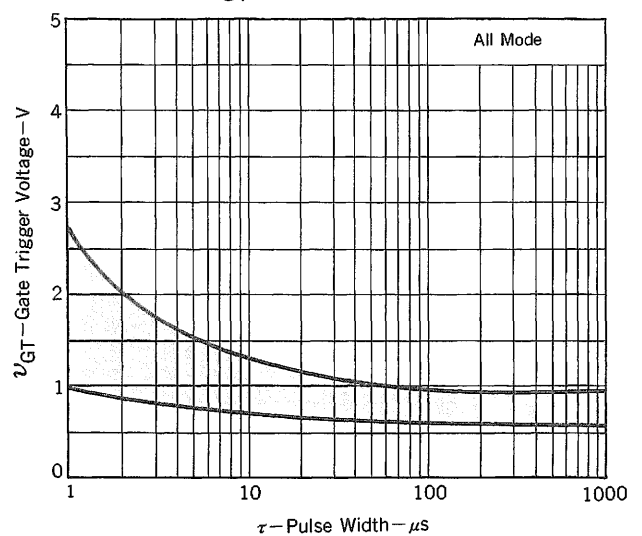


Fig. 9  $I_H - T_a$  TYPICAL DISTRIBUTION

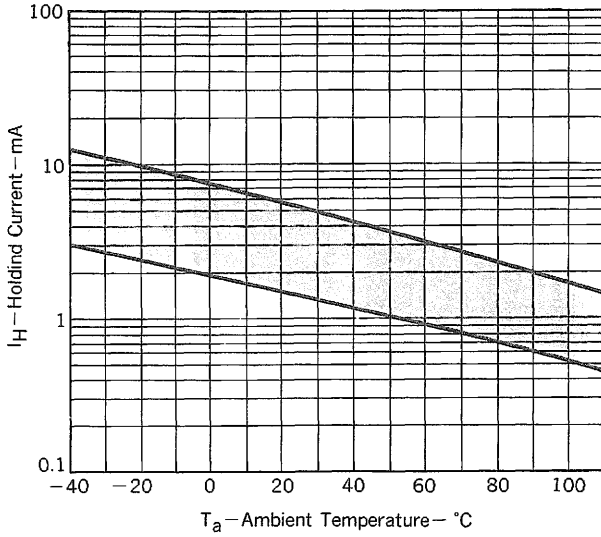


Fig. 10  $P_T(AV) - I_T(RMS)$  CHARACTERISTIC

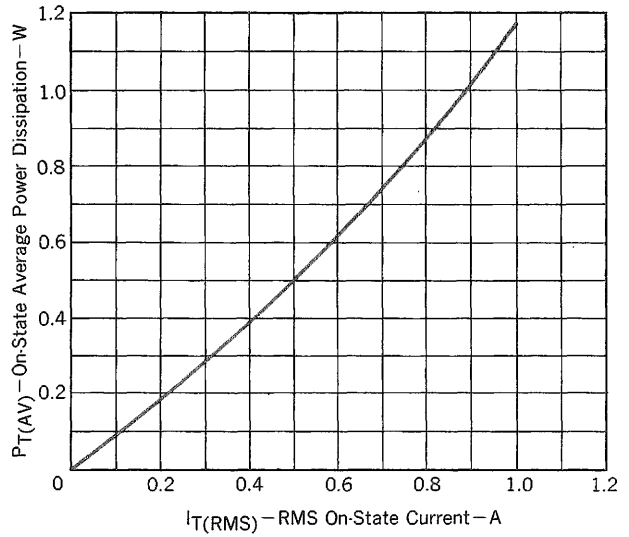


Fig. 11  $T_c - I_T(RMS)$  RATING

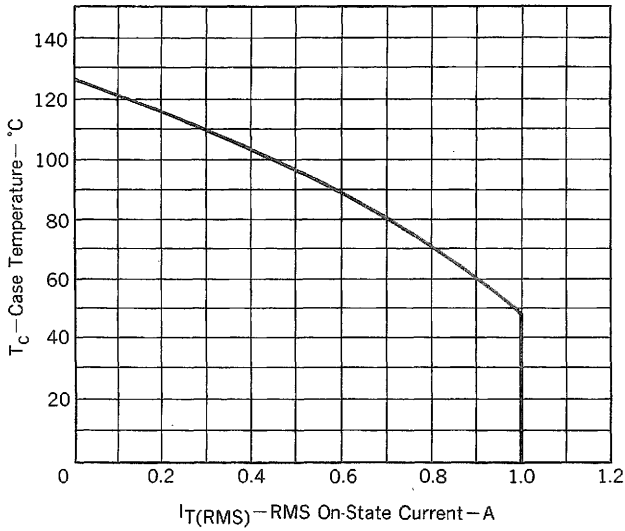


Fig. 12  $T_a - I_T(RMS)$  RATING

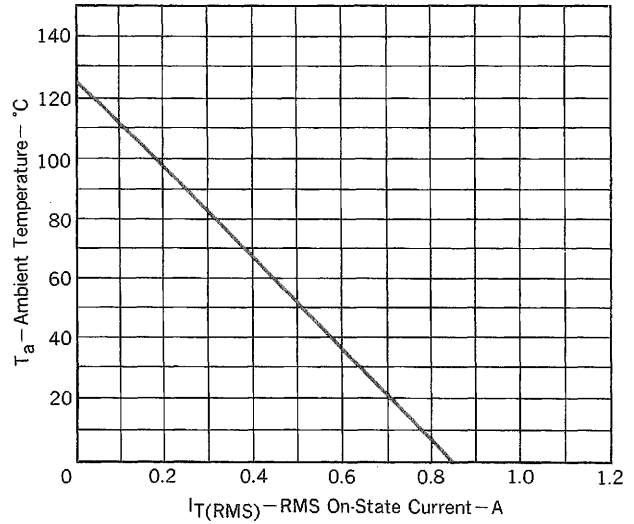
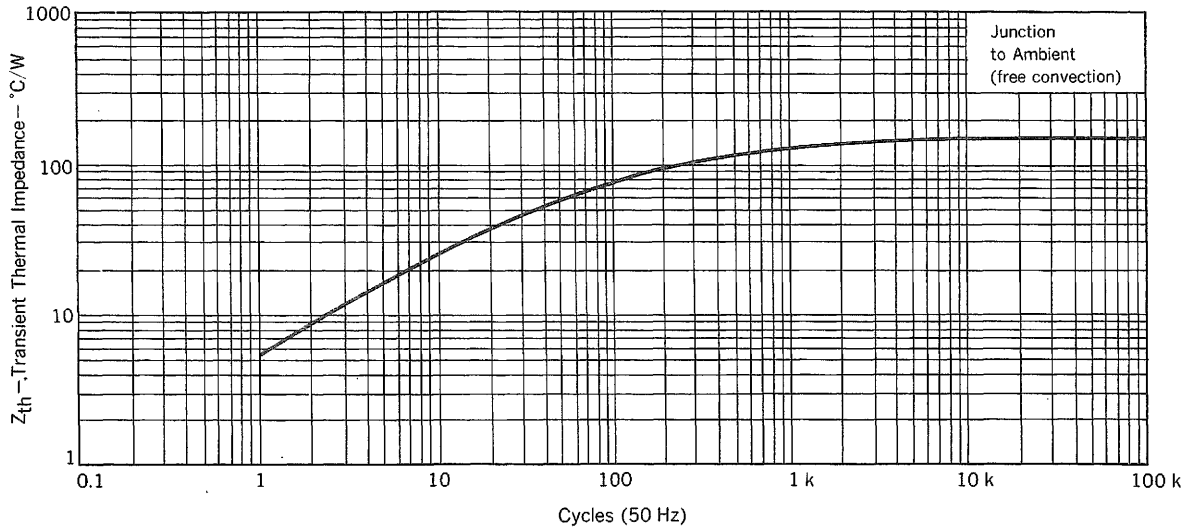


Fig. 13  $Z_{th}$  CHARACTERISTIC









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