

2N6157 thru 2N6165 Triacs Silicon Bidirectional Triode Thyristors

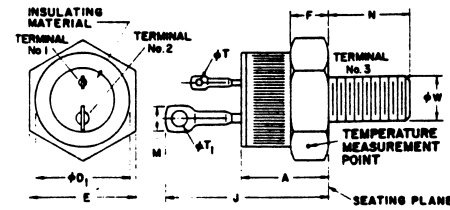
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
*Peak Repetitive Off-State Voltage ($T_J = -65$ to $+125^\circ\text{C}$) 1/2 Sine Wave 50 to 60 Hz, Gate Open	VDRM		Volts
*Peak Principal Voltage 2N6157, 2N6160, 2N6163 2N6158, 2N6161, 2N6164 2N6159, 2N6162, 2N6165		200 400 600	
*Peak Gate Voltage	VGM	10	Volts
*RMS On-State Current ($T_C = -65$ to $+85^\circ\text{C}$) ($T_C = +100^\circ\text{C}$) Full Sine Wave, 50 to 60 Hz	$I_T(\text{RMS})$	30 20	Amps
*Peak Non-Repetitive Surge Current (One Full Cycle of surge current at 60 Hz, preceded and followed by a 30 A RMS current, $T_C = 85^\circ\text{C}$)	I_{TSM}	250	Amps
Circuit Fusing Considerations ($t = 8.3$ ms)	I^2t	260	A^2s
*Peak Gate Power ($T_J = +80^\circ\text{C}$, Pulse Width = $2 \mu\text{s}$)	P _{GM}	20	Watts
*Average Gate Power ($T_J = +80^\circ\text{C}$, $t = 8.3$ ms)	P _{G(AV)}	0.5	Watt
*Peak Gate Current	I_{GM}	2	Amps
*Operating Junction Temperature Range	T_J	-65 to +125	$^\circ\text{C}$
*Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$
*Stud Torque 2N6160 thru 2N6165	—	30	in. lb.

THERMAL CHARACTERISTICS

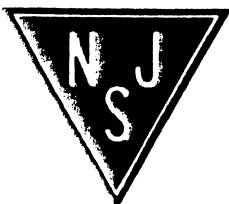
Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case	$R_{\theta JC}$	1	$^\circ\text{C/W}$

*Indicates JEDEC Registered Data.



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.506	8.40	12.80	
ϕD_1	—	0.544	—	13.81	
E	0.544	0.582	13.82	14.28	
F	0.113	0.200	2.87	5.08	
J	—	0.960	—	24.13	
M	—	0.156	—	3.94	
N	0.422	0.463	10.72	11.50	
ϕT	0.058	0.088	1.47	1.73	
ϕT_1	0.080	0.080	2.03	2.29	
ϕW	1/4-28 UNF-2A	1/4-28 UNF-2A			1

NOTE 1: ϕW is pitch diameter of coated threads.
 REF. Screw-Thread Standard for Federal Services
 Handbook H28, Part I.
 Recommended torque: 35 inch-pounds.



ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM}) $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	I_{DRM}, I_{RRM}	— —	— —	10 2	μA mA
*Peak On-State Voltage (Either Direction) ($I_{TM} = 42\text{ A Peak}$, Pulse Width = 1 to 2 ms, Duty Cycle $\leq 2\%$)	V_{TM}	—	1.5	2	Volts
Gate Trigger Current (Continuous dc), Note 1 (Main Terminal Voltage = 12 Vdc, $R_L = 50\text{ Ohms}$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+) *MT2(+), G(+); MT2(-), G(-) $T_C = -65^\circ\text{C}$ *MT2(+), G(-); MT2(-), G(+) $T_C = -65^\circ\text{C}$	I_{GT}	— — — — —	15 20 20 30	60 70 70 100	mA
Gate Trigger Voltage (Continuous dc) (Main Terminal Voltage = 12 Vdc, $R_L = 50\text{ Ohms}$) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+) *All Quadrants, $T_C = -65^\circ\text{C}$ *Main Terminal Voltage = Rated V_{DRM} , $R_L = 10\text{ k ohms}$, $T_J = +125^\circ\text{C}$	V_{GT}	— — — — —	0.8 0.7 0.85 1.1	2 2.1 2.1 2.5	Volts
Holding Current (Main Terminal Voltage = 12 Vdc, Gate Open) (Initiating Current = 500 mA) MT2(+) MT2(-) *Either Direction, $T_C = -65^\circ\text{C}$	I_H	— — —	8 10	70 80 200	mA
*Turn-On Time (Main Terminal Voltage = Rated V_{DRM} , $I_{TM} = 42\text{ A}$, Gate Source Voltage = 12 V, $R_S = 50\text{ Ohms}$, Rise Time = 0.1 μs , Pulse Width = 2 μs)	t_{gt}	—	1	2	μs
Blocking Voltage Application Rate at Commutation, $f = 60\text{ Hz}$, $T_C = 85^\circ\text{C}$ On-State Conditions: ($I_{TM} = 42\text{ A}$, Pulse Width = 4 ms, $di/dt = 17.5\text{ A/ms}$) Off-State Conditions: (Main Terminal Voltage = Rated V_{DRM} (200 μs min), Gate Source Voltage = 0 V, $R_S = 50\ \Omega$)	$dv/dt(c)$	—	5	—	$\text{V}/\mu\text{s}$

*Indicates JEDEC Registered Data.