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胜特力电子(上海) 86-21-54151736
胜特力电子(深圳) 86-755-83298787
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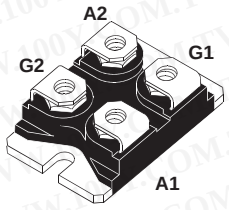
MSS40 / 50 Series

BACK TO BACK SCR MODULE

MAIN FEATURES:

Symbol	Value	Unit
$I_{T(RMS)}$	55 and 70	A
V_{DRM}/V_{RRM}	800 and 1200	V
I_{GT}	50	mA



ISOTOP®

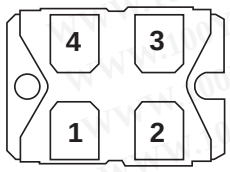
DESCRIPTION

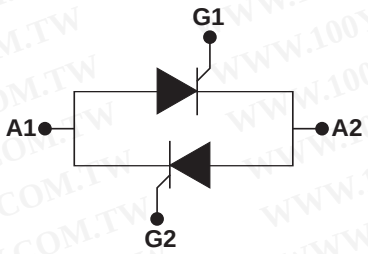
Packaged in ISOTOP modules, the MSS40 / MSS50 Series is based on two back-to-back SCR configurations, providing high noise immunity. They are suitable for high power applications such as solid state relays, heating control systems, welding equipment, motor control circuits...

The compactness of the ISOTOP package allows high power density and optimized power bus connections. Thanks to their internal ceramic pad, they provide high voltage insulation (2500V RMS), complying with UL standards (File ref: E81734).

PIN CONNECTIONS

1: Thyristor 2 Anode (A2)
2: Thyristor 2 Gate (G2)
3: Thyristor 1 Anode (A1)
4: Thyristor 1 Gate (G1)





ABSOLUTE RATINGS (limiting values)

Symbol	Parameter			Value		Unit
				MSS40	MSS50	
$I_{T(RMS)}$	RMS on-state current	Tc = 80 °C		55		A
		Tc = 85 °C			70	
I_{TSM}	Non repetitive surge peak on-state current	tp = 16.7 ms	Tj = 25°C	420	630	A
		tp = 20 ms		400	600	
I^2t	I^2t Value for fusing	tp = 10 ms	Tj = 25°C	800	1800	A^2S
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , tr ≤ 100 ns	F = 120 Hz	Tj = 125°C	50		A/µs
I_{GM}	Peak gate current	tp = 20 µs	Tj = 125°C	4		A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	1		W
T_{stg} T_j	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125		°C
V_{RGM}	Maximum peak reverse gate voltage			5		V

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ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions			Value		Unit
				MSS40	MSS50	
I_{GT}	V_D = 12 V R_L = 33 Ω		MIN.	5		mA
			MAX.	50		
V_{GT}			MAX.	1.3		V
V_{GD}	$V_D = V_{DRM}$ R_L = 3.3 kΩ	Tj = 125°C	MIN.	0.2		V
I_H	I_T = 500 mA Gate open		MAX.	80		mA
I_L	$I_G = 1.2\ I_{GT}$		MAX.	120		mA
dV/dt	V_D = 67 % V_{DRM} Gate open	Tj = 125°C	MIN.	1000		V/µs
V_{TM}	I_{TM} = 80 A tp = 380 µs	Tj = 25°C	MAX.	1.7	-	V
	I_{TM} = 100 A tp = 380 µs			-	1.7	
V_{t0}	Threshold voltage	Tj = 125°C	MAX.	0.85		V
R_d	Dynamic resistance	Tj = 125°C	MAX.	11	7	mΩ
I_{DRM} I_{RRM}	V_{DRM} / V_{RRM} RATED	Tj = 25°C	MAX.	20		µA
		Tj = 125°C		10		mA

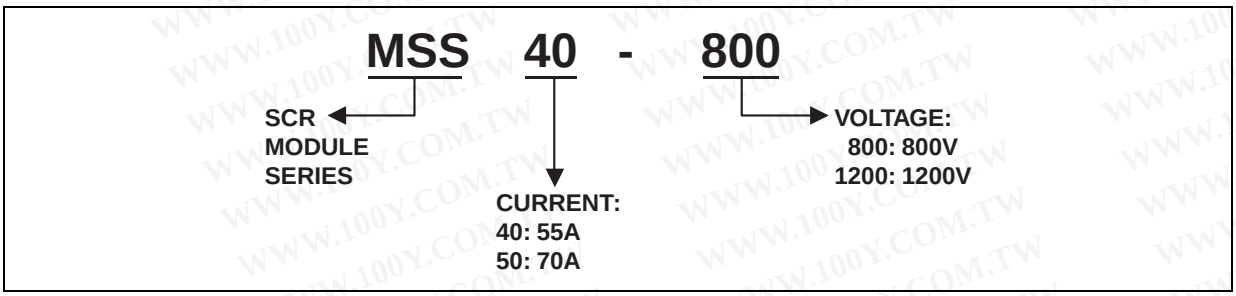
THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case (AC)	MSS40	0.6	°C/W
		MSS50	0.45	

PRODUCT SELECTOR

Part Number	Voltage (xxx)		Sensitivity	Package
	800 V	1200 V		
MSS40-xxx	X	X	50 mA	ISOTOP™
MSS50-xxx	X	X	50 mA	ISOTOP™

ORDERING INFORMATION



OTHER INFORMATION

Part Number	Marking	Weight	Base Quantity	Packing mode
MSS40-xxx	MSS40-xxx	27.0 g	10	Tube
MSS50-xxx	MSS50-xxx	27.0 g	10	Tube

Note: xxx = voltage

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

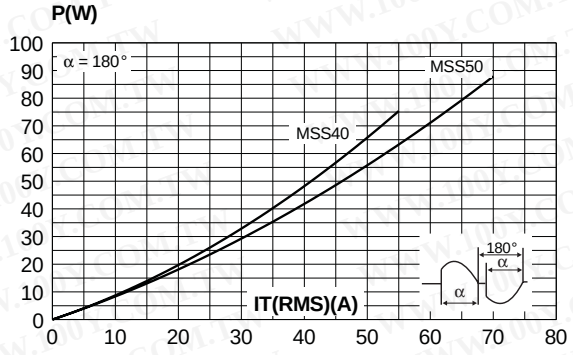


Fig. 2: RMS on-state current versus case temperature.

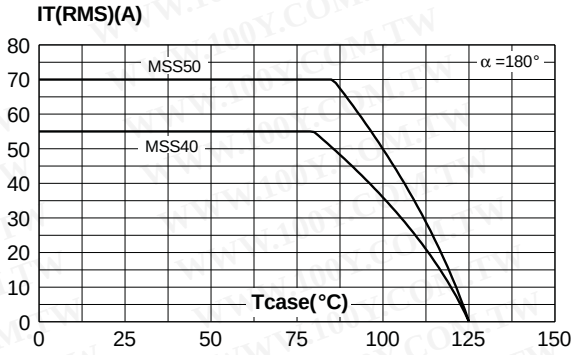


Fig. 3: Relative variation of thermal impedance junction to case versus pulse duration.

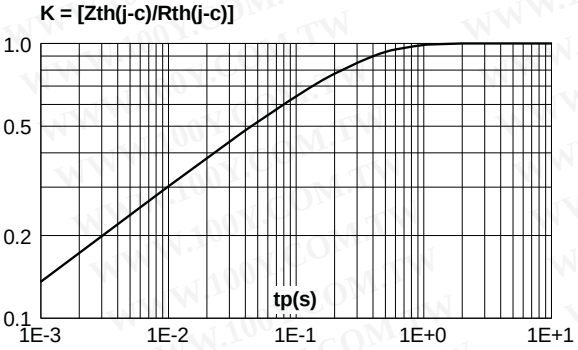


Fig. 4: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

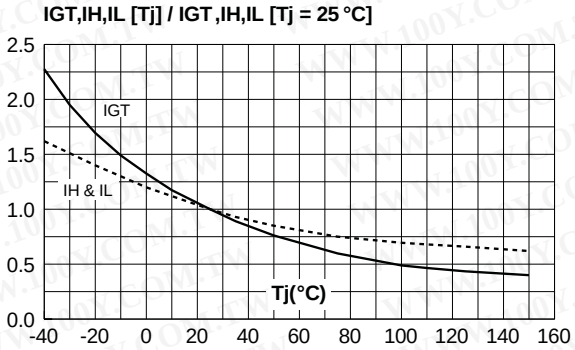


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Fig. 5: Surge peak on-state current versus number of cycles.

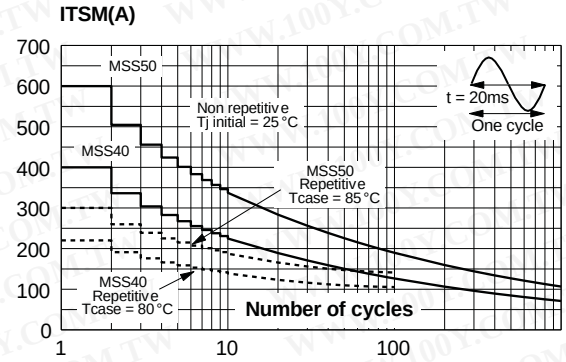


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding value of I^2t.

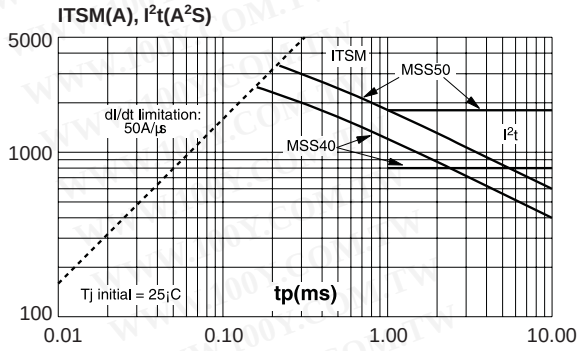


Fig. 7-1: On-state characteristics (maximum values) (MSS40).

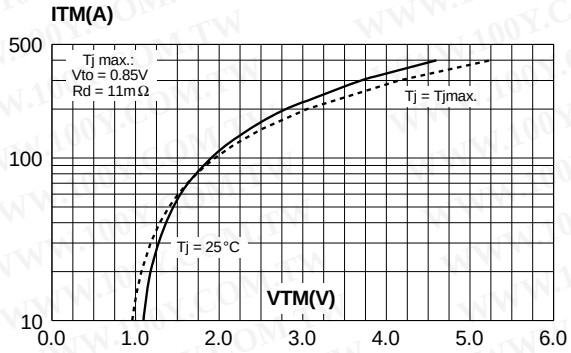
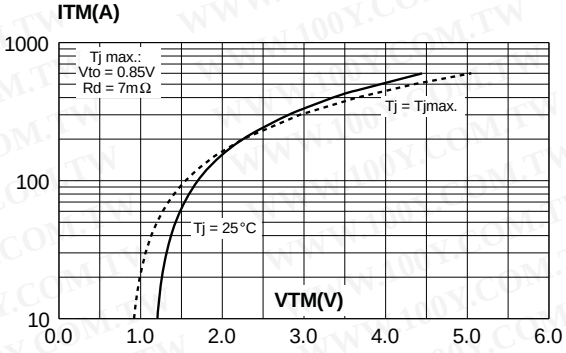


Fig. 7-2: On state characteristics (maximum values) (MSS50).



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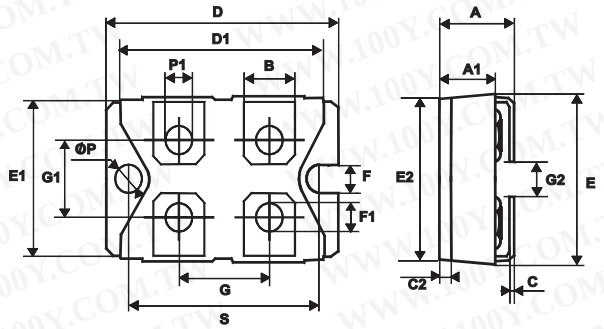
PACKAGE MECHANICAL DATA

ISOTOP™



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	11.80	12.20	0.465	0.480
A1	8.90	9.10	0.350	0.358
B	7.8	8.20	0.307	0.323
C	0.75	0.85	0.030	0.033
C2	1.95	2.05	0.077	0.081
D	37.80	38.20	1.488	1.504
D1	31.50	31.70	1.240	1.248
E	25.15	25.50	0.990	1.004
E1	23.85	24.15	0.939	0.951
E2	24.80 typ.		0.976 typ.	
G	14.90	15.10	0.587	0.594
G1	12.60	12.80	0.496	0.504
G2	3.50	4.30	0.138	0.169
F	4.10	4.30	0.161	0.169
F1	4.60	5.00	0.181	0.197
P	4.00	4.30	0.157	0.69
P1	4.00	4.40	0.157	0.173
S	30.10	30.30	1.185	1.193

- Recommended torque value: 1.3 Nm (max. 1.5 Nm) for the 6 x M4 screws (2 x M4 screws recommended for mounting the package on the heatsink and the 4 provided screws.
- The screws supplied with the package are adapted for mounting on a board (or other types of terminals) with a thickness of 0.6 mm min. and 2.2 mm max.

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