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NTE5381 Silicon Controlled Rectifier (SCR) for High Speed Switching, 1200V, 400 Amp, TO200AB

Features:

- High di/dt with Soft Gate Control
- High Frequency Operation
- Low Dynamic Forward Voltage Drop
- Low Switching Losses at High Frequency

Applications:

- Inverters for UPS, Induction Heating, and Motor Control
- Choppers
- Crowbars

Voltage: Blocking State Maximums ($T_J = +125^\circ\text{C}$, Note 1 unless otherwise specified)

Repetitive Peak Forward Blocking Voltage, V_{DRM}	1200V
Repetitive Peak Reverse Voltage, V_{RRM}	1200V
Non-Repetitive Transient Peak Reverse Voltage ($t \leq 5.0$ msec), V_{RSM}	1300V
Peak Forward Leakage Current, I_{DRM}	25mA
Peak Reverse Leakage Current, I_{RRM}	25mA

Current: Conducting State Maximums ($T_J = +125^\circ\text{C}$ unless otherwise specified)

RMS Forward Current, $I_{T(RMS)}$	400A
Average Forward Current, $I_{T(AV)}$	250A
One-Half Cycle Surge Current, I_{TSM}	4500A
I^2t for Fusing (for times ≥ 8.3 ms), I^2t	84,000A ² sec
Forward Voltage Drop ($I_{TM} = 625$ A, $T_J = +25^\circ\text{C}$), V_{TM}	1.85V
Minimum Repetitive Rate of Rise of Turned-On Current (Note 2), di/dt	300A/ μ s

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

Maximum Turn-Off Time, t_q ($I_T = 150$ A, $di_R/dt = 12.5$ A/ μ s, Reapplied $dv/dt = 20$ V/ μ s. Linear to $0.8V_{DRM}$) ...	10 to 50 μ s
Typical Turn-On Time ($I_T = 100$ A, $V_D = 100$ V, Note 2), t_{on}	3.5 μ s
Minimum Critical Rate of Rise of Off-State Voltage, dv/dt (Exponential to V_{DRM} , $T_J = +125^\circ\text{C}$)	300V/ μ s
Minimum Rate of Rise of Turned-On Current (Note 2), di/dt	800A/ μ s

Note 1. Applies for zero or negative gate bias.

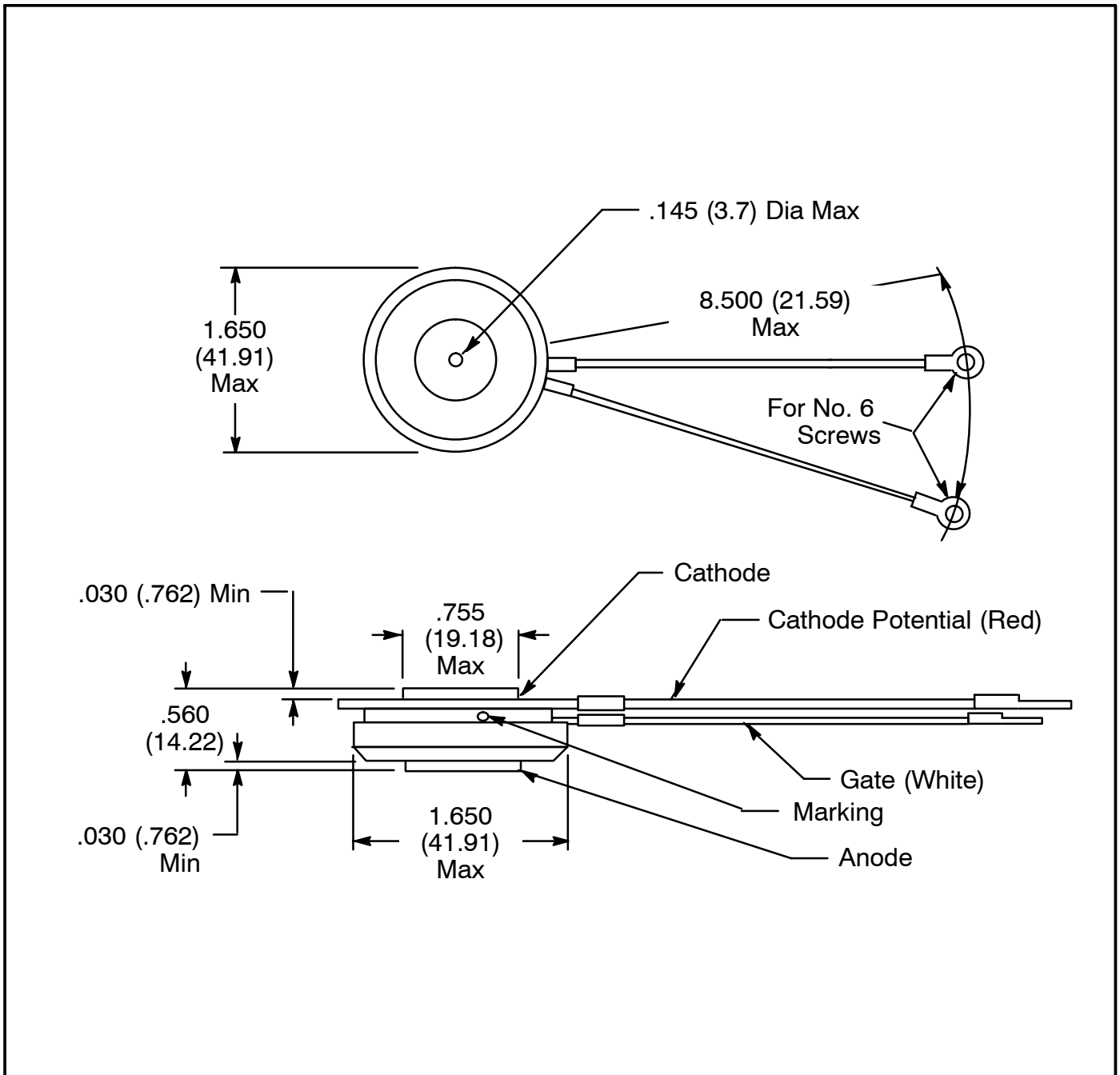
Note 2. With recommended gate drive.

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

Gate Current to Trigger ($V_D = 12\text{V}$), I_{GT}	150mA
Gate Voltage to Trigger ($V_D = 12\text{V}$), V_{GT}	3V
Non-Triggering Gate Voltage ($V_{DRM} = \text{Rated Voltage}$, $T_J = +125^\circ\text{C}$), V_{GDM}	0.15V
Peak Forward Gate Current, I_{GTM}	4A
Peak Reverse Gate Voltage, V_{GRM}	5V
Peak Gate Power, P_{GM}	16W
Average Gate Power, $P_{G(AV)}$	3W

Thermal and Mechanical:

Maximum Operating Temperature Range, T_J	-40° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Max Thermal Resistance, Junction-to-Heatsink (Double Side Cooled), R_{thJC}	0.08°C/W
Max Thermal Resistance, Case-to-Heatsink (Double Side Cooled, Lubricated), R_{thCS} ..	0.02°C/W
Mounting Torque Range, F	1000 to 1400lb.



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