ELECTRONICS, INC.
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NTE5491 thru NTE5496
Silicon Controlled Rectifier (SCR)
10 Amp

Description:

The NTE5491 through NTE5496 are silicon controlled rectifiers designied primarily for half–wave AC control applications such as motor controls, heating controls, power supplies, or wherever half–wave silicon gate–controlled, solid–state devices are needed.

Features:

- Glass–Passivated Junctions and Center Gate Fire for Greater Parameter Uniformity and Stability
- Blocking Voltage to 600 Volts

Absolute Maximum Ratings: (T_J = +125°C unless otherwise specified)

Peak Repetitive Off–State Blocking Voltage, V_{RRM}, V_{DRM}
- NTE5491 . . . . . 100V
- NTE5492 . . . . . 200V
- NTE5494 . . . . . 400V
- NTE5496 . . . . . 600V

Peak Non–Repetitive Reverse Voltage, V_{RSM}
- NTE5491 . . . . . 150V
- NTE5492 . . . . . 300V
- NTE5494 . . . . . 500V
- NTE5496 . . . . . 720V

RMS On–State Current (All Conduction Angles), $I_{T(RMS)}$ 25A

Average On–State Current (T_C = +65°C), $I_{T(AV)}$ 16A

Peak Non–Repetitive Surge Current, I_{TSM}
- (One cycle, 60Hz, Preceeded and followed by rated Current and Voltage) 150A

Circuit Fusing Considerations (T_J = –40° to +125°C, t = 1 to 8.3ms), I^2t . . . . . $93A^2s$

Peak Gate Power Dissipation, P_{GM} 5W

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

Peak Forward Gate Current, I_{GT}
- NTE5491, NTE5492, NTE5494 . . . . . 2.0A
- NTE5496 . . . . . 1.2A

Operating Junction Temperature Range, T_J . . . . . –65° to +125°C

Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Typical Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 2°C/W

Stud Torque . . . . . 30 in.lb.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Average Forward Blocking Current NTE5491	$I_{D(AV)}$	Rated V_{DRM} , Gate Open T_J = +125°C	–	–	6.5	mA
NTE5492			–	–	6.0	mA
NTE5494			–	–	4.0	mA
NTE5496			–	–	2.5	mA
Average Reverse Blocking Current NTE5491	$I_{R(AV)}$	Rated V_{RRM} , Gate Open T_J = +125°C	–	–	6.5	mA
NTE5492			–	–	6.0	mA
NTE5494			–	–	4.0	mA
NTE5496			–	–	2.5	mA
Peak Forward Blocking Current	I_{DRM}	Rated V_{DRM}, Gate Open	–	–	10	μA
Peak Reverse Blocking Current	I_{RRM}	Rated V_{RRM}, Gate Open, T_J = +125°C	–	–	20	mA
Peak On–State Voltage	V_{TM}	I_{TM} = 50.3A Peak, Note 1	–	–	2	V
DC Gate–Trigger Current	I_{GT}	V_{AK} = 12VDC, R_L = 50Ω	–	–	40	mA
DC Gate–Trigger Voltage	V_{GT}	V_{AK} = 12VDC, R_L = 50Ω	–	0.65	2.0	V
Gate Non–Trigger Voltage	V_{GD}	Rated V_{DRM}, R_L = 50Ω, T_J = +125°C	0.25	–	–	V
DC Holding Current	I_H	V_{AK} = 12V, Gate Open	–	7.3	50	mA
Critical Rate–of–Rise of Off–State Voltage	dv/dt	Rated V_{DRM}, Exponential Waveform, T_C = +125°C, Gate Open	–	30	–	V/μs

Note 1. Pulse Test: Pulse Width ≤ 1ms, Duty Cycle ≤ 2%.