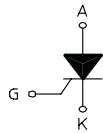
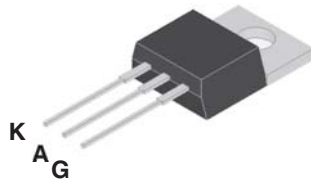


**INSULATED STANDARD SCR**

**INSULATED TO-220AB**



**On-State Current**

16 Amp

**Gate Trigger Current**

2 mA to 40 mA

**Off-State Voltage**

200 V ÷ 800 V

These series of **Silicon Controlled Rectifier** use a high performance PNP technology.

These parts are intended for general purpose applications where high gate sensitivity is required. The FS...J series provides an isolated tab (rated at 2500 Vrms).

- \* Low thermal resistance with clip bounding
- \* Low thermal resistance isolation ceramic for FS...J

**Absolute Maximum Ratings, according to IEC publication No. 134**

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	On-state Current	180° Conduction Angle, $T_c = 110\text{ °C}$	16	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, $\Theta = 180\text{ °}$ , $T_c = 110\text{ °C}$	10	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 60 Hz	200	A
$I_{TSM}$	Non-repetitive On-State Current	Half Cycle, 50 Hz	190	A
$I^2t$	Fusing Current	$t_p = 10\text{ms}$ , Half Cycle	180	A <sup>2</sup> s
$I_{GM}$	Peak Gate Current	20 $\mu\text{s}$ max.	4	A
$P_{GM}$	Peak Gate Dissipation	20 $\mu\text{s}$ max.	10	W
$P_{G(AV)}$	Gate Dissipation	20ms max.	1	W
$T_j$	Operating Temperature		(-40 to +125)	°C
$T_{stg}$	Storage Temperature		(-40 to +150)	°C
$T_{sld}$	Soldering Temperature	10s max.	260	°C
$V_{RGM}$	Reverse Gate Voltage		5	V

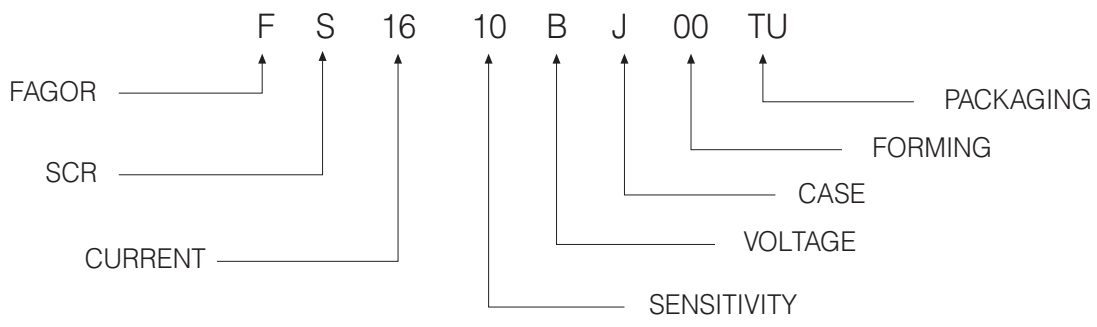
SYMBOL	PARAMETER	CONDITIONS	VOLTAGE					Unit
			B	D	M	S	N	
$V_{DRM}$ $V_{RRM}$	Repetitive Peak Off State Voltage	$R_{GK} = 1\text{ k}\Omega$	200	400	600	700	800	V

**INSULATED STANDARD SCR**

**Electrical Characteristics**

SYMBOL	PARAMETER	CONDITIONS	SENSITIVITY		Uni	
			10	14		
I <sub>GT</sub>	Gate Trigger Current	V <sub>D</sub> = 12 V <sub>DC</sub> , R <sub>L</sub> = 33Ω, T <sub>j</sub> = 25 °C	MIN	2	4	m A
			MAX	25	40	
V <sub>GT</sub>	Gate Trigger Voltage	V <sub>D</sub> = 12 V <sub>DC</sub> , R <sub>L</sub> = 33Ω, T <sub>j</sub> = 25 °C	MAX	1.3		V
V <sub>GD</sub>	Gate Non Trigger Voltage	V <sub>D</sub> = V <sub>DRM</sub> , R <sub>L</sub> = 3.3kΩ, R <sub>GK</sub> = 220Ω T <sub>j</sub> = 125 °C	MIN	0.2		V
I <sub>H</sub>	Holding Current	I <sub>T</sub> = 500 mA,	MAX	40	50	mA
I <sub>L</sub>	Latching Current	I <sub>G</sub> = 1.2 I <sub>GT</sub>	MAX	60	90	mA
dV / dt	Critical Rate of Voltage Rise	V <sub>D</sub> = 0.67 x V <sub>DRM</sub> , Gate open T <sub>j</sub> = 125 °C	MIN	500	1000	V/μs
dI / dt	Critical Rate of Current Rise	I <sub>G</sub> = 2 x I <sub>GT</sub> Tr ≤ 100 ns, f = 60 Hz, T <sub>j</sub> = 125 °C	MIN	50		A/μs
V <sub>TM</sub>	On-state Voltage	at I <sub>T</sub> = 32 Amp, tp = 380 μs, T <sub>j</sub> = 25 °C	MAX	1.6		V
V <sub>t0</sub>	Threshold Voltage	T <sub>j</sub> = 125 °C	MAX	0.77		V
r <sub>d</sub>	Dynamic resistance	T <sub>j</sub> = 125 °C	MAX	23		mΩ
I <sub>DRM</sub> / I <sub>RRM</sub>	Off-State Leakage Current	V <sub>D</sub> = V <sub>DRM</sub> , R <sub>GK</sub> = 1kΩ   T <sub>j</sub> = 125 °C V <sub>R</sub> = V <sub>RRM</sub> ,   T <sub>j</sub> = 25 °C	MAX	2		mA
			MAX	5		μA
R <sub>th(j-c)</sub>	Thermal Resistance Junction-Case for DC	for AC 360 ° conduction angle		1.1		°C/W
R <sub>th(j-a)</sub>	Thermal Resistance Junction-Amb for DC	S = 1 cm <sup>2</sup>		60		°C/W

**PART NUMBER INFORMATION**



**INSULATED STANDARD SCR**

Fig. 1: Maximum average power dissipation versus average on-state current.

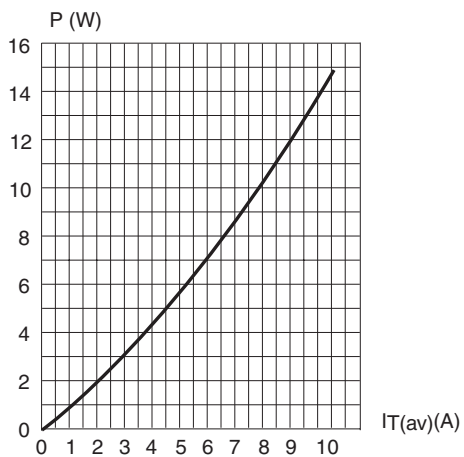


Fig. 2: Average and D.C. on-state current versus case temperature.

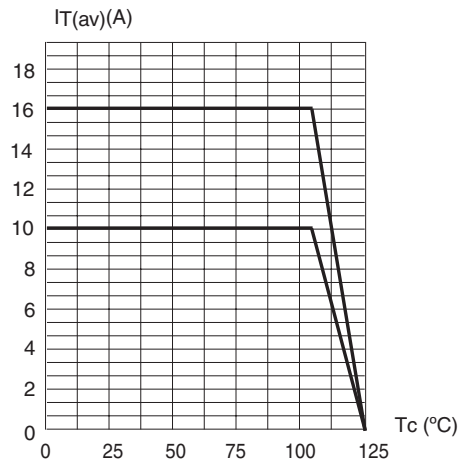


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

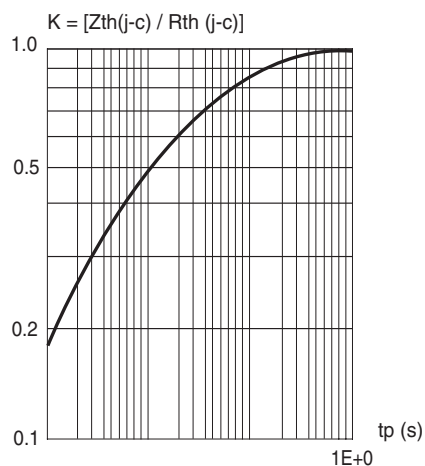


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.

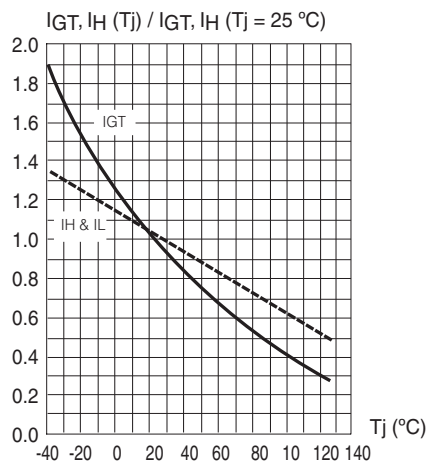


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.

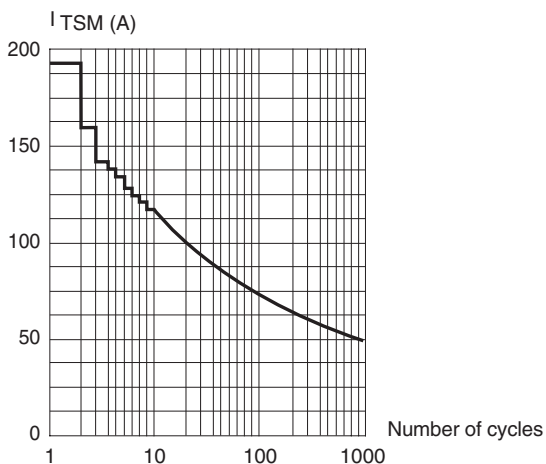
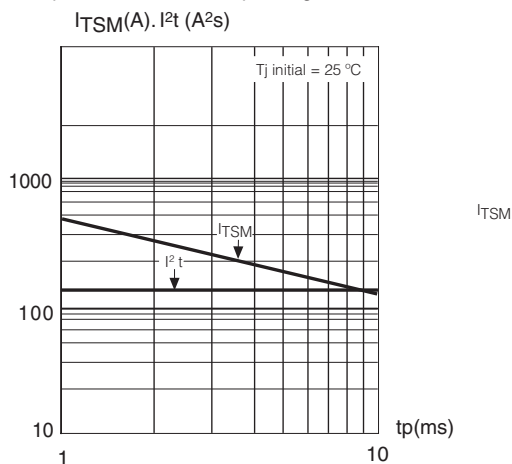
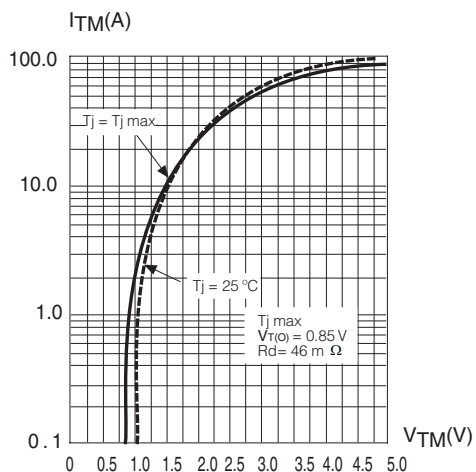


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width:  $t_p < 10$  ms, and corresponding value of  $I^2t$ .



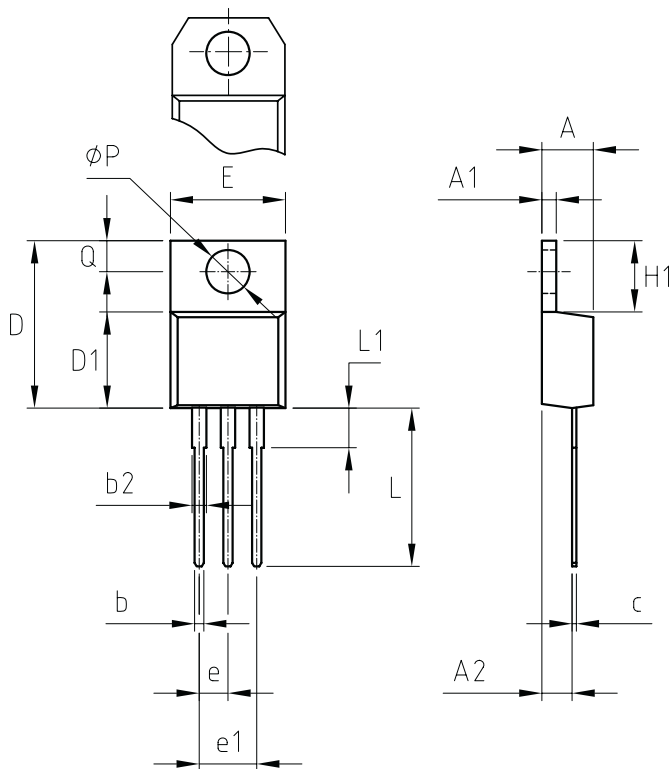
**INSULATED STANDARD SCR**

Fig. 7: On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA: INSULATED TO-220AB**

Optional with chamfer



REF.	DIMENSIONS	
	Millimeters	
	Min.	Max.
A	4.32	4.62
A1	1.21	1.29
A2	2.40	2.70
b	0.80	0.83
b2	1.40	--
c	0.42	0.48
D	15.5	15.68
D1	9.26	9.42
E	10.08	10.24
e	2.54	2.54
e1	5.08	5.08
H1	6.24	6.26
L	12.81	13.81
L1	3.28	4.17
P	3.70	3.80
Q	2.75	2.85

**Mounting Torque**

**1 N.m**

(\*) Limiting values and life support applications, see Web page.