

TL510BF

SUPER LOW VF SCHOTTKY RECTIFIERS



VOLTAGE: 100 Volts	CURRENT: 5.0 Amperes	SMBF	Marking and Polarity
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FEATURES


- Low Forward Voltage Drop for high efficiency
- Low leakage current for high reliability
- High forward surge capability for high reliability

MECHANICAL DATA

- Terminals:** Plated Leads Solderable per MIL-STD-202, Method 208
- Mounting Position:** Any
- Lead Free:** Lead Free Finish, RoHS Compliant
- Weight:** App. 0.066 grams (0.0023 ounce)

TYPICAL APPLICATIONS

- For use in high frequency inverters , DC/DC converters, LED driver etc. applications



Remark:

- TL510BF=Modle
- NH=niuhang trademark
- FF=Product line, According to actual changes;
YWW=Periodic code, According to actual changes;
- White band denotes cathode

Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified.)			
Parameter	Symbol	TL510BF	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum RMS voltage	V_{RMS}	70	V
Maximum DC blocking voltage	V_{DC}	100	V
Maximum average forward rectified current(see fig.1)	$I_{F(AV)}$	5.0	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)(see fig.5)	I_{FSM}	120	A
Current Squared Time Per Diode($t < 8.3ms$)	I^2t	59.76	A ² sec

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).							
Parameter	Test Conditions		Symbol	TL510BF			Unit
				Min.	Typ.	Max.	
Maximum instantaneous forward voltage (see fig.2) (Note 1)	$T_A=25^{\circ}C$	$I_F= 5.0 A$	V_F	--	0.53	0.61	V
Maximum instantaneous reversecurrent at rated DC blockingvoltage (see fig.3)(Note 1)	$T_A=25^{\circ}C$	$V_R= V_{RRM}$	I_R	--	20	100	uA
	$T_A=125^{\circ}C$	$V_R= 80%*V_{RRM}$		--	5	20	mA
Typical junction capacitance(see fig.4)	4V, 1MHz		C_J	--	290	--	pF

Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)				
Parameter	Symbol	TL510BF		Unit
Operating junction	T_J	-55	to 150	°C
Storage temperature range	T_{STG}	-55	to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	55		°C/W
	$R_{\theta JL}$	17		

Note: 1. Pulse width < 300 uS, Duty cycle < 2%
2. Mounted on P.C.B. with 0.3" x 0.3" (7.62 mm x 7.62 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

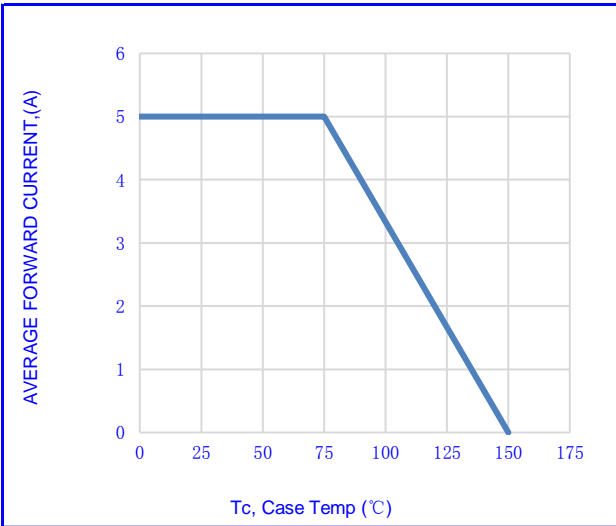


Fig.1- FORWARD CURRENT DERATING CURVE

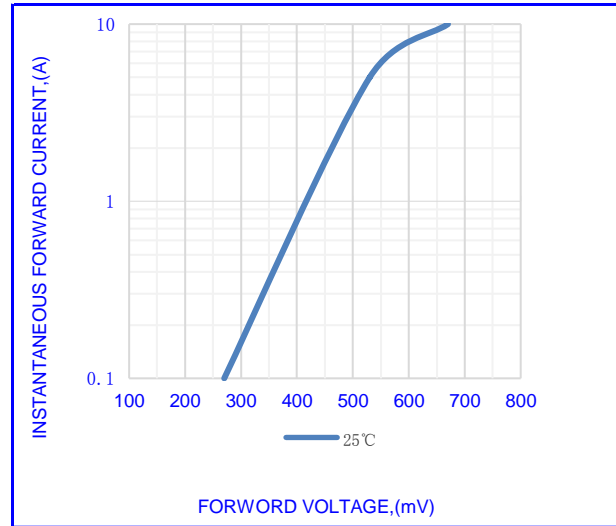


Fig.2-TYPICAL INSTANTANEOUS FORWARD

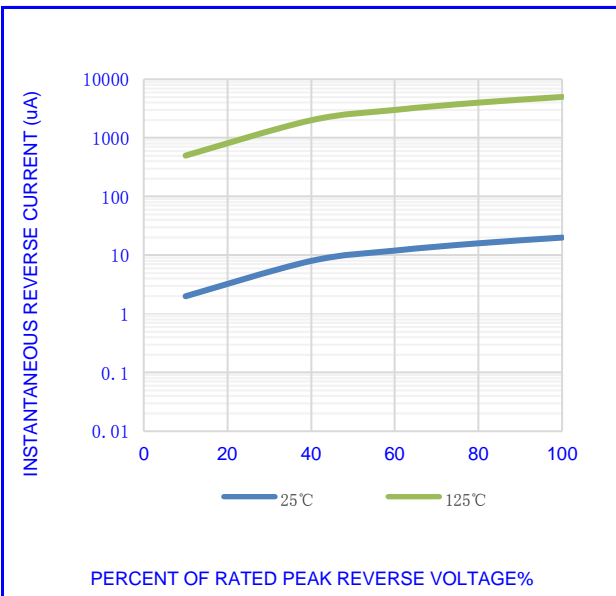


Fig.3-TYPICAL REVERSE CHARACTERISTICS

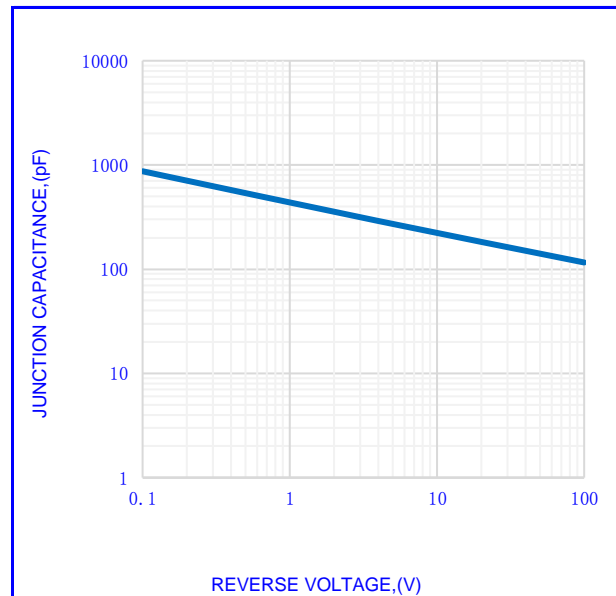


Fig.4- TYPICAL JUNCTION CAPACITANCE

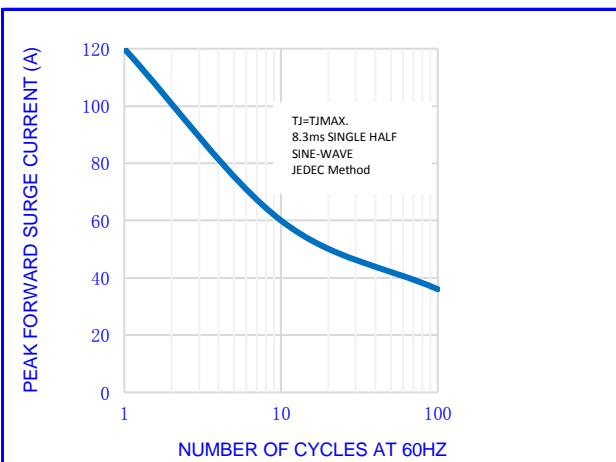


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

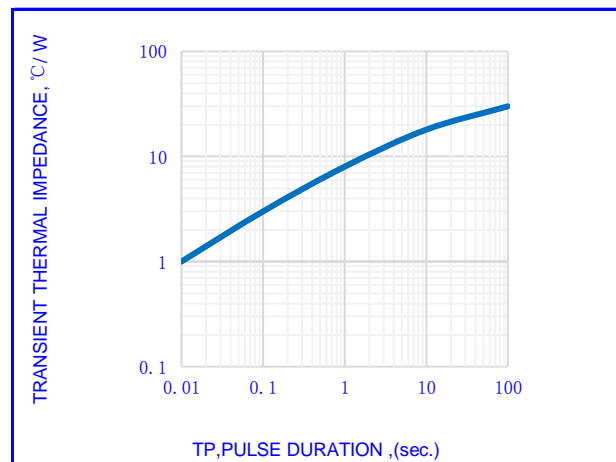


FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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PACKING INFORMATION				SMBF		
Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size LxWxH(mm)	Quantity (pcs/Inner Box)	Carton Size LxWxH(mm)	Quantity (pcs/carton)
Tape Reel	Φ330	5000	340x340x45	10000	360x360x470	100000

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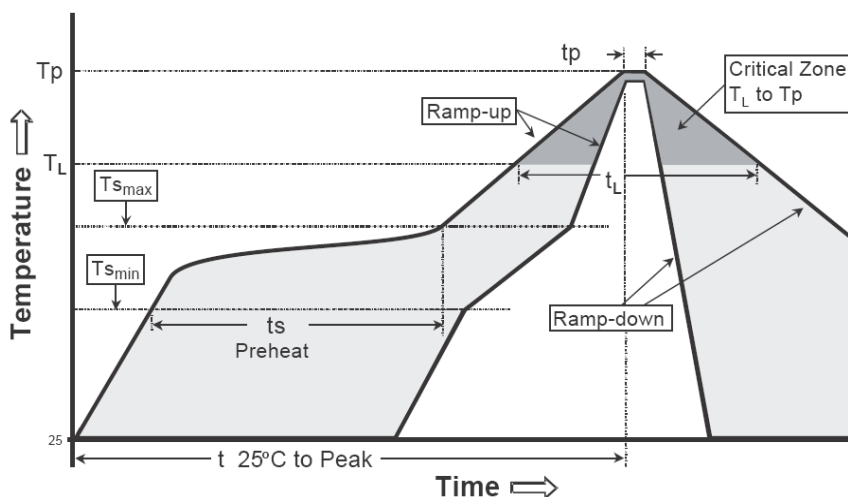
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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