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## NTE56039 TRIAC, 4A Sensitive Gate

**Description:**

The NTE56039 is a glass passivated TRIAC in a plastic SOT82 type package designed for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

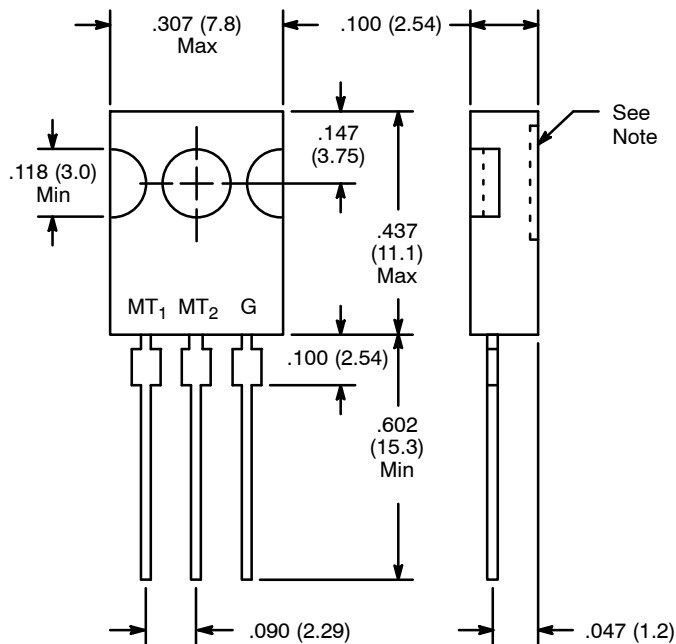
**Absolute Maximum Ratings:**

Repetitive Peak Off-State Voltage (Note 1), $V_{DRM}$	600V
RMS On-State Current (Full Sine Wave, $T_{MB} \leq 107^{\circ}C$ ), $I_T(RMS)$	4A
Non-Repetitive Peak On-State Current (Full Sine Wave, $T_J = +25^{\circ}C$ prior to Surge), $I_{TSM}$	
t = 20ms	25A
t = 16.7ms	27A
$I^2t$ for Fusing (t = 10ms), $I^2t$	3.1A <sup>2</sup> sec
Repetitive Rate-of-Rise of On-State Current after Triggering, $dI_T/dt$	
( $I_{TM} = 6A$ , $I_G = 0.2A$ , $dI_G/dt = 0.2A/\mu s$ )	
$MT_2 (+), G (+)$	50A/ $\mu s$
$MT_2 (+), G (-)$	50A/ $\mu s$
$MT_2 (-), G (-)$	50A/ $\mu s$
$MT_2 (-), G (+)$	10A/ $\mu s$
Peak Gate Current, $I_{GM}$	2A
Peak Gate Voltage, $V_{GM}$	5V
Peak Gate Power, $P_{GM}$	5W
Average Gate Power (Over Any 20ms Period), $P_{G(AV)}$	500mW
Operating Junction Temperature, $T_J$	+125°C
Storage Temperature Range, $T_{stg}$	-40° to +150°C
Thermal Resistance, Junction-to-Mounting Base, $R_{thJMB}$	
Full Cycle	3.0K/W
Half Cycle	3.7K/W
Typical Thermal Resistance, Junction-to-Ambient, $R_{thJA}$	100K/W

Note 1. Although not recommended, off-state voltages up to 800V may be applied without damage, but the TRIAC may switch to the On-State. The rate-of-rise of current should not exceed 3A/ $\mu s$ .

**Electrical Characteristics:** ( $T_J = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Gate Trigger Current MT <sub>2</sub> (+), G (+)	I <sub>GT</sub>	V <sub>D</sub> = 12V, I <sub>T</sub> = 0.1A	-	2.5	10	mA
MT <sub>2</sub> (+), G (-)			-	4.0	10	mA
MT <sub>2</sub> (-), G (-)			-	5.0	10	mA
MT <sub>2</sub> (-), G (+)			-	11.0	25	mA
Latching Current MT <sub>2</sub> (+), G (+)	I <sub>L</sub>	V <sub>D</sub> = 12V, I <sub>T</sub> = 0.1A	-	3.0	15	mA
MT <sub>2</sub> (+), G (-)			-	10	20	mA
MT <sub>2</sub> (-), G (-)			-	2.5	15	mA
MT <sub>2</sub> (-), G (+)			-	4.0	20	mA
Holding Current	I <sub>H</sub>	V <sub>D</sub> = 12V, I <sub>T</sub> = 0.1A	-	2.2	15	mA
On-State Voltage	V <sub>T</sub>	I <sub>T</sub> = 5A	-	1.4	1.7	V
Gate Trigger Voltage	V <sub>GT</sub>	V <sub>D</sub> = 12V, I <sub>T</sub> = 0.1A	-	0.7	1.5	V
		V <sub>D</sub> = 400V, I <sub>T</sub> = 0.1A, T <sub>J</sub> = +125°C	0.25	0.4	-	V
Off-State Leakage Current	I <sub>D</sub>	V <sub>D</sub> = 600V, T <sub>J</sub> = +125°C	-	0.1	0.5	mA
<b>Dynamic Characteristics</b>						
Critical Rate-of-Rise of Off-State Voltage	dV <sub>D</sub> /dt	V <sub>DM</sub> = 402V, T <sub>J</sub> = +125°C, Exponential Waveform, Gate Open	-	50	-	V/μs
Gate Controlled Turn-On Time	t <sub>gt</sub>	I <sub>TM</sub> = 6A, V <sub>D</sub> = 600V, I <sub>G</sub> = 0.1A, di <sub>G</sub> /dt = 5A/μs	-	2	-	μs



**Note:** Center Pin connected to metal part of mounting surface.

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