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NTE5460 and NTE5460-12 Silicon Controlled Rectifier (SCR) 25 Amp, TO-220 Full Pack (Isolated)

Features:

- Thyristor for Frequencies up to 400Hz
- Long-Term Stability of Leakage Current and Blocking Voltage

Applications:

- Motor Control
- Power Converter
- AC Power Controller
- Light and Temperature Control
- SCR for Inrush Current Limiting in Power Supplies for AC Drive

Maximum Ratings and Electrical Characteristics:

Repetitive Peak Off-State Voltage, V_{DRM}	
NTE5460	800V
NTE5460-12	1200V
Non-Repetitive Peak Off-State Voltage, V_{DSM}	
NTE5460	800V
NTE5460-12	1200V
Repetitive Peak Reverse Voltage, V_{RRM}	
NTE5460	800V
NTE5460-12	1200V
Non-Repetitive Peak Reverse Blocking Voltage, V_{RSM}	
NTE5460	800V
NTE5460-12	1200V
On-State RMS Current (180° Sine Wave), $I_{T(AV)}$	
$T_C = +85^\circ\text{C}$, Note 1	16A
$T_A = +25^\circ\text{C}$, Note 2	2.5A
Peak Non-Repetitive Surge Current ($V_R = 0V$), I_{TSM}	
$T_{VJ} = +45^\circ\text{C}$	
t = 10ms (50Hz), Sine	300A
t = 8.3ms (60Hz), Sine	320A
$T_{VJ} = +150^\circ\text{C}$	
t = 10ms (50Hz), Sine	260A
t = 8.3ms (60Hz), Sine	280A

Note 1. Mounted on a heatsink.

Note 2. Without a heatsink.



Maximum Ratings and Electrical Characteristics (Cont'd):

Circuit Fusing, I^2t

$T_{VJ} = +45^{\circ}\text{C}$	
t = 10ms (50Hz), Sine	450A ² s
t = 8.3ms (60Hz), Sine	430A ² s
$T_{VJ} = +150^{\circ}\text{C}$	
t = 10ms (50Hz), Sine	340A ² s
t = 8.3ms (60Hz), Sine	330A ² s

Critical Rate of Rise of Off-State Current, di/dt

$T_{VJ} = +150^{\circ}\text{C}$, f = 50Hz, $t_p = 200\mu\text{s}$, $V_D = 2/3 V_{DRM}$, $I_G = 0.08\text{A}$, $di_G/dt = 0.08\text{A}/\mu\text{s}$	
Repetitive, $I_T = 20\text{A}$	150A/ μs
Non-Repetitive, $I_T = I_{T(AV)}$	500A/ μs

Critical Rate of Rise of Off-State Voltage, dv/dt

$T_{VJ} = +150^{\circ}\text{C}$, $V_{DR} = 2/3 V_{DRM}$, $R_{GK} =$, Method 1 (Linear Voltage Rise)	500V/ μs
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Peak Gate Power ($T_{VJ} = +150^{\circ}\text{C}$, $I_T = I_{T(AV)}$), P_{GM}

$t_p = 30\mu\text{s}$	10W
$t_p = 300\mu\text{s}$	5W

Average Gate Power, $P_{G(AV)}$

	0.5W
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Peak Gate Current ($T_C = +70^{\circ}\text{C}$, Pulse Width = 10 μs), I_{GM}

	2A
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Maximum Peak Forward and Reverse Blocking Current, I_R , I_D

$T_{VJ} = +150^{\circ}\text{C}$, $V_R = V_{RRM}$, $V_D = V_{DRM}$	4mA
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Maximum Forward "ON" Voltage ($I_T = 30\text{A}$, $T_{VJ} = +25^{\circ}\text{C}$), V_T

	1.4V
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Maximum DC Gate Trigger Voltage ($V_D = 6\text{V}$), V_{GT}

$T_{VJ} = +25^{\circ}\text{C}$	2.5V
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$T_{VJ} = -40^{\circ}\text{C}$5V
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Maximum DC Gate Trigger Current ($V_D = 6\text{V}$), I_{GT}

$T_{VJ} = +25^{\circ}\text{C}$	30mA
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$T_{VJ} = -40^{\circ}\text{C}$50mA
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Maximum Gate Non-Trigger Voltage ($T_{VJ} = +150^{\circ}\text{C}$, $V_D = 2/3 V_{DRM}$), V_{GD}

	0.2V
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Maximum Gate Non-Trigger Current ($T_{VJ} = +150^{\circ}\text{C}$, $V_D = 2/3 V_{DRM}$), I_{GD}

	1mA
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Maximum Latching Current ($T_{VJ} = +25^{\circ}\text{C}$, $t_p = 10\mu\text{s}$, $I_G = 0.08\text{A}$, $di_G/dt = 0.08\text{A}/\mu\text{s}$), I_L

	100mA
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Maximum Holding Current ($T_{VJ} = +25^{\circ}\text{C}$, $V_D = 6\text{V}$, $R_{GK} = \infty$), I_H

	80mA
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Maximum Turn-On Time ($T_{VJ} = +25^{\circ}\text{C}$, $V_D = 1/2 V_{DRM}$, $I_G = 0.08\text{A}$, $di_G/dt = 0.08\text{A}/\mu\text{s}$), t_{gd} ...

	2 μs
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Operating Junction Temperature Range, T_{VJ}

	-40° to $+150^{\circ}\text{C}$
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Maximum Junction Temperature, T_{VJM}

	$+150^{\circ}\text{C}$
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Storage Temperature Range, T_{stg}

	-40° to $+125^{\circ}\text{C}$
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Maximum Thermal Resistance, Junction-to-Case, R_{thJC}

	2.5K/W
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Typical Thermal Resistance, Case-to-Sink, R_{thCS}

	0.5K/W
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Maximum Thermal Resistance, Junction-to-Ambient, R_{thJA}

	50K/W
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