

NTE5461 thru NTE5468 Silicon Controlled Rectifier (SCR) 10 Amp, TO220

Description:

The NTE5461 through NTE5468 series silicon controlled rectifiers are designed primarily for half-wave AC control applications such as motor controls, heating controls, and power supplies; or wherever half-wave silicon gate-controlled, solid-state devices are needed. These devices are supplied in a TO220 type package.

Features:

- Glass Passivated Junctions and Center Gate Fire for Greater Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal Resistance, High Heat Dissipation, and Durability
- Blocking Voltage to 800 Volts

Absolute Maximum Ratings:

Peak Repetitive Reverse Voltage; Peak Repetitive Off-State Voltage (Note 1), V_{RRM} , V_{DRM}

NTE5461	50V
NTE5462	100V
NTE5463	200V
NTE5465	400V
NTE5466	600V
NTE5468	800V

Non-Repetitive Peak Reverse Voltage; Non-Repetitive Off-State Voltage, V_{RSM} , V_{DSM}

NTE5461	75V
NTE5462	125V
NTE5463	250V
NTE5465	500V
NTE5466	700V
NTE5468	900V

RMS Forward Current (All Conducting Angles, $T_C = +75^\circ\text{C}$), $I_{T(RMS)}$ 10A

Peak Forward Surge Current (1 Cycle, Sine Wave, 60Hz, $T_C = +80^\circ\text{C}$), I_{TSM} 100A

Circuit Fusing Considerations ($T_J = -65^\circ$ to $+100^\circ\text{C}$, $t = 1$ to 8.3ms), I^2t 40A²s

Forward Peak gate Power ($t \leq 10\mu\text{s}$), P_{GM} 16W

Forward Average Gate Power, $P_{G(AV)}$ 500mW

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

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

Thermal Resistance, Junction-to-Case, R_{thJC} 2°C/W

Note 1. V_{DRM} and V_{RRM} for all types can be applied on a continuous DC basis without incurring damage. Ratings apply for zero or negative gate voltage. Devices shall not have a positive bias applied to the gate concurrently with a negative potential on the anode.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current	$I_{\text{DRM}}, I_{\text{RRM}}$	Rated V_{DRM} or V_{RRM}	$T_C = +25^\circ\text{C}$	–	–	10 μA
			$T_C = +100^\circ\text{C}$	–	–	2 mA
Instantaneous On-State Voltage	V_T	$I_{\text{TM}} = 30\text{A}_{(\text{Peak})}$, Pulse Width $\leq 1\text{ms}$, Duty Cycle $\leq 2\%$	–	1.7	2.0	V
Gate Trigger Current (Continuous DC)	I_{GT}	$V_D = 12\text{V}$, $R_L = 30\Omega$	–	8	15	mA
Gate Trigger Voltage (Continuous DC)	V_{GT}	$V_D = 12\text{V}$, $R_L = 30\Omega$	–	0.9	1.5	V
Holding Current	I_H	Gate Open, $V_D = 12\text{V}$, $I_T = 150\text{mA}$	–	10	20	mA
Gate Controlled Turn-On Time	t_{gt}	$V_D = \text{Rated } V_{\text{DRM}}$, $I_{\text{TM}} = 2\text{A}$, $I_{\text{GR}} = 80\text{mA}$	–	1.6	–	μs
Circuit Commutated Turn-Off Time	t_q	$V_D = V_{\text{DRM}}$, $I_{\text{TM}} = 2\text{A}$, Pulse Width = $50\mu\text{s}$, $dv/dt = 200\text{V}/\mu\text{s}$, $di/dt = 10\text{A}/\mu\text{s}$, $T_C = +75^\circ\text{C}$	–	25	–	μs
Critical Rate-of-Rise of Off-State Voltage	dv/dt	$V_D = \text{Rated } V_{\text{DRM}}$, Exponential Rise, $T_C = +100^\circ\text{C}$	–	100	–	$\text{V}/\mu\text{s}$

