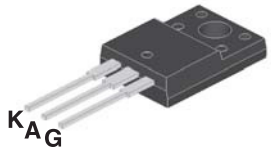
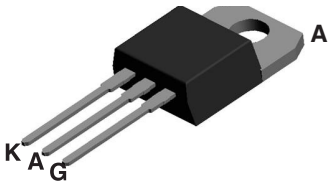
HIGH TEMPERATURE STANDARD 25A SCR

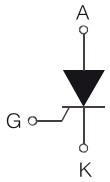
(FULLY ISOLATED CASE)

TO-220F
(HS25xxxW)



TO-220AB
(HS25xxxH)





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

Off-Satate Voltage
600 V ÷ 800 V

FEATURES

- High junction temperature Tj=150ºC
- Glass/passivated die junctions
- High current SCR
- Low thermal resistance
- High surge current capability
- Low forward voltage drop
- Solder dip 260 ºC, 10s
- Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 ºC

Pb

e3

RoHS COMPLIANT

MECHANICAL DATA

- **Case:** 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

The standard gate SCR HS2514 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 limitng 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 º Conduction Angel, T_c = 115 ºC (H) T_c = 90 ºC (W)	25	A
$I_{T(AV)}$	Average On-State Current	Half Cycle, Θ = 180º, T_c = 115 ºC (H) T_c = 90 ºC (W)	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	tp = 10 ms, Half Cycle	450	A^2s
I_{GM}	Peak Gate Current	20 µs max.	4	A
P_{GM}	Peak Gate Dissipation	20 µs max.	5	W
$P_{G(AV)}$	Gate Dissipation	20 ms max.	1	W
T_j	Operating Temperature		(-40 to + 150)	ºC
T_{stg}	Storage Temperature		(-40 to + 150)	ºC
T_{sld}	Soldering Temperature	10 ms max.	260	ºC
V_{RGM}	Reverse Gate Voltage		5	V
V_{iso}	R.M.S. isolation voltage 50/60 Hz sinusoidal waveform	(W)	2.500	Vac

HIGH TEMPERATURE STANDARD 25A SCR

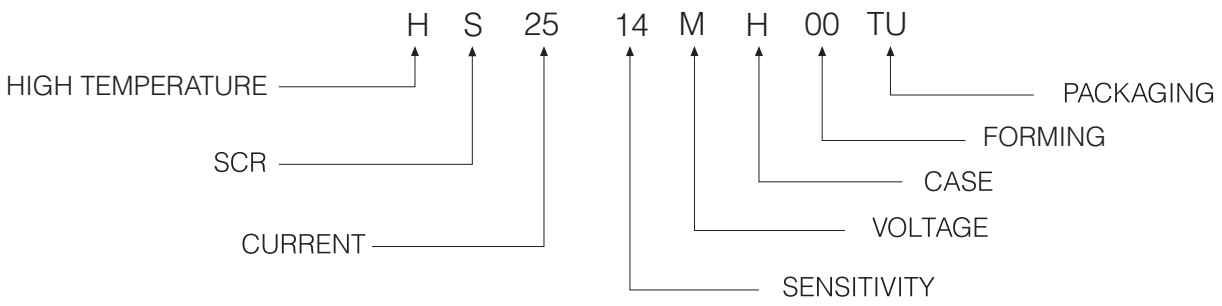
Maximun Ratings and Electrical Characteristics at 25 °C

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

Electrical Characteristics at Tamb = 25 °C

SYMBOL	PARAMETER	CONDITIONS		SENSITIVITY	Unit
				14	
I_{GT}	Gate Trigger Current	V_D = 12 V_{DC}, R_L = 33Ω	MIN MAX	4 40	mA
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, Tj= 125 ºC	MIN	0.5	V
I_H	Holding Current	I_T = 500 mA	MAX	80	mA
I_L	Latching Current	I_G = 1.2 I_{GT}	MAX	90	mA
dV / dt	Critical Rate of Voltage Rise	V_D = 0.67 x V_{DRM}, Gate open, Tj= 150 ºC	MIN	200	V/µs
dI / dt	Critical Rate of Current Rise	I_G =2 x I_{GT}, tr ≤ 100ns, f = 60Hz, Tj= 125 ºC	MIN	50	A/µs
V_{TM}	On-State Voltage	at I_T = 50 Amp, tp = 380 µs, Tj= 25 ºC	MAX	1.55	V
V_{t0}	Threshold Voltage	Tj= 125 ºC	MAX	0.77	V
r_d	Dynamic resistance	Tj= 125 ºC	MAX	14	mΩ
I_{DRM} / I_{RRM}	Off-State Leakage Current	V_D = V_{DRM}, Tj = 150 ºC V_R = V_{RRM}, Tj = 25 ºC	MAX MAX	4 10	mA µA
$R_{th(j-c)}$	Thermal Resistance Junction-Case for DC	for AC 360º conduction angle (H) (W)		1 1.7	ºC/W

Part Number Information



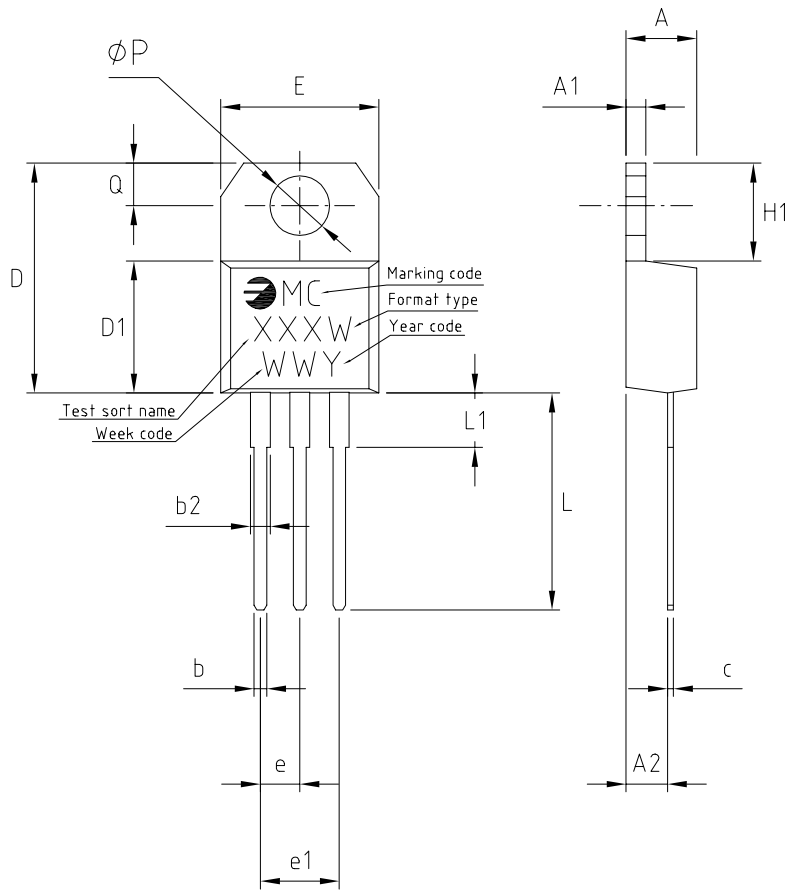
HIGH TEMPERATURE STANDARD 25A SCR

Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
HS2514MH 00TUC	TU	TUBE	1000	2.30

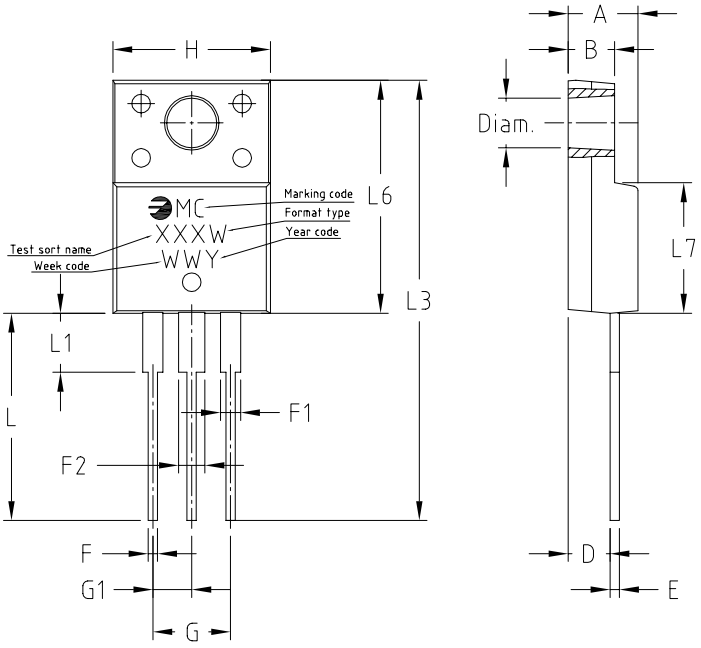
PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
HS2514MW 00TUC	TU	TUBE	1000	2.00

Package Outline Dimensions: (mm) TO-220AB



REF.	DIMENSIONS Milimeters	
	Min.	Max.
A	4.40	4.60
A1	1.21	1.32
A2	2.40	2.72
b	0.61	0.88
b2	1.14	1.70
c	0.46	0.70
D	15.5	15.68
D1	8.60	9.70
E	9.60	10.40
e	2.54	2.54
e1	5.08	5.08
H1	6.20	6.60
L	12.81	13.81
L1	3.75	3.75
P	3.70	3.80
Q	2.65	2.95

Package Outline Dimensions: (mm) TO-220F



REF.	DIMENSIONS Milimeters		
	Min.	Nominal	Max.
A	4.50	4.70	4.90
B	2.45	2.60	2.75
D	2.60	2.80	3.00
E	0.47	0.56	0.65
F	0.74	0.80	0.83
F1	1.14	1.30	1.70
F2	1.14	1.30	1.70
G	4.88	5.08	5.28
G1	2.54	2.54	2.54
H	9.80	10.10	10.4
L	12.70	13.35	14.73
L1	3.63	3.63	3.63
L3	28.0	28.9	29.8
L6	14.22	15.00	16.50
L7	8.80	9.05	9.30
Diam.	3.00	3.20	3.5

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

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

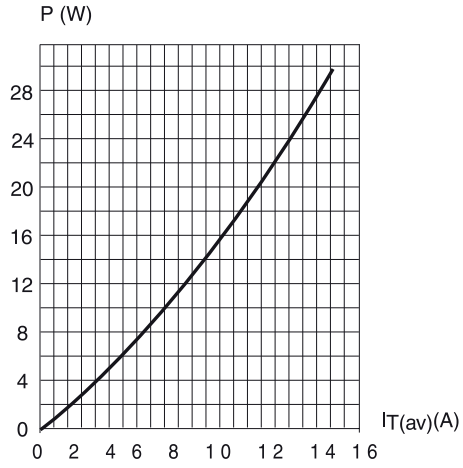


Fig. 2: Average and D.C. on-state current versus case temperature.

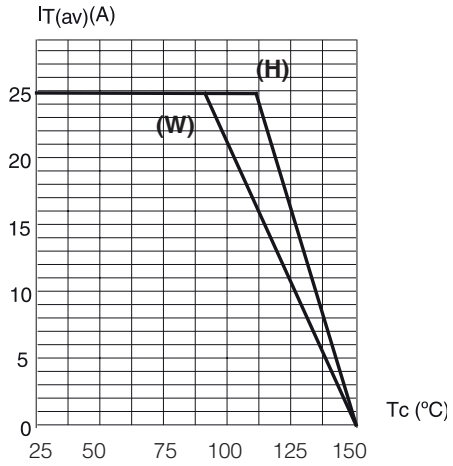


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

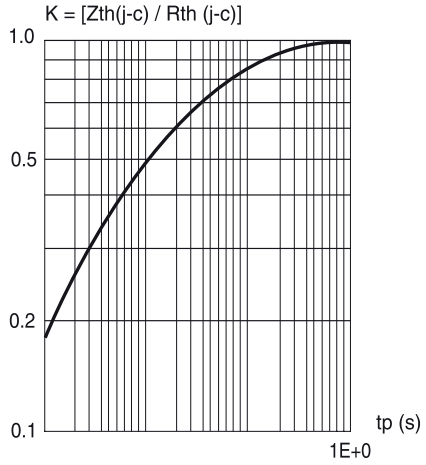


Fig. 4: Relative variation of gate trigger current, holding and latching current versus junction temperature.

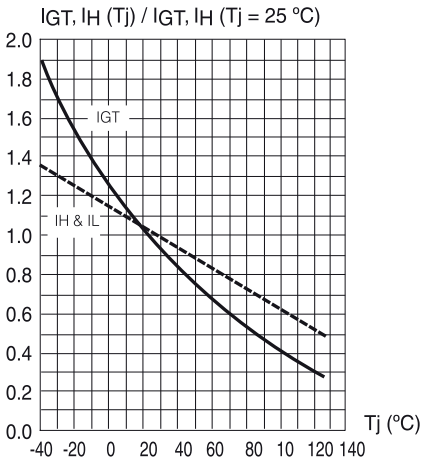


Fig. 5: Non repetitive surge peak on-state current versus number of cycles.

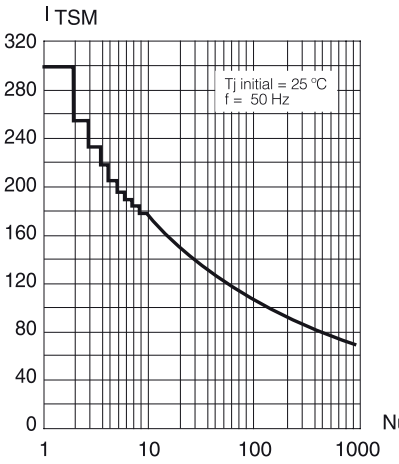


Fig. 6: Non repetitive surge peak on-state current for a sinusoidal pulse with width: tp < 10 ms, and corresponding value of I^2t.

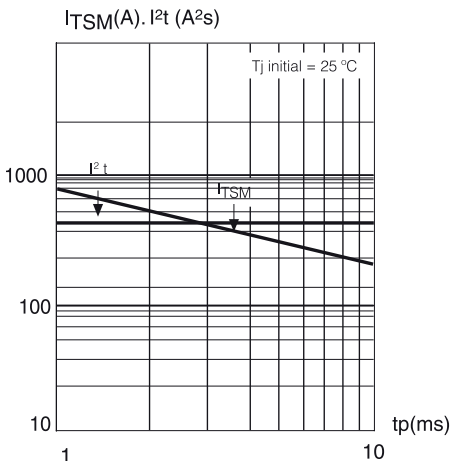
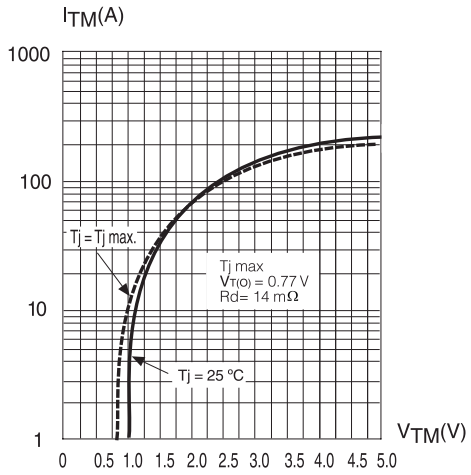


Fig. 7: On-state characteristics (maximum values).



Revision History

DATE	REVISION	DESCRIPTION OF CHANGES
10-Dec-2019	0	Original Data Sheet

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