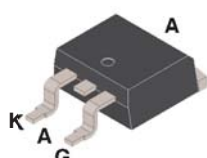

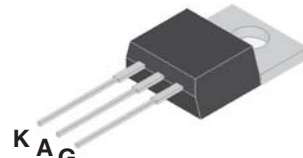
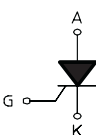


STANDARD 25A SCR

<div style="text-align: center;"> <p>TO-263AB (D2PAK) (FS25xxxG)</p>  <p>(FULLY ISOLATED CASE)</p> <p>TO-220F (FS25xxxW)</p>  <p>TO-220AB (FS25xxxH)</p>  </div> <div style="text-align: center; margin-top: 20px;">  </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">On-State Current</td> <td style="text-align: center; border-bottom: 1px solid black;">Gate Trigger Current</td> </tr> <tr> <td style="text-align: center;">25 Amp</td> <td style="text-align: center;">2mA to 25mA 2mA to 40mA</td> </tr> <tr> <td colspan="2" style="text-align: center; border-bottom: 1px solid black;">Off-State Voltage</td> </tr> <tr> <td colspan="2" style="text-align: center;">400 V ÷ 800 V</td> </tr> <tr> <td colspan="2" style="border-bottom: 1px solid black;">FEATURES</td> </tr> <tr> <td colspan="2"> <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 </td> </tr> <tr> <td colspan="2" style="border-bottom: 1px solid black;">MECHANICAL DATA</td> </tr> <tr> <td colspan="2"> <ul style="list-style-type: none"> Case: (D2PAK) / (TO-220F) & (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. </td> </tr> <tr> <td colspan="2" style="border-bottom: 1px solid black;">TYPICAL APPLICATIONS</td> </tr> <tr> <td colspan="2"> <p>The standard gate SCR FS2510 and FS2514 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> </td> </tr> </table>	On-State Current	Gate Trigger Current	25 Amp	2mA to 25mA 2mA to 40mA	Off-State Voltage		400 V ÷ 800 V		FEATURES		<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 		MECHANICAL DATA		<ul style="list-style-type: none"> Case: (D2PAK) / (TO-220F) & (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		<p>The standard gate SCR FS2510 and FS2514 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>	
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RoHS
COMPLIANT

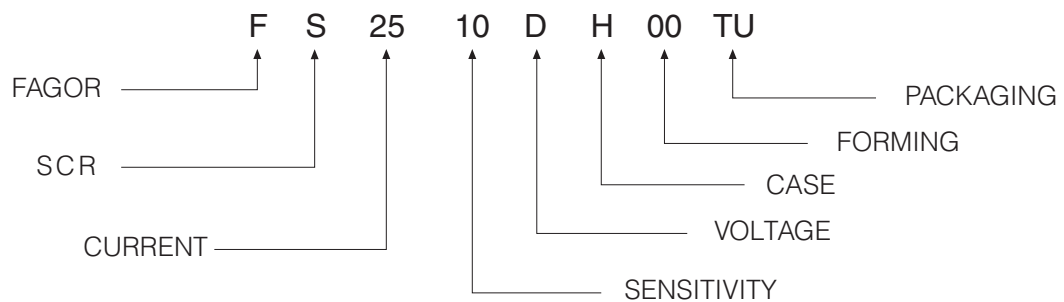
Maximun Ratings and Electrical Characteristics at 25°C

SYMBOL	PARAMETER	CONDITIONS	Value	Unit
$I_{T(RMS)}$	On-state Current	180 ° Conduction Angle, $T_c = 110\text{ °C}$	25	A
$I_{T(AV)}$	Average On-state Current	Half Cycle, $\Theta = 180\text{ °}$, $T_c = 110\text{ °C}$	16	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 60 Hz	330	A
I_{TSM}	Non-repetitive On-State Current	Half Cycle, 50 Hz	300	A
I^2t	Fusing Current	$t_p = 10\text{ms}$, Half Cycle	450	A ² s
I_{GM}	Peak Gate Current	20 μs max.	4	A
P_{GM}	Peak Gate Dissipation	20 μs max.	20	W
$P_{G(AV)}$	Gate Dissipation	20 ms max.	1	W
T_j	Operating Temperature		(-40 to + 125)	°C
T_{stg}	Storage Temperature		(-40 to + 150)	°C
T_{sld}	Soldering Temperature	10 ms max.	260	°C
V_{RGM}	Reverse Gate Voltage		5	V
V_{iso}	R.M.S. isolation voltage 50/60 Hz sinusoidal waveform		2.500	Vac

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

STANDARD 25A 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	1500	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	D2PAK/TO-220AB	50		A/μs
			TO-220F	100		
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	0.77		V
r _d	Dynamic resistance	T _j = 125 °C	MAX	14		mΩ
I _{DRM} / I _{RRM}		V _D = V _{DRM} , V _R = V _{RRM} ,	T _j = 125 °C	2		m A
			T _j = 25 °C	5		μ A
R _{th(j-c)}	Thermal Resistance Junction-Case for DC	for AC 360° conduction angle	D2PAK/TO-220AB	1		°C/W
			TO-220F	4		
R _{th(j-a)}	Thermal Resistance Junction-Amb for DC	S = 1 cm ²	D2PAK	45		°C/W
			TO-220F	55		
			TO-220AB	60		

Part Number Information


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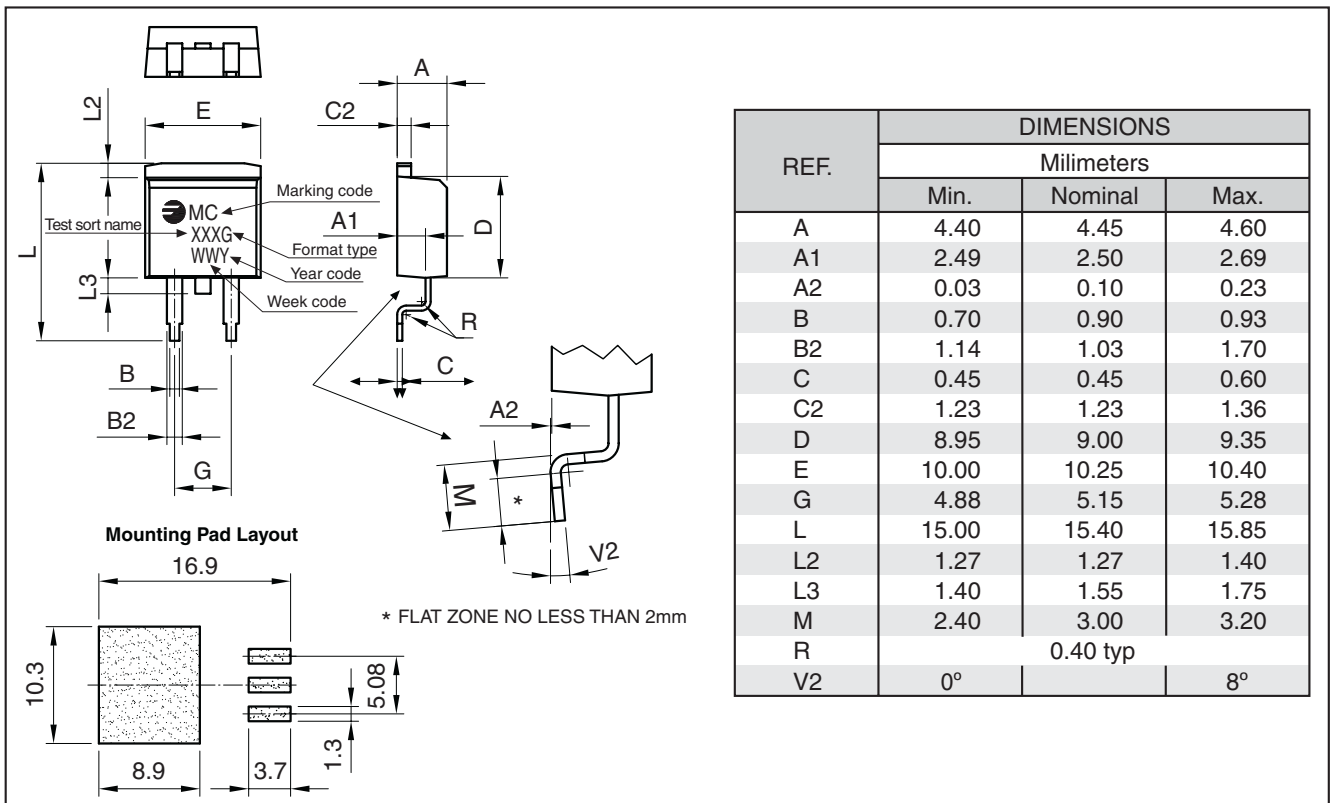
Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS2510DG 00TR	TR	13" diameter tape and reel	800	1.50

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS2510DH 00TU	TU	TUBE	1000	2.30

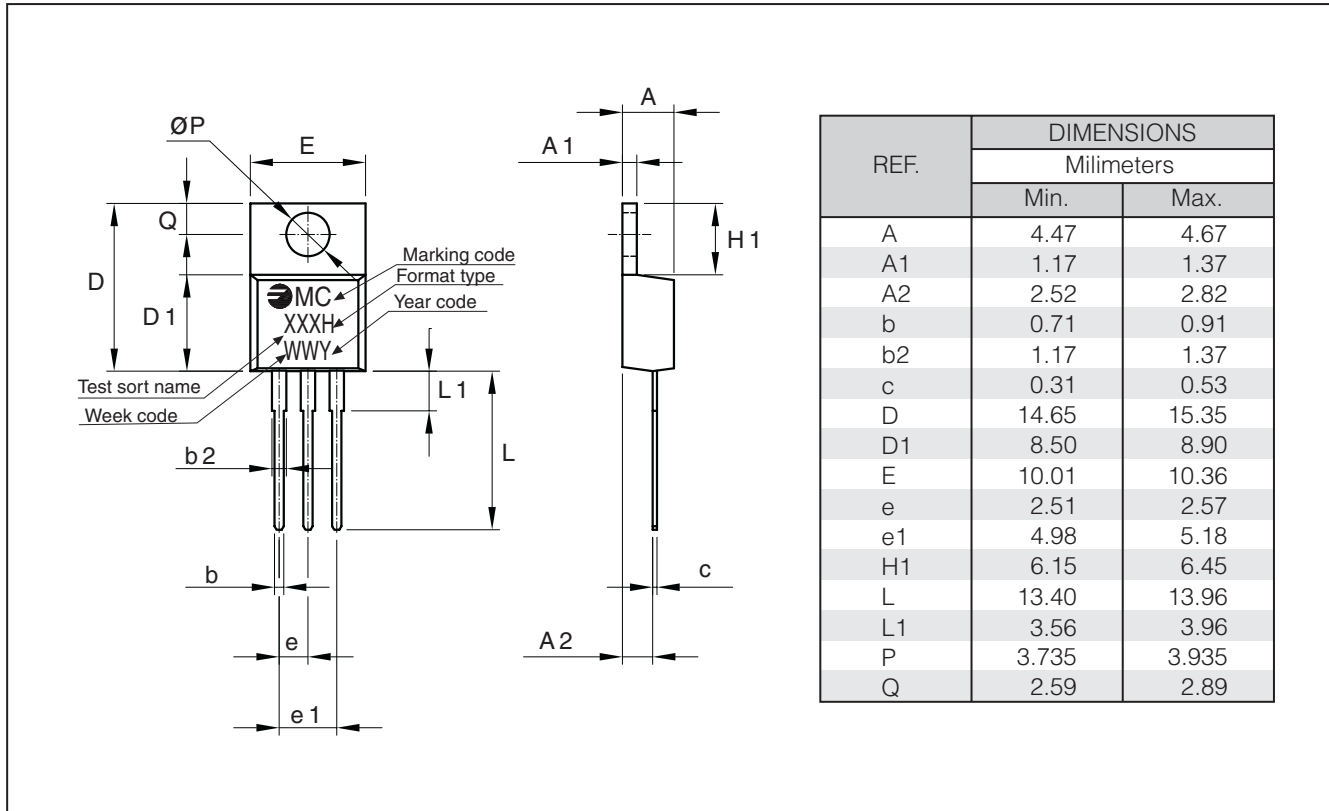
PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
FS2510DW 00TU	TU	TUBE	1000	2.00

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

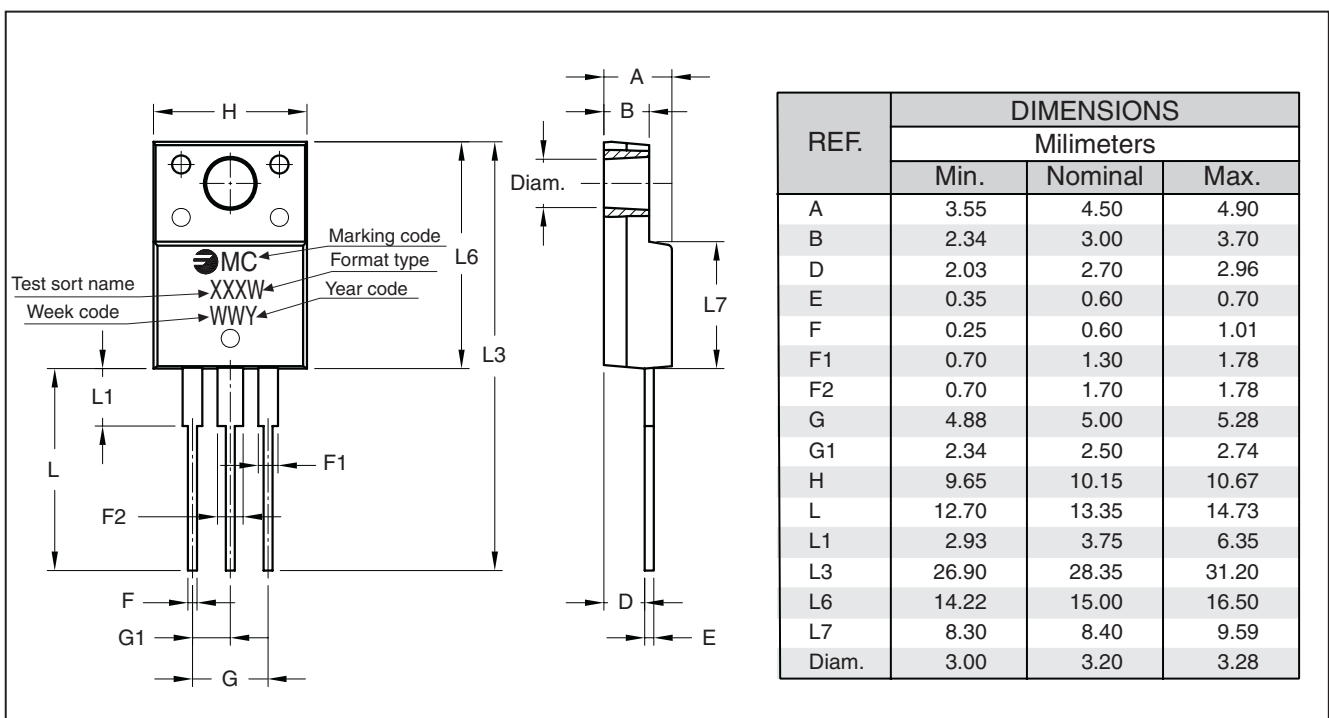


STANDARD 25A SCR

Package Outline Dimensions: (mm) TO-220AB



Package Outline Dimensions: (mm) TO-220F



STANDARD 25A SCR

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

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

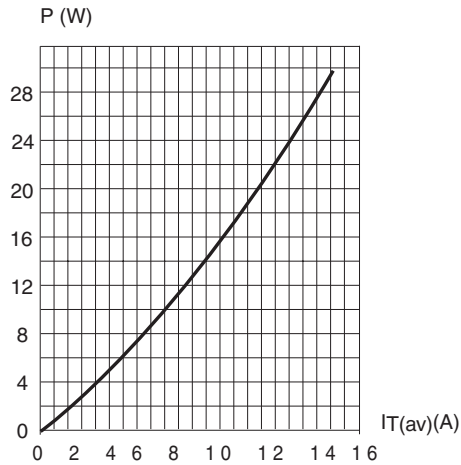


Fig. 2: Average and D.C. on-state current versus case temperature.

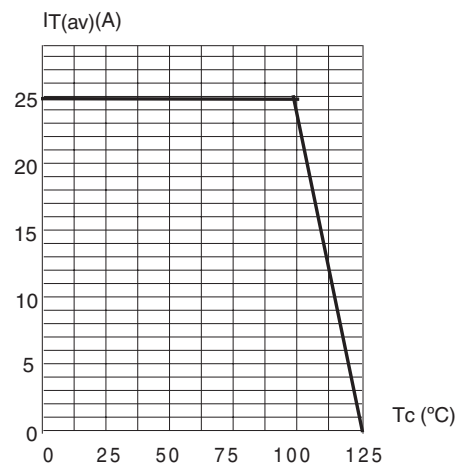


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

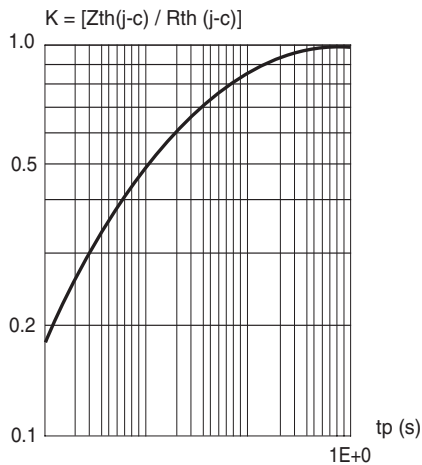


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.

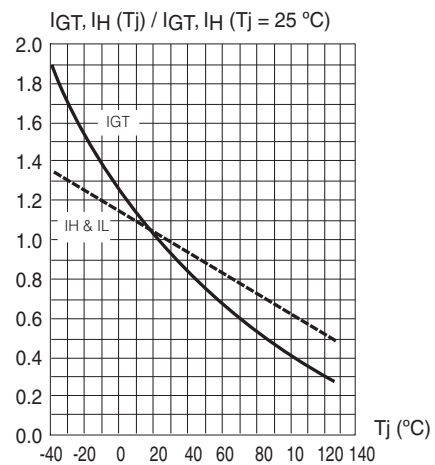


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.

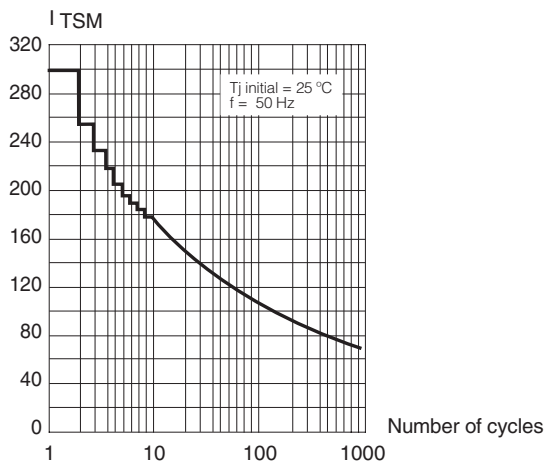
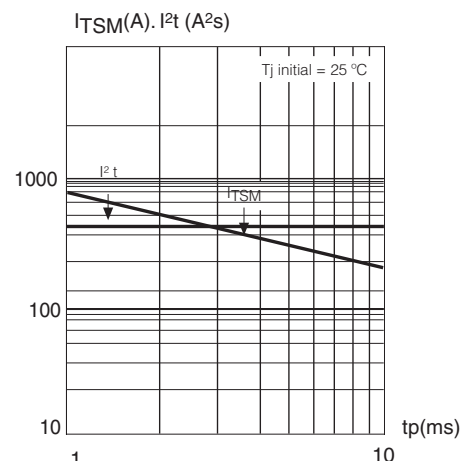


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: $t_p < 10 \text{ ms}$, and corresponding value of I^2t .



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

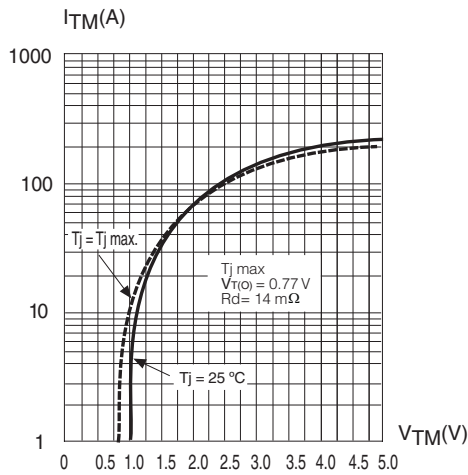


Fig. 8: D²PAK RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35μm), full cycle.

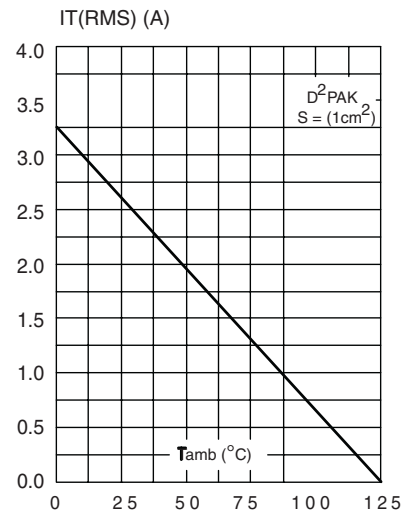
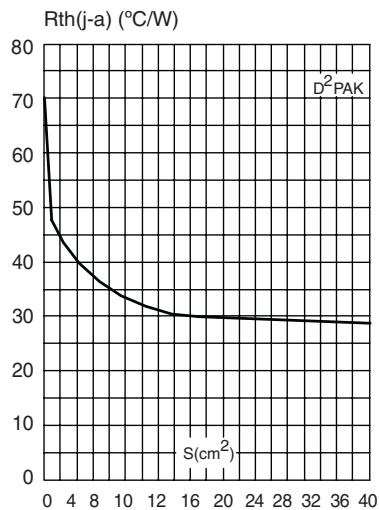


Fig. 9: D²PAK Thermal resistance junction to ambient versus copper surface under tab (printed circuit board FRA, copper thickness: 35μm).



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