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NTE5460
Silicon Controlled Rectifier (SCR)

Description:

The NTE5460 is designed primarily for half–wave AC control applications such as motor controls, heating controls, and power supply crowbar circuits.

Features:

- Glass Passivated Junction with Center Gate Fire for Greater Parameter Uniformity and Stability
- Small, Rugged Construction for Low Thermal Resistance, High Heat Dissipation, and Durability
- 300A Surge Current Capability
- Insulated Package Simplifies Mounting

Absolute Maximum Ratings:

Repetitive Peak Off–State Voltage (T_J = –40° to +125°C, Note 1), V_{DRM} 800V
Repetitive Peak Reverse Voltage (T_J = –40° to +125°C, Note 1), V_{RRM} 800V
On–State RMS Current (T_C = +70°C, Full Cycle Sine Wave 50 to 60Hz, Note 2), $I_{T(RMS)}$ 25A
Peak Non–Repetitive Surge Current, I_{TSM}
(One Full Cycle, 60Hz, T_C = +70°C, Preceeded and Followed by Rated Current) 300A
Circuit Fusing (t = 8.3ms), I^2t . . . . . 375A^2s
Peak Gate Power (T_C = +70°C, Pulse Width = 10µs), P_{GM} 20W
Average Gate Power (T_C = +70°C, t = 8.3ms), $P_{G(AV)}$ 0.5W
Peak Gate Current (T_C = +70°C, Pulse Width = 10µs), I_{GM} 2A
RMS Isolation Voltage (T_A = +25°C, Relative Humidity ≤ 20%), $V_{(ISO)}$ 1500V
Operating Junction Temperature, T_J . . . . . –40° to +125°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C
Maximum Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.5°C/W
Typical Thermal Resistance, Case–to–Sink, R_{thCS} . . . . . 2.2°C/W
Maximum Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 60°C/W

Note 1. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.

Note 2. The case temperature reference point for all T_C measurements is a point on the center lead of the package as close as possible to the plastic body.

Electrical Characteristics: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Forward Blocking Current	I_{DRM}	V_{DRM} = 800V, T_J = +25°C	–	–	10	µA
		V_{DRM} = 800V, T_J = +125°C	–	–	2	mA
Peak Reverse Blocking Current	I_{RRM}	V_{RRM} = 800V, T_J = +125°C	–	–	2	mA
Forward “ON” Voltage	V_{TM}	I_{TM} = 50A, Note 3	–	–	1.8	V
DC Gate Trigger Current	I_{GT}	Anode Voltage = 12V, R_L = 100Ω	–	–	40	mA
DC Gate Trigger Voltage	V_{GT}	Anode Voltage = 12V, R_L = 100Ω	–	0.8	1.5	V
Gate Non–Trigger Voltage	V_{GD}	Anode Voltage = 800V, R_L = 100Ω, T_J = +125°C	0.2	–	–	V
Holding Current	I_H	Anode Voltage = 12V	–	20	40	mA
Turn–On Time	t_{gt}	I_{TM} = 25A, I_{GT} = 40mA	–	1.5	–	µs
Turn–Off Time	t_q	V_{DRM} = 800V, I_{TM} = 25A, I_R = 25A	–	15	–	µs
		V_{DRM} = 800V, I_{TM} = 25A, I_R = 25A, T_J = +125°C	–	35	–	µs
Critical Rate of Rise of Off–State Voltage	dv/dt	Gate Open, V_{DRM} = 800V, Exponential Waveform	–	100	–	V/µs

Note 3. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.