New Jersey Semi-Conductor Products, Inc.

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

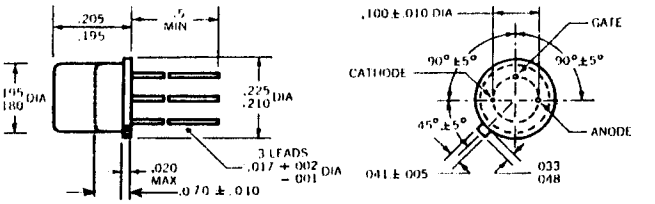
TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

SILICON PNPN
PASSIVATED PLANAR
CONTROLLED SWITCH

2N3027
2N3028
2N3029

TO-18
2N3027
2N3028
2N3029

TO-18 OUTLINE



TO-18

FEATURES

- **Available in TO-18**
  Fully characterized for "worst-case" design
- **Passivated planar construction for maximum reliability and parameter uniformity — All junctions completely passivated**
- **Low saturation voltage and fast switching at high current levels**
- **5 to 500 mA operating DC current range**
- **0.15 μS typical turn on time**
- **0.7 μS typical recovery time**
- **Pulse currents to 30 amps**
- **Voltage ratings to 100V**
- **0.2 mA max. trigger current**
- **0.8V max. trigger Voltage**

ABSOLUTE MAXIMUM RATINGS

Continuous D.C. Forward Current,	75°C Ambient 100°C Case	250 mA 500 mA } Note 2
Peak recurrent Forward Current		up to 30 amps
Surge current, 0.05 seconds		5 amps
Peak Gate current		250 mA
Average Gate current		25 mA
Reverse Gate voltage		5 volts
Reverse Gate current		3 mA
Storage temperature range		−65 to +200°C
Operating temperature range		−65 to +150°C

Note 1 Blocking voltage ratings apply over the operating temperature range, provided the gate is connected to the cathode through an appropriate resistor, or adequate gate bias is used.
Note 2 Ambient current ratings shown apply to TO-18 units.

Quality Semi-Conductors

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

SPECIFICATIONS

TEST	SYMBOL	MIN.	TYPICAL	MAX.	UNITS	TEST CONDITIONS
SUBGROUP 1 Visual and Mechanical	—	—	—	—	—	MIL-STD-750 Method 2071
SUBGROUP 2 (25°C Tests)						
Forward Blocking Current	I_{FX}	—	.002	0.1	μA	R_{GK} = 1 K, V_{FX} = Rating
Reverse Blocking Current	I_{RX}	—	.002	0.1	μA	R_{GK} = 1 K, V_{RX} = Rating
Reverse Gate Voltage	BV_{KGO}	5	8	—	V	I_{KGO} = 0.1 mA
Gate Trigger Current	I_{GT}	−5	50	200	μA	R_{GS} = 10 K, V_{FX} = 5V
Gate Trigger Voltage	V_{GT}	.40	.55	.80	V	R_{GS} = 100 Ω, V_{FX} = 5V
On Voltage	v_F	0.8	1.2	1.5	V	i_F = 1 A (pulse test)
Holding Current	I_{HX}	0.3	1.0	5.0	mA	R_{GK} = 1 K, V_{AA} = 5V
SUBGROUP 3 (25°C Tests)						
Anode Voltage-Critical Rate of Rise	dv_c/dt	30	60	—	V/μSec	R_{GK} = 1 K, V_{FX} = 30V
Gate Trigger-on Pulse Width	$t_{pg(on)}$	—	.07	0.2	μSec	I_G = 10 mA, I_A = 1 A, V_{AA} = 30V
Delay Time	t_d	—	0.1	—	μSec	I_G = 10 mA, I_A = 1 A, V_{AA} = 30V
Rise Time	t_r	—	0.05	—	μSec	I_G = 10 mA, I_A = 1 A, V_{AA} = 30V
Forward Blocking Recovery Time	t_{rbr}	—	0.7	2.0	μSec	I_F = 1 A, i_R = 1 A, R_{GK} = 1 K
SUBGROUP 4 (150°C Tests)						
High temp forward blocking current	I_{FX}	—	2	20	μA	R_{GK} = 1 K, V_{FX} = Rating
High temp reverse blocking current	I_{RX}	—	20	50	μA	R_{GK} = 1 K, V_{RX} = Rating
High temp gate trigger voltage	V_{GT}	.10	.15	0.6	V	R_{GS} = 100 Ω, V_{FX} = 5V
High temp holding current	I_{HX}	.05	.30	2.0	mA	R_{GK} = 1 K, V_{AA} = 5V
SUBGROUP 5 (−65°C Tests)						
Low temp gate trigger voltage	V_{GT}	0.6	0.8	1.1	V	R_{GS} = 100 Ω, V_{FX} = 5V
Low temp gate trigger current	I_{GT}	0	0.4	1.2	mA	R_{GS} = 10 K, V_{FX} = 5V
Low temp holding current	I_{HX}	0.5	5.0	10	mA	R_{GK} = 1 K, V_{AA} = 5V

Quality Semi-Conductors