

STANDARD 16A SCR

<div style="display: flex; flex-direction: column; align-items: center;"> <div style="text-align: center;"> <p>TO-263AB (D2PAK) (FS40xxxG)</p> </div> <div style="margin-top: 20px;"> <p>TO-220AB (FS40xxxH)</p> </div> <div style="margin-top: 20px;"> </div> </div>	<p>On-State Current 16 Amp</p>	<p>Gate Trigger Current 2mA to 25mA 2mA to 40mA</p>		
	<p>Off-State Voltage 400 V ÷ 800 V</p>			
	<p>FEATURES</p> <ul style="list-style-type: none"> Glass/passivated die junctions Low 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 			
	<p>MECHANICAL DATA</p> <ul style="list-style-type: none"> Case: (D2PAK) / (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. 			
<p>TYPICAL APPLICATIONS</p> <p>The standard gate SCR FS1610 and FS1614 series is suitable for a wide range of applications, e.g., Overvoltage Crowbar protection, Motor Control circuits in Power Tools and domestic appliances, inrush current limiting circuits, capacitive discharge ignition and voltage regulation circuits.</p>				


RoHS
COMPLIANT

Maximun Ratings and Electrical Characteristics at 25°C

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	On-state Current	180 ° Conduction Angle, $T_C = 110\text{ °C}$	16	A
$I_{T(AV)}$	Average On-state Current	180 ° Conduction Angle, $T_C = 110\text{ °C}$	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 ² s
I_{GM}	Peak Gate Current	20 μ s max.	4	A
P_{GM}	Peak Gate Dissipation	20 μ 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}	Max. Peak Reverse Gate Voltage (For FS1610 and FS1614)		5	V

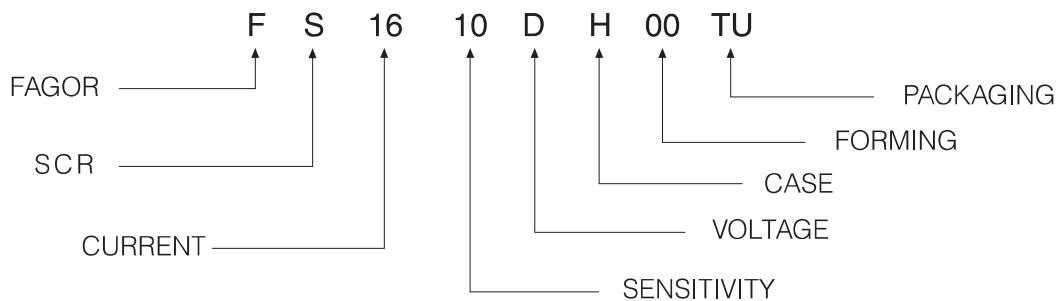
SYMBOL	PARAMETER	VOLTAGE			Unit
		D	M	N	
V_{DRM} V_{RRM}	Repetitive Peak Off State Voltage	400	600	800	V

STANDARD 16A SCR

Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS	SENSITIVITY		Unit	
			10	14		
I _{GT}	Gate Trigger Current	V _D = 12 V _{DC} , R _L = 33Ω.	MIN	2	4	m A
			MAX	25	40	
V _{GT}	Gate Trigger Voltage	V _D = 12 V _{DC} , R _L = 33Ω.	MAX	1.3		V
V _{GD}	Gate Non Trigger Voltage	V _D = V _{DRM} , R _L = 3.3kΩ, T _j = 125 °C	MIN	0.2		V
I _H	Holding Current	I _T = 500 mA,	MAX	40	50	m A
I _L	Latching Current	I _G = 1.2 I _{GT}	MAX	60	90	m A
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		A/μs
V _{TM}	On-state Voltage	at I _T = 50 Amp, tp = 380 μs, T _j = 25 °C	MAX	1.6		V
V _{to}	Threshold Voltage	T _j = 125 °C	MAX	0.77		V
r _d	Dynamic resistance	T _j = 125 °C	MAX	23		mΩ.
I _{DRM} / I _{RRM}		V _D = V _{DRM} , V _R = V _{RRM} ,	T _j = 125 °C	MAX	2	mA
			T _j = 25 °C	MAX	5	μA
R _{th(j-c)}	Thermal Resistance Junction-Case for DC	for AC 360 ° conduction angle		1.1		°C/W
R _{th(j-a)}	Thermal Resistance Junction-Amb for DC	S = 1 cm ²	D2PAK	45		°C/W
			TO-220AB	60		

Part Number Information



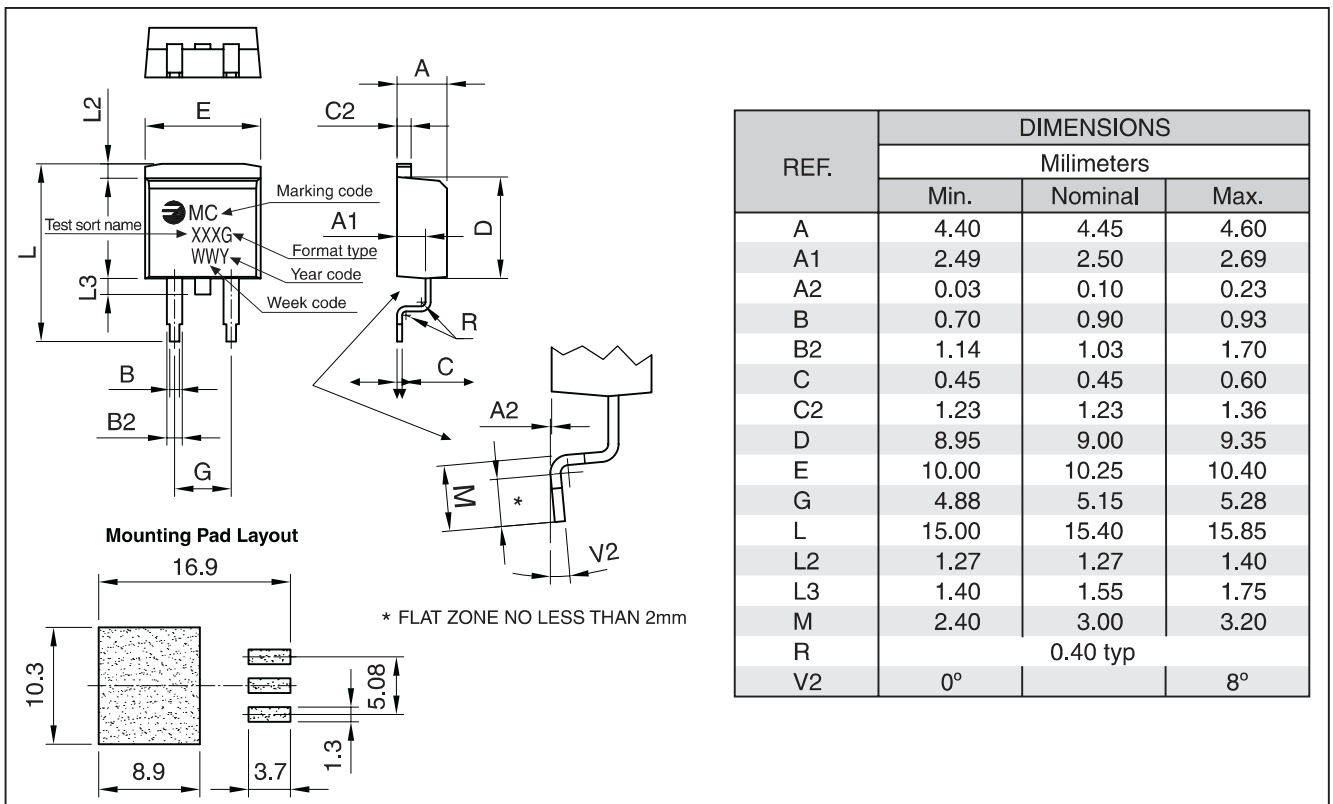
STANDARD 16A SCR

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS1610DG 00TR	TR	13" diameter tape and reel	800	1.50

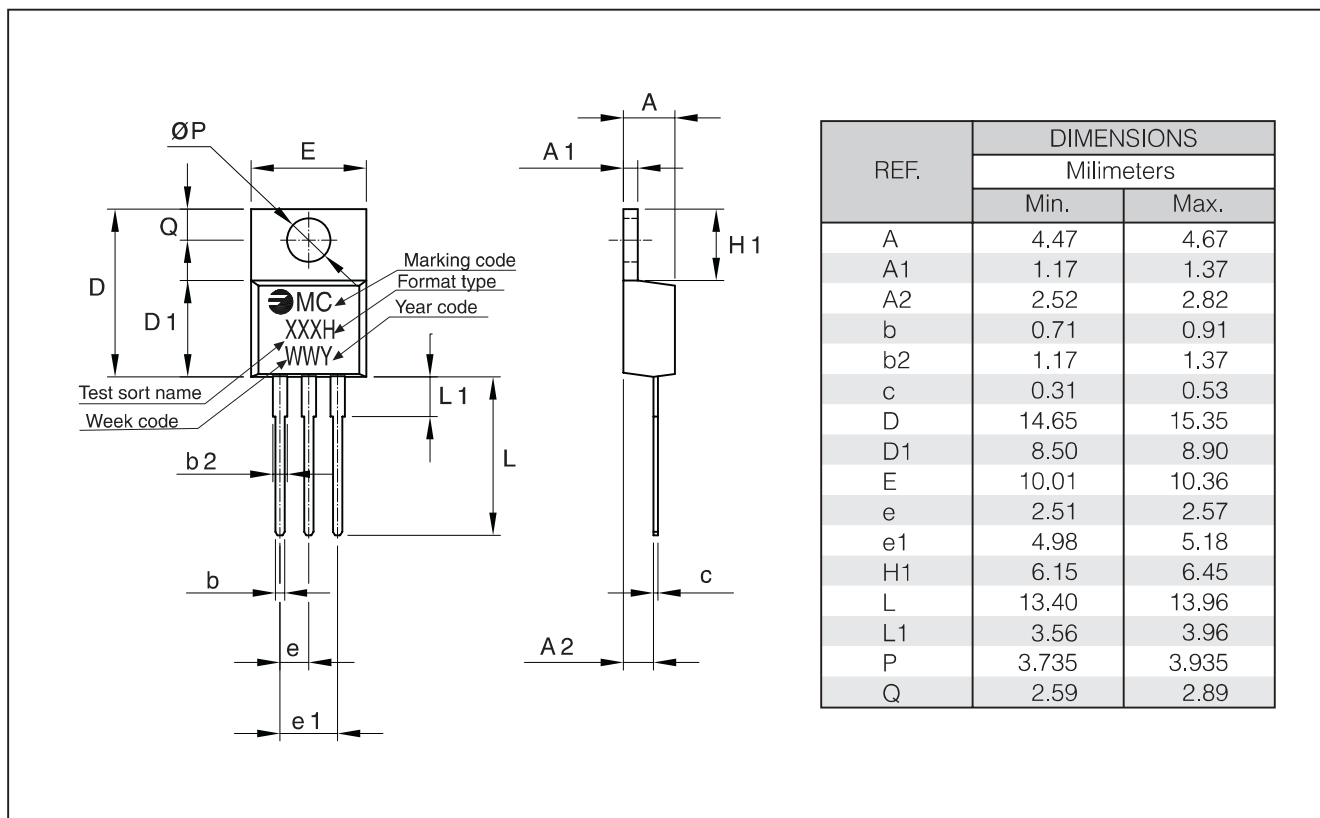
PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS1610DH 00TU	TU	TUBE	1000	2.30

Package Outline Dimensions: (mm) TO-263AB (D2PAK)



STANDARD 16A SCR

Package Outline Dimensions: (mm) TO-220AB



STANDARD 16A SCR

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

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

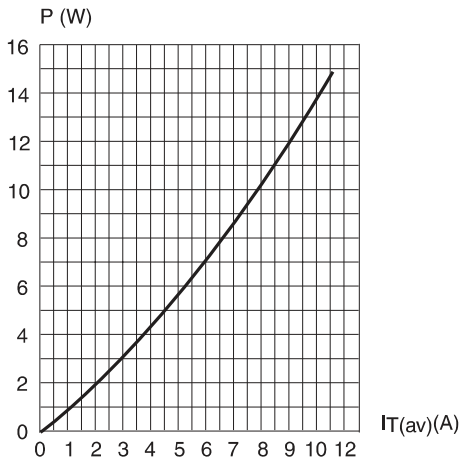


Fig. 2: Average and D.C. on-state current versus case temperature.

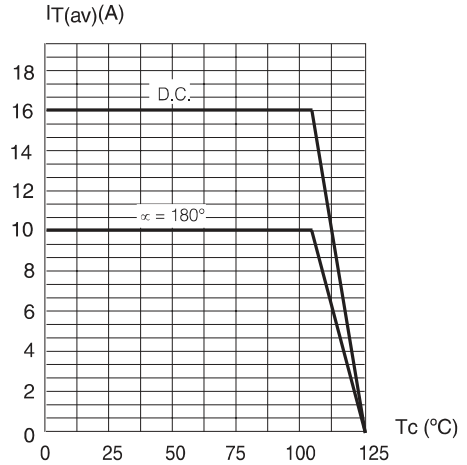


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

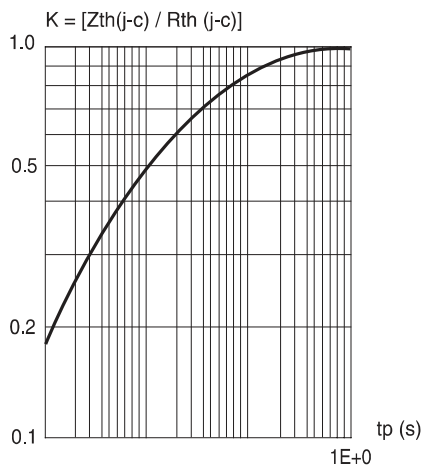


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.

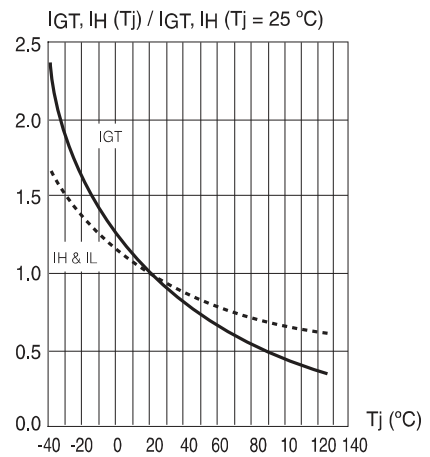


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.

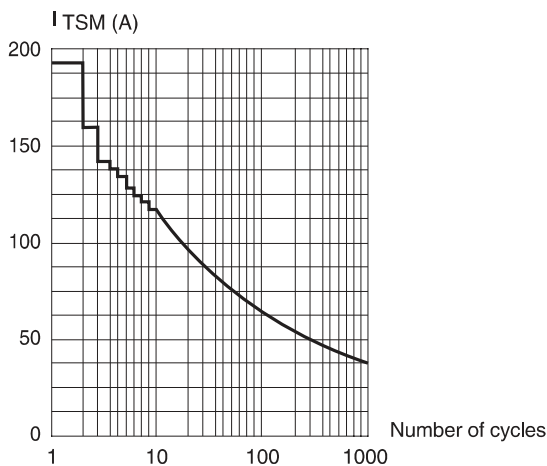
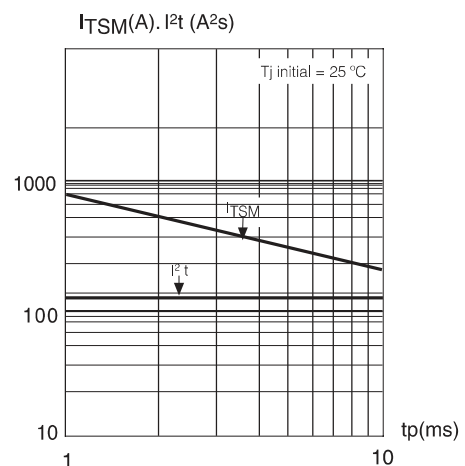


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10$ ms, and corresponding value of I^2t .



STANDARD 16A SCR

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

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

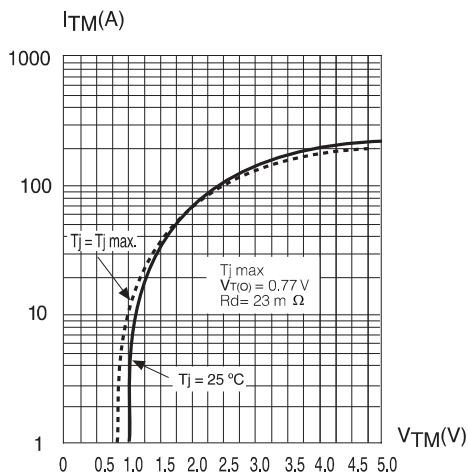


Fig. 8: D²PAK RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35µm), full cycle.

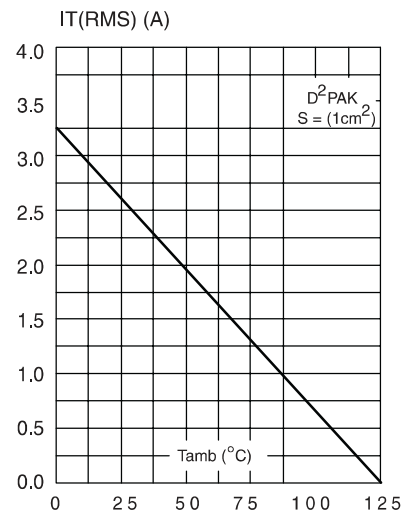
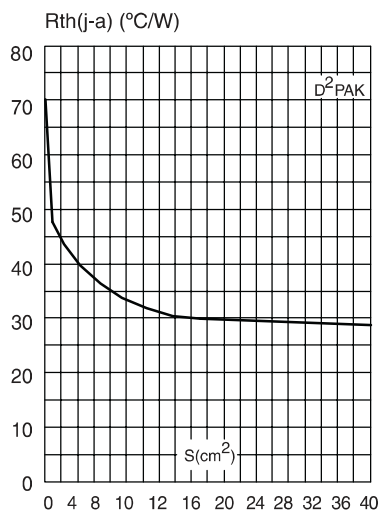


Fig. 9: D²PAK Thermal resistance junction to ambient versus copper surface under tab (printed circuit board FRA, copper thickness: 35µm).



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