

New Jersey Semi-Conductor Products, Inc.

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2N**3870** thru 2N**3873** (SILICON)
2N**3896** thru 2N**3899**
2N**6171** thru 2N**6174**

**THYRISTORS
SILICON CONTROLLED RECTIFIERS**

... designed for industrial and consumer applications such as power supplies, battery chargers, temperature, motor, light and welder controls.

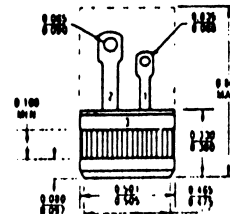
- Economical for a Wide Range of Uses
- High Surge Current — $I_{TSM} = 350$ Amp
- Practical Level Triggering and Holding Characteristics — 10 mA (Typ) @ $T_C = 25^\circ\text{C}$
- Rugged Construction in Either Pressfit, Stud or Isolated Stud Package

**THYRISTORS
PNPN**

**35 AMPERES RMS
100-600 VOLTS**

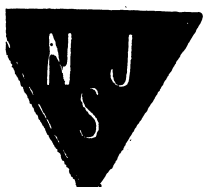


PIN 1 GATE
2 CATHODE
CASE, ANODE



**CASE 174
TO-203
2N3870
thru
2N3873**

ALL JEDEC dimensions and notes apply



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS

At Maximum Ratings Unless Otherwise Specified and at Indicated Case Temperature (T_C)

CHARACTERISTIC	SYMBOL	LIMITS			UNITS
		FOR ALL TYPES Unless Otherwise Specified			
		MIN.	TYP.	MAX.	
Peak Off-State Current: (Gate open, $T_C = 100^{\circ}\text{C}$) Forward Current (I_{DOM}) at $V_D = V_{\text{DROM}}$ Reverse Current (I_{ROM}) at $V_R = V_{\text{RROM}}$ 2N3870, 2N3896, S6420A 2N3871, 2N3897, S6420B 2N3872, 2N3898, S6420D 2N3873, 2N3899, S6420M, S6400N, S6410N, S6420N	I_{DOM} or I_{ROM}	— — — —	0.2 0.25 0.3 0.35	2* 2.5* 3* 4*	mA
Instantaneous On-State Voltage: $i_T = 69 \text{ A (peak), } T_C = 25^{\circ}\text{C}$ $i_T = 100 \text{ A (peak), } T_C = 25^{\circ}\text{C}$	v_T	— —	— 1.7	1.85* 2.1	V
DC Gate Trigger Voltage: $V_D = 12 \text{ V (dc), } R_L = 30 \Omega, T_C = -40^{\circ}\text{C}$ $V_D = 12 \text{ V (dc), } R_L = 30 \Omega, T_C = 25^{\circ}\text{C}$ For other case temperatures	V_{GT}	— —	1.5 1.1	3* 2	V
DC Gate Trigger Current: $V_D = 12 \text{ V (dc), } R_L = 30 \Omega, T_C = -40^{\circ}\text{C}$ $V_D = 12 \text{ V (dc), } R_L = 30 \Omega, T_C = 25^{\circ}\text{C}$ For other case temperatures	I_{GT}	— 1	46 25	80* 40	mA
Instantaneous Holding Current: Gate open, $T_C = 25^{\circ}\text{C}$ For other case temperatures	i_{HO}	0.5	30	70	mA
Gate Controlled Turn-On Time: (Delay Time + Rise Time) For $V_D = V_{\text{DROM}}$, $I_{\text{GT}} = 200 \text{ mA}$, $t_r = 0.1 \mu\text{s}$, $I_T = 30 \text{ A (peak), } T_C = 25^{\circ}\text{C}$ (See Fig. 12 & 14.)	t_{gt}	—	1.25	2	μs
Circuit Commutated Turn-Off Time: $V_D = V_{\text{DROM}}$, $i_T = 18 \text{ A}$, pulse duration $= 50 \mu\text{s}$, $dv/dt = 20 \text{ V}/\mu\text{s}$, $-di/dt$ $= -30 \text{ A}/\mu\text{s}$, $I_{\text{GT}} = 200 \text{ mA}$, $T_C = 80^{\circ}\text{C}$ (See Fig. 15.)	t_q	—	20	40	μs
Critical Rate of Rise of Off-State Voltage: $V_D = V_{\text{DROM}}$, exponential voltage rise, Gate open, $T_C = 100^{\circ}\text{C}$ (See Fig. 16.)	dv/dt	10	100	—	V/ μs
Thermal Resistance, Junction-to-Case: Steady-State Press-fit & stud types Isolated-stud types	$R_{\theta\text{JC}}$	— —	— —	0.9* 1	$^{\circ}\text{C}/\text{W}$

*In accordance with JEDEC registration data filed for the JEDEC (2N-series) types.