

# DB151 THRU DB157

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# DB151 THRU DB157

## 1.5A Glass Passivated Single-Phase Bridge Rectifiers-50-1000V

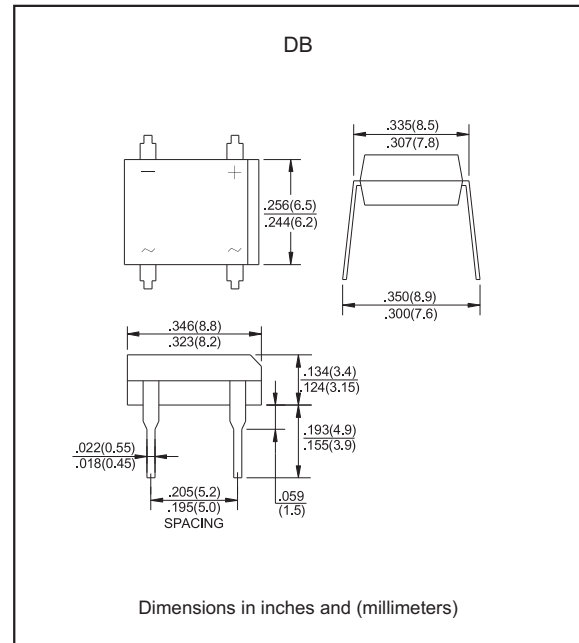
### Features

- Surge overload ratings to 50 amperes peak.
- Recommended for non-automatic applications.
- Ideal for & save space on printed circuit board.
- Applicable for automatic insertion.
- Reliable low cost construction utilizing molded plastic technology results in inexpensive product.
- Glass passivated chip junctions.
- Lead-free parts meet RoHS requirements.
- UL recognized file # E321971
- Suffix "-H" indicates Halogen free parts, ex. DB151-H.

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DB
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any
- Weight : Approximated 0.38gram

### Package outline



### Maximum ratings and Electrical Characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER                                | CONDITIONS                                                               | Symbol          | MIN. | TYP. | MAX. | UNIT                 |
|------------------------------------------|--------------------------------------------------------------------------|-----------------|------|------|------|----------------------|
| Forward rectified current                | See Fig.1                                                                | $I_O$           |      |      | 1.5  | A                    |
| Forward surge current                    | 8.3ms single half sine-wave superimposed on rate load (JEDEC methode)    | $I_{FSM}$       |      |      | 50   | A                    |
| Reverse current                          | $V_R = V_{RRM} \quad T_J = 25^{\circ}\text{C}$                           | $I_R$           |      |      | 10   | uA                   |
|                                          | $V_R = V_{RRM} \quad T_J = 125^{\circ}\text{C}$                          |                 |      |      | 500  |                      |
| $I^2t$ Rating for fusing                 | $t < 8.3\text{ms}$                                                       | $I^2t$          |      |      | 10.4 | $\text{A}^2\text{s}$ |
| Typical Junction Capacitance Per Element | Measured at 1.0MHz and applied reverse voltage of 4.0V DC.               | $C_J$           |      | 25   |      | pF                   |
| Typical thermal resistance               | Junction to ambient mounted on P.C.B with 0.5*0.5"(13*13mm) copper pads. | $R_{\theta JA}$ |      | 40   |      | $^{\circ}\text{C/W}$ |
| Storage temperature                      |                                                                          | $T_{STG}$       | -65  |      | +175 | $^{\circ}\text{C}$   |

| SYMBOLS | $V_{RRM}^{*1}$<br>(V) | $V_{RMS}^{*2}$<br>(V) | $V_R^{*3}$<br>(V) | $V_F^{*4}$<br>(V) | Operating temperature<br>$T_J, (^{\circ}\text{C})$ |
|---------|-----------------------|-----------------------|-------------------|-------------------|----------------------------------------------------|
| DB151   | 50                    | 35                    | 50                | 1.10              | -55 to +150                                        |
| DB152   | 100                   | 70                    | 100               |                   |                                                    |
| DB153   | 200                   | 140                   | 200               |                   |                                                    |
| DB154   | 400                   | 280                   | 400               |                   |                                                    |
| DB155   | 600                   | 420                   | 600               |                   |                                                    |
| DB156   | 800                   | 560                   | 800               |                   |                                                    |
| DB157   | 1000                  | 700                   | 1000              |                   |                                                    |

\*1 Repetitive peak reverse voltage

\*2 RMS voltage

\*3 Continuous reverse voltage

\*4 Maximum forward voltage @  $I_F=1.5\text{A}$

## Rating and characteristic curves (DB151 THRU DB157)

FIG.1-FORWARD CURRENT DERATING CURVE

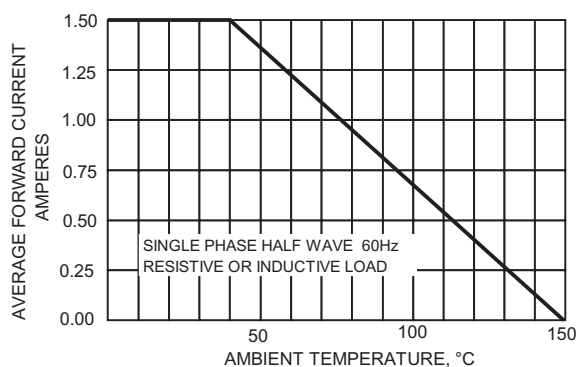


FIG.2-MAXIMUM NON-REPETITIVE SURGE CURRENT

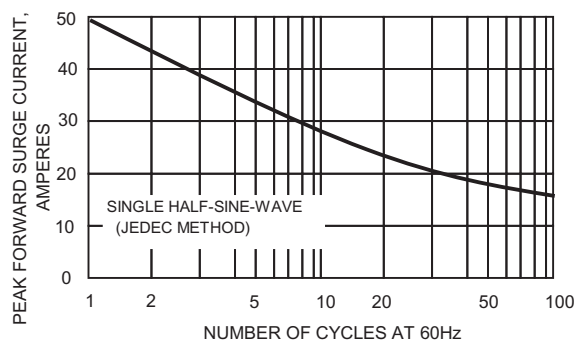


FIG.3-TYPICAL JUNCTION CAPACITANCE

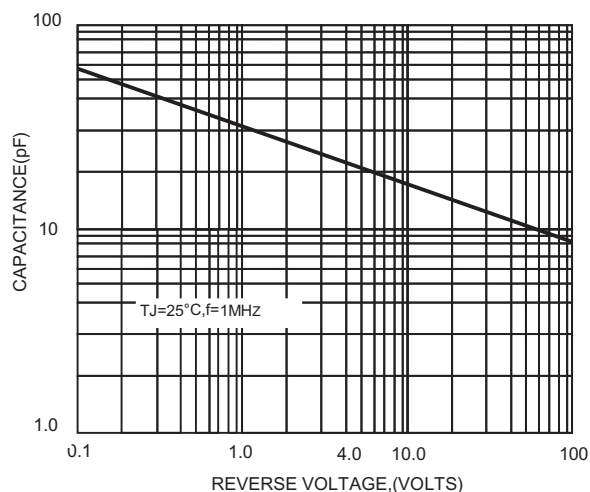


FIG.4-TYPICAL FORWARD CHARACTERISTICS

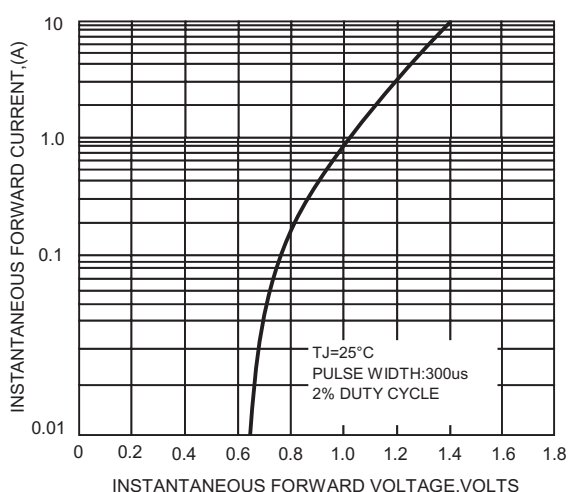
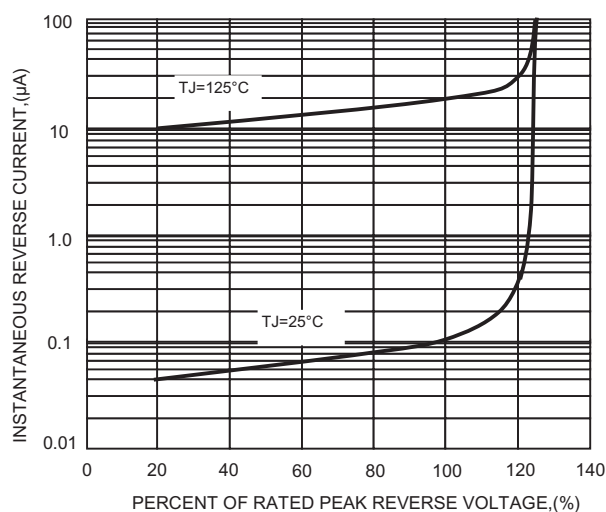
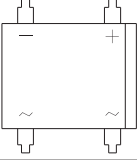
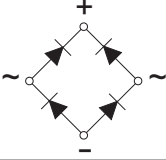


FIG.5-TYPICAL REVERSE CHARACTERISTICS



## DB151 THRU DB157

## Pinning information

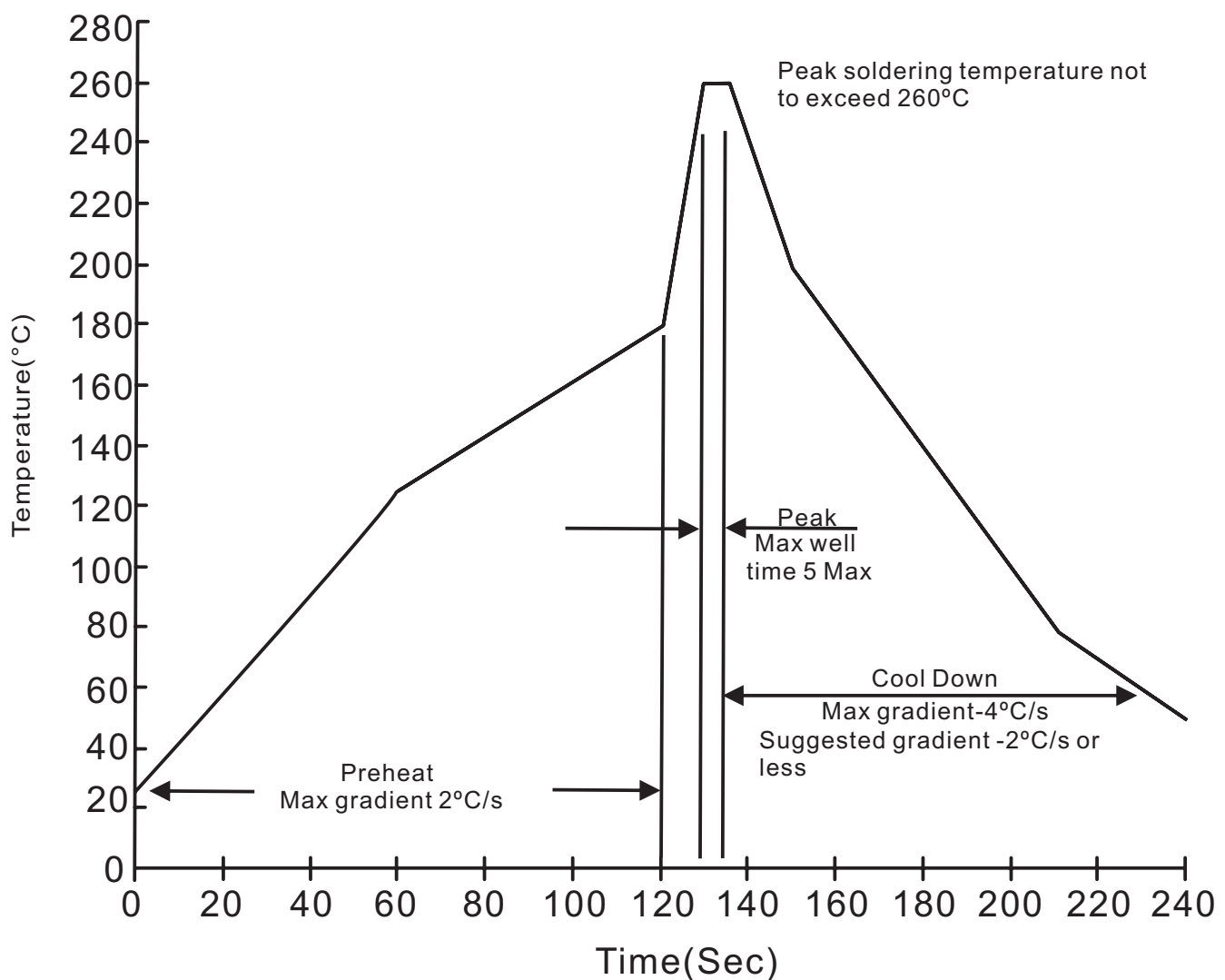
| Simplified outline                                                                | Symbol                                                                            |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |

## Marking

| Type number | Marking code |
|-------------|--------------|
| DB151       | DB151        |
| DB152       | DB152        |
| DB153       | DB153        |
| DB154       | DB154        |
| DB155       | DB155        |
| DB156       | DB156        |
| DB157       | DB157        |

## Tube packing

| PACKAGE | TUBE<br>(pcs) | TUBE SIZE<br>(m/m) | CARTON<br>SIZE<br>(m/m) | CARTON<br>(pcs) | APPROX.<br>GROSS WEIGHT<br>(kg) |
|---------|---------------|--------------------|-------------------------|-----------------|---------------------------------|
| DB      | 50            | 440*13.4*11.4      | 452*164*130             | 5,000           | 3.5                             |

**DB151 THRU DB157****Suggested thermal profiles for soldering processes****1. Lead free temperature profile wave-soldering**

# DB151 THRU DB157

## High reliability test capabilities

| Item Test                         | Conditions                                                                                                                               | Reference                     |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1. Solder Resistance              | at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec.}$<br>immerse body into solder $1/16" \pm 1/32"$                                     | MIL-STD-750D<br>METHOD-2031   |
| 2. Solderability                  | at $245 \pm 5^\circ\text{C}$ for 5 sec.                                                                                                  | MIL-STD-202F<br>METHOD-208    |
| 3. High Temperature Reverse Bias  | $V_R = 80\%$ rate at $T_J = 150^\circ\text{C}$ for 168 hrs.                                                                              | MIL-STD-750D<br>METHOD-1038   |
| 4. Forward Operation Life         | Rated average rectifier current at $T_A = 25^\circ\text{C}$ for 500hrs.                                                                  | MIL-STD-750D<br>METHOD-1027   |
| 5. Intermittent Operation Life    | $T_A = 25^\circ\text{C}$ , $I_F = I_O$<br>On state: power on for 5 min.<br>off state: power off for 5 min.<br>on and off for 500 cycles. | MIL-STD-750D<br>METHOD-1036   |
| 6. Pressure Cooker                | $15P_{SIG}$ at $T_A = 121^\circ\text{C}$ for 4 hrs.                                                                                      | JESD22-A102                   |
| 7. Temperature Cycling            | $-55^\circ\text{C}$ to $+125^\circ\text{C}$ dwelled for 30 min.<br>and transferred for 5min. total 10 cycles.                            | MIL-STD-750D<br>METHOD-1051   |
| 8. Thermal Shock                  | $0^\circ\text{C}$ for 5 min. rise to $100^\circ\text{C}$ for 5 min. total 10 cycles.                                                     | MIL-STD-750D<br>METHOD-1056   |
| 9. Forward Surge                  | 8.3ms single half sine-wave superimposed<br>on rated load, one surge.                                                                    | MIL-STD-750D<br>METHOD-4066-2 |
| 10. Humidity                      | at $T_A = 85^\circ\text{C}$ , RH=85% for 1000hrs.                                                                                        | MIL-STD-750D<br>METHOD-1021   |
| 11. High Temperature Storage Life | at $175^\circ\text{C}$ for 1000 hrs.                                                                                                     | MIL-STD-750D<br>METHOD-1031   |