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NTE5440
Silicon Controlled Rectifier (SCR)
800V, 10A, Isolated Tab

Applications:

- Temperature Control
- Motor Control
- Transformerless Power Supply Regulators
- Relay and Coil Pulsing
- Power Supply Crowbar Protection

Absolute Maximum Ratings:

Anode to Cathode

Non–Repetitive Peak Voltages ($t \le 10ms$, Note 1), V_{DSM}, V_{RSM} 800V
Repetitive Peak Voltages ($\delta \le 0.01$), V_{DRM}, V_{RRM} 800V
Peak Working Voltages, V_{DWM}, V_{RWM} 400V
Continuous Voltages, V_D, V_R 400V
Average On–State Current, $I_{T(AV)}$
(Averaged over any 20ms period) up to $T_h = +74°C$ 5.7A
RMS On–State Current, $I_{T(RMS)}$ 9A
Repetitive Peak On–State Current, I_{TRM} 65A
Non–Repetitive Peak On–State Current, I_{TSM}
($t = 10ms$, Half–Sinewave, $T_J = +110°C$ prior to surge, with Reapplied V_{RWMmax}) . 100A
I^2t for Fusing ($t = 10ms$), I^2t . . . . . $50A^2s$
Rate of Rise of On–State Current after Triggering, dI_T/dt
($I_G = 50mA$ to $I_T = 20A$, $dI_G/dt = 50mA/\mu s$) 50A/µs

Gate to Cathode

Reverse Peak Voltage, V_{RGM} 5V
Average Power Dissipation (Averaged over any 20ms period), $P_{G(AV)}$ 500mW
Peak Power Dissipation, P_{GM} 5W

Temperatures

Operating Junction Temperature, T_J . . . . . +110°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C
Maximum Lead Temperature (During Soldering, less than 5sec) . . . . . +275°C

Note 1. Although not recommended, higher Off–State voltages may be applied without damage, but the thyristor may switch into the On–State. The Rate–of–Rise of On–State current should not exceed 15A/µs.

Absolute Maximum Ratings (Cont'd):

Isolation:

Minimum From all Three Pins to External Heatsink (Peak), V_{isol} 1000V
Typical Capacitance from Anode to External Heatsink, C_{isol} 12pf

Thermal Characteristics:

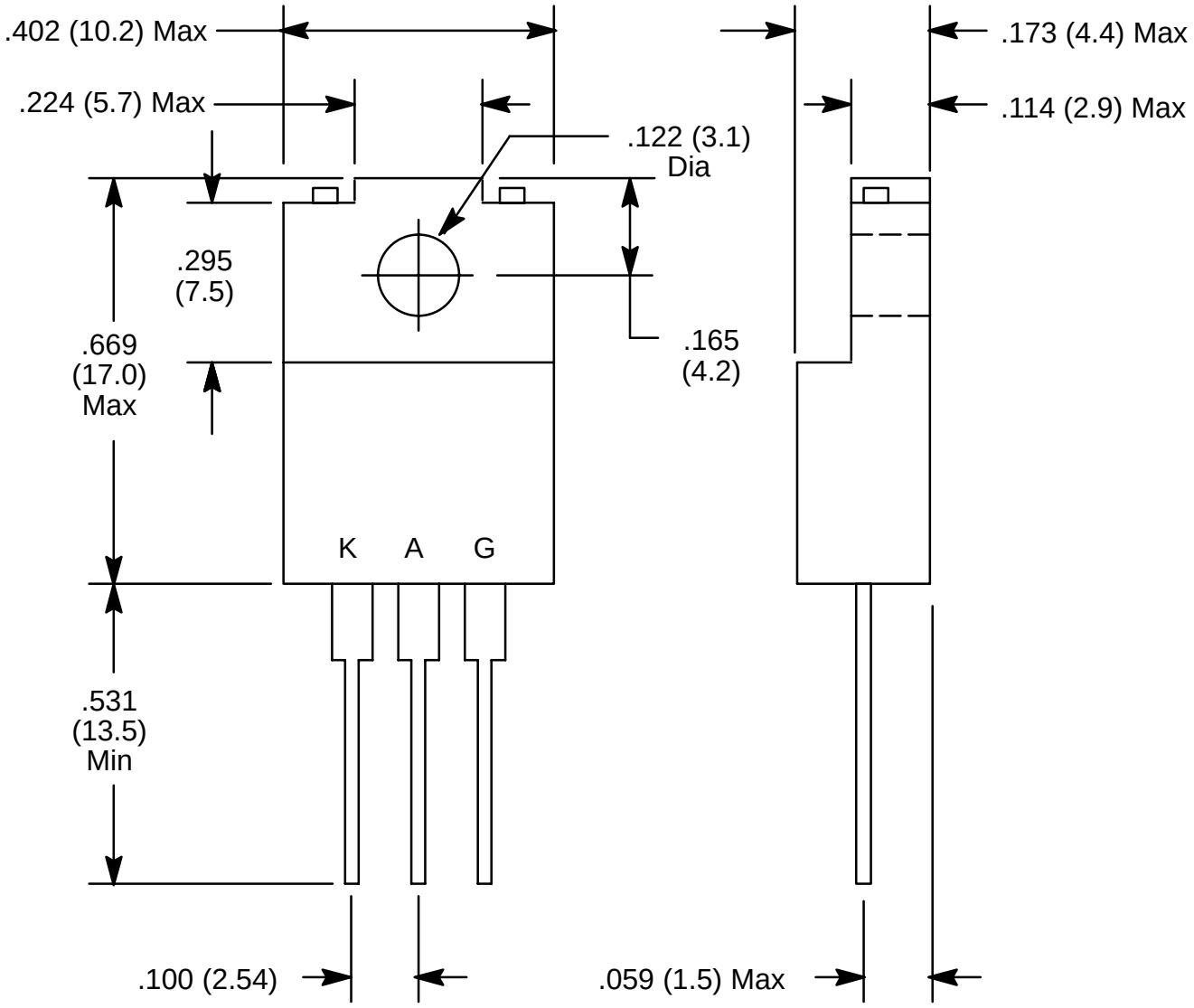
Thermal Resistance from Junction to External Heatsink, $R_{thj–h}$
With Heatsink Compound 4.5K/W
Without Heatsink Compound 6.5K/W
Thermal Resistance from Junction–to–Ambient in Free Air, R_{thJA}
(Mounted on a printed circuit board at a = any lead length and with copper laminate, Note 2) 55K/W

Note 2. The quoted values of R_{thJA} should be used only when no leads of other dissipating components run to the same tie–point.

Electrical Characteristics: (T_J = +110°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Anode to Cathode						
On–State Voltage	V_T	I_T = 23A, T_J = 25°C, Note 3	–	–	1.75	V
Rate of Rise of Off–State Voltage that will not Trigger any Device	dV_D/dt	R_{GK} = Open Circuit	–	–	50	V/µs
		R_{GK} = 100Ω	–	–	200	V/µs
Reverse Current	I_R	V_R = 400V	–	–	0.5	mA
Off–State Current	I_D	V_D = 400V	–	–	0.5	mA
Latching Current	I_L	T_J = 25°C	–	–	40	mA
Holding Current	I_H	T_J = 25°C	–	–	20	mA
Gate to Cathode						
Gate–Trigger Voltage	V_{GT}	V_D = 6V, T_J = 25°C	1.5	–	–	V
		V_D = 6V, T_J = –40°C	2.3	–	–	V
Voltage that will not Trigger any Device	V_{GD}	V_D = 800V	–	–	250	mV
Gate–Trigger Current	I_{GT}	V_D = 6V, T_J = 25°C	15	–	–	mA
		V_D = 6V, T_J = –40°C	20	–	–	mA
Switching Characteristice						
Gate–Controlled Turn–On Time ($t_{gt} = t_d + t_r$) when Switched from V_D = 800V to I_T = 40A	t_{gt}	I_{GT} = 100mA, dI_g/dt = 5A/µs, T_J = 25°C	–	2	–	µs

Note 3. Measured under pulse conditions to avoid excessive dissipation.



NOTE: Tab is isolated