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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	40A ² s
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_{DRM} , I_{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}	$I_{TM} = 15.7\text{A}$, 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}	$I_G = 20\text{mA}$, $I_F = 5\text{A}$, $V_D = \text{Rated } V_{DRM}$	-	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
			$T_J = +100^\circ\text{C}$, $V_D = \text{Rated } V_{DRM}$	-	25	-	μs
Forward Voltage Application Rate (Exponential)	dv/dt	Gate Open, $T_J = +100^\circ\text{C}$, $V_D = \text{Rated } V_{DRM}$	-	50	-	$\text{V}/\mu\text{s}$	

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

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

