ELECTRONICS, INC.
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NTE5424
Silicon Controlled Rectifier (SCR) for TV Power Supply Switching, TO220

Description:

The NTE5424 is a silicon controlled rectifier (SCR) in a TO220 type package designed for high–speed switching applications such as power inverters, switching regulators, and high–current pulse applications. This device features fast turn–off, high dv/dt, and high di/dt characteristics and may be used at frequencies up to 25kHz.

Features:

- Fast Turn–Off Time
- High di/dt and dv/dt Capabilities
- Shorted–Emitter Gate–Cathode Construction
- Low Thermal Resistance
- Center–Gate Construction

Absolute Maximum Ratings:

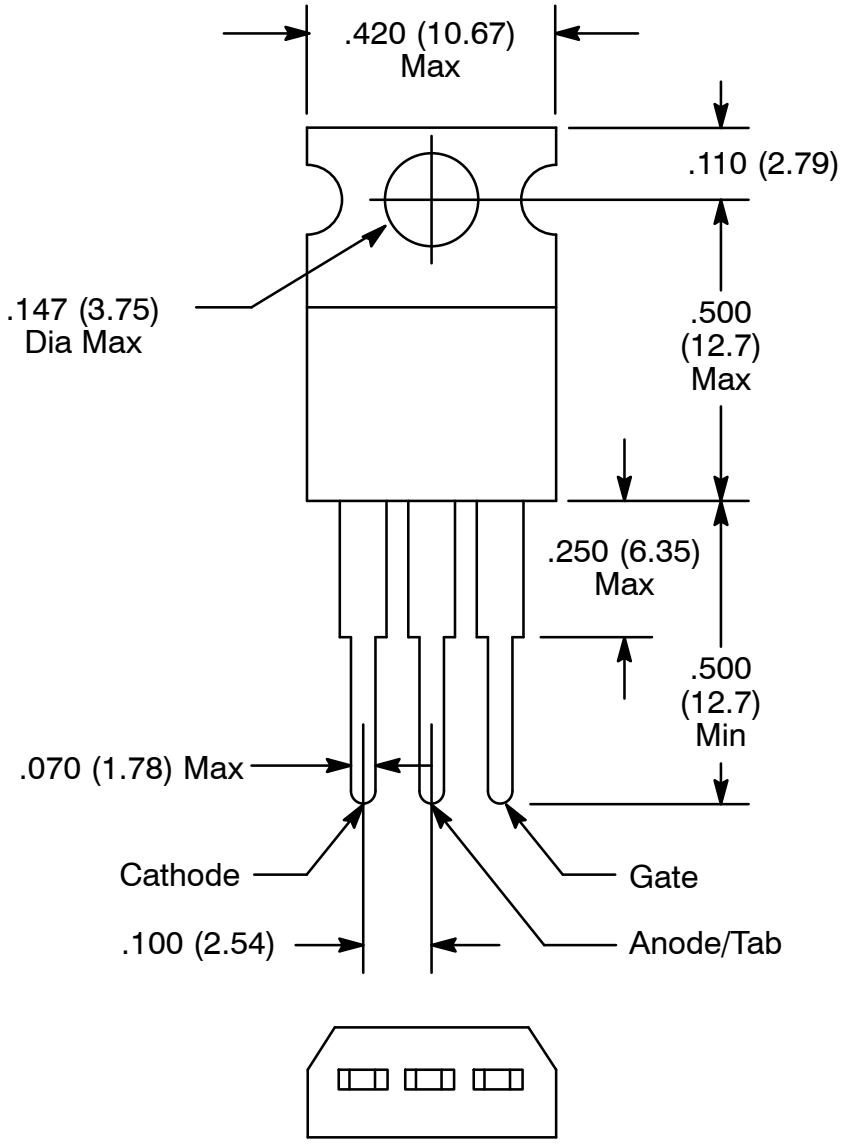
Repetitive Peak Off–State Voltage (Gate Open, Note 1), V_{DRM} 400V
Repetitive Peak Reverse Voltage (Gate Open, Note 1), V_{RRM} 400V
RMS On–State Current (T_C = +60°C, t_1/t_2 = 0.5), $I_{T(RMS)}$ 5.0A
Average On–State Current (T_C = +60°C, t_1/t_2 = 0.5), $I_{T(AV)}$ 3.2A
Peak Surge (Non–Repetitive) On–State Current (One Cycle), I_{TSM}
60Hz Sinusoidal 80A
50Hz Sinusoidal 75A
Peak Forward Gate Power Dissipation (10μs max, Note 2), P_{GM} 13W
Peak Reverse Gate Power Dissipation (10μs max, Note 2), P_{RGM} 13W
Average Gate Power Dissipation (10ms max, Note 2), $P_{G(AV)}$ 500mW
Rate of Change of On–State Current V_{DM} = 400V, I_{GT} = 500mA, t_r = 0.5μs), di/dt 200A/μs
Fusing Current (T_C = +60°C, 8.3ms), I^2t . . . . . $26A^2s$
Operating Case Temperature Range, T_C . . . . . –40° to +100°C
Storage Temperature Range, T_{stg} . . . . . –40° to +150°C
Lead Temperature (During Soldering, 10sec max), T_L . . . . . +225°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 2.2°C/W

Note 1. These values do not apply if there is a positive gate signal. Gate must be open or negatively biased.

Note 2. Any product of gate current and gate voltage which results in a gate power less than the maximum is permitted.

Electrical Characteristics: (T_C = +25°C, "Maximum Ratings" unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Forward Blocking Current	I_{DRM}	V_D = 400V, T_C = +100°C	–	0.5	3.0	mA
Peak Reverse Blocking Current	I_{RRM}	V_R = 400V, T_C = +100°C	–	0.3	1.5	mA
Forward ON Voltage	V_{TM}	I_{TM} = 30A	–	2.34	4.0	V
Gate Trigger Current, Continuous DC	I_{GT}	Anode Voltage = 12V, R_L = 30Ω	–	–	50	mA
Gate Trigger Voltage, Continuous DC	V_{GT}	Anode Voltage = 12V, R_L = 30Ω	–	1.2	2.5	V
DC Holding Current	I_H		–	20	50	mA
Rate of Rise of Off−State Voltage	dv/dt	V_D = 400V, T_C = +80°C	100	250	–	V/μs
Turn−On Time	t_{gt}	V_D = 400V, I_T = 8A (Peak), I_{GT} = 300mA, t_r = 0.1μs	–	0.7	–	μs
Circuit Commutated Turn−Off Time	t_q	V_D = 400V, Pulse Duration = 50μs, dv/dt = 100V/μs, −di/dt = −10A/μs, I_{GT} = 100mA at turn−on, I_T = 4A, V_{GK} = 0V at turn−off, T_C = +75°C	–	4.4	–	μs



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