

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

BT136S-XXE(MS)

Product specification

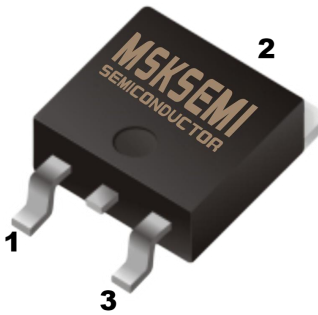
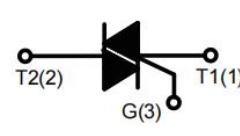


DESCRIPTION

The BT136S-XXE(MS) series with the parallel resistor between Gate and Cathode are especially recommended for use on straight hair, igniter, anion generator, etc.

MAIN FEATURES

| Symbol | Value | Unit |
|---------------------|---------|------|
| $I_{T(RMS)}$ | 4 | A |
| V_{DRM} / V_{RRM} | 600/800 | V |

Reference News

| PACKAGE OUTLINE | Pin Configuration | Marking | |
|--|---|--|---|
|  |  |  |  |
| | | BT136S-600E(MS) | BT136S-800E(MS) |

Notes :XXX represents the order code.

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|----------------|------------|----------------------|
| Storage junction temperature range | T_{stg} | -40-150 | °C |
| Operating junction temperature range | T_j | -40-125 | °C |
| Repetitive peak off-state voltage($T_j=25^\circ\text{C}$) | V_{DRM} | 600/800 | V |
| Repetitive peak reverse voltage($T_j=25^\circ\text{C}$) | V_{RRM} | 600/800 | V |
| RMS on-state current($T_C=100^\circ\text{C}$) | $I_{T(RMS)}$ | 4 | A |
| Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$) | I_{TSM} | 35 | A |
| I_{t} value for fusing ($t_p=10\text{ms}$) | I_{t} | 6.1 | A^2s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$) | dI/dt | I - II-III | 50 |
| | | IV | 10 |
| Peak gate current | I_{GM} | 2 | A |
| Average gate power dissipation | $P_{G(AV)}$ | 0.5 | W |
| Peak gate power | P_{GM} | 5 | W |

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Test Condition | Quadrant | | Value | Unit |
|-------------|--|------------|-----|-------|------------------|
| I_{GT} | $V_D=12\text{V}$ | I - II-III | MAX | 10 | mA |
| | | IV | | 25 | |
| V_{GT} | | ALL | MAX | 1.3 | V |
| V_{GD} | $V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$ | ALL | MIN | 0.2 | V |
| I_L | $I_G=1.2I_{GT}$ | I-III | MAX | 30 | mA |
| | | II-IV | | 45 | |
| I_H | $I_T=100\text{mA}$ | | MAX | 25 | mA |
| dV/dt | $V_D=2/3V_{DRM}$ Gate Open $T_j=125^{\circ}\text{C}$ | | MIN | 100 | V/ μs |
| $(dV/dt)_c$ | $(dI/dt)_c=1.7\text{A/ms}$ $T_j=125^{\circ}\text{C}$ | | MIN | 0.5 | V/ μs |

STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX) | Unit |
|-----------|---|---------------------------|------------|---------------|
| V_{TM} | $I_{TM}=5.5\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$ | 1.6 | V |
| I_{DRM} | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25^{\circ}\text{C}$ | 5 | μA |
| I_{RRM} | | $T_j=125^{\circ}\text{C}$ | 0.5 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|----------------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case(AC) | 2.8 | $^{\circ}\text{C/W}$ |
| $R_{th(j-a)}$ | junction to ambient | 70 | $^{\circ}\text{C/W}$ |

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

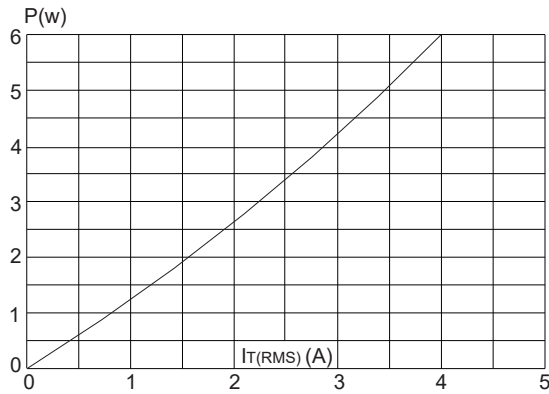


FIG.3: Surge peak on-state current versus number of cycles

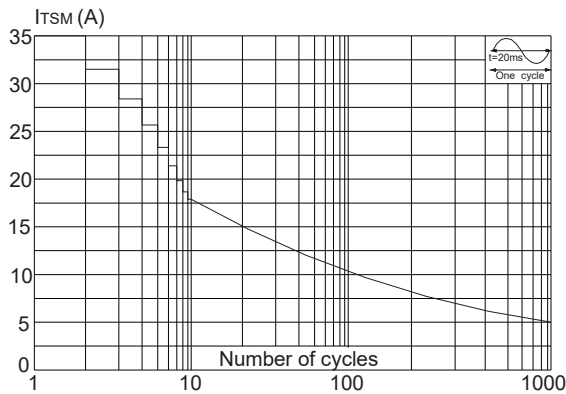


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20\text{ms}$ and corresponding value of I^2t (I - II - III: $dI/dt < 50\text{A}/\mu\text{s}$; IV: $dI/dt < 10\text{A}/\mu\text{s}$)

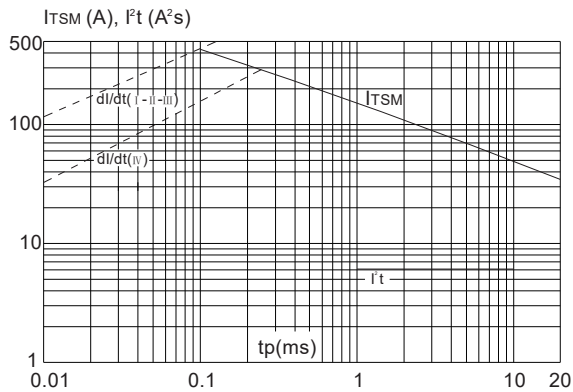


FIG.7: Relative variations of holding current versus junction temperature

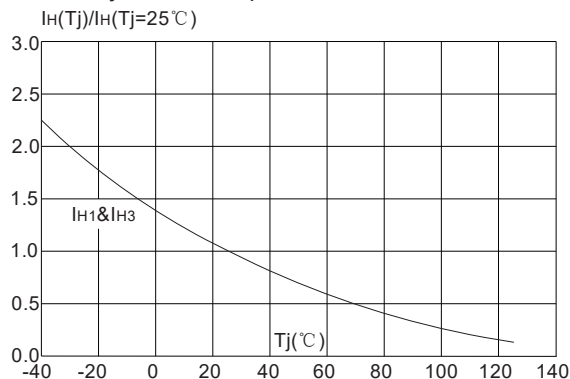


FIG.2: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35μm)

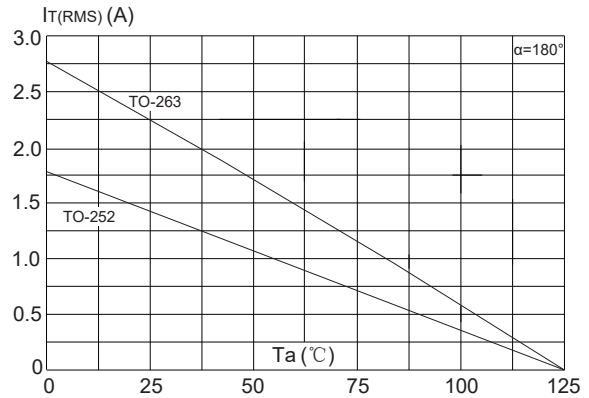


FIG.4: On-state characteristics (maximum values)

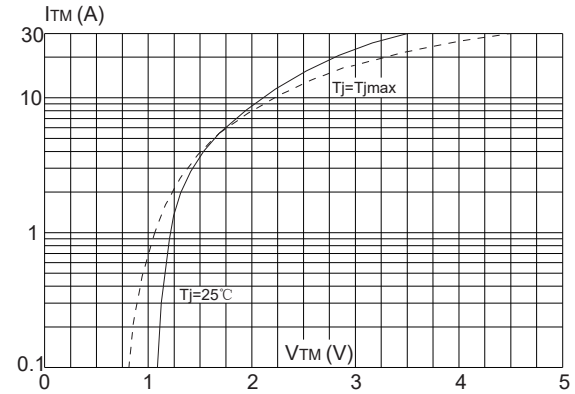


FIG.6: Relative variations of gate trigger current versus junction temperature

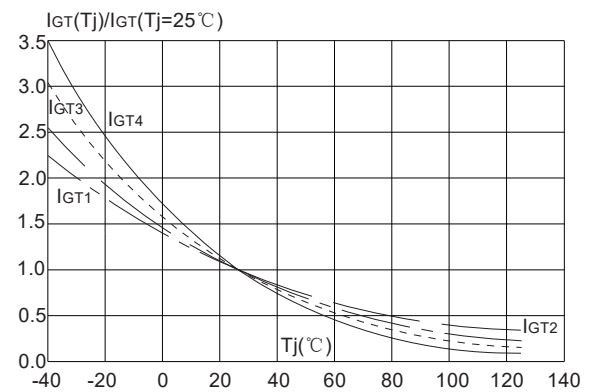
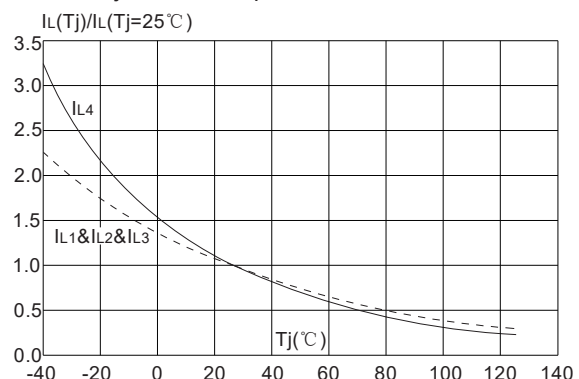
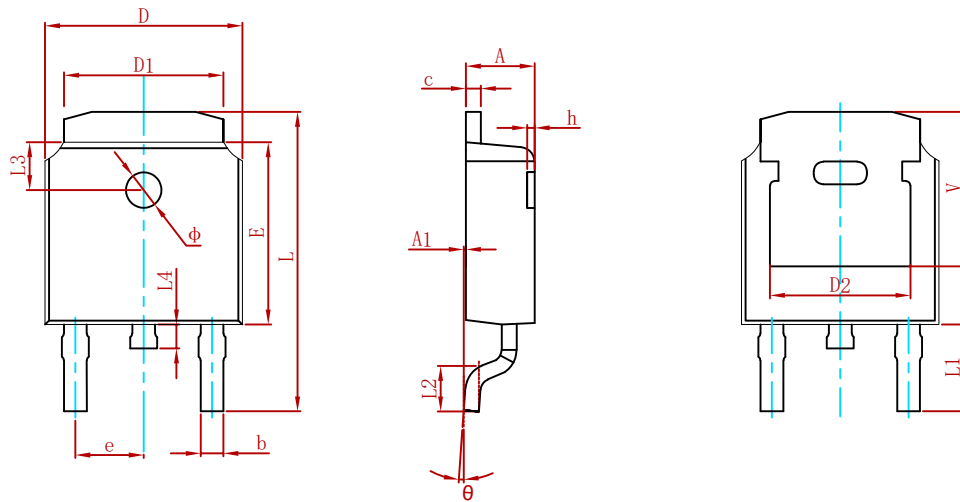


FIG.8: Relative variations of latching current versus junction temperature

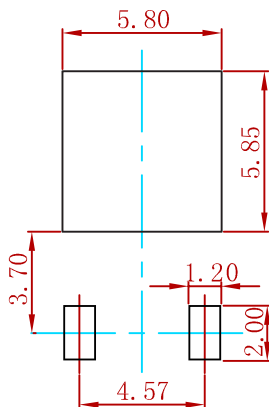


PACKAGE MECHANICAL DATA



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.200 | 2.400 | 0.087 | 0.094 |
| A1 | 0.000 | 0.127 | 0.000 | 0.005 |
| b | 0.635 | 0.770 | 0.025 | 0.030 |
| c | 0.460 | 0.580 | 0.018 | 0.023 |
| D | 6.500 | 6.700 | 0.256 | 0.264 |
| D1 | 5.100 | 5.460 | 0.201 | 0.215 |
| D2 | 4.830 REF. | | 0.190 REF. | |
| E | 6.000 | 6.200 | 0.236 | 0.244 |
| e | 2.186 | 2.386 | 0.086 | 0.094 |
| L | 9.712 | 10.312 | 0.382 | 0.406 |
| L1 | 2.900 REF. | | 0.114 REF. | |
| L2 | 1.400 | 1.700 | 0.055 | 0.067 |
| L3 | 1.600 REF. | | 0.063 REF. | |
| L4 | 0.600 | 1.000 | 0.024 | 0.039 |
| Φ | 1.100 | 1.300 | 0.043 | 0.051 |
| θ | 0° | 8° | 0° | 8° |
| h | 0.000 | 0.300 | 0.000 | 0.012 |
| V | 5.250 REF. | | 0.207 REF. | |

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

| P/N | PKG | QTY |
|----------------|--------|------|
| BT136S-XXE(MS) | TO-252 | 2500 |

Attention

- Any and all MSKSEMI Semiconductor products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your MSKSEMI Semiconductor representative nearest you before using any MSKSEMI Semiconductor products described or contained herein in such applications.
- MSKSEMI Semiconductor assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all MSKSEMI Semiconductor products described or contained herein.
- Specifications of any and all MSKSEMI Semiconductor products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- MSKSEMI Semiconductor strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all MSKSEMI Semiconductor products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of MSKSEMI Semiconductor.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. MSKSEMI Semiconductor believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the MSKSEMI Semiconductor product that you intend to use.