# TRIAC AC05DJM, AC05DJM-Z AC05FJM, AC05FJM-Z

# **5 A MOLD TRIAC**

## DESCRIPTION

NEC

The AC05<sup>r</sup> JM and AC05<sup>r</sup> JM-Z are all diffused mold type triac granted RMS On-state current 5 Amps, with rated voltages up to 400, 600 volts.

## FEATURES

- Small and Surface Mount Package
- 50 A Surge current
- Mold package

#### APPLICATIONS

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

# ABSOLUTE MAXIMUM RATINGS ( $T_A = 25$ °C)

CHARACTERISTICS	SYMBOL	AC05DJM AC05DJM-Z	AC05FJM AC05FJM-Z	UNIT	NOTE
Repetitive Peak Off Voltage	VDRM	400	600	V	
Non-repetitive Peak Off Voltage	V <sub>DSM</sub>	500	700	V	
RMS On-State Current	T(RMS)	5 (T <sub>c</sub> =	104 °C)	A	See Fig. 11
Peak Surge On-State Current	TSM	50 (50 Hz, N	on-repetitive)	A	See Fig. 2
Fusing Current	∫iT² dt	10 (1 ms $\leq$ t $\leq$ 10 ms)		A <sup>2</sup> s	
Peak Gate Power Dissipation	PGM	3 (f $\geq$ 50 Hz, Duty $\leq$ 10 %)		w	
Average Gate Power Dissipation	PG(AV)	0.3		w	
Peak Gate Current	IFGM	±1.5 (f ≧ 50 Hz	, Duty ≤ 10 %)	А	
Junction Temperature	Tj	-40 to	+125	°C	
Storage Temperature	T <sub>stg</sub>	-40 to	9 +150	°C	

CHARAC	TERISTIC	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNIT	NOTE
Peak Off-State Current IDRM		IDRM	V <sub>DM</sub> = V <sub>DRM</sub>		-	-	100	μA	
Peak Off-State Current		DRM	T <sub>j</sub> = 125 °C, V <sub>DM</sub> = V <sub>DRM</sub>		-		1	mA	
On-State Voltage		Vтм	1 <sub>TM</sub> = 5 A				1.8	V	See Fig. 1
Gate-trigger Current	Trigger Mode I	IGT	V <sub>DM</sub> = 12 V, R <sub>L</sub> = 30 Ω	T <sub>2</sub> +, G+	_	-	10	mA	See Fig. 4
	11			T2-, G+	-	-	-		
	111			т <sub>2</sub> —, G—	-	-	10		
	IV			T2+, G	-	-	10		
Gate-trigger Voltage	Trigger Mode I	VGT	V <sub>DM</sub> = 12 V, R <sub>L</sub> = 30 Ω	T <sub>2</sub> +, G+	_	_	1.5	V	See Fig. 4
	11			T <sub>2</sub> -, G+		_	_		
	Ш			T2-, G-	-	_	1.5		
	IV			T2+,G-		-	1.5		
Gate Non-Trigger Voltage		V <sub>GD</sub>	$T_{j} = 125 °C, V_{DM} = \frac{1}{2} V_{DRM}$		0.2		_	V	
Holding Current		IН	V <sub>D</sub> = 24 V, I <sub>TM</sub> = 5 A		_	10	-	mA	
Critical Rate-of Rise of Off-State Voltage $dV/dt$ $T_j = 125 °C, V_{DM} = \frac{2}{3}$		T <sub>j</sub> = 125 °C, V <sub>DM</sub> = <u>2</u> V <sub>DI</sub>	RM	_	100	-	V/µs		
Commutating dV/dt		(dV/dt)C	$T_j = 125 °C$ (di <sub>T</sub> /dt)C = -2.7 A/ms V <sub>DM</sub> = 400 V		5	_		V/µs	
Thermal Resistance		R <sub>th</sub> (j-c)	Junction to Case		-		3.0	°C/W	See Fig. 13
Thermal Resistance		R <sub>th(j-a)</sub>	Junction to Ambient*		-		62.5	°C/W	AC05DJM-2 AC05FJM-2

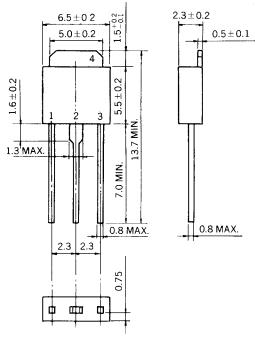
# ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C)

\* Mounted on ceramic substrate of 7.5 cm<sup>2</sup>  $\times$  0.7 mm.

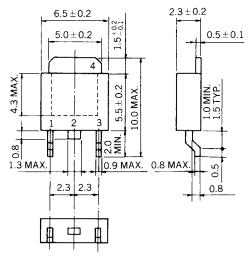
# PACKAGE DIMENSIONS

(Unit : mm)

### AC05DJM, AC05FJM



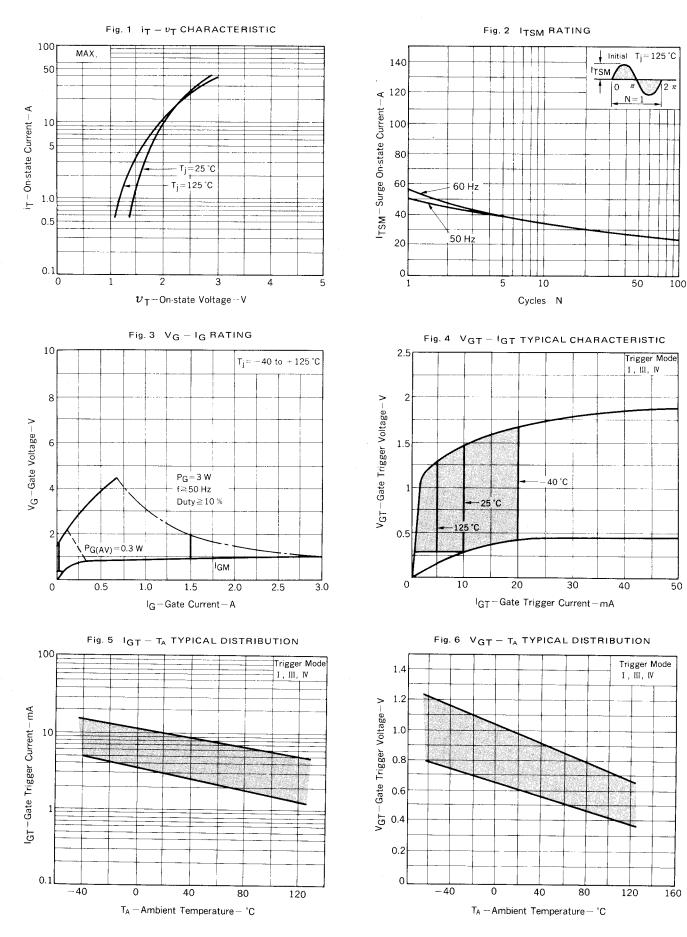
### AC05DJM-Z, AC05FJM-Z

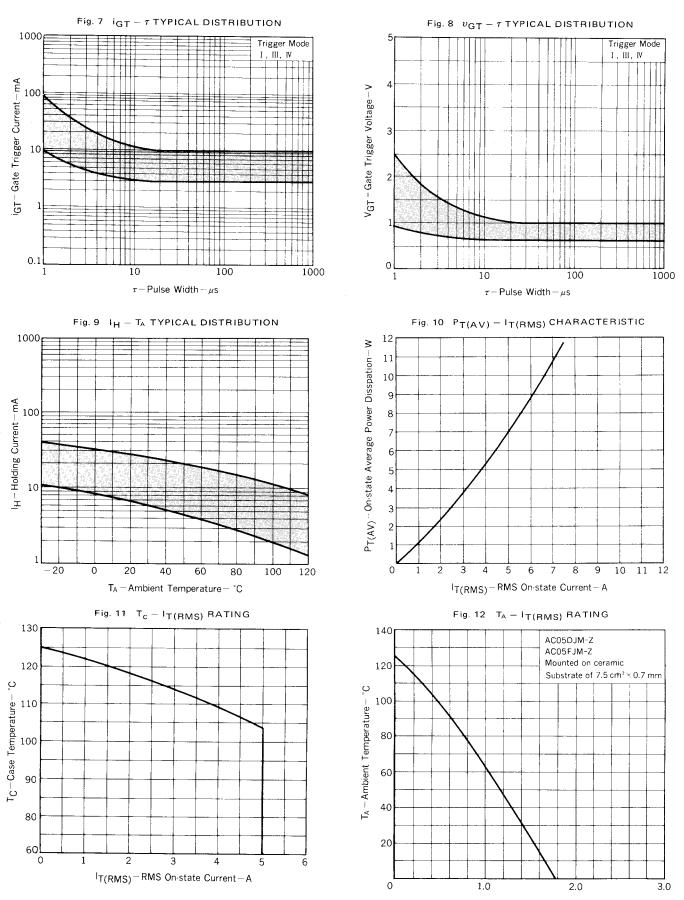


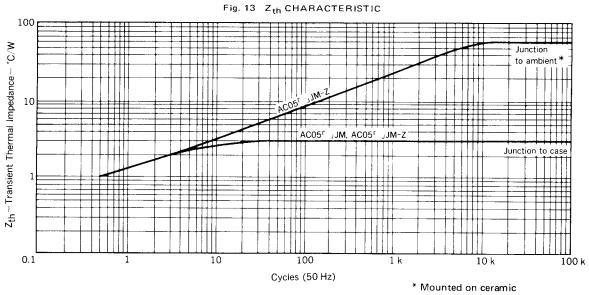
#### **Pin Connection**

- 1. T<sub>1</sub> 2. T<sub>2</sub> 3. Gate
- 4. Fin (T<sub>2</sub>)

# CHARACTERISTICS ( $T_A = 25$ °C)







substrate of 7.5 cm<sup>2</sup> x 0.7 mm

## REFERENCE

APPLICATION NOTE NAME	No.		
GUIDE TO QUALITY ASSURANCE FOR SEMICONDUCTOR DEVICES	MEI-1202		
SEMICONDUCTOR DEVICE MOUNTING TECHNOLOGY MANUAL	C10535E		

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Anti-radioactive design is not implemented in this product.

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