2N5806 – 2N5807

2N5809

MT2 o───────o MT1
G

TRIACS
(THYRISTORS)
30 AMPERES RMS

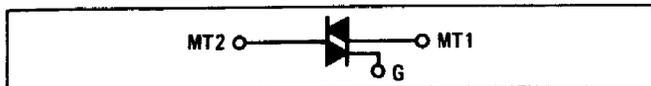### SILICON BIDIRECTIONAL THYRISTORS

... designed primarily for industrial and military applications for the control of ac loads in applications such as light dimmers, power supplies, heating controls, motor controls, welding equipment and power switching systems; or wherever full-wave, silicon gate controlled solid-state devices are needed.

● Glass Passivated Junctions and Center Gate Fire
● Isolated Stud for Ease of Assembly
● Gate Triggering Guaranteed In All 4 Quadrants

MAXIMUM RATINGS

| Rating	Symbol	Value	Unit
*Repetitive Peak Off-State Voltage (1) (T_J = -65 to +125°C) 1/2 Sine Wave 50 to 60 Hz, Gate Open	V_{DRM}		Volts
*Peak Principal Voltage 2N5806 2N5807 2N5809		200 400 600	
*Peak Gate Voltage	V_{GM}	10	Volts
*On-State Current RMS (T_C = -65 to +85°C) (T_C = +100°C) Full Sine Wave, 50 to 60 Hz	$I_{T(RMS)}$	30 20	Amp
*Peak Surge Current (One Full Cycle of surge current at 60 Hz, preceeded and fol- lowed by a 30 A RMS current, T_J = +125°C)	I_{TSM}	250	Amp
Circuit Fusing Considerations (T_J = -65 to +125°C, t = 1.0 to 8.3 ms)	I^2t	210	A^2s
*Peak Gate Power (T_J = +80°C, Pulse Width = 2.0 μs)	P_{GM}	20	Watts
*Average Gate Power (T_J = +80°C, t = 8.3 ms)	$P_{G(AV)}$	0.5	Watt
*Peak Gate Current	I_{GM}	2.0	Amp
*Operating Junction Temperature Range	T_J	-65 to +125	°C
*Storage Temperature Range	T_{stg}	-65 to +150	°C
*Stud Torque 2N6160 thru 2N6165	–	30	in. lb.
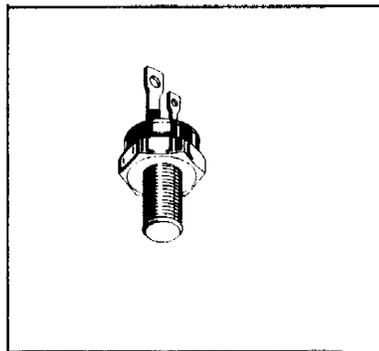
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Thermal Resistance, Junction to Case	$R\theta_{JC}$	1.0	°C/W
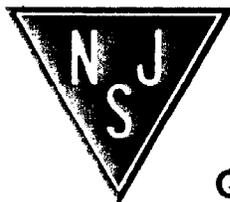
Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
* Peak Blocking Current (Either Direction) Rated V_{DRM} @ T_J = 125°C	I_{DRM}	—	—	2.0	mA
*On-State Voltage (Either Direction) I_{TM} = 42 A Peak, Pulse Width = 1.0 to 2.0 ms, Duty Cycle ≤ 2.0 %	V_{TM}	—	1.5	2.0	Volts
Gate Trigger Current, Continuous dc (1) Main Terminal Voltage = 12 Vdc, R_L = 50 Ohms MT2 (+), G(+) MT2 (+), G(−) MT2 (−), G(−) MT2 (−), G(+) *MT2 (+), G(+); MT2 (−), G(−) T_C = −65°C *MT2 (+), G(−); MT2 (−), G(+) T_C = −65°C	I_{GT}	 — — — — — —	 10 13 15 20 — —	 60 70 70 100 200 250	mA
Gate Trigger Voltage, Continuous dc Main Terminal Voltage = 12 Vdc, R_L = 50 Ohms MT2 (+), G(+) MT2 (+), G(−) MT2 (−), G(−) MT2 (−), G(+) *All Quadrants, T_C = −65°C) *Main Terminal Voltage = Rated V_{DRM}, R_L = 10 k ohms, T_J = +125°C	V_{GT}	 — — — — — 2.0	 0.7 0.7 0.8 0.9 — —	 2.0 2.1 2.1 2.5 3.4 —	Volts

Holding Current
   Main Terminal Voltage = 12 Vdc, Gate Open
   Initiating Current = 500 mA
 MT2 (+)
 MT2 (−)
 *Either Direction, T_C = −65°C
	I_H	
		
		 —
		 —
		 —
			
			 5.0
			 5.0
			 —
				
				 70
				 80
				 200
					mA

*Turn-On Time
   Main Terminal Voltage = Rated V_{DRM}, I_{TM} = 42 A,
   Gate Source Voltage = 12 V, R_S = 50 Ohms, Rise Time = 0.1 μs,
   Pulse Width = 2.0 μs
	t_{gt}	—	1.0	2.0	μs

Blocking Voltage Application Rate at Commutation, f = 60 Hz, T_C = 85°C
 	
 On-State Conditions:
   I_{TM} = 42A, Pulse Width = 4.0 ms, di/dt = 17.5 A/ms
 	
 Off State Conditions:
   Main Terminal Voltage = Rated V_{DRM} (200 μs min),
   Gate Source Voltage = 0 V, R_S = 50 Ω
	dv/dt	—	5.0	—	V/μs

*Indicates JEDEC Registered Data.

(1) All voltage polarity reference to main terminal 1.