

## NTE5408 thru NTE5410 Silicon Controlled Rectifier (SCR) 3 Amp Sensitive Gate

### **Description:**

The NTE5408 through NTE5410 sensitive gate SCRs are designed to be driven directly with IC and MOS devices. These SCRs feature proprietary, void-free glass-passivated chips and are hermetically sealed in TO5 type packages. These 4A devices are available in voltages up to 600V and with a gate current of 200 $\mu$ A.

These NTE SCRs are reverse-blocking triode thyristors and may be switched from off-state to conduction by a current pulse applied to the gate terminal. The NTE5408 through NTE5410 are designed for control applications in lighting, heating, cooling, and static switching relays.

### **Absolute Maximum Ratings:**

Repetitive Peak Reverse Voltage ( $T_C = +100^\circ\text{C}$ ), $V_{RRM}$	
NTE5408 .....	200V
NTE5409 .....	400V
NTE5410 .....	600V
Repetitive Peak Off-State Voltage ( $T_C = +100^\circ\text{C}$ ), $V_{DRXM}$	
NTE5408 .....	200V
NTE5409 .....	400V
NTE5410 .....	600V
RMS On-State Current ( $T_C = +75^\circ\text{C}$ , Conduction Angle of $180^\circ$ ), $I_{T(RMS)}$ .....	
4A	
Peak Surge (Non-Repetitive) On-State Current (One Cycle at 50 or 60Hz), $I_{TSM}$ .....	
40A	
Peak Gate-Trigger Current ( $3\mu\text{s}$ Max), $I_{GTM}$ .....	
1A	
Peak Gate-Power Dissipation ( $I_{GT} \leq I_{GTM}$ for $3\mu\text{s}$ Max), $P_{GM}$ .....	
20W	
Average Gate Power Dissipation, $P_{G(AV)}$ .....	
200mW	
Operating Temperature Range, $T_{opr}$ .....	
$-40^\circ$ to $+100^\circ\text{C}$	
Storage Temperature Range, $T_{stg}$ .....	
$-40^\circ$ to $+150^\circ\text{C}$	
Typical Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	
$+5^\circ\text{C/W}$	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	$I_{RRM}$	$V_{RRM} = \text{Max}, V_{DRXM} = \text{Max}, T_C = +100^\circ\text{C}, R_{GK} = 1\text{k}\Omega$	-	-	0.75	mA
	$I_{DRXM}$		-	-	0.75	mA
Maximum On-State Voltage	$V_{TM}$	$I_T = 10\text{A (Peak)}$	-	-	2.2	V
DC Holding Current	$I_{HOLD}$	$R_{GK} = 1000\Omega$	-	-	5	mA
DC Gate-Trigger Current	$I_{GT}$	$V_D = 6\text{VDC}, R_L = 100\Omega$	-	-	200	$\mu\text{A}$
DC Gate-Trigger Voltage	$V_{GT}$	$V_D = 6\text{VDC}, R_L = 100\Omega$	-	-	0.8	V
Gate Controlled Turn-On Time	$t_{gt}$	$I_G \times 3_{GT}$	-	1.2	-	$\mu\text{s}$
$I^2t$ for Fusing Reference	$I^2t$	For SCR Protection	-	-	2.6	$\text{A}^2\text{sec}$
Critical Rate of Applied Forward Voltage	$dv/dt$ (critical)	$R_{GK} = 1\text{k}\Omega, T_C = +100^\circ\text{C}$	-	5	-	$\text{V}/\mu\text{s}$

