New Jersey Semi-Conductor Products, Inc.

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

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

TYPES 2N681, 2N682, 2N683, 2N684, 2N685, 2N686, 2N687 AND 2N688

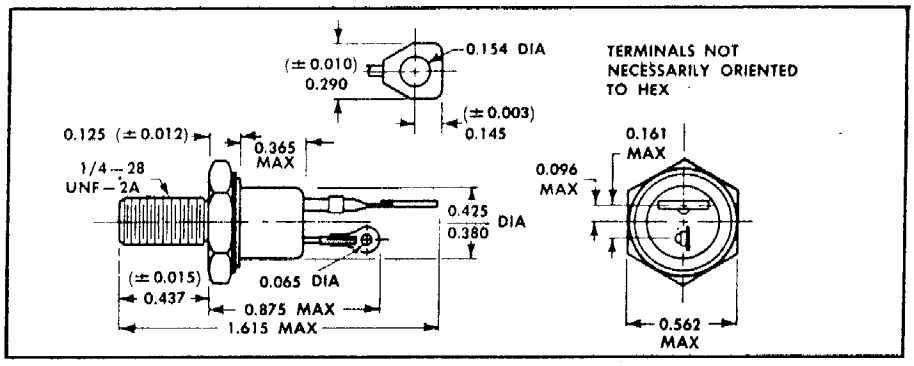
DIFFUSED SILICON PNPN CONTROLLED RECTIFIER

25 AMPERES - 25 to 400 VOLTS

All Welded Construction

mechanical data — Ruggedized to Meet Military Requirements

Welded case with glass-to-metal hermetic seal between case and leads.



absolute maximum ratings

	2N681	2N682	2N683	2N684	2N685	2N686	2N687	2N688	unit
Sine Wave Input Voltage (Peak)	25	50	100	150	200	250	300	400	v
Continuous Peak Reverse Voltage (PRV)	25	50	100	150	200	250	300	400	v
Transient Peak Reverse Voltage (Nonrecurrent < 5 millisec)	35	75	150	225	300	350	400	500	v
Average Forward Current (I_F)	Up to 16 Amperes (See Charts III & IV)								
Peak One Cycle Surge Current	150 Amperes								
I^2T (For Fusing)	75 Ampere^2 seconds (Time ≤ 0.008 seconds)								
Peak Gate Power	5								w
Peak Gate Current	2								a
Peak Gate Voltage (Forward)	10								v
Peak Gate Voltage (Reverse)	5								v
Average Gate Power	0.5								w
Operating Temperature Range	-65 to +125								°C
Storage Temperature Range	-65 to +150								°C
Stud Torque	30								in-lbs

electrical characteristics at temperature indicated

	parameter	type	test conditions	typ	min	max	unit
BV_F	Forward Breakover Voltage	2N681	T_J = 125°C		25		v
		2N682			50		v
		2N683			100		v
		2N684			150		v
		2N685			200		v
		2N686			250		v
		2N687			300		v
		2N688			400		v
I_R and $I_{F(off)}$	Reverse and Forward Leakage Current (Full Cycle Average)	2N681	T_J = 125°C at Rated BV_F and PIV			6.5	ma
		2N682				6.5	ma
		2N683				6.5	ma
		2N684				6.5	ma
		2N685				6.0	ma
		2N686				5.5	ma
		2N687				5.0	ma
		2N688				4.0	ma
V_F	Forward Voltage Drop	All	Full Cycle Average at Maximum Ratings			0.86	v
I_{Gt}	Gate Current to Trigger (See Chart I)	All	T_J = 125°C			25	ma
V_{Gt}	Gate Voltage to Trigger	All	(See Chart II)			3.0	v
I_H	Holding Current	All	T_J = 25°C	10			ma
R_T	Thermal Resistance	All	Junction to stud			2.0	°C/w

Quality Semi-Conductors