MSS40 / MSS50 Series

BACK TO BACK SCR MODULE

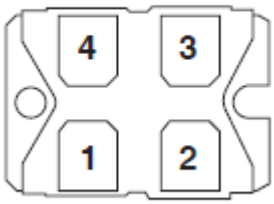
The MSS40 / MSS50 Series is based on two back-to-back SCR configurations, providing high noise immunity.
They are suitable for high power applications.
The compactness of the SOT-227 package allows high power density and optimized power bus connections.
Compliance to RoHS.

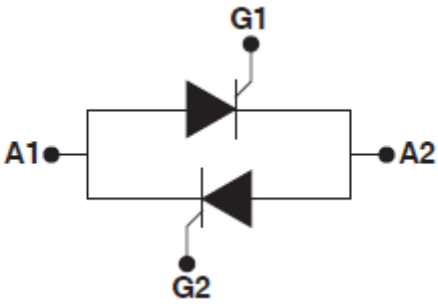
SOT-227

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)





MSS 40 - 800

- MSS : SCR MODULE SERIES
- 40 : CURRENT : 40 : 55A, 50 : 70A
- 800 : VOLTAGE : 800 : 800V, 1200 : 1200V

MSS40 / MSS50 Series

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value		Unit
				MSS40	MSS50	
$I_{T(RMS)}$	RMS on-state current		T_C = 80 °C	55	-	A
			T_C = 85 °C	-	70	
I_{TSM}	Non repetitive surge peak on-state current	t_p = 16.7ms	T_j = 25 °C	420	630	A
		t_p = 20ms		400	600	
I^2t	I^2t Value for fusing	t_p = 10ms	T_j = 25 °C	800	1800	A^2s
DI/dt	Critical rate of rise of on-state current $I_G = 2xI_{GT}$, tr ≤ 100ns	F = 120Hz	T_j = 125 °C	50		A/µs
I_{GM}	Peak gate current	t_p = 20µs	T_j = 125 °C	4		A
$P_{G(AV)}$	Average gate power dissipation		T_j = 125 °C	1		W
T_j	Operating junction temperature range			-40 to +125		°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	°C/W
		MSS50	0.45	

MSS40 / MSS50 Series

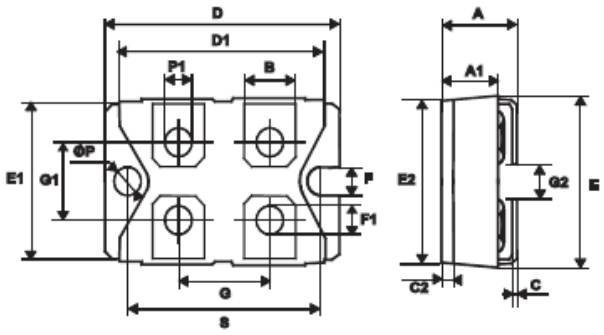
ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

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

MSS40 / MSS50 Series

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

Revised September 2012