

# TRIAC AC03BGM ~ AC03FGM

The AC03BGM ~ AC03FGM are all diffused mold type triac granted RMS On-state current 3 Amps.

The glassivation technique applied to pellets' surface makes this series quite highly reliable.

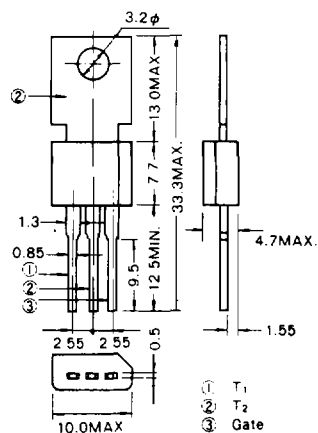
### FEATURES

- The pellet surface is quite stable physically and electrically by applying glassivation technique.
- Easy installation by its miniature size and thin electrode leads.
- Less holding current distribution provides free application design.
- Low cost because of mass-production.

### APPLICATIONS

Temperature Control, Light Dimmer Control, AC Motor Speed Control Electric Jar, Electric Lamp Starter, Various Solid State Switch.

**Outline Drawing** (Unit : mm)



### MAXIMUM RATINGS

Item	Symbol	AC03BGM	AC03DGM	AC03EGM	AC03FGM	Unit	Note
Repetitive Peak off Voltage	$V_{DRM}$	200	400	500	600	V	
Non-repetitive Peak off Voltage	$V_{DSM}$	300	500	600	700	V	
RMS On-State Current	$I_T$ (RMS)	3 ( $T_C = 77^\circ\text{C}$ , $\theta = 180^\circ\text{C}$ )				A	See Fig. 5
Surge On-State Current	$I_{TSM}$	30 (50Hz 1 cycle)				A	See Fig. 2
Fusing Current	$\int i_T^2 dt$	4.0				$\text{A}^2\text{S}$	
Peak Gate Power Dissipation	$P_{GM}$	3 ( $f \geq 50\text{Hz}$ , duty $\leq 10\%$ )				W	
Average Gate Power Dissipation	$P_G$ (AV)	0.3				W	
Peak Gate Current	$I_{GM}$	$\pm 0.5$ ( $f \geq 50\text{Hz}$ , duty $\leq 10\%$ )				A	
Junction Temperature	$T_J$	-40 ~ +110				$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	-40 ~ +125				$^\circ\text{C}$	

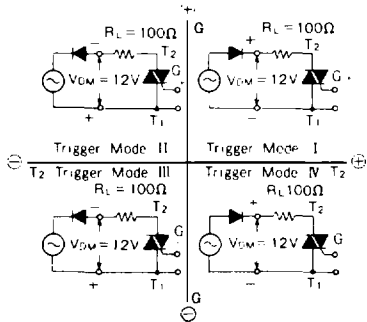
\*  $T_C$ : case temperature is measured at 1.5 mm from the neck of tablet

**ELECTRICAL CHARACTERISTICS (T<sub>j</sub> = 25°C)**

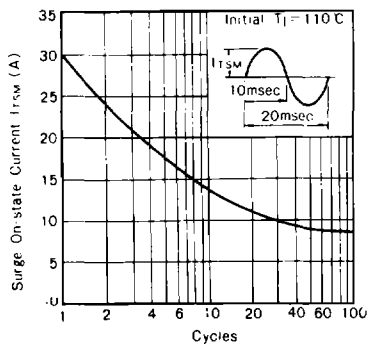
Item	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit	Note
Peak Off-State Current	I <sub>DRM</sub>	V <sub>DM</sub> = V <sub>DRM</sub> , T <sub>j</sub> = -40 ~ 110°C	-	-	1	mA	
On-State Voltage	V <sub>TM</sub>	I <sub>TM</sub> = 5A	-	-	1.8	V	See Fig. 1
Gate-trigger Current	Trigger Mode I	V <sub>DM</sub> = 12V R <sub>L</sub> = 100Ω	-	-	15	mA	See Fig. 3
	II		-	-	-		
	III		-	-	15		
	IV		-	-	15		
Gate-trigger Voltage	Trigger Mode I	V <sub>DM</sub> = 12V R <sub>L</sub> = 100Ω	-	-	2	V	See Fig. 3
	II		-	-	-		
	III		-	-	2		
	IV		-	-	2		
Gate Non-Trigger Voltage	V <sub>GD</sub>	T <sub>j</sub> = 110°C, V <sub>DM</sub> = ½V <sub>DRM</sub>	0.2	-	-	V	
Commutating dV/dt *	(dv/dt) C	T <sub>j</sub> = 110°C (di <sub>T</sub> /dt) C = -1.6A/m sec V <sub>DM</sub> = 200V (AC03BGM) 400V (AC03DGM ~ AC03FGM)	-	4	-	V/μs	R, for resistive loads L, for inductive loads
Holding Current	I <sub>H</sub>	V <sub>D</sub> = 24V	-	5	-	mA	
Thermal Resistance	R <sub>th(j-c)</sub>	Junction to Case	-	-	10	°C/W	See Fig. 7
	R <sub>th(j-l)</sub>	Junction to Lead	-	-	20	°C/W	
	R <sub>th(j-a)</sub>	Junction to Ambient	Standard without Tablet	-	-	75 150	°C/W

\* Add R or L to the end of type number according to applications.

Trigger Mode & Test circuit



**Fig. 2 I<sub>TSM</sub> Rating**



**Fig. 1 i<sub>T</sub> - V<sub>T</sub> Characteristic**

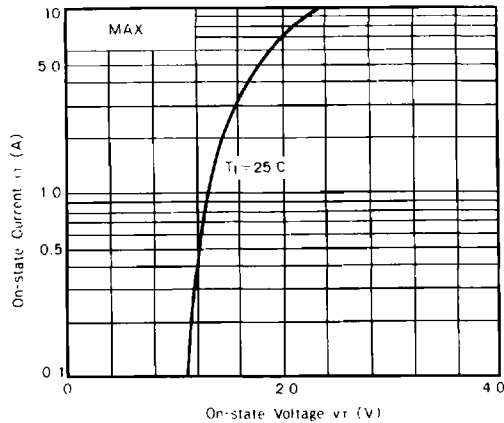


Fig. 3 V<sub>GT</sub> - I<sub>GT</sub> Characteristic

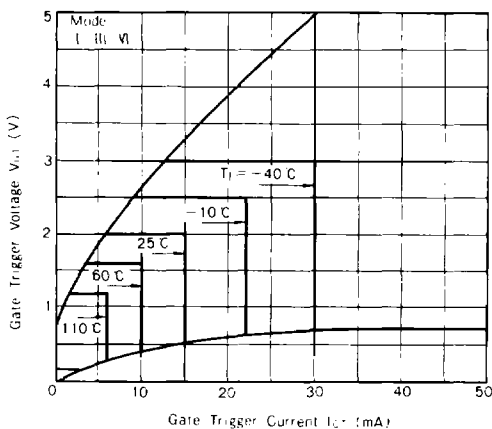


Fig. 4 P<sub>T(AV)</sub> - I<sub>T(RMS)</sub> Characteristic

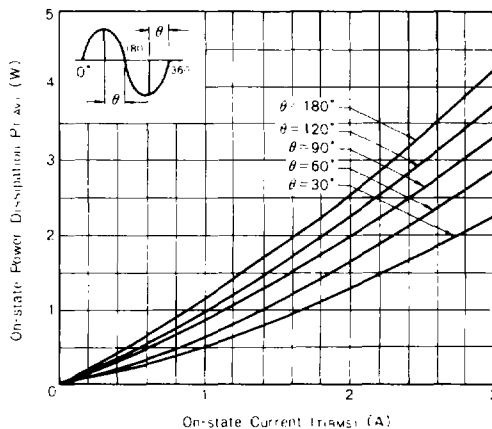


Fig. 5 T<sub>C</sub> - I<sub>T(RMS)</sub> Characteristic

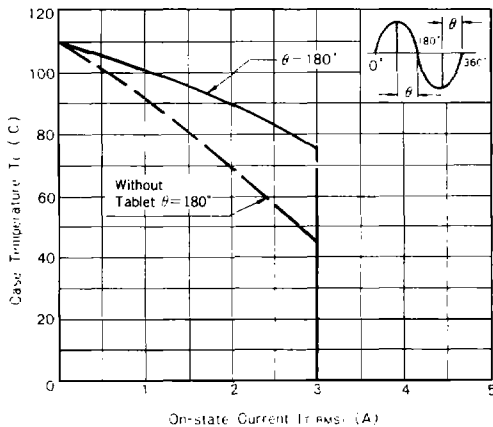


Fig. 6 T<sub>a</sub> - I<sub>T(RMS)</sub> Characteristic

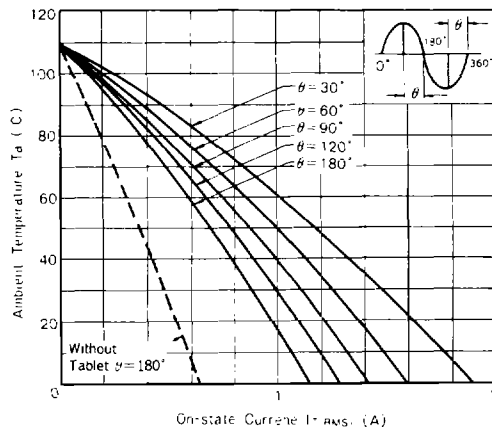
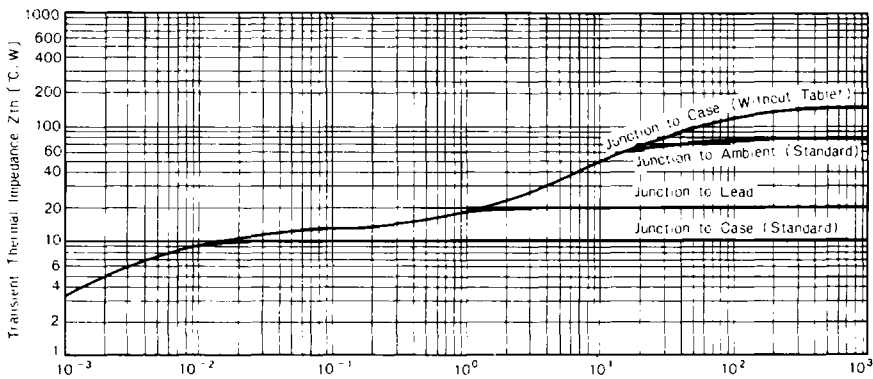


Fig. 7 Z<sub>th</sub> Characteristic



**NOTICE FOR INSTALLATION**

1. Electrode leads (especially heat sink tablet) are not granted to be bent because of wet-proof. However it is required inevitably that a mechanical stress should not be put on mold case. Fix tightly between the mold case and the area to be formed or bent.
2. Electrode leads are not granted to be bent more than twice over 90° and avoid the bending within 1.5mm from the neck of the mold case.
3. Special lead and heat tab formings as indicated below are available at an additional cost.

<b>Type AY</b>	<b>Type BY</b>	<b>Type CY</b>	<b>Type YA</b>	<b>Type YB</b>	<b>Type YC</b>																								
<table border="0" style="width: 100%;"> <tr> <td style="text-align: center; width: 50%;"><b>Type AA</b></td> <td style="text-align: center; width: 50%;"><b>Type CC</b></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;"></td> </tr> </table>			<b>Type AA</b>	<b>Type CC</b>			<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Measurement (mm)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">a</td> <td style="text-align: center;">9 ± 0.2</td> <td style="text-align: center;">e</td> <td style="text-align: center;">2.5 ± 0.2</td> </tr> <tr> <td style="text-align: center;">b</td> <td style="text-align: center;">3 ± 0.3</td> <td style="text-align: center;">f</td> <td style="text-align: center;">5.5 ± 0.2</td> </tr> <tr> <td style="text-align: center;">c</td> <td style="text-align: center;">1.0 ± 0.2</td> <td style="text-align: center;">g</td> <td style="text-align: center;">3.0 ± 0.3</td> </tr> <tr> <td style="text-align: center;">d</td> <td style="text-align: center;">1.5 ± 0.3</td> <td style="text-align: center;">h</td> <td style="text-align: center;">2.5 ± 0.5</td> </tr> </tbody> </table>			Measurement (mm)				a	9 ± 0.2	e	2.5 ± 0.2	b	3 ± 0.3	f	5.5 ± 0.2	c	1.0 ± 0.2	g	3.0 ± 0.3	d	1.5 ± 0.3	h	2.5 ± 0.5
<b>Type AA</b>	<b>Type CC</b>																												
Measurement (mm)																													
a	9 ± 0.2	e	2.5 ± 0.2																										
b	3 ± 0.3	f	5.5 ± 0.2																										
c	1.0 ± 0.2	g	3.0 ± 0.3																										
d	1.5 ± 0.3	h	2.5 ± 0.5																										

4. The surface of heat sink for thermal radiator is to be smooth without any foreign matter.
5. Suitable torque value is 4—5kg.cm.
6. Soldering
  - Recommended solder . . . PbSu (4-6)  
Melting point 180°C
  - Dimension from the neck of leads to dipping points . . . . . 4~6 mm
  - Soldering temperature and period
 

250°C . . . . .	less than .5sec.
230°C . . . . .	less than 10sec.