

NTE5400 thru NTE5406

Silicon Controlled Rectifier (SCR)

0.8 Amp Sensitive Gate

Description:

The NTE5400 through NTE5406 sensitive gate SCR semiconductors are halfwave unidirectional gate controlled rectifiers (SCR–thyristor) rated at 0.8 amps RMS maximum on–state current, with rated voltages up to 600 volts.

These devices feature 200 microamp gate sensitivity, 5 millamp holding current and 8 amp surge capabilities.

Available in a TO–92 plastic package, these devices feature excellent environmental stress and temperature cycling characteristics and, coupled with their small size and electrical performance, lend themselves to various types of control functions encountered with sensors, motors, lamps, relays, counters, triggers, etc.

Absolute Maximum Ratings:

Repetitive Peak Reverse Voltage ($T_C = +100^\circ\text{C}$), V_{RRM}

NTE5400	30V
NTE5401	60V
NTE5402	100V
NTE5403	150V
NTE5404	200V
NTE5405	400V
NTE5406	600V

Repetitive Peak Off–State Voltage ($T_C = +100^\circ\text{C}$), V_{DRXM}

NTE5400	30V
NTE5401	60V
NTE5402	100V
NTE5403	150V
NTE5404	200V
NTE5405	400V
NTE5406	600V

RMS On–State Current, $I_{T(RMS)}$ 0.8A

Peak Surge (Non–Repetitive) On–State Current (One Cycle at 50 or 60Hz), I_{TSM} 8A

Peak Gate–Trigger Current (3 μ s Max), I_{GTM} 500mA

Peak Gate–Power Dissipation ($I_{GT} \leq I_{GTM}$ for 3 μ s Max), P_{GM} 20W

Average Gate Power Dissipation, $P_{G(AV)}$ 200mW

Operating Temperature Range, T_{opr} -40° to $+100^\circ\text{C}$

Storage Temperature Range, T_{stg} -40° to $+150^\circ\text{C}$

Typical Thermal Resistance, Junction–to–Case, R_{thJC} $+5^\circ\text{C/W}$

Typical Thermal Resistance, Junction–to–Ambient, R_{thJA} $+200^\circ\text{C/W}$

Electrical Characteristics:

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	I_{RRM}	$V_{RRM} = \text{Max}, V_{DRXM} = \text{Max},$ $T_C = +100^{\circ}\text{C}, R_{G-K} = 1\text{k}\Omega$	—	—	50	μA
	I_{DRXM}		—	—	50	μA
Maximum On-State Voltage	V_{TM}	$T_C = +25^{\circ}\text{C}, I_T = 1.2\text{A (Peak)}$	—	—	1.7	V
DC Holding Current	I_{HOLD}	$T_C = +25^{\circ}\text{C}$	—	—	5	mA
DC Gate-Trigger Current	I_{GT}	$V_D = 6\text{VDC}, R_L = 100\Omega, T_C = +25^{\circ}\text{C}$	—	50	200	μA
DC Gate-Trigger Voltage	V_{GT}	$V_D = 6\text{VDC}, R_L = 100\Omega, T_C = +25^{\circ}\text{C}$	—	—	0.8	V
I^2t for Fusing Reference	I^2t	$> 1.5\text{msoc}$	—	—	0.15	A^2sec
Critical Rate of Applied Forward Voltage	dv/dt (critical)	$T_C = +100^{\circ}\text{C}$	—	5	—	$\text{V}/\mu\text{s}$

