LESHAN RADIO COMPANY, LTD.

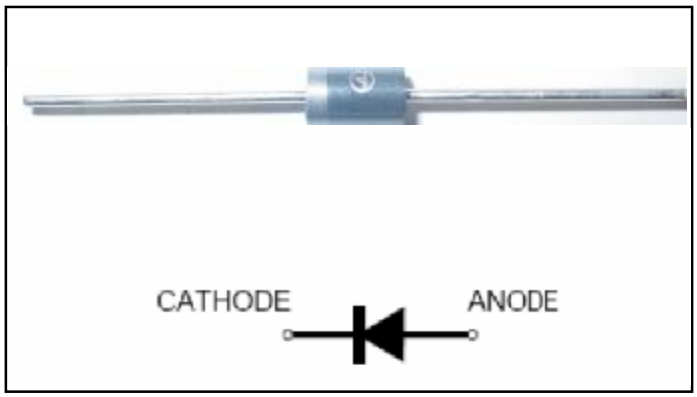
SB820-HE thru SB8100-HE

Schottky Barrier Rectifiers

Reverse Voltage 20 to 100V Forward Current8.0A

Feature & Dimensions

* Plastic package has underwriters laboratory Flammability classification 94V-0
* Low power loss,high efficiency
* For use in low voltage high frequency inverters, free wheeling,and polarity protection applications
* Guarding for over voltage protection
* High temperature soldering guaranteed: 260°C/10 seconds at terminals



Mechanical Data

Case : JEDEC DO-201AD, molded plastic over sky die
Terminals : Plated axial leads, solderable per MIL-STD-750, Method 2026
Polarity : Color band denotes cathode end
Weight : 0.038oz., 1.03 g
Mounting position : Any
Handling precautin : None

we declare that the material of product is halogen free (green epoxy compound).

1.Maximum & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter symbol	Symbol	SB820-HE	SB830-HE	SB840-HE	SB850-HE	SB860-HE	SB880-HE	SB8100-HE	Unit
Device marking code		SB820 ESD	SB830 ESD	SB840 ESD	SB850 ESD	SB860 ESD	SB880E SD	SB8100 ESD	
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	80	100	V
Maximum RMS voltage	V_{RMS}	14	21	28	35	42	56	70	V
Maximum DC blocking voltage	V_{DC}	20	30	40	50	60	80	100	V
Maximum average forward rectified current 0.375" (9.5mm) lead length (See fig. 1)	IF(AV)	8.0							A
maximum average forward rectified current at case temperature 120C is missing.	IF(AV)	3.5							A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM1}	150							A
Peak forward surge current 1.0ms single half sine-wave superimposed on rated load	I_{FSM2}	200							A
ESD According to Flexpower specification ESD test manual 1.3		15							KV
Thermal resistance, junction to ambient	RθJA	35							°C/W
Thermal resistance, junction to case	RθJC	5							°C/W
Operating junction and storage temperature range	TJ, TSTG	–65 to +150							°C

Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

Parameter symbol	Symbol	SB820-HE	SB830-HE	SB840-HE	SB850-HE	SB860-HE	SB880-HE	SB8100-HE	Unit
Maximum instantaneous forward voltage at 8.0A	VF	0.60			0.70		0.84		V
Maximum DC reverse current TC = 25°C	Ir	1							mA
ton=8ms; toff=35ms TC = 120°C	Ir	10							mA
ton=8ms; toff=35ms TC = 140°C	Ir	30							mA
Maximum reverse recovery time TC = 25°C TC = 120°C	Trr	30 50							ns
Typical junction capacitance at 4.0V, 1MHz	CJ	500			380				PF

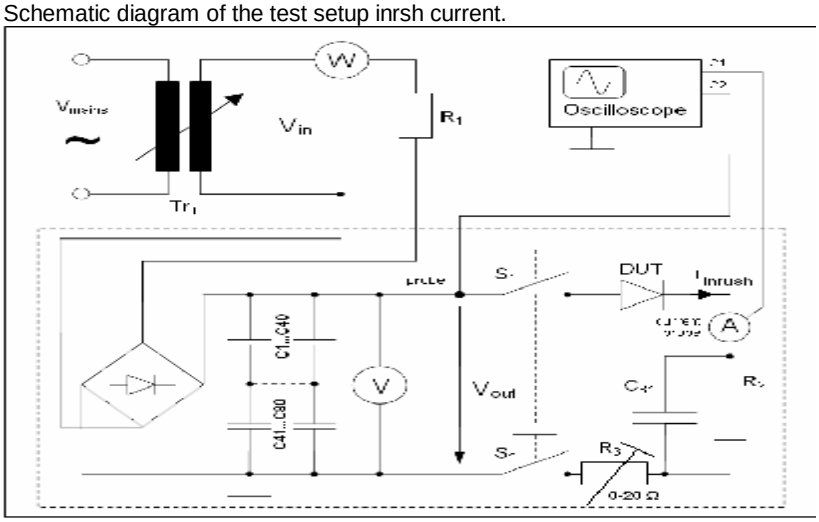
SB820-HE thru SB8100-HE

Parameters	Application conditions	Min	Typical	Max
Repetitive inrush current capability (cycles) only for rectifiers	Valid for whole temperature range and with 20μF foil capacitor and R3 placed in series to the DUT. Change the value of R3 to get the peak value of the first pulse to 33A. Adjust 10s between each pulse. Vout= 400VDC. IInrush current= 33A. See Note 2	10000		
	Take new samples. Valid for whole temperature range and with 20μF foil capacitor and R3 placed in series to the DUT. Change the value of R3 to get the peak value of the first pulse to 42A. Adjust 10s between each pulse. Vout=500VDC. IInrush current= 42A. See Note2	5000		
	take new samples. valid for whole temperature range and with 20μF foil capacitor and R3 placed in series to the DUT. Change the value of R3 to get the peak value of the first pulse to 50A. Adjust 10s between each pulse. Vout=594VDC. IInrush current= 50A. See Note 2	1000		

Notes:

Note 1. Thermal resistance from junction to ambient at 0.375" (9.5mm) lead length, P.C.B. mounted

Note 2 : Schematic diagram of the test setup inrsh current.



C1...C40 = 560μF /400V; approximately. 22mF in sum (C1...C40 in parallel). ESR C1…C40 ≤ 0,5R

C41...C80 = 560μF /400V; approximately. 22mF in sum (C41...C80 in parallel). ESR C41…C80 ≤ 0,5R

C81 = 20μF /600v foil capacitor. ESRC81 ≤ 0,1R

R1 = 80R0 /50W (4 x 20R /50W in series) protection resistor for the rectifiers

R2 = 50k / 10W / 600V discharge resistor for C81

R3 = 0 - 20Ω / 30W current limiter (low imductive, repetitive peak maximum working voltage 600V)

S1, S2 = Switch (Relays); Siemens 3TF46 (3 phases switch connected in parallel) $Imax_{(rms)}$= 80A; 600Vac; Is≤ 50kA; 690Vac; s=short-circuited;

SB820-HE thru SB8100-HE

2. Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1 – Forward Current Derating Curve

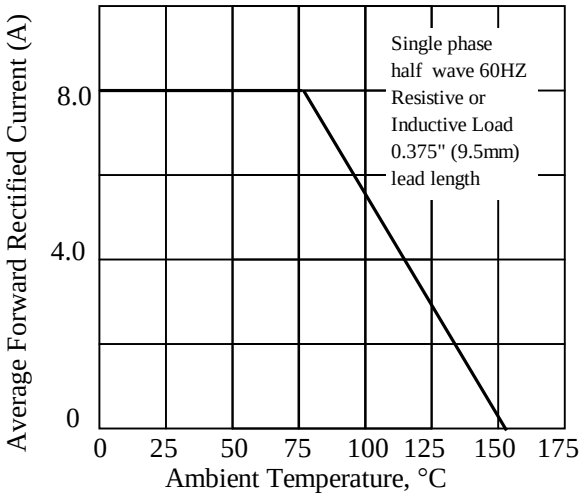


Fig. 2 – Maximum Non-repetitive Peak Forward Surge Current

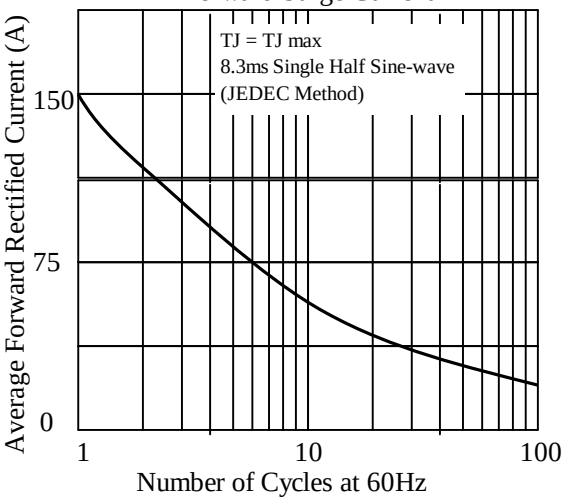


Fig 3. – Typical Instantaneous Forward Characteristics

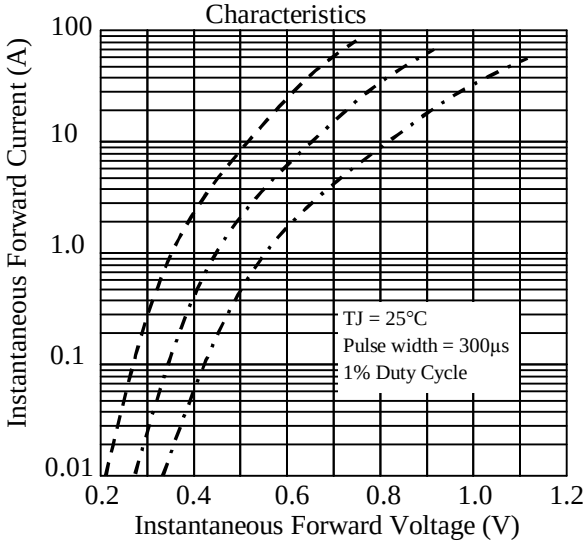


Fig 4. – Typical Reverse Characteristics

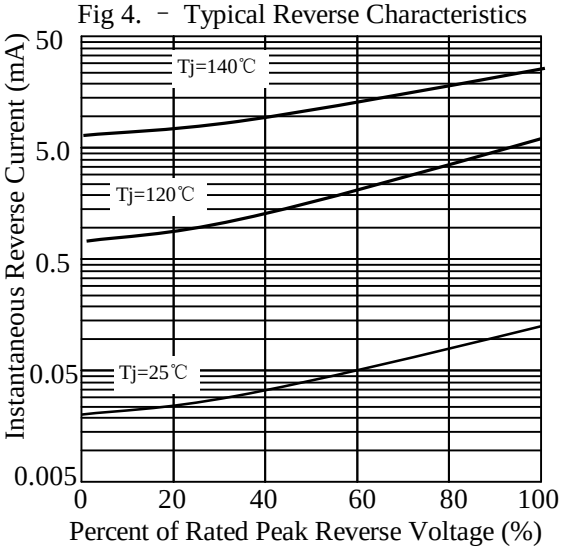


Fig 5. – typical transient thermal impedance

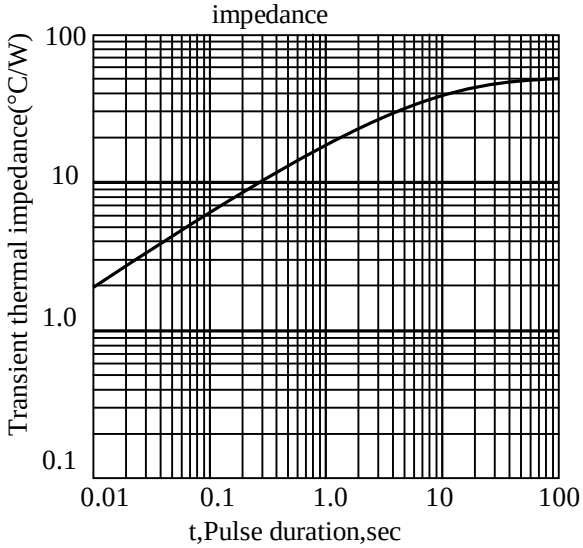
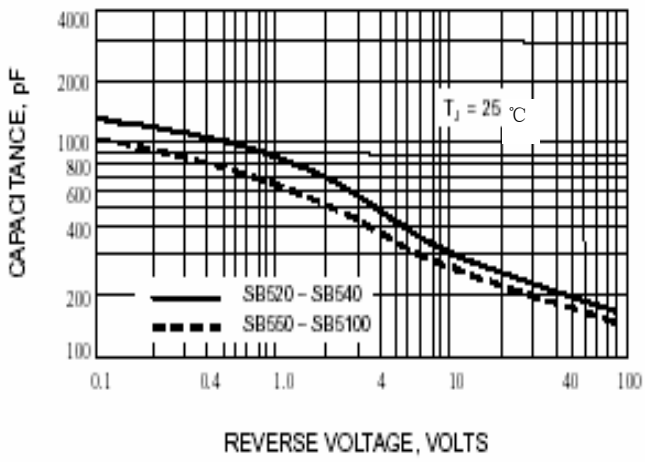


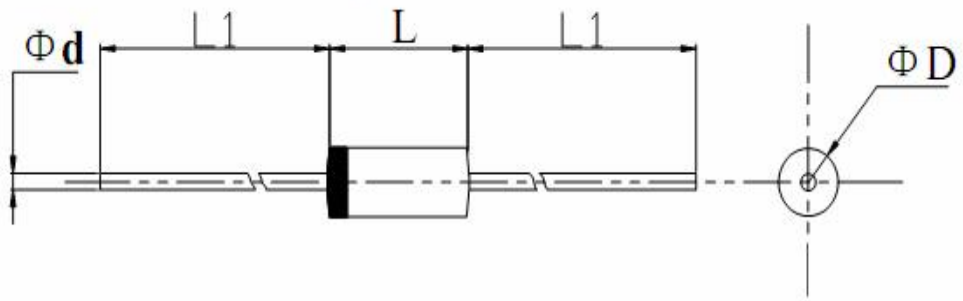
Fig 6. – Typical Junction Capacitance



SB820-HE thru SB8100-HE

3. dimension:

Package outline



Dimensions					Note:
	inches		mm		DO-201AD
	Min.	Max.	Min.	Max.	molded plastic case
L	0.335	0.375	8.5	9.5	The marking band indicates the
L1	1.0	-	25.4	-	cathode
ΦD	0.197	0.220	5.0	5.6	
Φd	0.048	0.052	1.2	1.3	

SB820-HE thru SB8100-HE

4. Update Record

版次	更新记录	更新作者	更新日期
1	第一版	周杰	2010-5-5