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NTE5480 thru NTE5487 Silicon Controlled Rectifier (SCR) 8 Amp, TO64

Description:

The NTE5480 through NTE5487 are multi-purpose PNP silicon controlled rectifiers in a TO64 type package suited for industrial and consumer applications. These 8 amp devices are available in voltages ranging from 25V to 600V.

Features:

- Uniform Low-Level Noise-Immune Gate Triggering: $I_{GT} = 10\text{mA Typ @ } T_C = +25^\circ\text{C}$
- Low Forward "ON" Voltage: $v_T = 1\text{V Typ @ } 5\text{A @ } +25^\circ\text{C}$
- High Surge-Current Capability: $I_{TSM} = 100\text{A Peak}$
- Shorted Emitter Construction

Absolute Maximum Ratings: ($T_J = -40^\circ$ to $+100^\circ\text{C}$ unless otherwise specified)

Peak Repetitive Forward and Reverse Blocking Voltage (Note 1), V_{DRM} or V_{RRM}

NTE5480	25V
NTE5481	50V
NTE5482	100V
NTE5483	200V
NTE5484	300V
NTE5485	400V
NTE5486	500V
NTE5487 (This device is discontinued)	600V

Forward Current RMS, $I_{T(RMS)}$ 8A

Peak Forward Surge Current (One Cycle, 60Hz, $T_J = -40^\circ$ to $+100^\circ\text{C}$, I_{TSM} 100A

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

Peak Gate Power, P_{GM} 5W

Average Gate Power, $P_{G(AV)}$ 0.5W

Peak Gate Current, I_{GM} 2A

Peak Gate Voltage (Note 2), V_{GM} 10V

Operating Temperature Range, T_J -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} 1.5°C/W

Typical Thermal Resistance, Case-to-Ambient, R_{thJA} 50°C/W

Note 1. Ratings apply for zero or negative gate voltage. Devices should not be tested for blocking capability in a manner such that the voltage applied exceeds the rated blocking voltage.

Note 2. Devices should not be operated with a positive bias applied to the gate concurrently with a negative potential applied to 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} , Gate Open	$T_J = +25^{\circ}\text{C}$	–	–	10 μA
			$T_J = +100^{\circ}\text{C}$	–	–	2 mA
Gate Trigger Current (Continuous DC)	I_{GT}	$V_D = 7\text{V}$, $R_L = 100\Omega$, Note 3		–	10	30 mA
			$T_C = -40^{\circ}\text{C}$	–	–	60 mA
Gate Trigger Voltage (Continuous DC)	V_{GT}	$V_D = 7\text{V}$, $R_L = 100\Omega$		–	0.75	1.5 V
			$T_C = -40^{\circ}\text{C}$	–	–	2.5 V
			$T_J = +100^{\circ}\text{C}$	0.2	–	– V
Forward “ON” Voltage	V_{TM}	$I_{\text{TM}} = 15.7\text{A}$, Note 4	–	1.4	2.0	V
Holding Current	I_{H}	$V_D = 7\text{V}$, Gate Open		–	10	30 mA
			$T_C = -40^{\circ}\text{C}$	–	–	60 mA
Turn-On Time ($t_d + t_r$)	t_{on}	$I_G = 20\text{mA}$, $I_F = 5\text{A}$, $V_D = \text{Rated } V_{\text{DRM}}$	–	1	–	μs
Turn-Off Time	t_{off}	$I_F = 5\text{A}$, $I_R = 5\text{A}$, $dv/dt = 30\text{V}/\mu\text{s}$		–	15	μs
			$T_J = +100^{\circ}\text{C}$, $V_D = \text{Rated } V_{\text{DRM}}$	–	25	μs
Forward Voltage Application Rate (Exponential)	dv/dt	Gate Open, $T_J = +100^{\circ}\text{C}$, $V_D = \text{Rated } V_{\text{DRM}}$	–	50	–	$\text{V}/\mu\text{s}$

Note 3. For optimum operation, i.e. faster turn-on, lower switching losses, best di/dt capability, recommended $I_{\text{GT}} = 200\text{mA}$ minimum.

Note 4. Pulsed, 1ms max., Duty Cycle $\leq 1\%$.

