New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

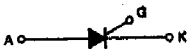
Silicon Controlled Rectifiers
Reverse Blocking Triode Thyristors

2N4168 thru 2N4174
2N4184 thru 2N4190

SCRs
8 AMPERES RMS
50 thru 600 VOLTS

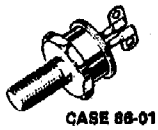
. . . multi-purpose PNPN silicon controlled rectifiers suited for industrial, consumer, and military applications. Offered in a choice of space-saving, economical packages for mounting versatility.

- Uniform Low-Level Noise-Immune Gate Triggering — I_{GT} = 10 mA (Typ) @ T_C = 25°C
- Low Forward "On" Voltage — V_T = 1 V (Typ) @ 5 Amp @ 25°C
- High Surge-Current Capability — I_{TSM} = 100 Amp Peak
- Shorted Emitter Construction



MAXIMUM RATINGS (Apply over operating temperature range and for all case types unless otherwise noted.)

Rating	Symbol	Value	Unit
*Peak Repetitive Forward and Reverse Blocking Voltage, Note 1 — 2N4168, 84, 2N4169, 85, 2N4170, 86, 2N4172, 88, 2N4174, 90	V_{DRM} or V_{RRM}	50 100 200 400 600	Volts
Forward Current RMS	$I_{T(RMS)}$	8	Amps
*Peak Forward Surge Current (One cycle, 60 Hz, T_J = −40 to +100°C)	I_{TSM}	100	Amps
Circuit Fusing (t = 8.3 ms)	I^2t	40	A^2s
*Peak Gate Power	P_{GM}	5	Watts
*Average Gate Power	$P_{G(AV)}$	0.5	Watt
*Peak Gate Current	I_{GM}	2	Amps
Peak Gate Voltage, Note 2	V_{GM}	10	Volts
*Operating Temperature Range	T_J	−40 to +100	°C
*Storage Temperature Range	T_{stg}	−40 to +150	°C
Stud Torque		15	In. lb.



CASE 66-01

2N4168 thru 2N4174

CASE 87L-02

2N4184 thru 2N4190

THERMAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	2.5*	°C/W
Thermal Resistance, Case to Ambient (See Figure 11) 2N4183–98	$R_{\theta CA}$	50	—	°C/W

*Indicates JEDEC Registered Data.

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

Characteristic	Symbol	Min	Typ	Max	Unit
*Peak Forward or Reverse Blocking Current (Rated V_{DRM} or V_{RRM}, gate open) T_C = 25°C T_C = 100°C	I_{DRM}, I_{RRM}	— —	— —	10 2	μA mA
Gate Trigger Current (Continuous dc), Note 1 (V_D = 7 Vdc, R_L = 100 Ω) *(V_D = 7 Vdc, R_L = 100 Ω, T_C = −40°C)	I_{GT}	— —	10 —	30 60	mA
Gate Trigger Voltage (Continuous dc) (V_D = 7 Vdc, R_L = 100 Ω) *(V_D = 7 Vdc, R_L = 100 Ω, T_C = −40°C) *(V_D = 7 Vdc, R_L = 100 Ω, T_C = 100°C)	V_{GT}	— — 0.2	0.75 — —	1.5 2.5 —	Volts
*Forward "On" Voltage (pulsed, 1 ms max, duty cycle ≤ 1%) (I_{TM} = 15.7 A)	V_{TM}	—	1.4	2	Volts
Holding Current (V_D = 7 Vdc, gate open) *(V_D = 7 Vdc, gate open, T_C = −40°C)	I_H	— —	10 —	30 60	mA
Turn-On Time (t_d + t_r) (I_G = 20 mAdc, I_F = 5 Adc, V_D = Rated V_{DRM})	t_{on}	—	1	—	μs
Turn-Off Time (I_F = 5 Adc, I_R = 5 Adc) (I_F = 5 Adc, I_R = 5 Adc, T_C = 100°C, V_D = Rated V_{DRM}) (dv/dt = 30 V/μs)	t_{off}	— —	15 25	— —	μs
Forward Voltage Application Rate (Exponential) (Gate open, T_C = 100°C, V_D = Rated V_{DRM})	dv/dt	—	50	—	V/μs