

ST10100L

LOW VF RECTIFIERS



VOLTAGE: 100 Volts

CURRENT: 10 Amperes

Package: TO-277

Marking And Polarity

FEATURES

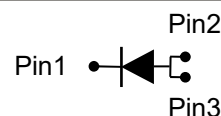
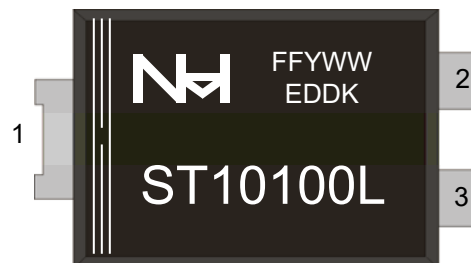
- Plane Schottky Potential Barrier Chip
- Low Forward Voltage Drop For High Efficiency
- Low Leakage Current For High Reliability
- High Forward Surge Capability For High Reliability
- High Frequency Operation

MECHANICAL DATA

- Package:** Molding Compound Meets UL 94 V-0 Flammability Rating, RoHS-Compliant
- Polarity:** As Marked On Case
- Mounting Position:** Any
- Weight:** App. 0.1 grams (0.00352 ounce)

TYPICAL APPLICATIONS

- For Use In High Frequency Inverters, Switching Mode Power Supply
AC/DC Converters, LED Driver Etc. Applications



Remark:

- NH=niuhan trademark
- FF=Product line code, According to actual changes
YWW=Date code, According to actual changes
EDDK=Internal code, According to actual changes
- ST10100L=Model
- White band denotes cathode

Single Phase, Half Wave, 60Hz, Resistive Or Inductive Load. For Capacitive Load, Derate Current By 20%

Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	ST10100L	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	@TC= 100 °C	$I_{F(AV)}$	10	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	200	A
Current Squared Time Per Diode	$t < 8.3ms$	I^2t	166.0	A ² sec

Electrical Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions		Symbol	ST10100L			Unit
				Min.	Typ.	Max.	
Instantaneous forward voltage per diode (note1)	Ta=25°C	$I_F = 10.0 A$	V_F	--	0.61	0.66	V
	Ta=125°C			--	0.55	0.60	
Maximum DC Reverse Current at Rated DC Blocking Voltage (Note 1)	Ta=25°C	$V_R = V_{RRM}$	I_{RRM}	--	30	50	uA
	Ta=125°C	$V_R = 80% * V_{RRM}$		--	5	20	
Typical Junction Capacitance Per Diode	4.0 V, 1MHz		C_J	--	240	--	pF

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Symbol	ST10100L	Unit
Operating Junction Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{STD}	-55 to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	30	°C/W
	$R_{\theta JC}$	10	

Notes: 1. Pulse Test: 300 Us Pulse Width, 2% Duty Cycle

2. Polyimide PCB, 2 oz Copper. Cathode pad dimensions 18.8x14.4mm, Anode pad dimensions- (5.6x14.4mm)

ST10100L

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Typical Characteristics Curves

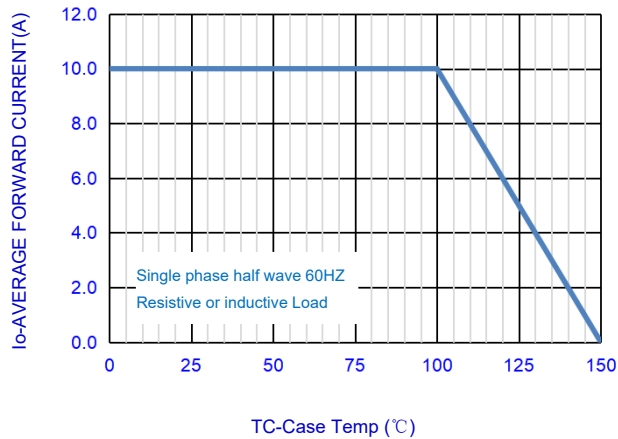


Fig.1-FORWARD CURRENT DERATING CURVE

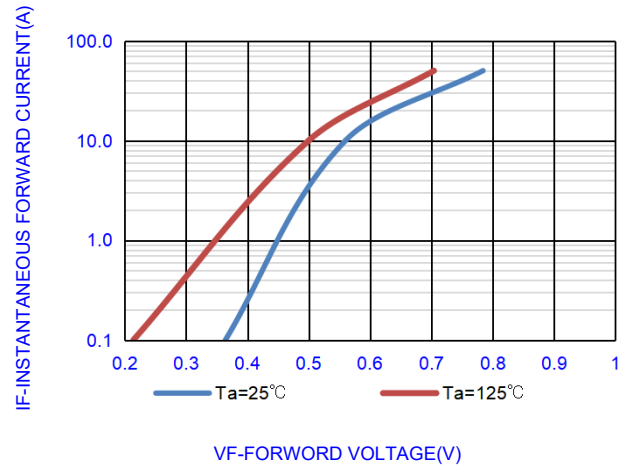


Fig.2- TYPICAL INSTANTANEOUS FORWARD

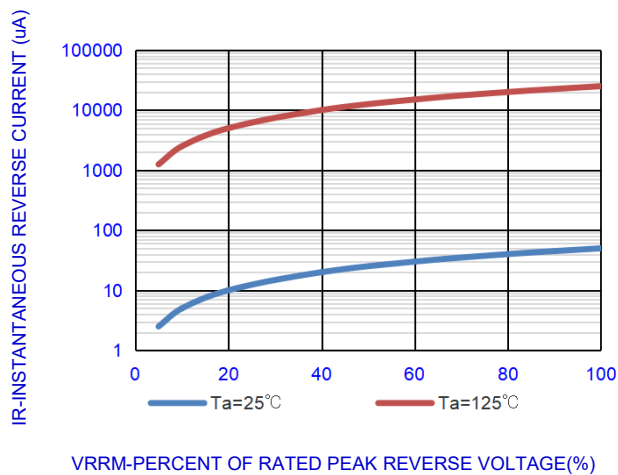


Fig.3- TYPICAL REVERSE CHARACTERISTICS

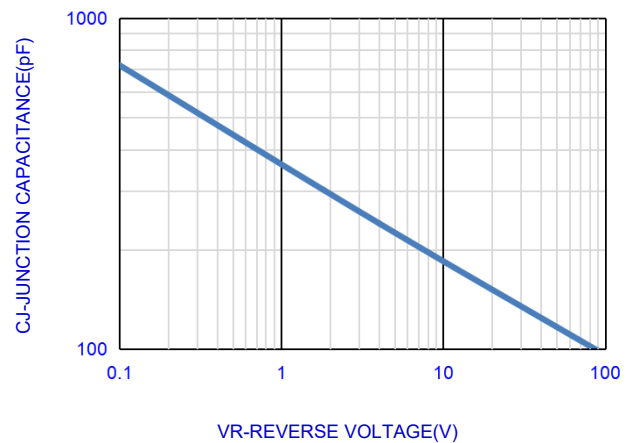


Fig.4- TYPICAL JUNCTION CAPACITANCE

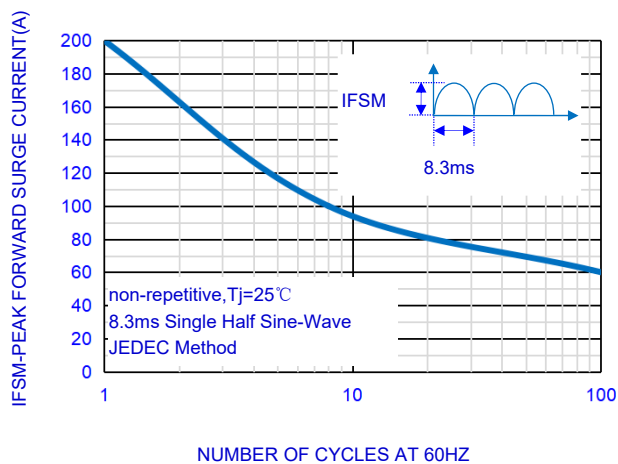


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

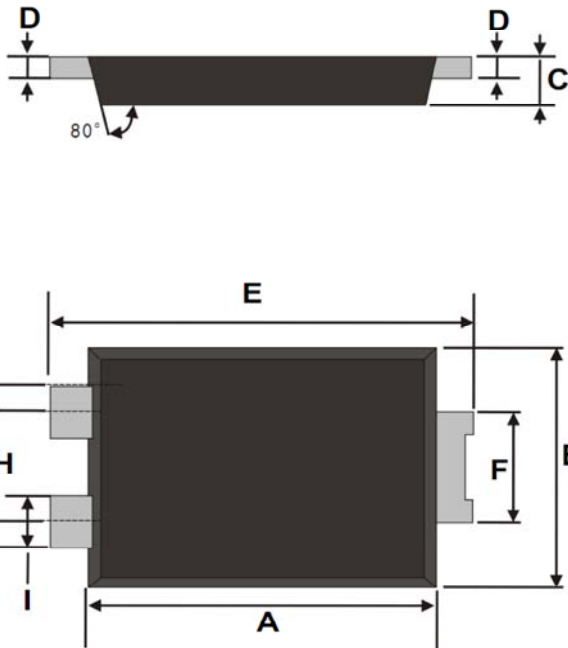
ST10100L

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OUTLINE DRAWINGS

TO-277

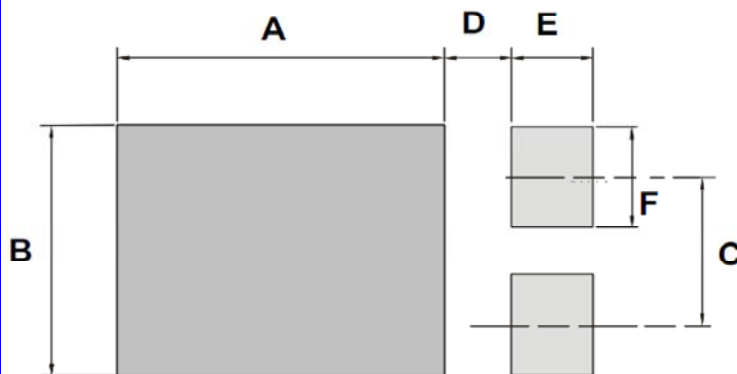


OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.87	-	6.10	0.19	-	0.24
B	3.44	-	4.63	0.14	-	0.18
C	0.98	-	1.29	0.04	-	0.05
D	0.16	-	0.40	0.01	-	0.02
E	5.99	-	7.00	0.24	-	0.28
F	1.70	-	2.12	0.07	-	0.08
G	2.36	-	3.10	0.09	-	0.12
H	1.62	-	2.07	0.06	-	0.08
I	0.78	-	0.98	0.03	-	0.04

OUTLINE DRAWINGS

TO-277



OUTLINE DIMENSIONS

Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	4.650	-	-	0.18307	-
B	-	3.500	-	-	0.1378	-
C	-	2.100	-	-	0.08268	-
D	-	0.970	-	-	0.03819	-
E	-	1.180	-	-	0.04646	-
F	-	1.400	-	-	0.05512	-

PACKING INFORMATION

Package Code	Package Method	Inner Box Size L×W×H(mm)	Quantity (Pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (Pcs/Carton)
TO-277	T/R	350×350×50	10000	360×360×310	60000

ST10100L

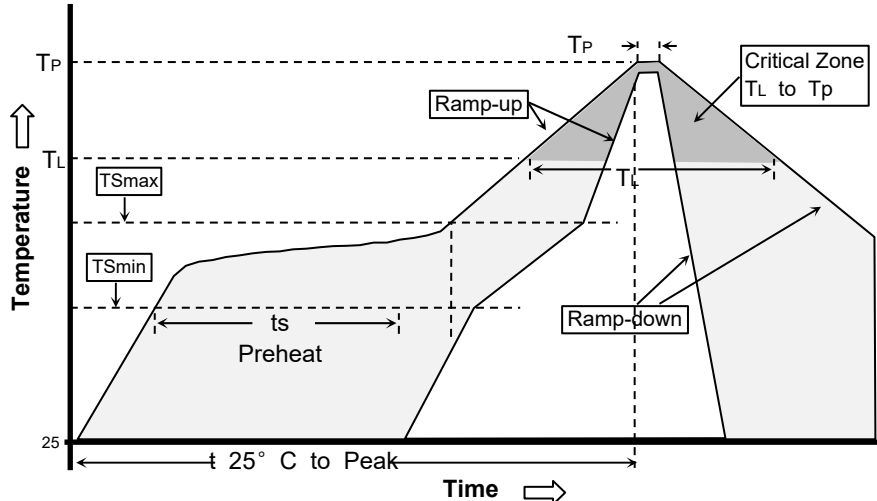
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Recommended wave soldering condition

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 (Tsmax 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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