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## NTE5534A Silicon Controlled Rectifier (SCR) 600V, 40 Amp, TO3 Isolated Square Pack

**Description:**

The NTE5534A is a general purpose SCR in a TO3 isolated square pack designed for use in power supplies up to 400Hz on resistive or inductive loads.

**Features:**

- Glass Passivated Chip
- High Stability and Reliability
- High Surge Capability
- High On-State Current
- Easy Mounting (Fast-On Connections)
- Isolated Package: Insulating Voltage = 2500V<sub>RMS</sub>

**Absolute Maximum Ratings:** (Limiting Values)

Peak Repetitive Forward Blocking Voltage ( $T_J = +110^{\circ}\text{C}$ ), $V_{DRM}$ .....	600V
Peak Repetitive Reverse Blocking Voltage ( $T_J = +110^{\circ}\text{C}$ ), $V_{RRM}$ .....	600V
RMS On-State Current ( $T_C = +65^{\circ}\text{C}$ , Single Phase Circuit, $180^{\circ}$ Conduction Angle), $I_{T(RMS)}$ ..	40A
Mean On-State Current ( $T_C = +65^{\circ}\text{C}$ , Single Phase Circuit, $180^{\circ}$ Conduction Angle), $I_{T(AV)}$ ..	25A
Non-Repetitive Surge Peak On-State Current ( $T_J$ initial = $+25^{\circ}\text{C}$ , Half Sine Wave), $I_{TSM}$	
t = 8.3ms .....	525A
t = 10ms .....	500A
$I^2t$ Value (t = 10ms), $I^2t$ .....	1250A <sup>2</sup> s
Critical Rate of Rise On-State Current ( $I_G = 800\text{mA}$ , $di_G/dt = 1\text{A}/\mu\text{s}$ ), $di/dt$ .....	100A/ $\mu\text{s}$
Peak Gate Power (t = 10 $\mu\text{s}$ ), $P_{GM}$ .....	50W
Forward Average Gate Power, $P_{G(AV)}$ .....	1W
Forward Peak Gate Current (t = 10 $\mu\text{s}$ ), $I_{GFM}$ .....	2A
Peak Gate Voltage Forward (t = 10 $\mu\text{s}$ ), $V_{GFM}$ .....	15V
Peak Gate Voltage Reverse, $V_{GRM}$ .....	5V
Operating Junction Temperature Range, $T_J$ .....	$-40^{\circ}$ to $+110^{\circ}\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-40^{\circ}$ to $+125^{\circ}\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	0.93 $^{\circ}\text{C}/\text{W}$
Thermal Resistance, Case-to-Heatsink, $R_{thCH}$ .....	0.10 $^{\circ}\text{C}/\text{W}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Gate Trigger Current	$I_{GT}$	$V_D = 12\text{V}$ , $R_L = 33\Omega$ , $t_p \geq 20\mu\text{s}$	-	-	80	mA	
Gate Trigger Voltage	$V_{GT}$	$V_D = 12\text{V}$ , $R_L = 33\Omega$ , $t_p \geq 20\mu\text{s}$	-	-	1.5	V	
Gate Non-Trigger Voltage	$V_{GD}$	$T_J = +110^\circ\text{C}$ , $V_D = 600\text{V}$ , $R_L = 3.3\text{k}\Omega$	0.2	-	-	V	
Holding Current	$I_{HOLD}$	$I_T = 500\text{mA}$ , Gate Open	-	20	150	mA	
Peak On-State Voltage	$V_{TM}$	$I_{TM} = 80\text{A}$ , $t_p = 10\text{ms}$	-	-	2	V	
Peak Forward Blocking Current	$I_{DRM}$	$V_{DRM} = 600\text{V}$	-	-	0.02	mA	
		$T_J = +110^\circ\text{C}$	-	-	6.0	mA	
Peak Reverse Blocking Current	$I_{RRM}$	$V_{DRM} = 600\text{V}$	-	-	0.02	mA	
		$T_J = +110^\circ\text{C}$	-	-	6.0	mA	
Turn-On Time	$t_{gt}$	$I_T = 80\text{A}$ , $V_D = 600\text{V}$ , $I_G = 200\text{mA}$ , $di_G/dt = 0.2\text{A}/\mu\text{s}$	-	2	-	$\mu\text{s}$	
Turn-Off Time	$t_q$	$T_J = +110^\circ\text{C}$ , $I_T = 10\text{A}$ , $V_R = 75\text{V}$ , $V_D = 0.67V_{DRM}$ , $di_R/dt = 30\text{A}/\mu\text{s}$ , $dv/dt = 20\text{V}/\mu\text{s}$ , Gate Open	-	100	-	$\mu\text{s}$	
Critical Rise of Off-State Voltage	$dv/dt$	$T_J = 110^\circ\text{C}$ , Gate Open, Linear slope up to $0.67V_{DRM}$ specified	$V_{DRM} \leq 800\text{V}$	500	-	-	$\text{V}/\mu\text{s}$
			$V_{DRM} \geq 1000\text{V}$	250	-	-	$\text{V}/\mu\text{s}$

