



# DC COMPONENTS CO., LTD.

RECTIFIER SPECIALISTS

KBPC / MB  
25005 / 2505  
THRU  
KBPC / MB  
2510 / 2510

## TECHNICAL SPECIFICATIONS OF SINGLE-PHASE SILICON BRIDGE RECTIFIER

VOLTAGE RANGE - 50 to 1000 Volts

CURRENT - 25 Amperes

### FEATURES

- \* Metal case for Maximum Heat Dissipation
- \* Surge overload ratings-400 Amperes
- \* Low forward voltage drop

### MECHANICAL DATA

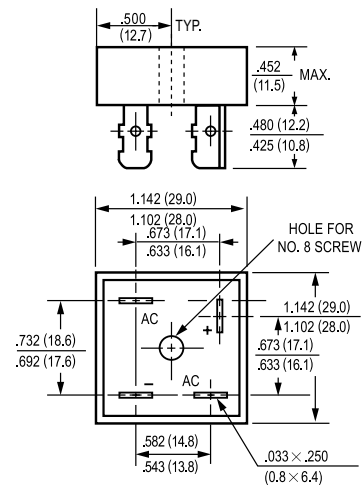
- \* Case: Metal, electrically isolated
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Terminals: Plated .25"(6.35mm) Faston lugs, solderable per MIL-STD-202E, Method 208 guaranteed
- \* Polarity: As marked
- \* Mounting position: Any
- \* Weight: 30 grams

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.



MB-25



Dimensions in inches and (millimeters)

|   |                                   | KBPC<br>25005 | KBPC<br>2501 | KBPC<br>2502 | KBPC<br>2504 | KBPC<br>2506 | KBPC<br>2508 | KBPC<br>2510 |       |                    |
|---|-----------------------------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|--------------------|
|   | SYMBOL                            | MB2505        | MB251        | MB252        | MB254        | MB256        | MB258        | MB2510       | UNITS |                    |
| Maximum Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                  | 50            | 100          | 200          | 400          | 600          | 800          | 1000         | Volts |                    |
| Maximum RMS Bridge Input Voltage  | V <sub>RMS</sub>                  | 35            | 70           | 140          | 280          | 420          | 560          | 700          | Volts |                    |
| Maximum DC Blocking Voltage   | V <sub>DC</sub>                   | 50            | 100          | 200          | 400          | 600          | 800          | 1000         | Volts |                    |
| Maximum Average Forward Rectified Output Current at T <sub>c</sub> = 55°C                         | I <sub>o</sub>                    |               |              |              |              | 25           |              |              |       | Amps               |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) | I <sub>FSM</sub>                  |               |              |              |              | 400          |              |              |       | Amps               |
| Maximum Forward Voltage Drop per element at 12.5A DC  | V <sub>F</sub>                    |               |              |              |              | 1.1          |              |              |       | Volts              |
| Maximum DC Reverse Current at Rated   | I <sub>R</sub>                    |               |              |              |              | 10           |              |              |       | uAmps              |
| DC Blocking Voltage per element   |                                   |               |              |              |              | 500          |              |              |       |                    |
| I <sup>2</sup> t Rating for Fusing (t<8.3ms)  | I <sup>2</sup> t                  |               |              |              |              | 374          |              |              |       | A <sup>2</sup> Sec |
| Typical Junction Capacitance ( Note1)   | C <sub>J</sub>                    |               |              |              |              | 300          |              |              |       | pF                 |
| Typical Thermal Resistance (Note 2)   | R <sub>θJC</sub>                  |               |              |              |              | 2.5          |              |              |       | °C/W               |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> |               |              |              |              | -55 to + 150 |              |              |       | °C                 |

NOTES : 1. Measured at 1 MHz and applied reverse voltage of 4.0 volts  
2. Thermal Resistance from Junction to Case per leg.

RATING AND CHARACTERISTIC CURVES ( KBPC25005 MB2505 THRU KBPC2510 MB2510 )

FIG. 1 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

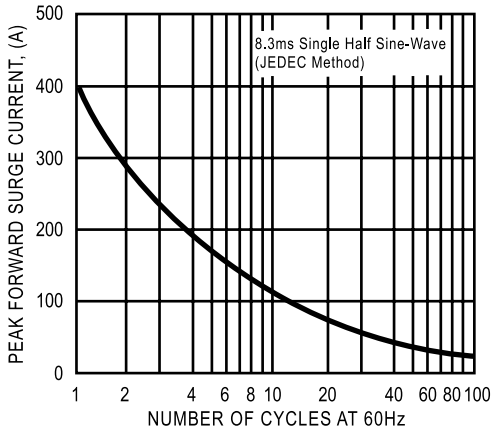


FIG. 2 - TYPICAL FORWARD CURRENT DERATING CURVE

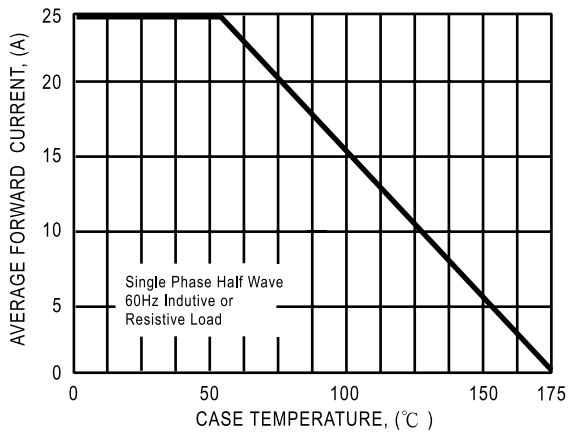


FIG. 3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

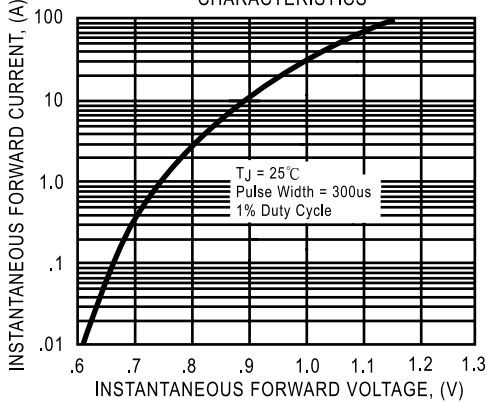
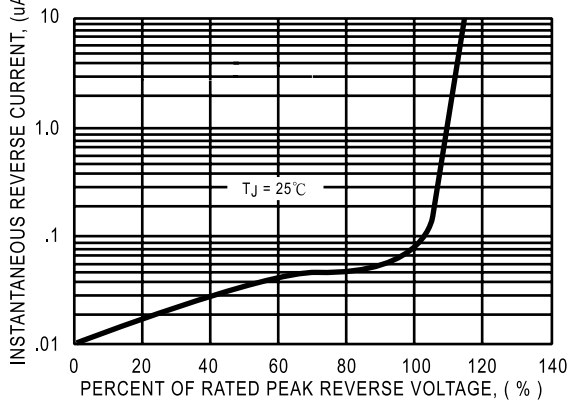


FIG. 4 - TYPICAL REVERSE CHARACTERISTICS





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25005W / 2505W  
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**CURRENT - 25 Amperes**

**FEATURES**

- \* Metal case for Maximum Heat Dissipation
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**MECHANICAL DATA**

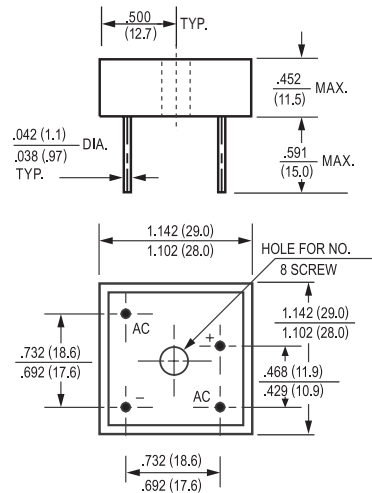
- \* Case: Metal, electrically isolated
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: MIL-STD-202E, Method 208 guaranteed
- \* Polarity: As marked
- \* Mounting position: Any
- \* Weight: 30 grams

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.  
Single phase, half wave, 60 Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.



MB-25W



Dimensions in inches and (millimeters)

|   |                                  | KBPC<br>25005W          | KBPC<br>2501W | KBPC<br>2502W | KBPC<br>2504W | KBPC<br>2506W | KBPC<br>2508W | KBPC<br>2510W |                    |
|---|----------------------------------|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------|
|   | SYMBOL                           | MB2505W                 | MB251W        | MB252W        | MB254W        | MB256W        | MB258W        | MB2510W       | UNITS              |
| Maximum Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                 | 50                      | 100           | 200           | 400           | 600           | 800           | 1000          | Volts              |
| Maximum RMS Bridge Input Voltage  | V <sub>RMS</sub>                 | 35                      | 70            | 140           | 280           | 420           | 560           | 700           | Volts              |
| Maximum DC Blocking Voltage   | V <sub>dc</sub>                  | 50                      | 100           | 200           | 400           | 600           | 800           | 1000          | Volts              |
| Maximum Average Forward Rectified Output Current at T <sub>c</sub> = 55°C                         | I <sub>o</sub>                   | 25                      |               |               |               |               |               |               | Amps               |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) | I <sub>FSM</sub>                 | 400                     |               |               |               |               |               |               | Amps               |
| Maximum Forward Voltage Drop per element at 12.5A DC  | V <sub>F</sub>                   | 1.1                     |               |               |               |               |               |               | Volts              |
| Maximum DC Reverse Current at Rated   | I <sub>R</sub>                   | @T <sub>A</sub> = 25°C  |               |               |               |               |               | 10            | uAmps              |
| DC Blocking Voltage per element   |                                  | @T <sub>A</sub> = 100°C |               |               |               |               |               | 500           |                    |
| I <sup>2</sup> t Rating for Fusing (t<8.3ms)  | I <sup>2</sup> t                 | 374                     |               |               |               |               |               |               | A <sup>2</sup> Sec |
| Typical Junction Capacitance ( Note1)   | C <sub>J</sub>                   | 300                     |               |               |               |               |               |               | pF                 |
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| Operating and Storage Temperature Range   | T <sub>J</sub> ,T <sub>STG</sub> | -55 to + 150            |               |               |               |               |               |               | °C                 |

NOTES : 1.Measured at 1 MHz and applied reverse voltage of 4.0 volts  
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RATING AND CHARACTERISTIC CURVES ( KBPC25005W MB2505W THRU KBPC2510W MB2510W )

FIG. 1 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

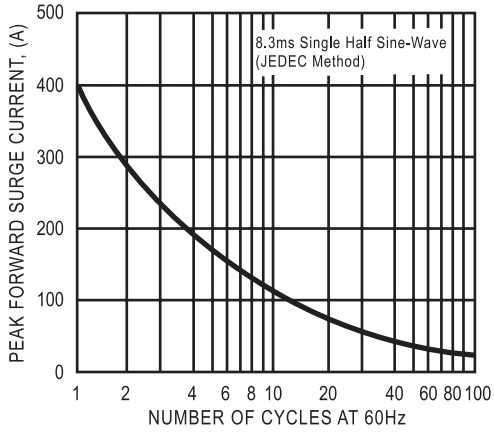


FIG. 2 - TYPICAL FORWARD CURRENT DERATING CURVE

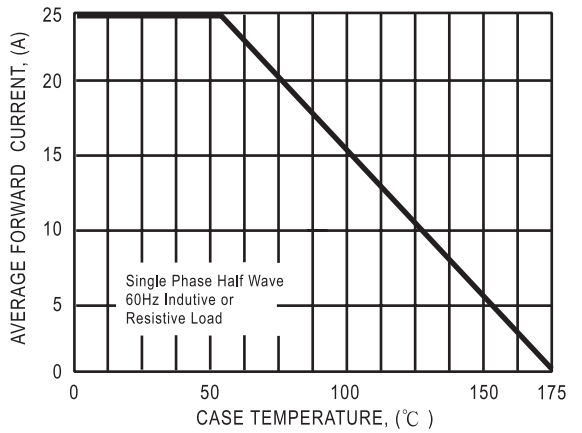


FIG. 3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

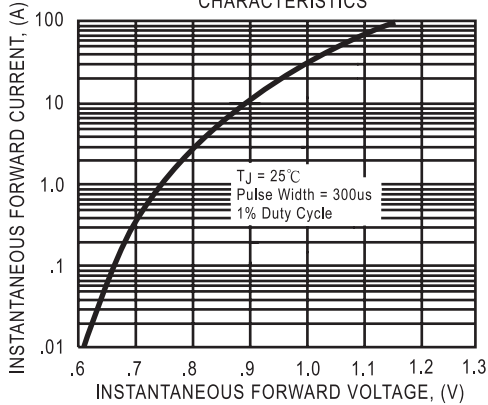


FIG. 4 - TYPICAL REVERSE CHARACTERISTICS

