



MSS40 / 50 Series

BACK TO BACK SCR MODULE

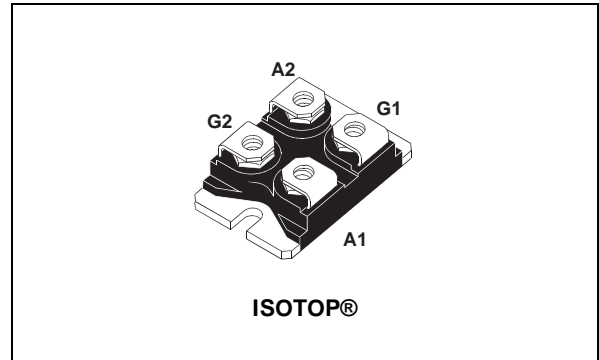
MAIN FEATURES:

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

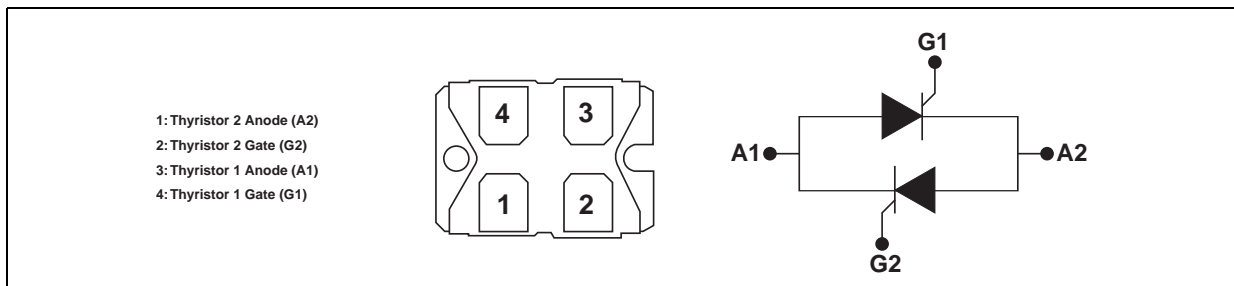
DESCRIPTION

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



ABSOLUTE RATINGS (limiting values)

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

ISOTOP is a registered trademark of STMicroelectronics

MSS40 / 50 Series

ELECTRICAL CHARACTERISTICS (T_j = 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 | T _j = 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 | T _j = 125°C | MIN. | 1000 | V/μs | | |
| V _{TM} | I _{TM} = 80 A tp = 380 μs | T _j = 25°C | MAX. | 1.7 | - | V | |
| | I _{TM} = 100 A tp = 380 μs | | | - | 1.7 | | |
| V _{t0} | Threshold voltage | | T _j = 125°C | MAX. | 0.85 | V | |
| R _d | Dynamic resistance | | T _j = 125°C | MAX. | 11 | 7 | mΩ |
| I _{DRM} I _{RRM} | V _{DRM} / V _{RRM} RATED | | T _j = 25°C | MAX. | 20 | μA | |
| | | | T _j = 125°C | | 10 | mA | |

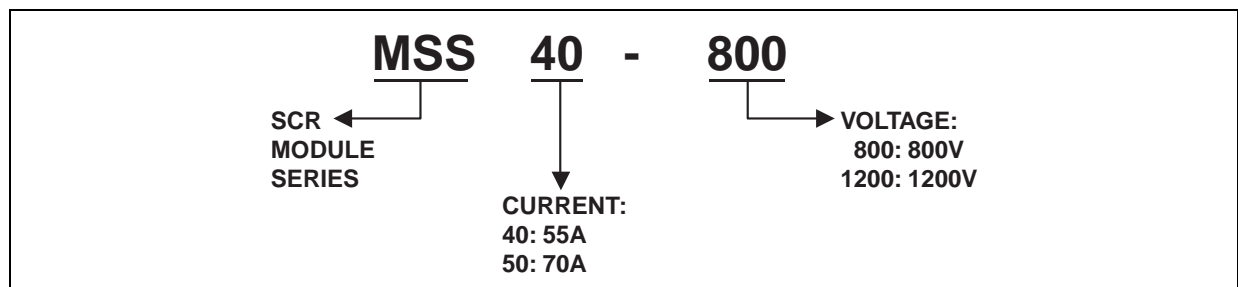
THERMAL RESISTANCES

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

PRODUCT SELECTOR

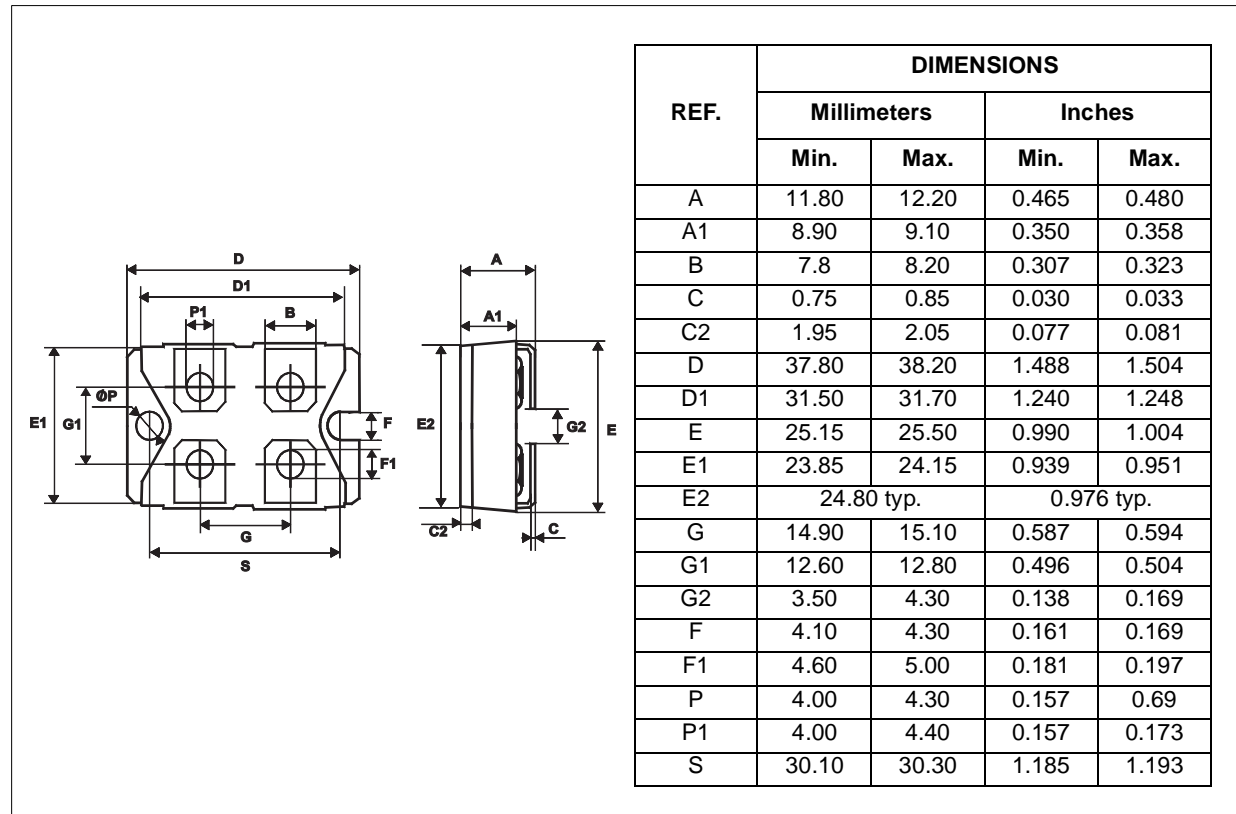
| Part Number | Voltage (xxx) | | Sensitivity | Package |
|-------------|---------------|--------|-------------|---------|
| | 800 V | 1200 V | | |
| MSS40-xxx | X | X | 50 mA | ISOTOP™ |
| MSS50-xxx | X | X | 50 mA | ISOTOP™ |

ORDERING INFORMATION



PACKAGE MECHANICAL DATA

ISOTOP™



- 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.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

© The ST logo is a registered trademark of STMicroelectronics

© 2000 STMicroelectronics - Printed in Italy - All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco
Singapore - Spain - Sweden - Switzerland - United Kingdom



<http://www.st.com>