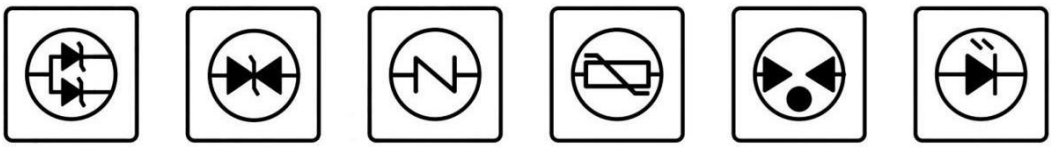
MSKSEMI 美森科
SEMICONDUCTOR




# B220-13-F(MS) THRU B2200B-13-F(MS)

**Product specification**

# B220-13-F(MS) THRU B2200B-13-F(MS)

## Features

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Metal silicon junction,majority carrier conduction
- Low power loss,high efficiency
- Built-in strain relief,ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed: 250℃/10 seconds at terminals

## Mechanical Data

- **Case**: JEDEC DO-214AA molded plastic body
- **Terminals**: leads solderable per MIL-STD-750,
- Method 2026
- **Polarity**: Color band denotes cathode end
- **Mounting Position**: Any
- **Weight**:0.003 ounce, 0.093 grams

## Reference News

| Outline | Marking | | |
|---|---|---|---|
|  | B220B | B230B | B240B |
| | B220 -13-F(MS) | B230 -13-F(MS) | B240 -13-F(MS) |
| | B250B | B260B | B280B |
| | B250 -13-F(MS) | B260 -13-F(MS) | B280 -13-F(MS) |
| | B2100B | B2150B | B2200B |
| SMB | B2100-13-F(MS) | B2150-13-F(MS) | B2200-13-F(MS) |

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

Single phase half-wave 60Hz,resistive or inductive load,for capacitive load current derate by 20%.

| YFW Catalog Number | SYMBOLS | B220 -13-F(MS) | B230 -13-F(MS) | B240 -13-F(MS) | B250 -13-F(MS) | B260 -13-F(MS) | B280 -13-F(MS) | B2100 -13-F(MS) | B2150 -13-F(MS) | B2200 -13-F(MS) | UNITS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | VOLTS |
| Maximum RMS voltage | $V_{RMS}$ | 14 | 21 | 28 | 35 | 42 | 56 | 70 | 105 | 140 | VOLTS |
| Maximum DC blocking voltage | $V_{DC}$ | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | VOLTS |
| Maximum average forward rectified current at $T_L$(see fig.1) | $I_{(AV)}$ | 2.0 | | | | | | | | | Amps |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$ | 50.0 | | | | | | | | | Amps |
| Maximum instantaneous forward voltage at 2.0A | $V_F$ | 0.55 | | | 0.70 | | 0.85 | | | 0.95 | Volts |
| Maximum DC reverse current at rated DC blocking voltage $T_A$=25℃ | $I_R$ | 0.5 | | | | | | | | 0.2 | mA |
| $T_A$=100℃ | | 10.0 | | | | | 5.0 | | | 2.0 | |
| Typical junction capacitance (NOTE 1) | $C_J$ | 220 | | | 180 | | | | | | pF |
| Typical thermal resistance (NOTE 2) | $R_{\theta JA}$ | 75.0 | | | | | | | | | ℃/W |
| Operating junction temperature range | $T_J$, | -50 to +125 | | | | | -50 to +150 | | | | ℃ |
| Storage temperature range | $T_{STG}$ | -50 to +150 | | | | | | | | | ℃ |

**Note:**1.Measured at 1MHz and applied reverse voltage of 4.0V D.C. 2.P.C.B. mounted with 0.2x0.2"(5.0x5.0mm) copper pad areas

# RATINGS AND CHARACTERISTIC CURVES

FIG. 1- FORWARD CURRENT DERATING CURVE

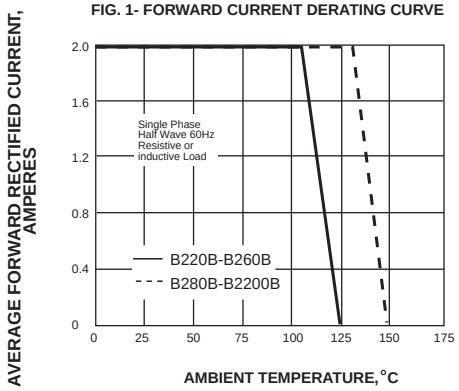



FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

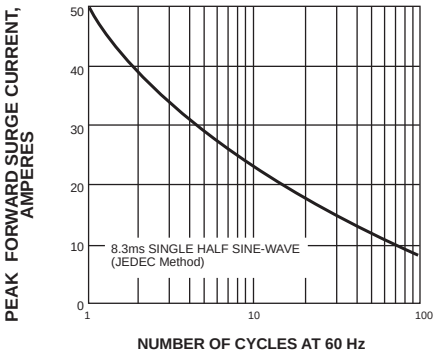



FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

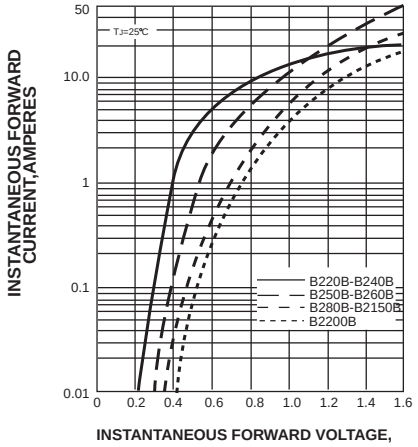



FIG. 4-TYPICAL REVERSE CHARACTERISTICS

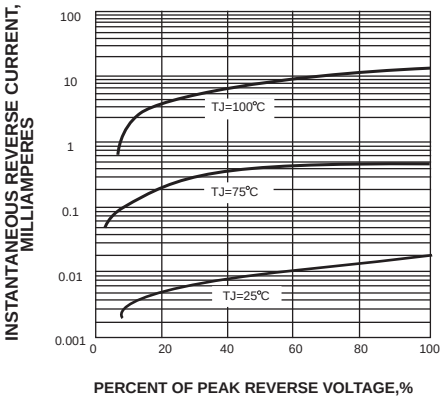



FIG. 5-TYPICAL JUNCTION CAPACITANCE

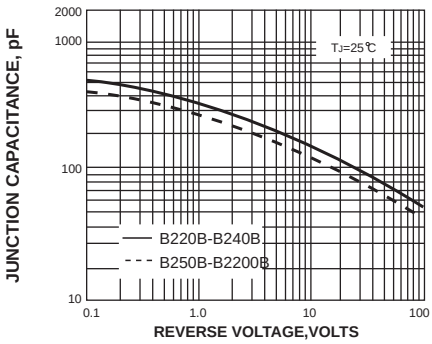
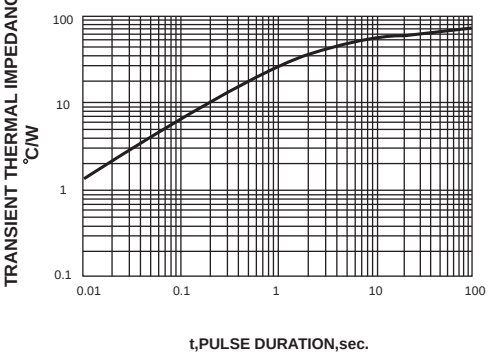
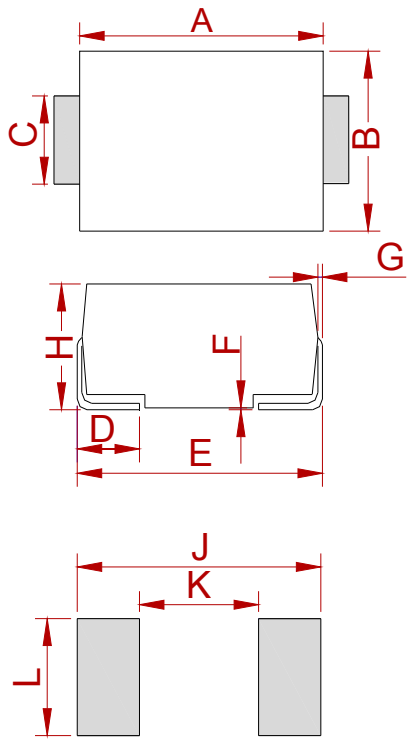



FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



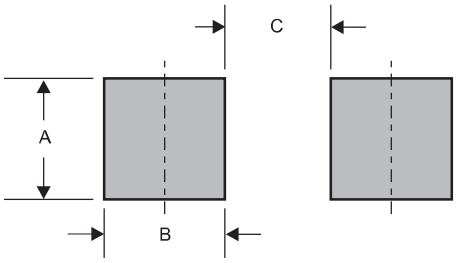
## PACKAGE MECHANICAL DATA




DO-214AA (SMB)

| Ref. | Dimensions | | | |
|---|---|---|---|---|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | 4.25 | 4.75 | 0.167 | 0.187 |
| B | 3.30 | 3.94 | 0.130 | 0.155 |
| C | 1.85 | 2.21 | 0.073 | 0.087 |
| D | 0.76 | 1.52 | 0.030 | 0.060 |
| E | 5.08 | 5.59 | 0.200 | 0.220 |
| F | 0.051 | 0.203 | 0.002 | 0.008 |
| G | 0.15 | 0.31 | 0.006 | 0.012 |
| H | 2.11 | 2.44 | 0.083 | 0.096 |
| J | 6.80 | | 0.270 | |
| K | | 2.60 | | 0.100 |
| L | 2.40 | | 0.090 | |

## Suggested solder pad layout




Dimensions in inches and (millimeters)

| PACKAGE | A | B | C |
|---|---|---|---|
| SMB | 0.078 (2.00) | 0.059 (1.50) | 0.110 (2.80) |

## REELSPECIFICATION

| P/N | PKG | QTY |
|---|---|---|
| B220-13-F(MS) THRU B2200B-13-F(MS) | SMB | 3000 |

# 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 specificationsof any andall MSKSEMI Semiconductor products described orcontained 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'sproducts orequipment.

■ MSKSEMI Semiconductor. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with someprobability. It is possiblethat 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 anderror prevention circuitsfor safedesign, 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 theauthorities 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 infringementsof intellectual property rights or other rightsof third parties.

■ Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. Whendesigning equipment, referto the "Delivery Specification" for the MSKSEMI Semiconductor productthat you intend to use.