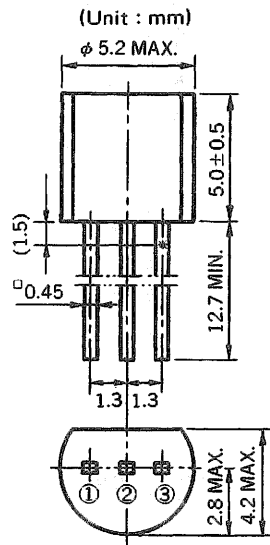


TRIAC

AC01DGM

1 A MOLD TRIAC

PACKAGE DIMENSIONS



Pin Connection

1. T₁ Terminal
2. Gate
3. T₂ 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 _{DRM}	400	V	
Non-repetitive Peak Off Voltage	V _{DSM}	500	V	
RMS On-State Current	I _{T(RMS)}	1 (T _c = 49 °C)	A	Fig. 11
Peak Surge On-State Current	I _{TSM}	9 (50 Hz), 10 (60 Hz)	A	Fig. 2
Fusing Current	i ² t	0.2 (1 ms ≤ t ≤ 10 ms)	A ² s	
Peak Gate Power Dissipation	P _{GM}	1 (f ≥ 50 Hz, Duty ≤ 10 %)	W	
Average Gate Power Dissipation	P _{G(AV)}	0.1	W	
Peak Gate Current	I _{GM}	±0.5 (f ≥ 50 Hz, Duty ≤ 10 %)	A	
Junction Temperature	T _j	125	°C	
Storage Temperature	T _{stg}	-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_{DRM}	$V_{\text{DM}} = V_{\text{DRM}}$	$T_j = 25^\circ\text{C}$	—	—	10	μA	
				$T_j = 125^\circ\text{C}$	—	—	100		
On-State Voltage		V_{TM}	$I_{\text{TM}} = 1.2\text{ A}$		—	—	1.5	V	Fig. 1
DC Gate Trigger Current	MODE I	I_{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_{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_{GD}	$T_j = 125^\circ\text{C}$, $V_{\text{DM}} = \frac{1}{2} V_{\text{DRM}}$		0.1	—	—	V	
DC Holding Current		I_{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/ μs	
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/ μs	
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

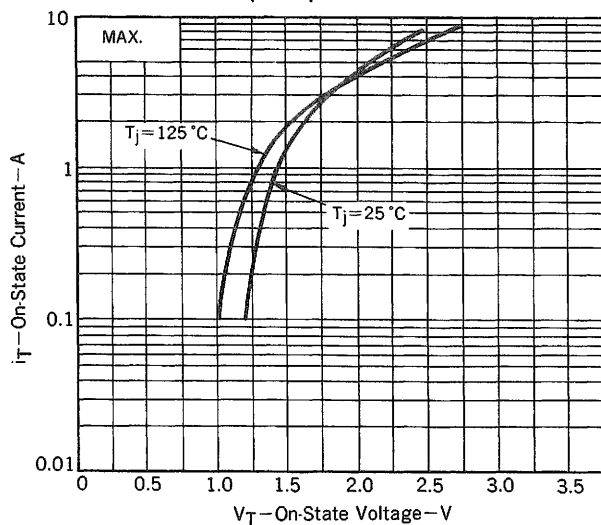
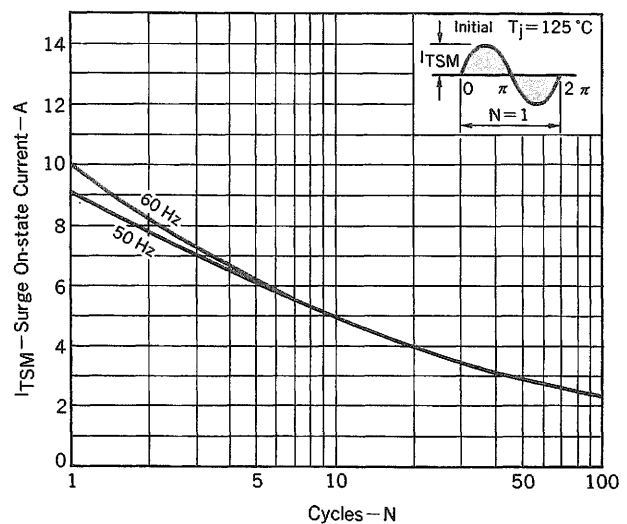
Fig. 1 $i_{\text{T}} - V_{\text{T}}$ CHARACTERISTICFig. 2 I_{TSM} RATING

Fig. 3 $V_G - I_G$ RATING

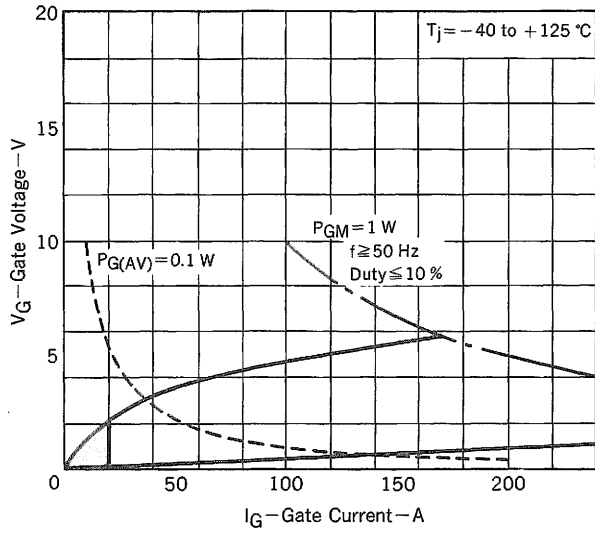


Fig. 4 GATE CHARACTERISTIC

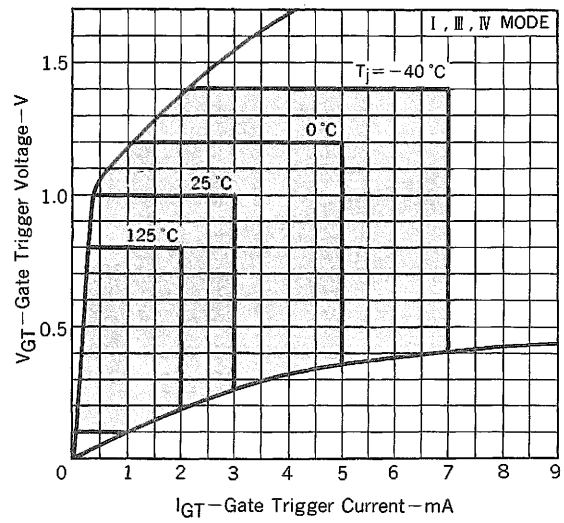


Fig. 5 $I_{GT} - T_a$ TYPICAL DISTRIBUTION

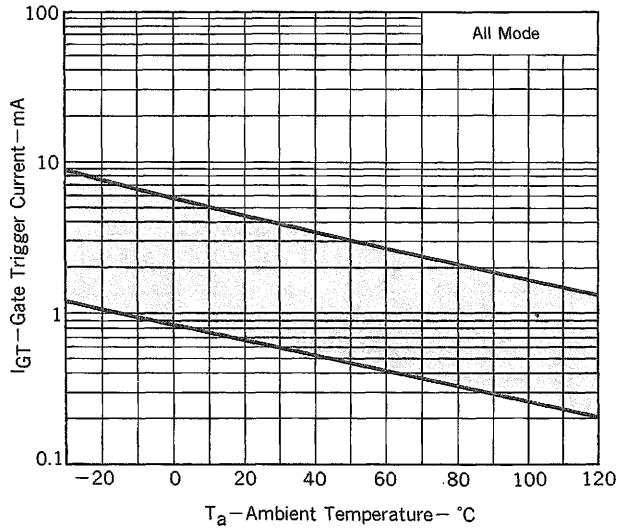


Fig. 6 $V_{GT} - T_a$ TYPICAL DISTRIBUTION

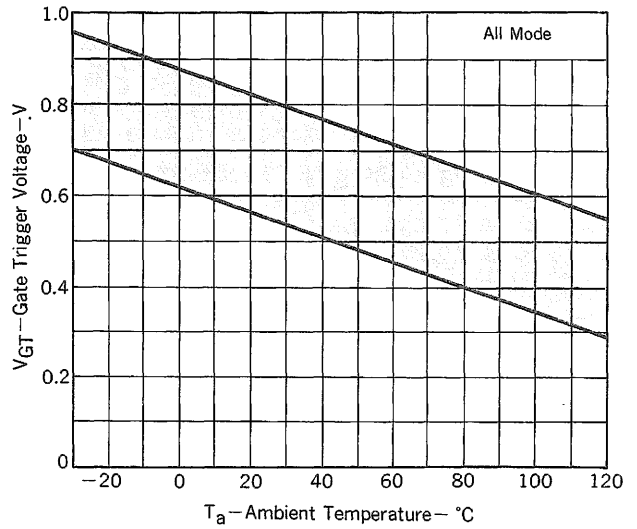


Fig. 7 $i_{GT} - \tau$ TYPICAL DISTRIBUTION

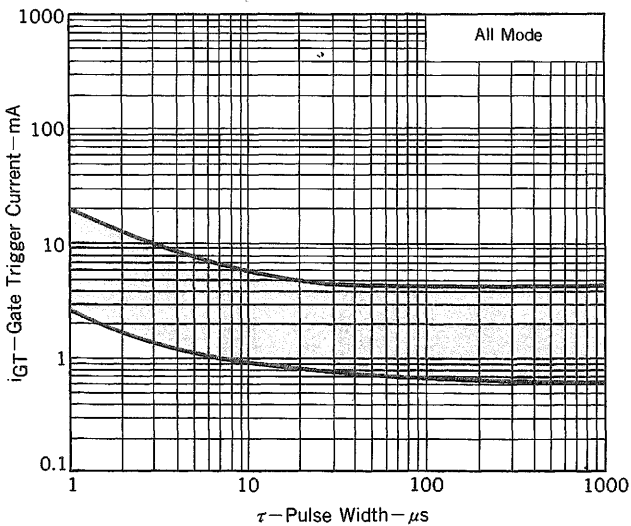


Fig. 8 $v_{GT} - \tau$ TYPICAL DISTRIBUTION

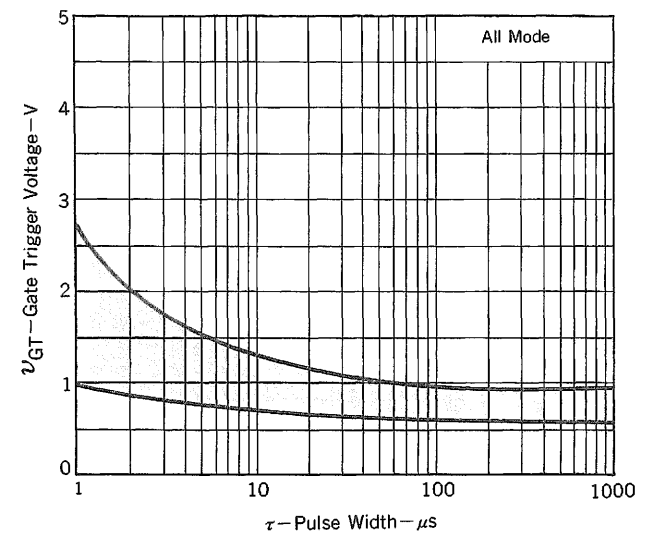
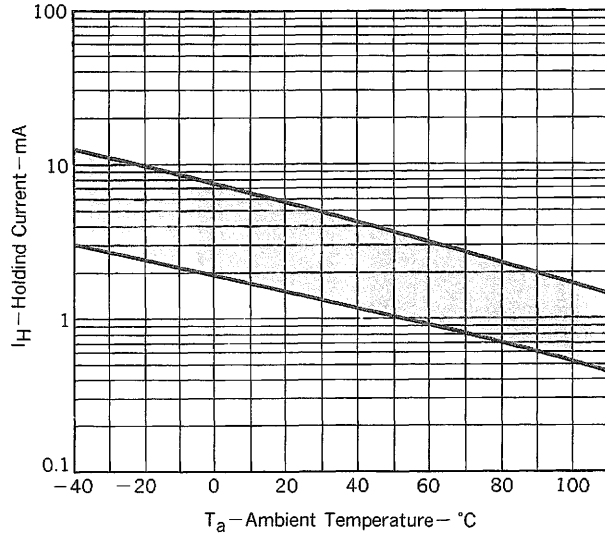
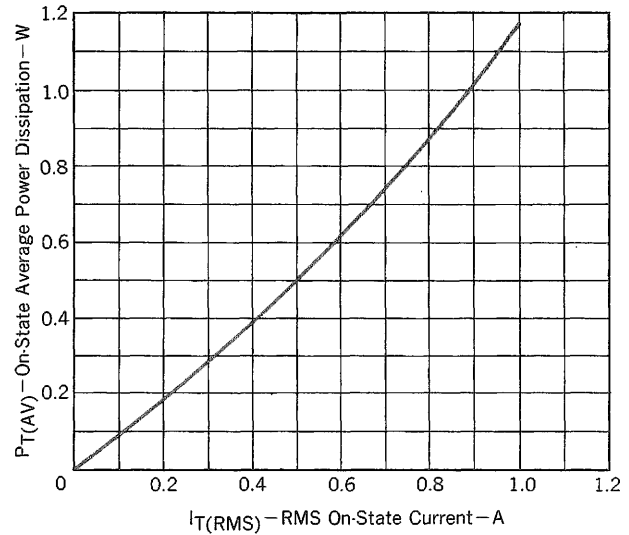
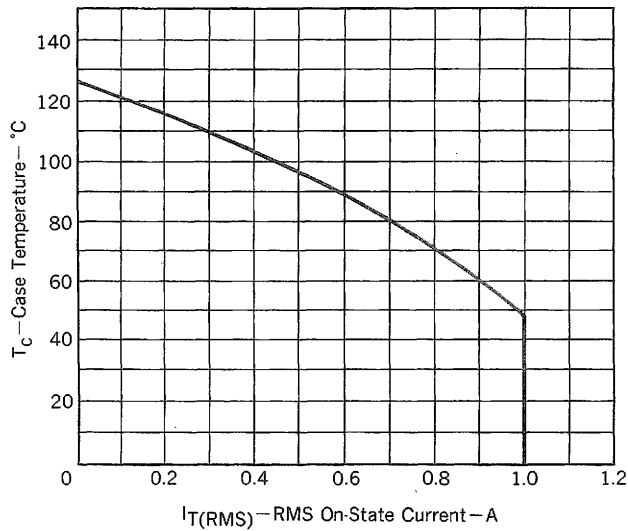
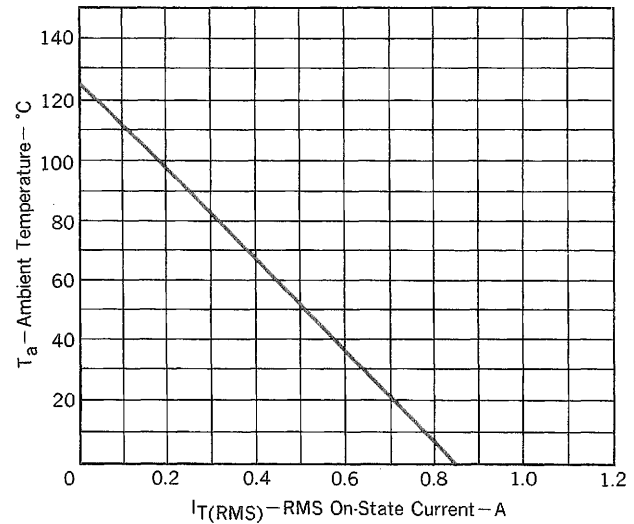


Fig. 9 $I_H - T_a$ TYPICAL DISTRIBUTIONFig. 10 $P_T(\text{AV}) - I_T(\text{RMS})$ CHARACTERISTICFig. 11 $T_c - I_T(\text{RMS})$ RATINGFig. 12 $T_a - I_T(\text{RMS})$ RATINGFig. 13 Z_{th} CHARACTERISTIC