



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinc.com>

NTE5538 Silicon Controlled Rectifier (SCR) 800V, 50 Amp, TO218 Isolated

Description:

The NTE5538 general purpose SCR is suited for power supplies up to 400Hz on resistive or inductive loads.

Applications:

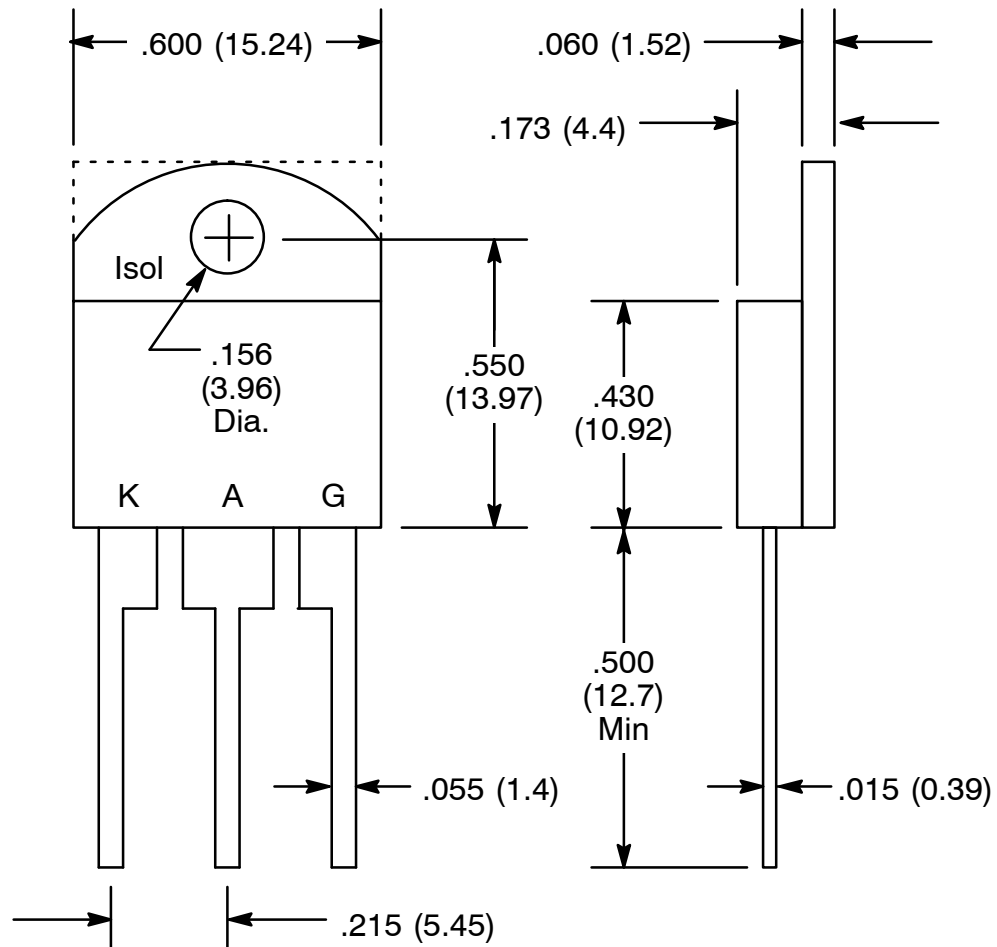
- Motor Control
- Overvoltage Crowbar Protection
- Capacitive Discharge Ignition
- Voltage Regulation
- Welding Equipment
- Capacitive Filter Soft Start (Inrush Current Control)

Absolute Maximum Ratings: ($T_J = +25^\circ\text{C}$ unless otherwise specified)

Peak Forward Blocking Voltage, V_{DRM}	800V
Peak Reverse Blocking Voltage, V_{RRM}	800V
RMS On-State Current (TFull Sine Wave, $T_C = +80^\circ\text{C}$), I_T (RMS)	50A
Average On-State Current ($T_C = +80^\circ\text{C}$), $I_{T(AV)}$	32A
Non-Repetitive Surge Peak On-State Current (Full Cycle, T_J initial = $+25^\circ\text{C}$), I_{TSM}	
(f = 50Hz)	500A
(f = 60Hz)	525A
I^2t Value for Fusing ($t_p = 10\text{ms}$), I^2t	1250A ² sec
Critical Rate of Rise of On-State Current ($I_G = 2 \times I_{GT}$, $t_r < 100\text{ns}$, $T_J = +125^\circ\text{C}$), di/dt ...	100A/ μs
Peak Gate Current ($t_p = 20\text{ms}$, $T_J = +125^\circ\text{C}$), I_{GM}	4A
Average Gate Power Dissipation ($T_J = +125^\circ\text{C}$), P_G (AV)	1W
Maximum Peak Reverse Gate Voltage, V_{RGM}	5V
Operating Junction Temperature Range, T_J	-40° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	1.1 $^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	50 $^\circ\text{C/W}$

Electrical Characteristics: ($T_J = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Trigger Current	I_{GT}	$V_D = 12\text{V}, R_L = 30\Omega$	-	-	60	mA
Gate Trigger Voltage	V_{GT}		-	-	1.3	V
Gate Non-Trigger Voltage	V_{GD}	$T_J = +125^\circ\text{C}, V_D = 800\text{V}, R_L = 3.3\text{k}\Omega$	0.2	-	-	V
Holding Current	I_H	$I_T = 500\text{mA}, \text{Gate Open}$	-	-	180	mA
Latching Current	I_L	$I_G = 1.2I_{GT}$	-	-	90	mA
Critical Rate of Rise of Off-State Voltage	dv/dt	$T_J = +125^\circ\text{C}, V_{DRM} = 536\text{V}, \text{Gate Open}$	100 0	-	-	$\text{V}/\mu\text{s}$
Peak On-State Voltage	V_{TM}	$I_{TM} = 150\text{A}, t_p = 380\mu\text{s}$	-	-	1.6	V
Forward Leakage Current	I_{DRM}	$V_{DRM} = 800\text{V}$	-	-	5	μA
Reverse Leakage Current	I_{RRM}	$V_{DRM} = 800\text{V}, T_J = +125^\circ\text{C}$	-	-	4	mA



NOTE: Dotted line indicates that case may have square corners.