

# DB151S THRU DB157S

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# DB151S THRU DB157S

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

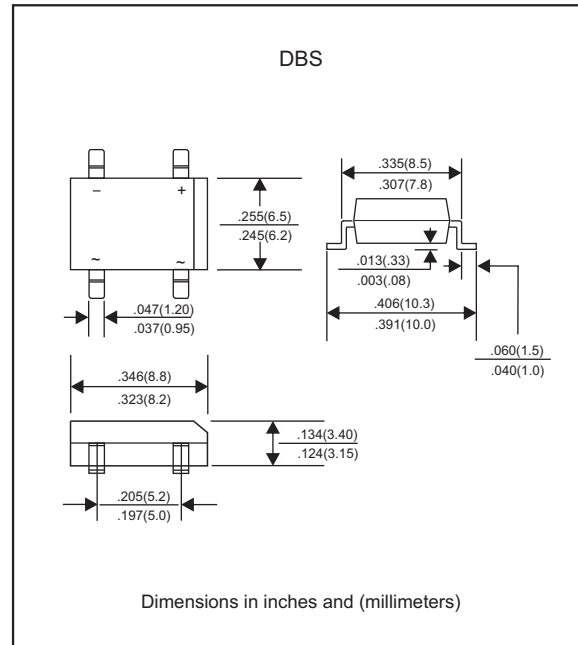
### Features

- 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. DB151S-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>			1.5	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I <sub>FSM</sub>			50	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			10.4	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> (V)	V <sub>RMS</sub> <sup>*2</sup> (V)	V <sub>R</sub> <sup>*3</sup> (V)	V <sub>F</sub> <sup>*4</sup> (V)	Operating temperature T <sub>J</sub> , (°C)
DB151S	50	35	50	1.10	-55 to +150
DB152S	100	70	100		
DB153S	200	140	200		
DB154S	400	280	400		
DB155S	600	420	600		
DB156S	800	560	800		
DB157S	1000	700	1000		

- \*1 Repetitive peak reverse voltage
- \*2 RMS voltage
- \*3 Continuous reverse voltage
- \*4 Maximum forward voltage @I<sub>F</sub>=1.5A

# Rating and characteristic curves (DB151S THRU DB157S)

FIG.1-FORWARD CURRENT DERATING CURVE

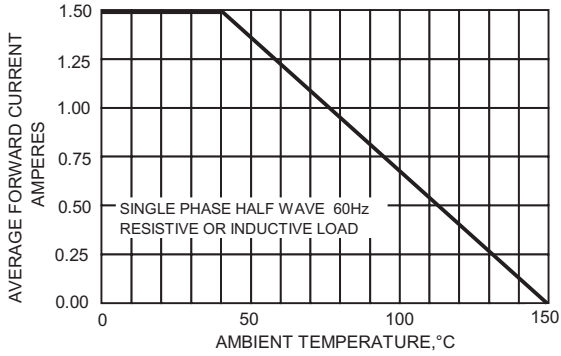


FIG.2-MXIMUM NON-REPETITIVE SURGE CURRENT

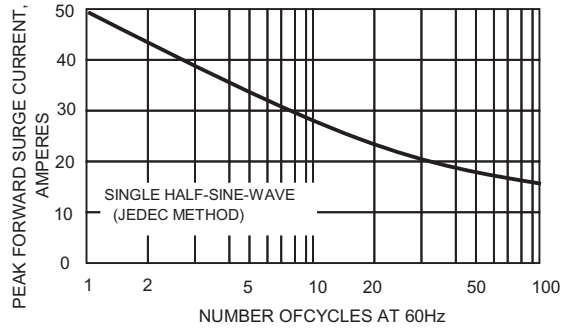


FIG.3-TYPICAL JUNCTION CAPACITANCE

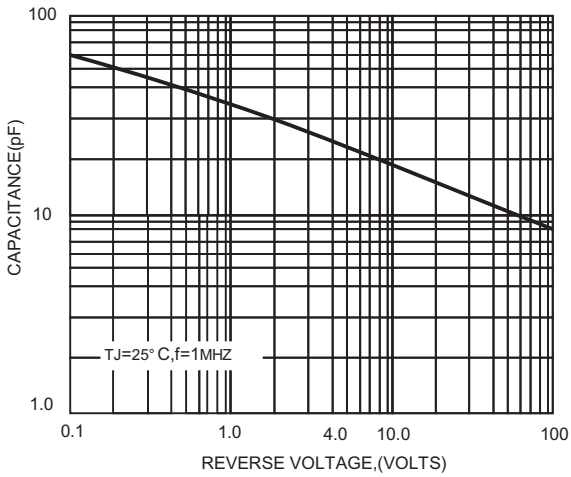


FIG.4-TYPICAL FORWARD CHARACTERISTICS

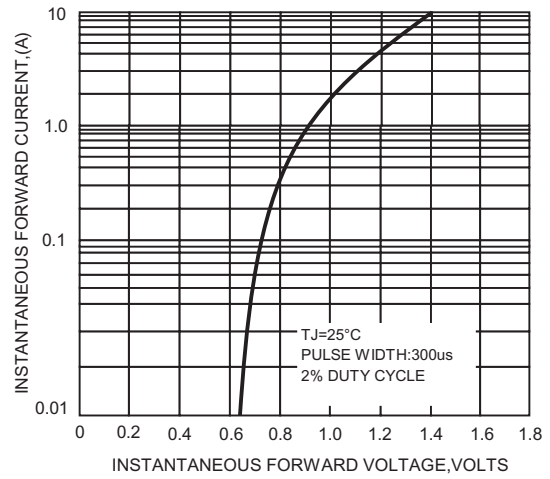
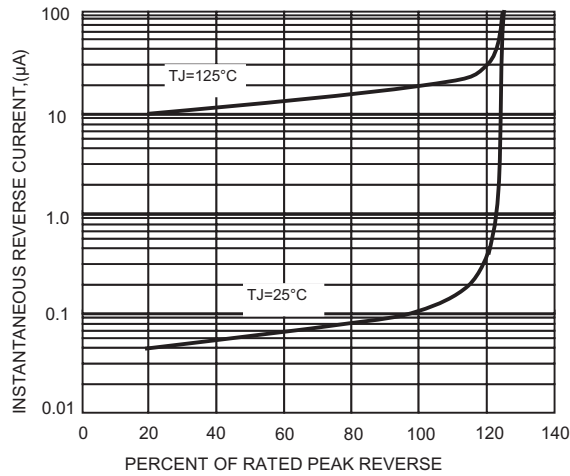
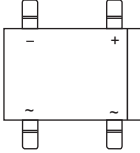
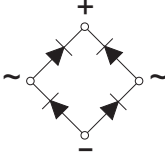


FIG.5-TYPICAL REVERSE CHARACTERISTICS



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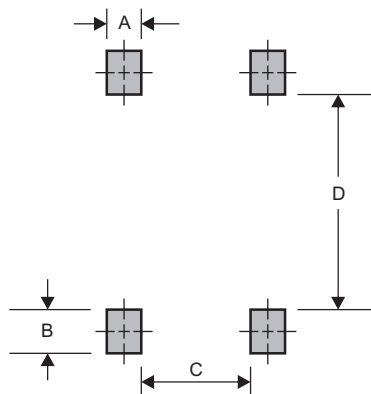
## Pinning information

Simplified outline	Symbol
	

## Marking

Type number	Marking code
DB151S	DB151S
DB152S	DB152S
DB153S	DB153S
DB154S	DB154S
DB155S	DB155S
DB156S	DB156S
DB157S	DB157S

## Suggested solder pad layout

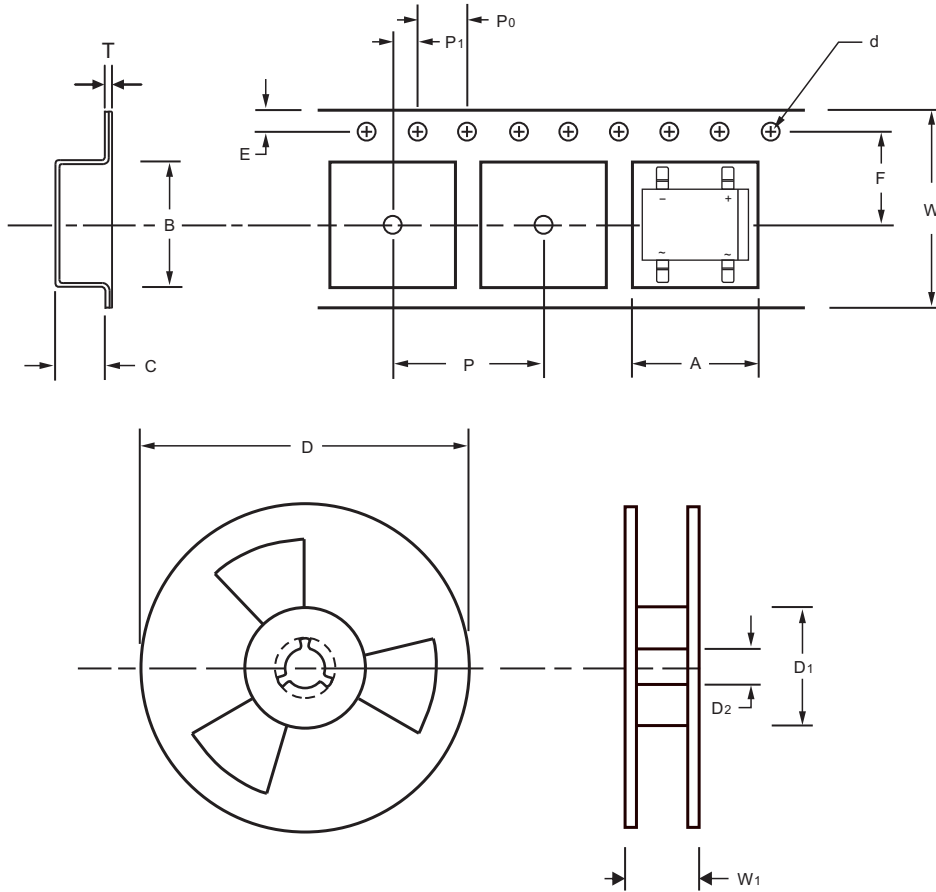


Dimensions in inches and (millimeters)

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

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## 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	D <sub>1</sub>	min	50.00
7" Reel outside diameter	D	2.0	-
7" Reel inner diameter	D <sub>1</sub>	min	-
Feed hole diameter	D <sub>2</sub>	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	P <sub>0</sub>	0.1	4.00
Embossment center	P <sub>1</sub>	0.1	2.00
Overall tape thickness	T	0.1	0.30
Tape width	W	0.3	16.00
Reel width	W <sub>1</sub>	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

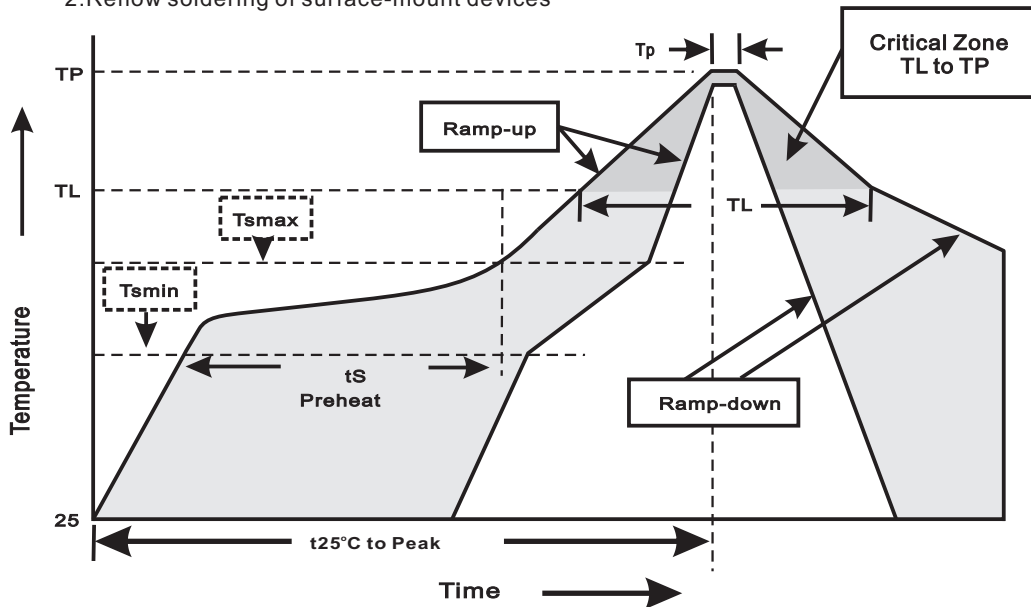
PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
DBS	13"	1000	12.0	2000	337*337*37	330	350*330*360	12,000	12.0

PACKAGE	TUBE (pcs)	TUBE SIZE (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
DBS	50	432*13.9*5.8	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 -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(ts)	150°C 200°C 60~120sec
Tsmax to TL -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(TL) -Time(tL)	217°C 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

**DB151S THRU DB157S****High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm 5^{\circ}\text{C}$ for $10\pm 2\text{sec}$ . immerse body into solder $1/16''\pm 1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R=80\%$ rate at $T_J=150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A=25^{\circ}\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^{\circ}\text{C}$ , $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D 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. and transferred for 5min. total 10 cycles.	MIL-STD-750D 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 METHOD-1056
9. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A=85^{\circ}\text{C}$ , RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at $175^{\circ}\text{C}$ for 1000 hrs.	MIL-STD-750D METHOD-1031