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## NTE5645 TRIAC – 10A Isolated Tab

**Description:**

The NTE5645 is an 10 Amp TRIAC in a TO220 type package designed to be driven directly with IC and MOS devices and features proprietary, void-free glass passivated chips.

This device is a bi-directional triode thyristor and may be switched from off-state to conduction for either polarity of applied voltage with positive or negative gate trigger current. The NTE5645 is designed for control applications in lighting, heating, cooling and static switching relays.

**Absolute Maximum Ratings:**

Repetitive Peak Off-State Voltage (Gate Open,  $T_J = +100^{\circ}\text{C}$ ),  $V_{\text{DRM}}$  ..... 600V  
 RMS On-State Current ( $T_C = +75^{\circ}\text{C}$ , Conduction Angle of  $180^{\circ}\text{C}$ ),  $I_{\text{T(RMS)}}$  ..... 10A  
 Peak Surge (Non-Repetitive) On-State Current (One Cycle, 50Hz or 60Hz),  $I_{\text{TSM}}$  ..... 100A  
 Peak Gate-Trigger Current ( $3\mu\text{s}$  Max),  $I_{\text{GTM}}$  ..... 4A  
 Peak Gate-Power Dissipation ( $I_{\text{GT}} \leq I_{\text{GTM}}$  for  $3\mu\text{s}$  Max),  $P_{\text{GM}}$  ..... 40W  
 Average Gate-Power Dissipation,  $P_{\text{G(AV)}}$  ..... 200mW  
 Operating Temperature Range,  $T_J$  .....  $-40^{\circ}$  to  $+150^{\circ}\text{C}$   
 Storage Temperature Range,  $T_{\text{stg}}$  .....  $-40^{\circ}$  to  $+100^{\circ}\text{C}$   
 Typical Thermal Resistance, Junction-to-Case,  $R_{\text{thJC}}$  .....  $2.5^{\circ}\text{C/W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	$I_{\text{DRM}}$	$V_{\text{DRM}} = 600\text{V}$ , Gate Open, $T_J = +100^{\circ}\text{C}$	-	-	2	mA
Max. On-State Voltage	$V_{\text{TM}}$	$I_{\text{T}} = 14\text{A}$	-	-	2.2	V
DC Holding Current	$I_{\text{H}}$	Gate Open	-	-	50	mA
Critical Rate-of-Rise of Off-State Voltage	Critical dv/dt	$V_{\text{D}} = 600\text{V}$ , Gate Open, $T_C = +100^{\circ}\text{C}$	-	5	-	V/ $\mu\text{s}$
DC Gate Trigger Current $T_2$ (+) Gate (+), $T_2$ (-) Gate (-) $T_2$ (+) Gate (-), $T_2$ (-) Gate (+)	$I_{\text{GT}}$	$V_{\text{D}} = 12\text{V}$ , $R_{\text{L}} = 30\Omega$	-	-	50 80	mA mA

**Electrical Characteristics (Cont'd):** ( $T_C = +25^\circ\text{C}$ , Maximum Ratings unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Gate Trigger Voltage	$V_{GT}$	$V_D = 12\text{V}$ , $R_L = 30\Omega$	-	-	2.5	V
Gate-Controlled Turn-On Time	$t_{gt}$	$V_D = 600\text{V}$ , $I_{GT} = 80\text{mA}$ , $t_r = 0.1\mu\text{s}$ , $i_T = 10\text{A (Peak)}$	-	2.5	-	$\mu\text{s}$

