

# DB201S THRU DB207S

## List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings ..... 2

Rating and characteristic curves..... 3

Pinning information..... 4

Marking..... 4

Suggested solder pad layout..... 4

Packing information..... 5

Reel packing and tube packing..... 6

Suggested thermal profiles for soldering processes..... 6

High reliability test capabilities..... 7

# DB201S THRU DB207S

## 2.0A Miniature Glass Passivated Single-Phase Surface Mount Bridge Rectifiers-50-1000V

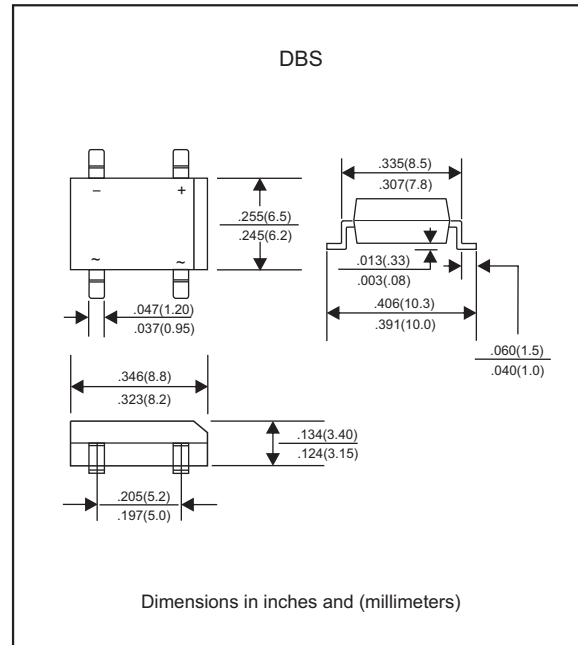
### Features

- Surge overload ratings to 50 amperes peak.
- Save space on printed circuit board.
- Ideal for automated replacement.
- 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. DB201S-H.

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, DBS
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : marked on body
- Mounting Position : Any
- Weight : Approximated 0.50 gram

### Package outline



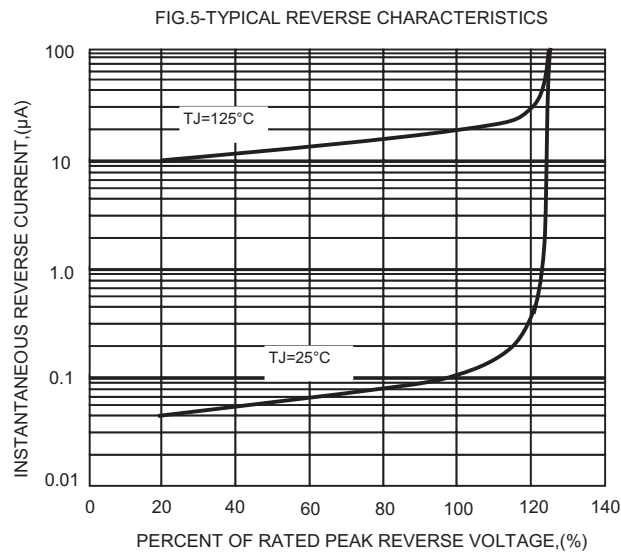
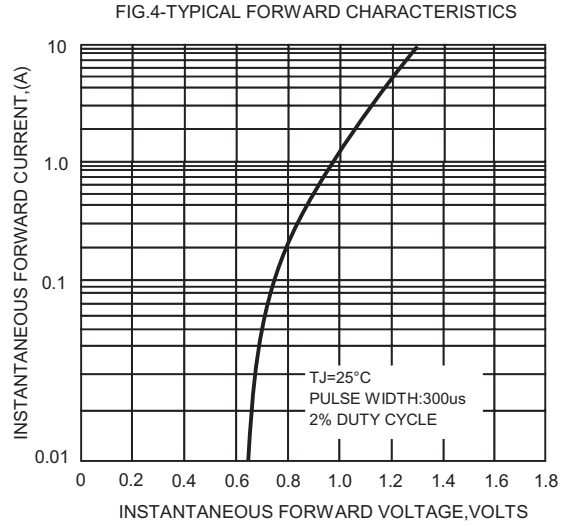
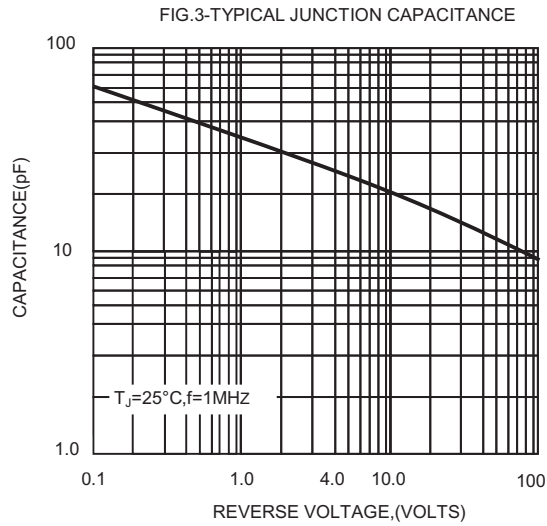
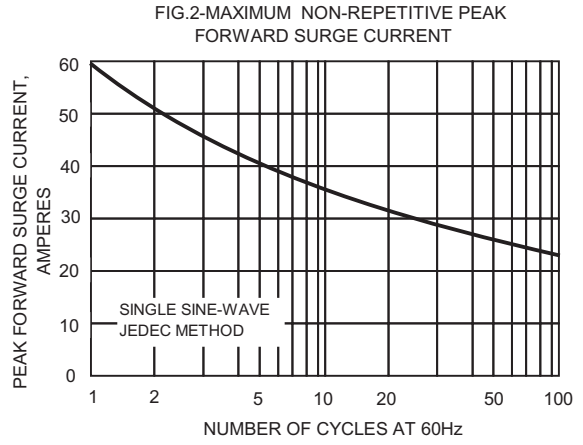
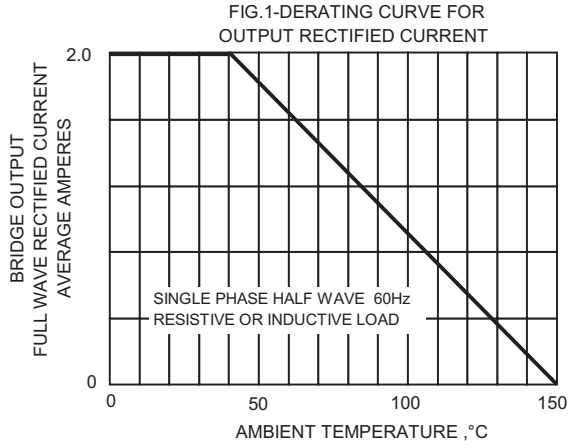
### Maximum ratings and Electrical Characteristics (AT T<sub>a</sub>=25°C unless otherwise noted)

| PARAMETER                                | CONDITIONS   | Symbol           | MIN. | TYP. | MAX. | UNIT             |
|--|--|------------------|------|------|------|------------------|
| Forward rectified current                | See Fig.1  | I <sub>O</sub>   |      |      | 2.0  | A                |
| Forward surge current                    | 8.3ms single half sine-wave superimposed on rate load (JEDEC methode)    | I <sub>FSM</sub> |      |      | 60   | A                |
| Reverse current                          | V <sub>R</sub> = V <sub>RRM</sub> T <sub>J</sub> = 25°C                  | I <sub>R</sub>   |      |      | 10   | uA               |
|  | V <sub>R</sub> = V <sub>RRM</sub> T <sub>J</sub> = 125°C                 |                  |      |      | 500  |                  |
| I <sup>2</sup> t Rating for Fusing       | t<8.3ms  | I <sup>2</sup> t |      |      | 15   | A <sup>2</sup> s |
| Typical Junction Capacitance Per Element | Measured at 1.0MHz and applied reverse voltage of 4.0V DC                | C <sub>J</sub>   |      | 25   |      | pF               |
| Typical thermal resistance               | Junction to ambient mounted on P.C.B with 0.5*0.5"(13*13mm) copper pads. | R <sub>θJA</sub> |      | 40   |      | °C/W             |
| Storage temperature                      |  | T <sub>STG</sub> | -65  |      | +175 | °C               |

| SYMBOLS | V <sub>RRM</sub> <sup>*1</sup><br>(V) | V <sub>RMS</sub> <sup>*2</sup><br>(V) | V <sub>R</sub> <sup>*3</sup><br>(V) | V <sub>F</sub> <sup>*4</sup><br>(V) | Operating temperature<br>T <sub>J</sub> , (°C) |
|---------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|--|
| DB201S  | 50                                    | 35                                    | 50                                  | 1.10                                | -55 to +150                                    |
| DB202S  | 100                                   | 70                                    | 100                                 |                                     |  |
| DB203S  | 200                                   | 140                                   | 200                                 |                                     |  |
| DB204S  | 400                                   | 280                                   | 400                                 |                                     |  |
| DB205S  | 600                                   | 420                                   | 600                                 |                                     |  |
| DB206S  | 800                                   | 560                                   | 800                                 |                                     |  |
| DB207S  | 1000                                  | 700                                   | 1000                                |                                     |  |

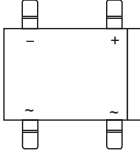
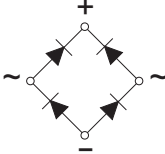
- \*1 Repetitive peak reverse voltage
- \*2 RMS voltage
- \*3 Continuous reverse voltage
- \*4 Maximum forward voltage@I<sub>F</sub>=2.0A

## Rating and characteristic curves (DB201S THRU DB207S)



# DB201S THRU DB207S

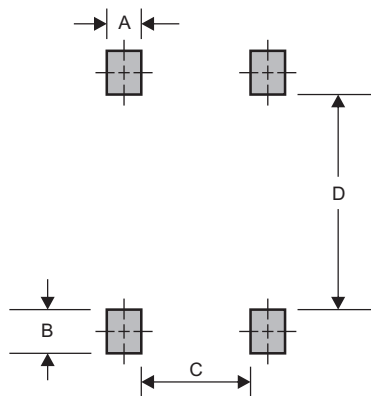
## Pinning information

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

## Marking

| Type number | Marking code |
|-------------|--------------|
| DB201S      | DB201S       |
| DB202S      | DB202S       |
| DB203S      | DB203S       |
| DB204S      | DB204S       |
| DB205S      | DB205S       |
| DB206S      | DB206S       |
| DB207S      | DB207S       |

## Suggested solder pad layout

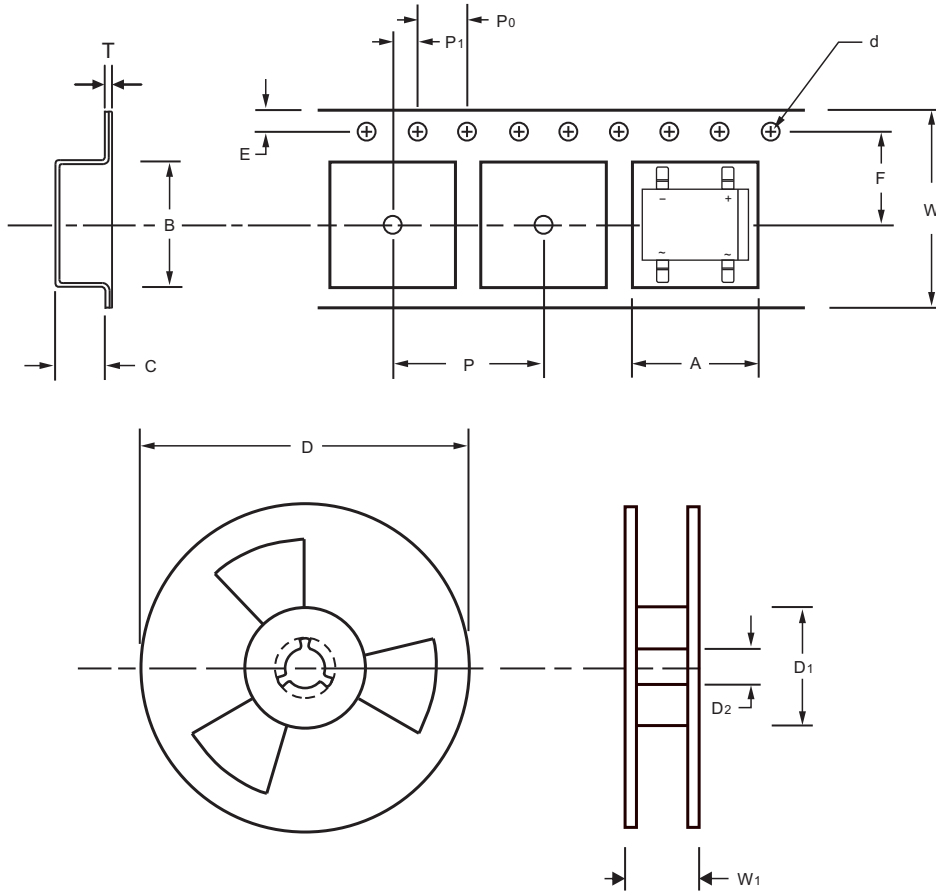


Dimensions in inches and (millimeters)

| PACKAGE | A            | B            | C            | D            |
|---------|--------------|--------------|--------------|--------------|
| DBS     | 0.059 (1.50) | 0.047 (1.20) | 0.157 (4.00) | 0.291 (7.40) |

# DB201S THRU DB207S

## Packing information



unit:mm

| Item                      | Symbol | Tolerance | DBS    |
|---------------------------|--------|-----------|--------|
| Carrier width             | A      | 0.1       | 8.64   |
| Carrier length            | B      | 0.1       | 10.41  |
| Carrier depth             | C      | 0.1       | 3.50   |
| Sprocket hole             | d      | 0.1       | 1.50   |
| 13" Reel outside diameter | D      | 2.0       | 330.00 |
| 13" Reel inner diameter   | D1     | min       | 50.00  |
| 7" Reel outside diameter  | D      | 2.0       | -      |
| 7" Reel inner diameter    | D1     | min       | -      |
| Feed hole diameter        | D2     | 0.5       | 13.00  |
| Sprocket hole position    | E      | 0.1       | 1.75   |
| Punch hole position       | F      | 0.1       | 7.50   |
| Punch hole pitch          | P      | 0.1       | 12.00  |
| Sprocket hole pitch       | P0     | 0.1       | 4.00   |
| Embossment center         | P1     | 0.1       | 2.00   |
| Overall tape thickness    | T      | 0.1       | 0.30   |
| Tape width                | W      | 0.3       | 16.00  |
| Reel width                | W1     | 1.0       | 22.00  |

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

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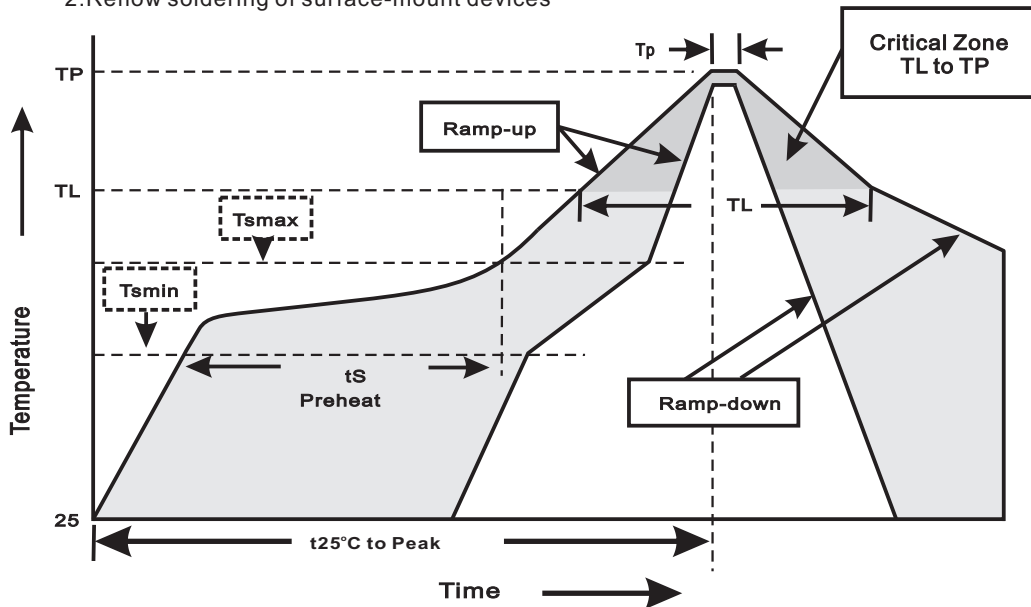
## Reel packing and tube packing

| PACKAGE | REEL SIZE | REEL (pcs) | COMPONENT SPACING (m/m) | BOX (pcs) | INNER BOX (m/m) | REEL DIA, (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|-----------|------------|-------------------------|-----------|-----------------|-----------------|-------------------|--------------|---------------------------|
| DBS     | 13"       | 1000       | 12.0                    | 2000      | 337*337*37      | 330             | 350*330*360       | 12,000       | 12.0                      |

| PACKAGE | TUBE (pcs) | TUBE SIZE (m/m) | CARTON SIZE (m/m) | CARTON (pcs) | APPROX. GROSS WEIGHT (kg) |
|---------|------------|-----------------|-------------------|--------------|---------------------------|
| DBS     | 50         | 432*13.9*5.9    | 452*164*130       | 10,000       | 6.0                       |

## Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

| Profile Feature  | Soldering Condition         |
|--|-----------------------------|
| Average ramp-up rate(TL to TP)   | <3°C/sec                    |
| Preheat<br>-Temperature Min(Tsmin)<br>-Temperature Max(Tsmax)<br>-Time(min to max)(ts) | 150°C<br>200°C<br>60~120sec |
| Tsmax to TL<br>-Ramp-upRate  | <3°C/sec                    |
| Time maintained above:<br>-Temperature(TL)<br>-Time(tL)                                | 217°C<br>60~260sec          |
| Peak Temperature(TP)   | 255°C-0/+5°C                |
| Time within 5°C of actual Peak Temperature(tp)   | 10~30sec                    |
| Ramp-down Rate   | <6°C/sec                    |
| Time 25°C to Peak Temperature  | <6minutes                   |

**DB201S THRU DB207S****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   |