

# NTE5452 thru NTE5458 Silicon Controlled Rectifier (SCR) 4 Amp Sensitive Gate

**Description:**

The NTE5452 through NTE5458 are sensitive gate 4 Amp SCR's in a TO202 type package designed to be driven directly with IC and MOS devices. These reverse-blocking triode thyristors may be switched from off-state to conduction by a current pulse applied to the gate terminal. They are designed for control applications in lighting, heating, cooling, and static switching relays.

**Absolute Maximum Ratings:**

Repetitive Peak Reverse Voltage ( $T_C = +100^\circ\text{C}$ ), $V_{RRM}$	
NTE5452	30V
NTE5453	50V
NTE5454	100V
NTE5455	200V
NTE5456	300V
NTE5457	400V
NTE5458	600V
Repetitive Peak Off-State Voltage ( $T_C = +100^\circ\text{C}$ ), $V_{DRXM}$	
NTE5452	30V
NTE5453	50V
NTE5454	100V
NTE5455	200V
NTE5456	300V
NTE5457	400V
NTE5458	600V
RMS On-State Current, $I_{T(RMS)}$	
	4A
Peak Surge (Non-Repetitive) On-State Current (One Cycle at 50 or 60Hz), $I_{TSM}$	
	20A
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° to +100°C
Storage Temperature Range, $T_{stg}$	
	-40° to +150°C
Typical Thermal Resistance, Junction-to-Case, $R_{thJC}$	
	+5°C/W

**Electrical Characteristics:**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	$I_{RRM}$	$V_{RRM} = \text{Max}, V_{DRXM} = \text{Max}, T_C = +100^\circ\text{C}, R_{G-K} = 1\text{k}\Omega$	-	-	100	$\mu\text{A}$
	$I_{DRXM}$		-	-	100	$\mu\text{A}$
Maximum On-State Voltage	$V_{TM}$	$T_C = +25^\circ\text{C}, I_T = 4\text{A (Peak)}$	-	-	2.2	V
DC Holding Current	$I_{HOLD}$	$T_C = +25^\circ\text{C}$	-	-	3	mA
DC Gate-Trigger Current	$I_{GT}$	$V_D = 6\text{VDC}, R_L = 100\Omega, T_C = +25^\circ\text{C}$	-	50	200	$\mu\text{A}$
DC Gate-Trigger Voltage	$V_{GT}$	$V_D = 6\text{VDC}, R_L = 100\Omega, T_C = +25^\circ\text{C}$	-	-	0.8	V
Total Gate Controlled Turn-On Time	$t_{gt}$	$T_C = +25^\circ\text{C}$	-	1.2	-	$\mu\text{s}$
$I^2t$ for Fusing Reference	$I^2t$	$> 1.5\text{msoc}$	-	-	0.5	$\text{A}^2\text{sec}$
Critical rate of Applied Forward Voltage	$dv/dt$ (critical)	$R_{G-K} = 1\text{k}\Omega, T_C = +100^\circ\text{C}$	-	8	-	$\text{V}/\mu\text{s}$

