



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## NTE5646 TRIAC – Internally Triggered

**Description:**

The NTE5646 is a TRIAC that includes a diac trigger mounted inside the same package. This device saves the user the added expense of buying a discrete diac and the assembling associated with a gated triac. This device includes a dial trigger mounted inside the same isolated TO220 type package.

**Absolute Maximum Ratings:**

Repetitive Peak Off–State Voltage (Gate Open,  $T_J = +110^{\circ}\text{C}$ , Note 1),  $V_{\text{DRM}}$  ..... 600V  
 RMS On–State Current ( $T_C = +80^{\circ}\text{C}$ , Conduction Angle of  $360^{\circ}$ ),  $I_{\text{T(RMS)}}$  ..... 10A  
 Peak Surge (Non–Repetitive) On–State Current (One Cycle, at 50Hz or 60Hz),  $I_{\text{TSM}}$  ..... 100A  
 Peak Gate–Trigger Current (3sec Max),  $I_{\text{GTM}}$  ..... 1.5A  
 Operating Junction Temperature Range,  $T_{\text{opr}}$  .....  $-40^{\circ}$  to  $+110^{\circ}\text{C}$   
 Storage Temperature Range,  $T_{\text{stg}}$  .....  $-40^{\circ}$  to  $+150^{\circ}\text{C}$   
 Typical Thermal Resistance, Junction to Case,  $R_{\theta\text{JC}}$  .....  $2.8^{\circ}\text{C/W}$

Note 1. All values apply in either direction.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off–State Current	$I_{\text{DRM}}$	Gate Open, $T_V = +110^{\circ}\text{C}$ , $V_{\text{DRM}} = 600\text{V}$ , Note 1	–	0.5	–	mA
Maximum On–State Voltage	$V_{\text{TM}}$	$I_T = 10\text{A}$ , Note 1	–	–	1.5	V
DC Holding Current	$I_{\text{HOLD}}$	Gate Open, Note 1	–	–	60	mA
Critical Rate–of–Rise of Off–State Voltage	Critical dv/dt	$V_D = 600\text{V}$ , Gate Open, $T_C = +110\text{C}$ , Note 1	–	60	–	V/ $\mu\text{s}$
Critical Rate–of–Rise of Commutation Voltage	Commutating dv/dt	$T_C = +80^{\circ}\text{C}$ , Gate Unenergized, $V_D = 600\text{V}$ , $I_T = 10\text{A}$ , Note 1	–	4	–	V/ $\mu\text{s}$
Gate–Controlled Turn–On Time	$T_{\text{gt}}$	$V_D = 600\text{V}$ , $t_R = 0.1\mu\text{s}$ , $I_T = 10\text{A}$ (Peak)	–	3	–	$\mu\text{s}$
<b>Trigger DIAC Specifications</b>						
Breakover Voltage Symmetry	$\Delta V_{(\text{BO})}$		–	3	–	V
Breakover Voltage (Forward & Reverse)	$V_{\text{BO}}$		30	–	45	V
Dynamic Breakback Voltage (Forward & Reverse)	$[\Delta V \pm]$		–	5	–	V
Peak Breakover Current	$I_{\text{BO}}$		–	200	–	$\mu\text{A}$
Trigger Firing Capacitance	C		–	0.1	–	$\mu\text{F}$

Note 1. All values apply in either direction.

