



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

## NTE5539 & NTE5540 Silicon Controlled Rectifier (SCR) 55 Amps, TO218

**Features:**

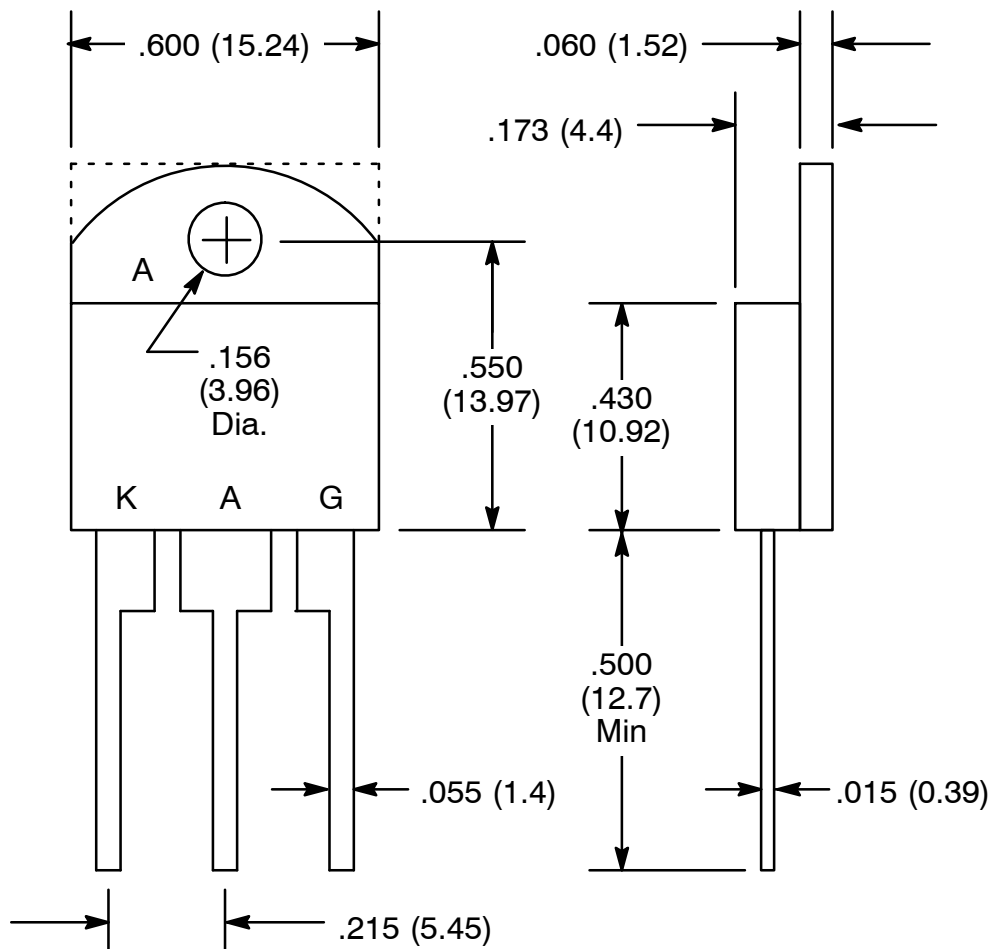
- High Voltage Capability
- High Surge Capability
- Glass Passivated Chip

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ , 60Hz, Resistive load unless otherwise specified)

Repetitive Peak Off-State Forward & Reverse Voltage, $V_{DRM}$ , $V_{RRM}$	
NTE5539 .....	400V
NTE5540 .....	800V
Maximum RMS On-State Current, $I_{T(RMS)}$ .....	
	55A
Average On-State Current, $I_{T(AV)}$ .....	
	35A
DC Gate Trigger Current ( $V_D = 12\text{V}$ , $R_L = 30\Omega$ ), $I_{GT}$	
Minimum .....	5mA
Maximum .....	40mA
Maximum Peak Off-State Forward & Reverse Current (At rated $V_{DRM}$ , $V_{RRM}$ ), $I_{DRM}$ , $I_{RRM}$	
( $T_C = +25^\circ\text{C}$ )	
NTE5539 .....	10 $\mu\text{A}$
NTE5540 .....	20 $\mu\text{A}$
( $T_C = +100^\circ\text{C}$ )	
NTE5539 .....	1.0mA
NTE5540 .....	1.5mA
( $T_C = +125^\circ\text{C}$ )	
NTE5539 .....	2.0mA
NTE5540 .....	3.0mA
Peak On-State Voltage ( $I_{T(RMS)} = 55\text{A}$ , $T_C = +25^\circ\text{C}$ ), $V_{TM}$ .....	
	1.8V
Maximum DC Gate Trigger Voltage ( $T_C = +25^\circ\text{C}$ , $V_D = 12\text{V}$ , $R_L = 30\Omega$ ), $V_{GT}$ .....	
	1.5V
Minimum DC Gate Trigger Voltage ( $T_C = +125^\circ\text{C}$ , $V_D = 12\text{V}$ , $R_L = 30\Omega$ ), $V_{GT}$ .....	
	0.2V
Maximum DC Holding Current (Gate Open, Initial On-State Current = 400mA(DC)), $I_H$ ....	
	60mA
Peak Gate Current (Pulse Width $\leq 10\mu\text{s}$ ), $I_{GM}$ .....	
	4A
Peak Gate Power Dissipation (Pulse Width $\leq 10\mu\text{s}$ ), $P_{GM}$ .....	
	40W
Average Gate Power Dissipation, $P_{G(AV)}$ .....	
	800mW
Peak One Cycle Surge Forward Current, $I_{TSM}$	
50Hz .....	550A
60Hz .....	650A
Minimum Critical Rate-of-Applied Forward Voltage, $dv/dt$	
( $T_C = +100^\circ\text{C}$ )	
NTE5539 .....	650V/ $\mu\text{s}$
NTE5540 .....	500V/ $\mu\text{s}$
( $T_C = +125^\circ\text{C}$ )	
NTE5539 .....	550V/ $\mu\text{s}$
NTE5540 .....	475V/ $\mu\text{s}$

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$ , 60Hz, Resistive load unless otherwise specified)  
 RMS Surge (Non-Repetitive) On-State Current for Fusing (8.3ms),  $I^2t$  ..... 1750A<sup>2</sup>sec  
 Maximum Rate-of-Change of On-State Current ( $I_{GT} = 150\text{mA}$ ,  $t_r = 0.1\mu\text{s}$ ),  $di/dt$  ..... 175A/ $\mu\text{s}$   
 Gate Controlled Turn-On Time (Gate Pulse = 150mA, Min Width = 15 $\mu\text{s}$ ,  $t_r \leq 0.1\mu\text{s}$ ),  $t_{gt}$  ... 2.5 $\mu\text{s}$   
 Circuit Commutated Turn-Off Time (Note 1),  $t_q$  ..... 35 $\mu\text{s}$   
 Operating Temperature Range,  $T_J$  .....  $-40^\circ$  to  $+125^\circ\text{C}$   
 Storage Temperature Range,  $T_{stg}$  .....  $-40^\circ$  to  $+125^\circ\text{C}$   
 Lead Temperature (During Soldering, 1/16" from case, 10sec max),  $T_L$  .....  $+230^\circ\text{C}$

Note 1.  $i_T = 2\text{A}$ , Pulse Duration = 50 $\mu\text{s}$ ,  $dv/dt = 20\text{V}/\mu\text{s}$ ,  $di/dt = -30\text{A}/\mu\text{s}$ ,  $I_{GT} = 200\text{mA}$  at Turn-On



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