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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:

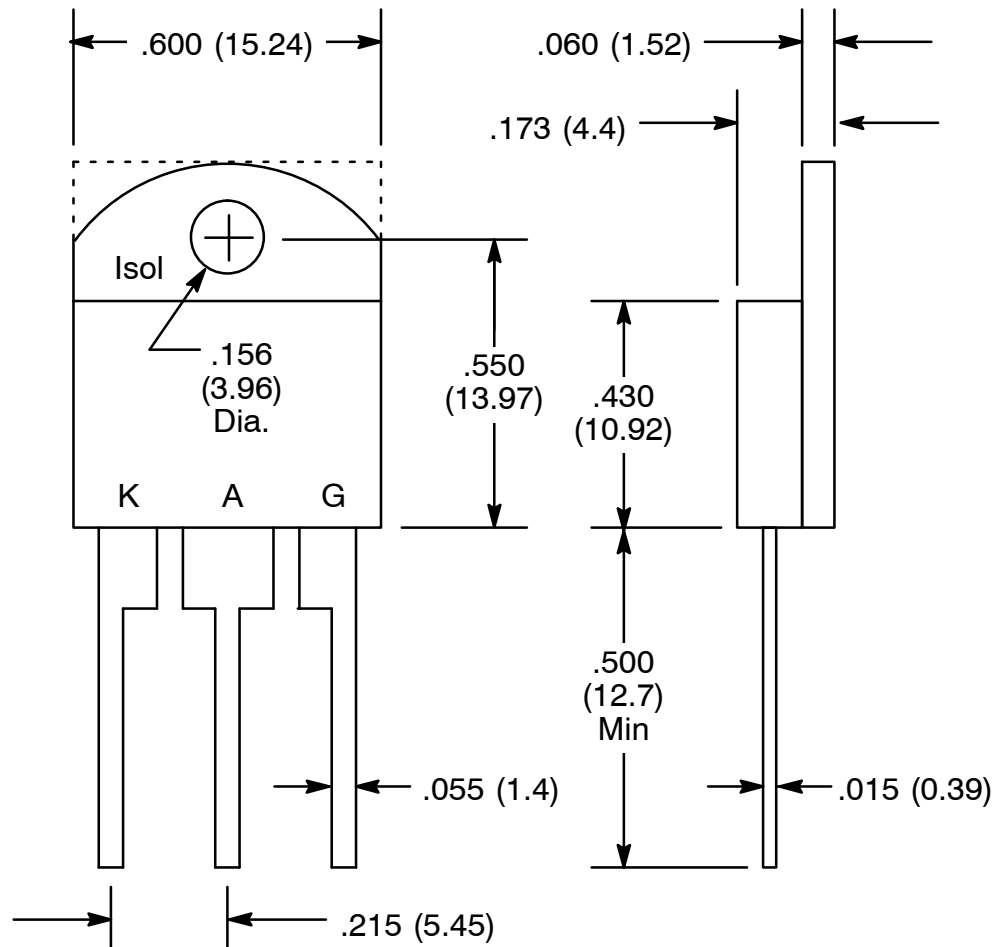
- Motor Control
- Overvoltage Crowbar Protection
- Capacitive Discharge Ignition
- Voltage Regulation
- Welding Equipment
- Capacitive Filter Soft Start (Inrush Current Control)

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.