

## MSS40 / MSS50 Series

### BACK TO BACK SCR MODULE

The MSS40 / MSS50 Series is based on two back-to-back SCR configurations, providing high noise immunity. They are suitable for high power applications. The compactness of the SOT-227 package allows high power density and optimized power bus connections. Compliance to RoHS.

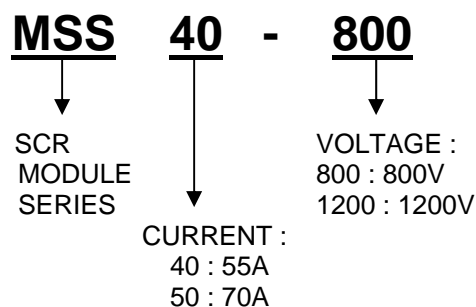
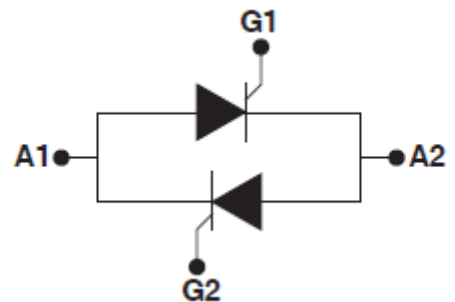
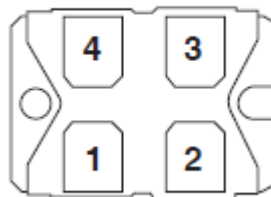


SOT-227

#### MAIN FEATURES

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

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



## MSS40 / MSS50 Series

### ABSOLUTE MAXIMUM RATINGS

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

### THERMAL CHARACTERISTICS

Symbol	Ratings		Value	Unit	
$R_{th(j-c)}$	Junction to case (AC)		MSS40	0.6	$^\circ\text{C}/\text{W}$
			MSS50	0.45	

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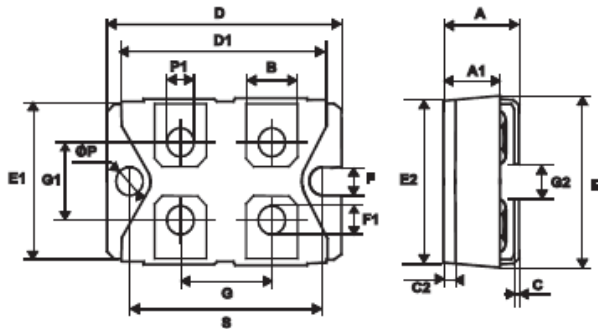
### ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Test Conditions		Min	Typ	Max	Unit	
$I_{DRM}$	$V_{DRM} = V_{DRM} \text{ Rated}$	$T_j = 25\text{ }^\circ\text{C}$	MSS40	-	-	20	$\mu\text{A}$
			MSS50	-	-	20	$\mu\text{A}$
		$T_j = 125\text{ }^\circ\text{C}$	MSS40	-	-	10	mA
			MSS50	-	-	10	mA
$I_{RRM}$	$V_{RRM} = V_{RRM} \text{ Rated}$	$T_j = 25\text{ }^\circ\text{C}$	MSS40	-	-	20	$\mu\text{A}$
			MSS50	-	-	20	$\mu\text{A}$
		$T_j = 125\text{ }^\circ\text{C}$	MSS40	-	-	10	mA
			MSS50	-	-	10	mA
$I_{GT}$	$V_D = 12\text{ V}, R_L = 33\text{ }\Omega$		MSS40	5	-	50	mA
			MSS50	5	-	50	mA
$V_{GT}$	$V_D = 12\text{ V}, R_L = 33\text{ }\Omega$		MSS40	-	-	1.3	V
			MSS50	-	-	1.3	V
$V_{GD}$	$V_D = V_{DRM}, R_L = 3.3\text{ k}\Omega$	$T_j = 125\text{ }^\circ\text{C}$	MSS40	0.2	-	-	V
			MSS50	0.2	-	-	V
$I_H$	$I_T = 500\text{ mA}$ Gate open		MSS40	-	-	80	mA
			MSS50	-	-	80	mA
$V_{TM}$	$I_{TM} = 80\text{ A}$ $t_p = 380\text{ }\mu\text{s}$	$T_j = 25\text{ }^\circ\text{C}$	MSS40	-	-	1.7	V
	$I_{TM} = 100\text{ A}$ $t_p = 380\text{ }\mu\text{s}$		MSS50	-	-	1.7	
$I_L$	$I_G = 1.2 \times I_{GT}$		MSS40	-	-	120	mA
			MSS50	-	-	120	mA
$dV/dt$	$V_D = 67\% V_{DRM}$ Gate open	$T_j = 125\text{ }^\circ\text{C}$	MSS40	1000	-	-	V/ $\mu\text{s}$
			MSS50	1000	-	-	
$V_{t0}$	Threshold voltage	$T_j = 125\text{ }^\circ\text{C}$	MSS40	-	-	0.85	V
			MSS50	-	-	0.85	
$R_d$	Dynamic resistance	$T_j = 125\text{ }^\circ\text{C}$	MSS40	-	-	11	m $\Omega$
			MSS50	-	-	7	

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### MECHANICAL DATA CASE SOT-227



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

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