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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 ($t \leq 10\text{ms}$, Note 1), V_{DSM} , V_{RSM}	800V
Repetitive Peak Voltages ($\delta \leq 0.01$), 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 $T_h = +74^\circ\text{C}$	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} ($t = 10\text{ms}$, Half-Sinewave, $T_J = +110^\circ\text{C}$ prior to surge, with Reapplied V_{RWMmax}) ..	100A
I^2t for Fusing ($t = 10\text{ms}$), I^2t	50A ² s
Rate of Rise of On-State Current after Triggering, dI_T/dt ($I_G = 50\text{mA}$ to $I_T = 20\text{A}$, $dI_G/dt = 50\text{mA}/\mu\text{s}$)	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:

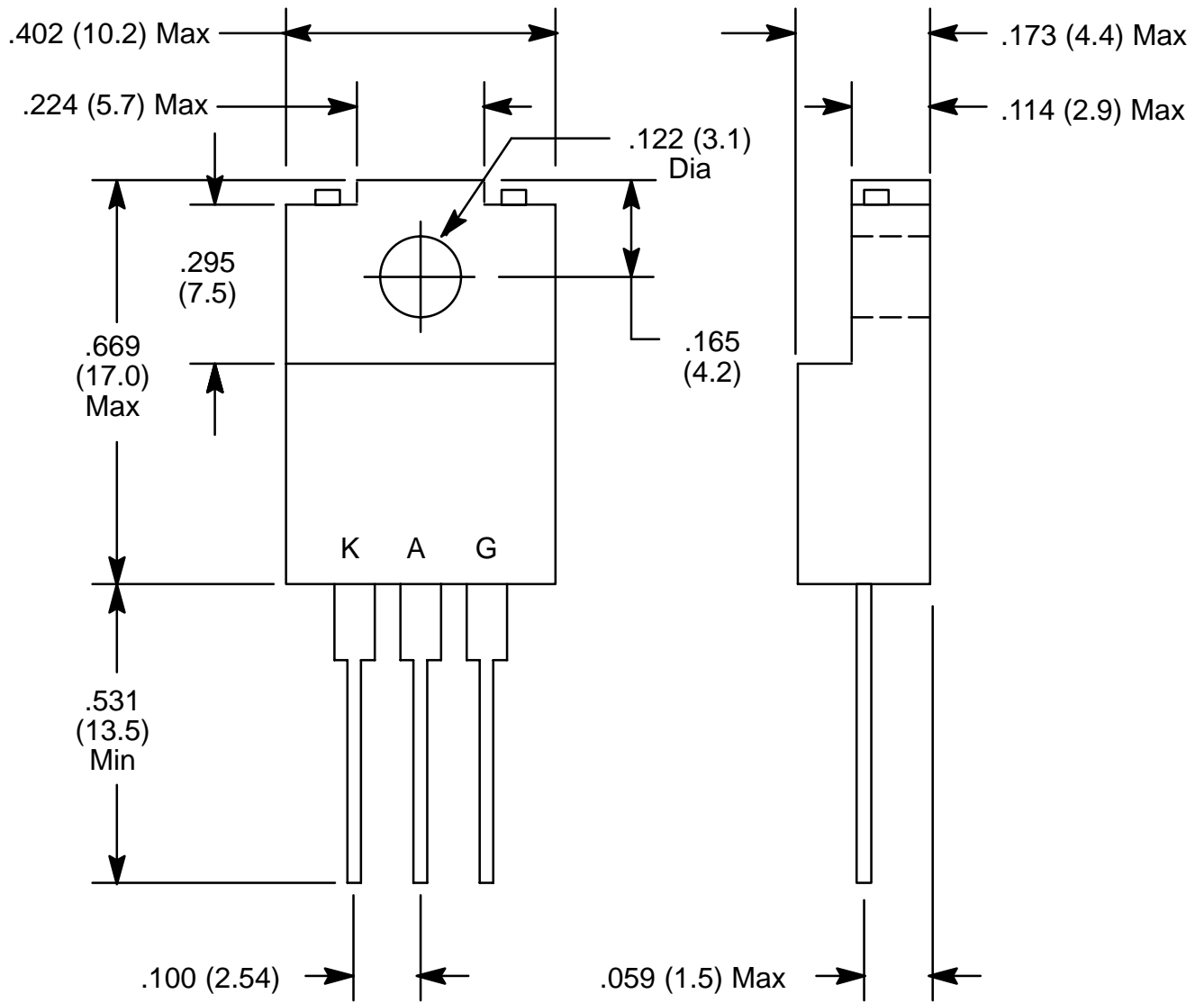
Thermal Resistance from Junction to External Heatsink, R_{thj-h}
 With Heatsink Compound 4.5K/W
 Without Heatsink Compound 6.5K/W
 Thermal Resistance from Junction-to-Ambient in Free Air, R_{thJA}
 (Mounted on a printed circuit board at a = any lead length
 and with copper laminate, Note 2) 55K/W

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: ($T_J = +110^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Anode to Cathode						
On-State Voltage	V_T	$I_T = 23A, T_J = 25^{\circ}C, \text{Note 3}$	-	-	1.75	V
Rate of Rise of Off-State Voltage that will not Trigger any Device	dV_D/dt	$R_{GK} = \text{Open Circuit}$	-	-	50	V/ μs
		$R_{GK} = 100\Omega$	-	-	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	$T_J = 25^{\circ}C$	-	-	40	mA
Holding Current	I_H	$T_J = 25^{\circ}C$	-	-	20	mA
Gate to Cathode						
Gate-Trigger Voltage	V_{GT}	$V_D = 6V, T_J = 25^{\circ}C$	1.5	-	-	V
		$V_D = 6V, T_J = -40^{\circ}C$	2.3	-	-	V
Voltage that will not Trigger any Device	V_{GD}	$V_D = 800V$	-	-	250	mV
Gate-Trigger Current	I_{GT}	$V_D = 6V, T_J = 25^{\circ}C$	15	-	-	mA
		$V_D = 6V, T_J = -40^{\circ}C$	20	-	-	mA
Switching Characteristic						
Gate-Controlled Turn-On Time ($t_{gt} = t_d + t_r$) when Switched from $V_D = 800V$ to $I_T = 40A$	t_{gt}	$I_{GT} = 100mA, dl_g/dt = 5A/\mu s, T_J = 25^{\circ}C$	-	2	-	μs

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



NOTE: Tab is isolated