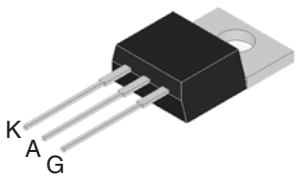
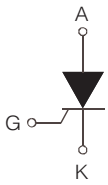
INSULATED STANDARD SCR

INSULATED TO-220AB





On-State Current	Gate Trigger Current
25 Amp	2 mA to 40 mA

Off-State Voltage
400 V ÷ 800 V

FEATURES

- Glass/passivated die junctions
- Provides voltage insulated tab (rated at 2500V RMS)
- High current SCR
- Low thermal resistance
- High surge current capability
- Low forward voltage drop
- Solder dip 260°C, 10s
- Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC
- Meets MSL level 3, per J-STD-020, LF maximum peak of 260° C

Pb

e3

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** INSULATED TO-220AB. Epoxy meets UL 94V-0 flammability rating.
- **Polarity:** As marked on the body.
- **Terminals:** Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test.

TYPICAL APPLICATIONS

Thanks to its triggering levels, the FS25xxxJ SCR series is suitable to fit all modes of control, found in applications such as overvoltage crowbar protection, motor control circuits in power tools and kitchen aids, inrush current limiting circuits, capacitive discharge ignition and voltage regulation circuits.

Maximun Ratings and Electrical Characteristics at 25°C

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	On-state Current	180 ° Conduction Angle, T_C = 110 °C	25	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, Θ = 180 °, T_C = 110 °C	16	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 60 Hz	270	A
I_{TSM}	Non-repetitive On-State Current	Halfl Cycle, 50 Hz	250	A
I^2t	Fusing Current	tp = 10 ms, Half Cycle	313	A^2s
I_{GM}	Peak Gate Current	20 µs max.	4	A
P_{GM}	Peak Gate Dissipation	20 µs 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

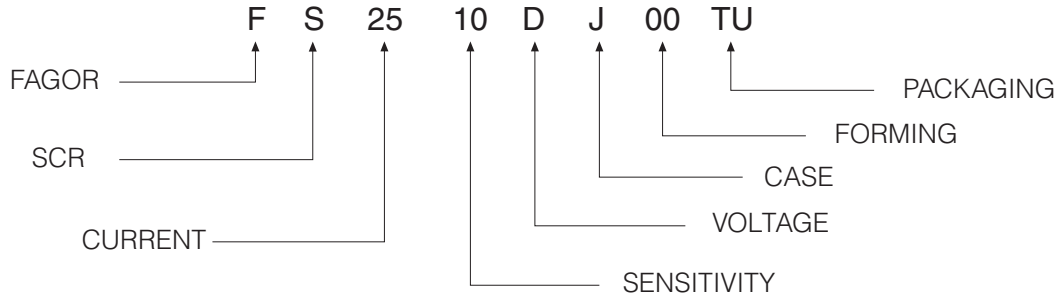
SYMBOL	PARAMETER	CONDITIONS	VOLTAGE			Unit
			D	M	N	
V_{DRM}/V_{RRM}	Repetitive Peak Off State Voltage	R_{GK} = 1 kΩ	400	600	800	V

INSULATED STANDARD SCR

Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS		SENSITIVITY 10	SENSITIVITY 14	Unit
I_{GT}	Gate Trigger Current	V_D = 12 V_{DC} , R_L = 33Ω. T_j = 25 °C	MIN MAX	2 25	4 40	m A
V_{GT}	Gate Trigger Voltage	V_D = 12 V_{DC} , R_L = 33Ω, T_j = 25 °C	MAX	1.3		V
V_{GD}	Gate Non Trigger Voltage	V_D = V_{DRM} , R_L = 3.3kΩ, R_{GK} = 220Ω T_j = 125 °C	MIN	0.2		V
I_H	Holding Current	I_T = 500 mA,	MAX	40	50	mA
I_L	Latching Current	I_G = 1.2 I_{GT}	MAX	60	90	mA
dV / dt	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM} , Gate open T_j = 125 °C	MIN	500	1000	V/µs
dI / dt	Critical Rate of Current Rise	I_G = 2 x I_{GT} Tr ≤ 100 ns, f = 60 Hz, T_j = 125 °C	MIN	50	100	A/µs
V_{TM}	On-state Voltage	at I_T = 50 Amp, tp = 380 µs, T_j = 25 °C	MAX	1.6		V
V_{t0}	Threshold Voltage	T_j = 125 °C	MAX	0.75		V
r_d	Dynamic resistance	T_j = 125 °C	MAX	14		mΩ
I_{DRM} / I_{RRM}		V_D = V_{DRM} , R_{GK} = 1kΩ, V_R = V_{RRM} ,	T_j = 125 °C T_j = 25 °C	MAX MAX	2 5	mA µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case for DC	for AC 360 ° conduction angle		1		°C/W
$R_{th(j-a)}$	Thermal Resistance Junction-Amb for DC			60		°C/W

Part Number Information



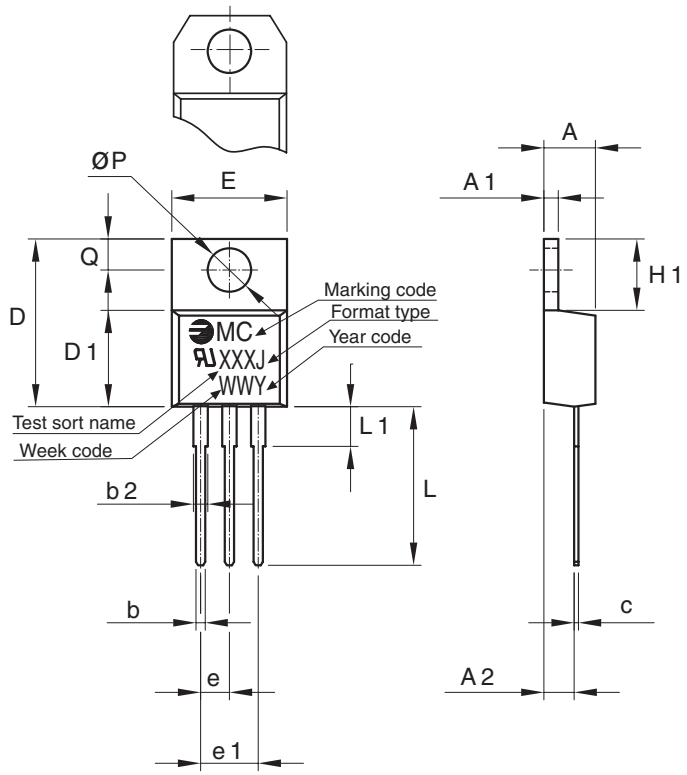
INSULATED STANDARD SCR

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS2514MJ 00TU	TU	TUBE	1000	2.30

Package Outline Dimensions: (mm) INSULATED TO-220AB

Optional with chamfer



REF.	DIMENSIONS Milimeters	
	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	**0.8 N.m**

Ratings and Characteristics (Ta 25 ºC unless otherwise noted)

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

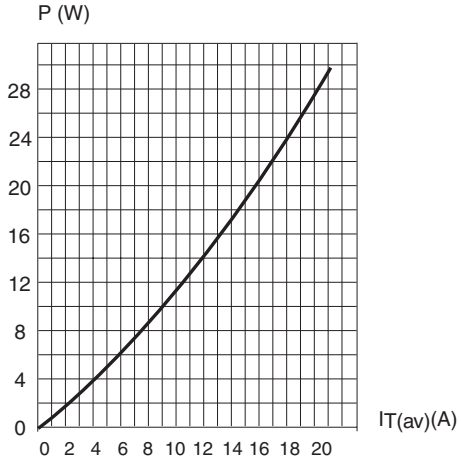


Fig. 2: Average and D.C. on-state current versus case temperature.

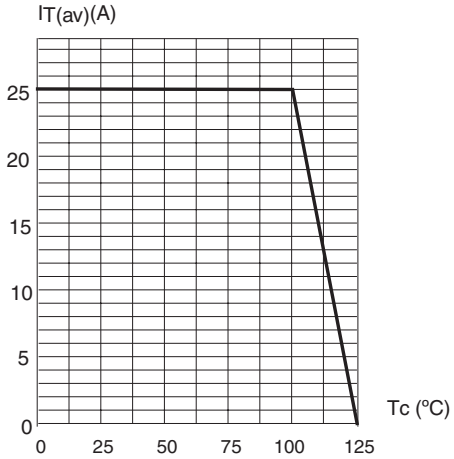


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

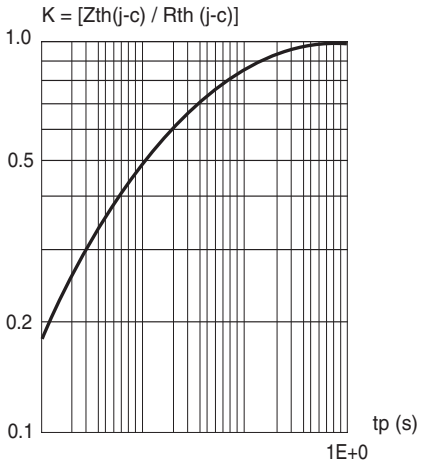
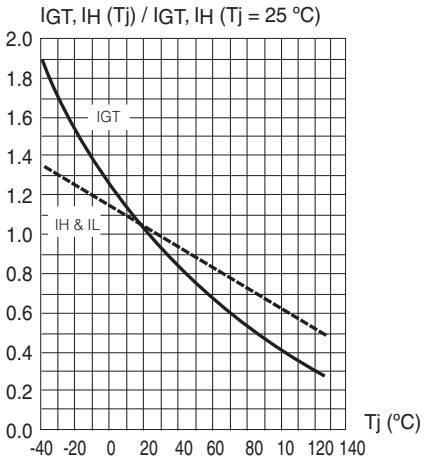


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.



Ratings and Characteristics (Ta 25 ºC unless otherwise noted)

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

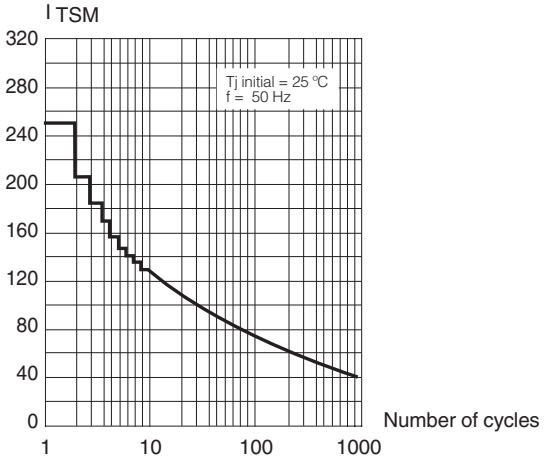


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I^2t.

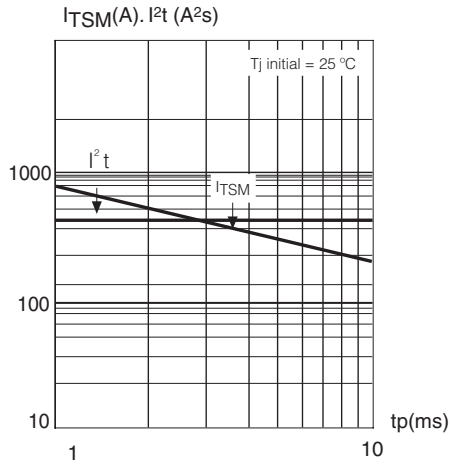
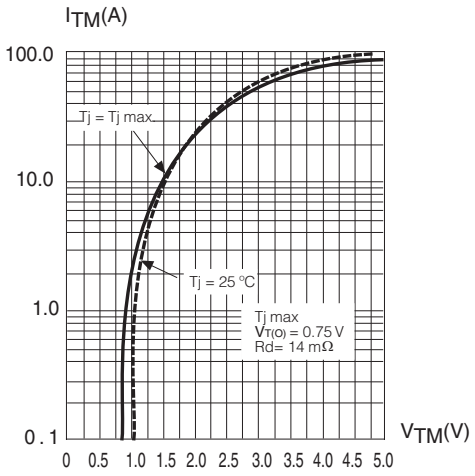


Fig. 7: On-state characteristics (maximum values).



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