Solid State Devices, Inc.
14830 Valley View Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFS682 thru SFS692

Designer's Data Sheet

FEATURES:

- **High Surge Current**
- **High On State Current**
- **High Frequency up to 400 Hz operation**
- **Anode Common to Case**
- **Hermetically Sealed**
- **Replacement for part number 2N682 thru 2N692**
- **TX, TXV, S-Level Screening Available. Consult Factory**

25 AMPS
50 – 800 VOLTS
FAST SWITCHING
SILICON CONTROLLED RECTIFIER

TO-48

MAXIMUM RATINGS (T_J = 25°C UNLESS OTHERWISE NOTED, R_{GK} = 1K Ω)		Symbol	Value	Units
Peak Repetitive Reverse Voltage and DC Blocking Voltage	SFS682 SFS683 SFS685 SFS688 SFS690 SFS692	V_{DRM} V_{RRM}	50 100 200 400 600 800	**Volts**
RMS On-State Current (180 º Conduction Angle)	T_C = 80°C	$I_{T\,(RMS)}$	25	**Amps**
Average On-State Current	T_C = 80°C	$I_{T\,(AV)}$	16	**Amps**
Peak Non-Repetitive Surge Current (One Cycle, 60 Hz, T_J initial = 25°C, t = 8.3 ms)	tp = 8.3 ms tp = 10 ms	I_{TSM}	210 200	**Amps**
Fusing Current	tp = 10 ms	I^2_T	200	**A^2/s**
Critical Rate of Rise of On-State Current Gate supply, Ig = 400 mA, dIg/dt = 1A/µS		**dI/dt**	100	**A / µs**
Average Gate Power		$P_{G\,(AV)}$	1.0	**Watts**
Peak Gate Current	tp = 20 µs	I_{GM}	8	**Amps**
Peak Gate Voltage	tp = 20 µs	V_{GM}	15	**Volts**
Operating Junction Temperature Range		T_J	-40 to +125	**°C**
Storage Temperature Range		**Tstg**	-49 to +150	**°C**
Thermal Resistance, Junction to Case		$R_{\theta JC}$	1.50	**°C/W**

Solid State Devices, Inc.
14830 Valley View Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFS682 thru SFS692

ELECTRICAL CHARACTERISTICS (T_j = 25ºC unless otherwise indicated)		Symbol	Min	Typical	Max	Unit
Peak Reverse Blocking Current (Rated V_{RRM})	T_j = 25ºC T_j = 125ºC	I_{RRM}	—	—	20 3	µA mA
Peak Forward Blocking Current (Rated V_{DRM})	T_j = 25ºC T_j = 125ºC	I_{DRM}	—	—	20 3	µA mA
Peak On-State Voltage (I_F = 25 A Peak, t = 1 ms, Duty Cycle ≤ 1%) (I_F = 100 A Peak, t = 1 ms, Duty Cycle ≤ 1%)		V_{TM}	—	—	2.05 2.25	Volts
Gate Trigger Current (V_D = 12 V_{DC}, R_L = 33 Ω)		I_{GT}	—	—	40	mA
Gate Trigger Voltage (V_D = 12 V_{DC}, R_L = 33 Ω)		V_{GT}	—	—	1.5	Volts
Gate off Voltage (Vd= Vdrm, Ig = 200 mA, dIg.dt = 1.5 A/µS, T_j = 125ºC)		VGD	0.25	—	—	Volts
Latching Current (I_g = 48 mA)		I_L	—	50	—	mA
Holding Current (I_T = 500 mA, Gate Open)		I_H	—	30	70	mA
Critical Rate of Voltage Rise Linear slope up to VD= 67% of VDRM)		dV/dt	200	—	—	V/µs
Commutated Turn-off Time (Ig = 200 mA, dIg/dt = 1.5A/us)		tqt	—	2	—	µs
Turn Off Time (VD=67% of VDRM, ITM = 50A, Vr = 50 V, dItm/dt = 30 A/µs dVd/dt = 20 V/µS T_j = 125ºC)		tq	—	100	—	µs

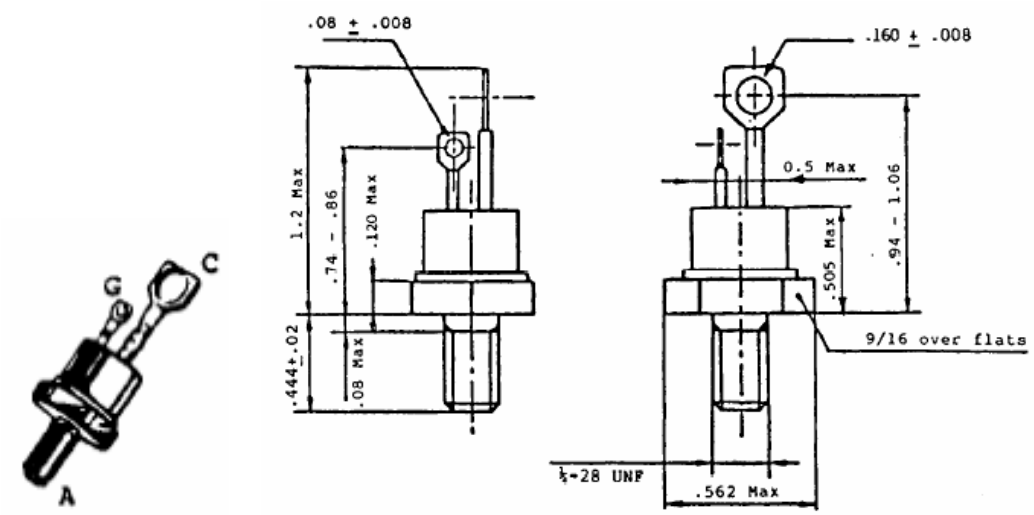
NOTES:

1/ Unless Otherwise Specified, All Electrical Characteristics @ T_C = 25ºC, R_{GK} = 1K Ω.

Solid State Devices, Inc.
14830 Valley View Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFS682 thru SFS692

PACKAGE OUTLINE: TO-48



Available Part Numbers:

SFS682; SFS683; SFS685; SFS688; SFS690; SFS692
SFS682/48; SFS683/48; SFS685/48; SFS688/48; SFS690/48; SFS692/48

PIN ASSIGNMENT (Standard)

Package	Cathode	Gate	Anode
TO-48 (/48)	Terminal 1	Terminal 2	Cathode