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NTE5440 Silicon Controlled Rectifier (SCR) 800V, 12A, TO220 Isolated Tab

Applications:

- Motor Control
- Overvoltage Crowbar Protection
- Capacitive Discharge Ignition
- Voltage Regulation
- Welding Equipment
- Capacitive Filter Soft-Start (Inrush Current Control)

Absolute Maximum Ratings:

Repetitive Peak Voltages, V_{DRM} , V_{RRM}	800V
RMS On-State Current (Full Sine Wave, $T_C = +95^\circ\text{C}$), $I_{T(RMS)}$	12A
Average On-State Current ($T_C = +95^\circ\text{C}$), $I_{T(AV)}$	10A
Non-Repetitive Surge Peak On-State Current (Full Cycle, T_J Initial = $+25^\circ\text{C}$), I_{TSM}	
F = 50Hz	100A
F = 60Hz	120A
I^2t Value for Fusing ($t_p = 10\text{ms}$), I^2t	$60\text{A}^2\text{s}$
Critical Rate of Rise of On-State Current ($I_G = 2 \times I_{GT}$, $t_r < 100\text{ns}$, $T_J = +125^\circ\text{C}$), di/dt ...	$100\text{A}/\mu\text{s}$
Peak Gate Current ($t_p = 20\mu\text{s}$, $T_J = +125^\circ\text{C}$), I_{GM}	4A
Average Gate Power Dissipation ($T_J = +125^\circ\text{C}$), $P_{G(AV)}$	1W
Maximum Peak Reverse Gate Voltage, V_{RGM}	5V
Isolation Voltage, V_{ISO}	$2500V_{rms}$
Operating Junction Temperature Range, T_J	-40° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	$2.1^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	$60^\circ\text{C}/\text{W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate-Trigger Current	I_{GT}	$V_D = 12\text{V}$, $R_L = 30\Omega$	-	-	25	mA
Gate-Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, $R_L = 30\Omega$	-	-	1.5	V
Voltage that will not Trigger any Device	V_{GD}	$V_D = 800\text{V}$, $R_L = 3.3\text{k}\Omega$, $T_J = +125^\circ\text{C}$	200	-	-	mV
Holding Current	I_H	$I_T = 500\text{mA}$, Gate Open	-	-	40	mA

Rev. 9-09

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Latching Current	I_L	$I_G = 1.2 I_{GT}$	-	-	60	mA
Rate of Rise of Off-State Voltage that will not Trigger any Device	dv/dt	$V_D = 67\% V_{DRM}$, $T_J = +125^\circ\text{C}$, Gate Open	500	-	-	V/ μs
On-State Voltage	V_{TM}	$I_{TM} = 32\text{A}$, $t_p = 380\mu\text{s}$, $T_J = +25^\circ\text{C}$	-	-	1.6	V
Off-State Current	I_{DRM}	$V_{DRM} = 800\text{V}$, $T_J = +25^\circ\text{C}$	-	-	5	μA
Reverse Current	I_{RRM}	$V_{DRM} = 800\text{V}$, $T_J = +125^\circ\text{C}$	-	-	2	mA

