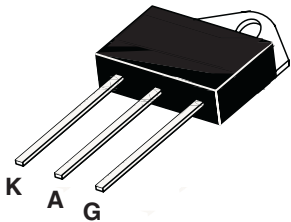
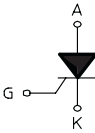




INSULATED STANDARD 50A SCR

<p>INSULATED TO3P</p>  	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">On-State Current 50 Amp</td> <td style="width: 50%;">Gate Trigger Current ≤ 80 mA</td> </tr> <tr> <td colspan="2" style="text-align: center;">Off-State Voltage 600 V ÷ 1200 V</td> </tr> </table> <p>FEATURES</p> <ul style="list-style-type: none"> • Glass/passivated die junctions • 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 • Certified compliance of UL 1557 Standard for Electrically Isolated Semiconductors. Fille reference E320541, Vol. 3 <div style="text-align: right;">   RoHS COMPLIANT </div> <p>MECHANICAL DATA</p> <ul style="list-style-type: none"> • Case: INSULATED TO3P. 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. <p>TYPICAL APPLICATIONS</p> <p>Thanks to its triggering levels, the FS50xxxP 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.</p>	On-State Current 50 Amp	Gate Trigger Current ≤ 80 mA	Off-State Voltage 600 V ÷ 1200 V	
On-State Current 50 Amp	Gate Trigger Current ≤ 80 mA				
Off-State Voltage 600 V ÷ 1200 V					

Maximun Ratings and Electrical Characteristics at 25°C

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	RMS On-state Current (full sine wave)	All Conduction Angle, $T_c = 75^\circ C$	50	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 60 Hz ($t_p = 8.3$ ms)	610	A
I_{TSM}	Non-repetitive On-State Current	Full Cycle, 50 Hz ($t_p = 10$ ms)	580	A
I^2t	Fusing Current	$t_p = 10$ ms, Half Cycle	1680	A ² s
I_{GM}	Peak Gate Current	20 μ s max. $T_j = 125^\circ C$	8	A
$P_{G(AV)}$	Average Gate Power Dissipation	$T_j = 125^\circ C$	1	W
di/dt	Critical rate of rise of on-state current	$I_G = 2 \times I_{GT}$, $t_r \leq 100$ ns $f = 60$ Hz, $T_j = 125^\circ C$	50	A/ μ s
T_j	Operating Temperature		(-40 +125)	°C
T_{stg}	Storage Temperature		(-40 +150)	°C

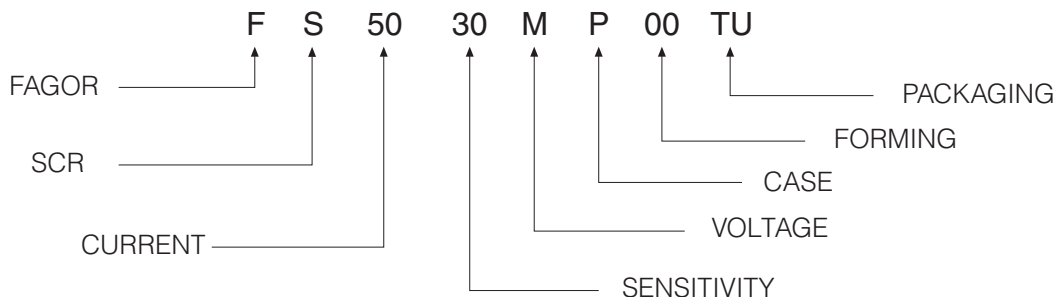
SYMBOL	PARAMETER	VOLTAGE			Unit
		M	N	Q	
V_{DRM}/V_{RRM}	Repetitive Peak Off State Voltage	600	800	1200	V

INSULATED STANDARD 50A SCR

Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS		SENSITIVITY	
					Unit
I_{GT}	Gate Trigger Current	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25\text{ }^\circ\text{C}$	MAX	30 80	mA
V_{GT}	Gate Trigger Voltage	$V_D = 12 V_{DC}, R_L = 33\Omega, T_j = 25\text{ }^\circ\text{C}$	MAX	1.3	V
V_{GD}	Gate Non Trigger Voltage	$V_D = V_{DRM}, R_L = 3.3\text{ K}\Omega, T_j = 125\text{ }^\circ\text{C}$	MIN	0.2	V
I_H	Holding Current	$I_T = 500\text{ mA}, \text{Gate open},$	MAX	150	mA
I_L	Latching Current	$I_G = 1.2 \times I_{GT}, T_j = 25\text{ }^\circ\text{C}$	MAX	200	mA
dV/dt	Critical Rate of Voltage Rise	$V_D = 0.67 \times V_{DRM}, \text{Gate open}$ $T_j = 125\text{ }^\circ\text{C}$	MIN	1000	V/ μs
V_{TM}	On-state Voltage	$I_{TM} = 100\text{ Amp}, t_p = 380\text{ }\mu\text{s}, T_j = 25\text{ }^\circ\text{C}$	MAX	1.9	V
$V_{t(o)}$	Threshold Voltage	$T_j = 125\text{ }^\circ\text{C}$	MAX	1	V
r_d	Dynamic resistance	$T_j = 125\text{ }^\circ\text{C}$	MAX	8.5	m Ω
I_{DRM}/I_{RRM}	Off-State Leakage Current	$V_{DRM}=V_{RRM} \quad T_j = 125\text{ }^\circ\text{C}$	MAX	5	mA
		$T_j = 25\text{ }^\circ\text{C}$	MAX	10	μA
$R_{th(j-c)}$	Thermal Resistance Junction-Case D.C.	D.C.		0.9	$^\circ\text{C}/\text{W}$

Part Number Information

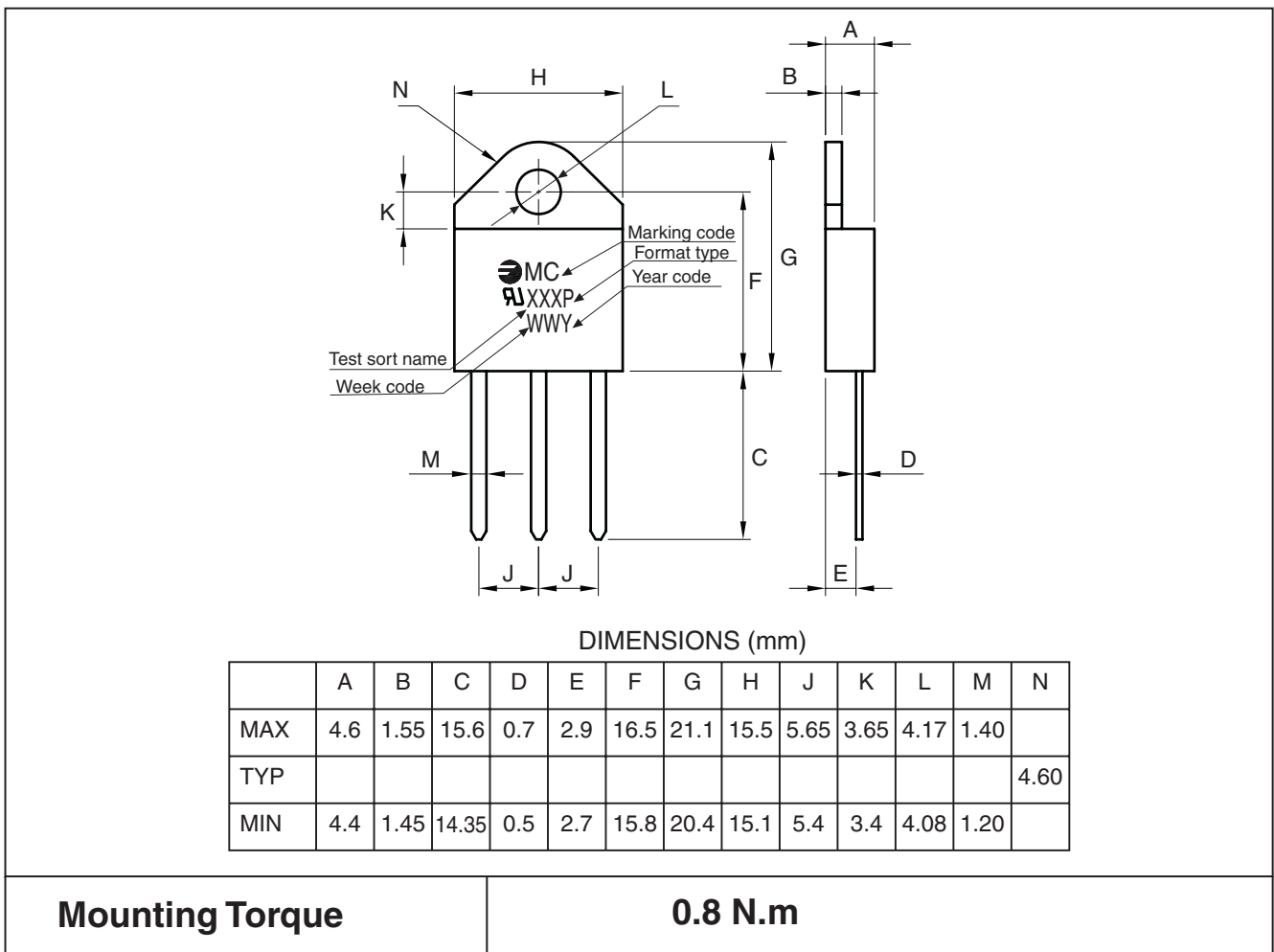


INSULATED STANDARD 50A SCR

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS5030MP 00TU	TU	TUBE	450	4.50

Package Outline Dimensions: (mm) INSULATED TO3P



INSULATED STANDARD 50A SCR

Ratings and Characteristics (Ta 25 °C unless otherwise noted)

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

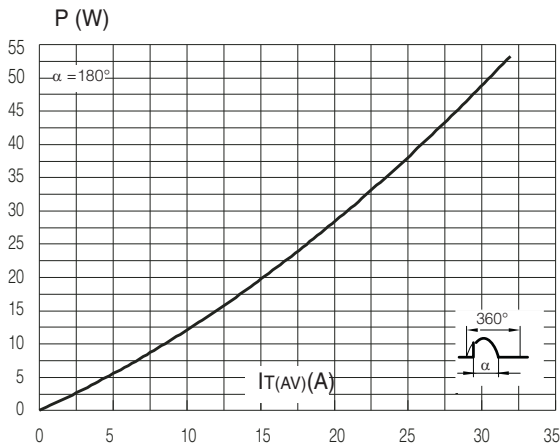


Fig. 2: Average and D.C. on-state current versus case temperature

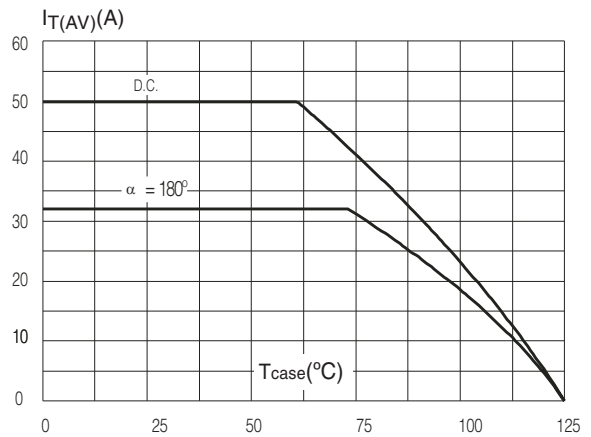


Fig. 3: Relative variation of thermal impedance versus pulse duration

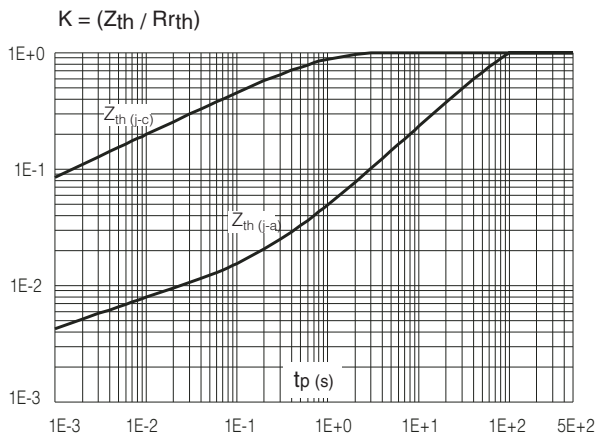
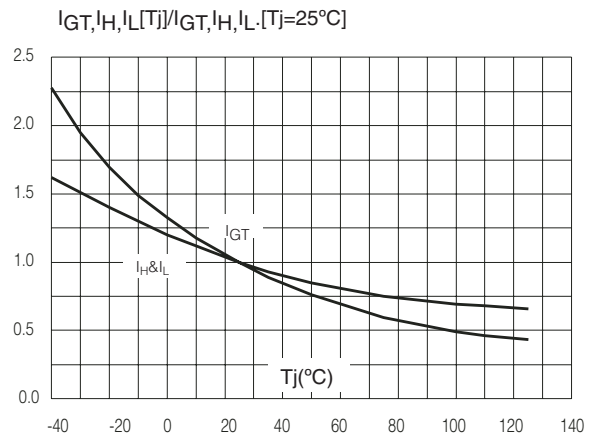


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature



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Fig. 5: Surge peak on-state current versus number of cycles

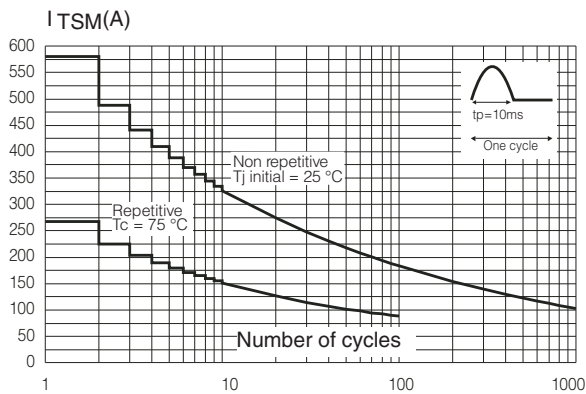


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10$ ms, and corresponding values of I^2t

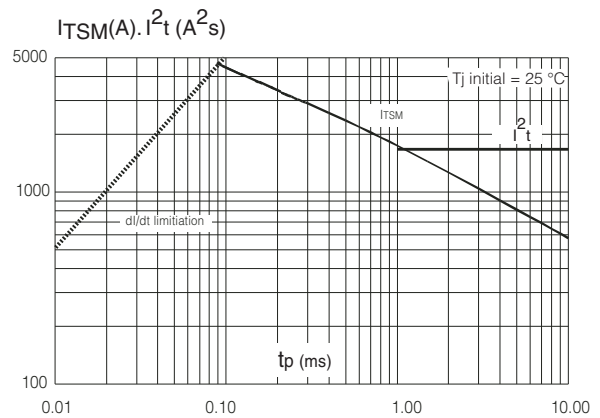
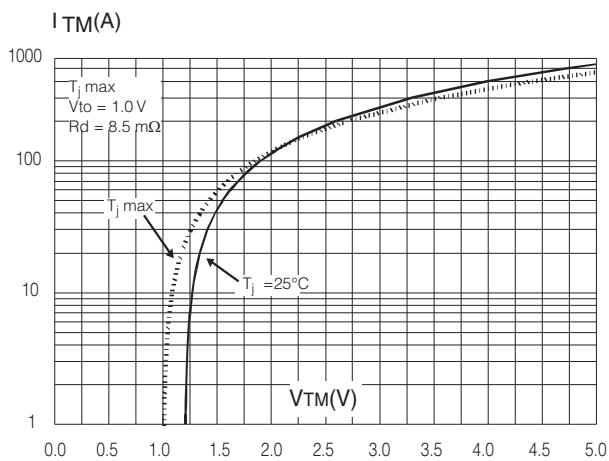


Fig. 7: On-state characteristics (maximum values)



INSULATED STANDARD 50A SCR

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