

ST10100L

LOW VF SCHOTTKY RECTIFIERS



VOLTAGE: 100 Volts

CURRENT: 10.0 Amperes

TO-277

Marking and Polarity

FEATURES

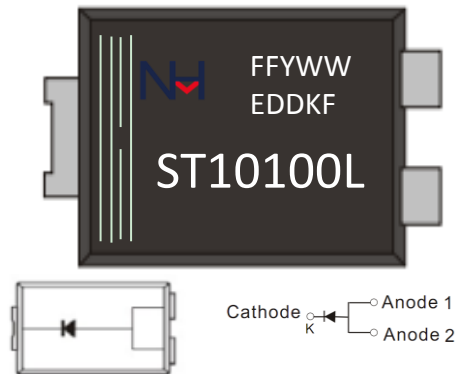
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- For use in low voltage ,high frequency inverters,
- free wheeling ,and polarity protection applications
- High temperature soldering guaranteed:260 C/10 seconds at terminals

MECHANICAL DATA

- **Case:** TO-277 molded plastic body
- **Terminals:** Plated axial leads, solderable per MIL-STD-750,method 2026
- **Mounting Position:** Any
- **Weight:** 0.041ounce, 1.15 grams

TYPICAL APPLICATIONS

- For use in switch power supply ,high frequency inverters ,DC/DC converters,free wheeling ,and PD power supply applications



Remark:

- ①. ST10100L=Model No.
- ②. NH=niuhang trademark
- ③. FF=Product line code,According to actual changes
YWW=Data code,According to actual changes
EDDKF=Internal code,According to actual changes
- ④. White band denotes cathode

Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameter | 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(see fig.1) | $I_{F(AV)}$ | 10.0 | 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} | 200 | A |

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

| Parameter | Test Conditions | | Symbol | ST10100L | | | Unit |
|--|-------------------|----------------|--------|---------------------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| Maximum instantaneous forward voltage (see fig.2) (Note 1) | $T_A=25^\circ C$ | $I_F= 10.0 A$ | V_F | -- | 0.62 | 0.67 | V |
| | $T_A=125^\circ C$ | | | -- | 0.56 | 0.61 | |
| Maximum instantaneous reversecurrent at rated DC blockingvoltage (see fig.3)(Note 1) | $T_A=25^\circ C$ | $V_R= V_{RRM}$ | I_R | -- | 30 | 50 | uA |
| | $T_A=125^\circ C$ | | | $V_R= 80\%*V_{RRM}$ | -- | 5 | 20 |
| Typical junction capacitance(see fig.4) | 4V,1MHz | | C_J | -- | 240 | -- | pF |

Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)

| Parameter | Symbol | ST10100L | Unit |
|-------------------------------------|-----------------|------------|------|
| Operating junction | T_J | -40 to 150 | °C |
| Storage temperature range | T_{STG} | -40 to 150 | |
| Typical thermal resistance (Note 2) | $R_{\theta JA}$ | 35 | °C/W |
| | $R_{\theta JL}$ | 10 | |

Note: 1.Pulse width < 300 uS, Duty cycle < 2%
2.Mounted on P.C.B. with 0.2" x 0.2" (5.08 mm x 5.08 mm) copper pad areas

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RATING AND CHARACTERISTIC CURVES

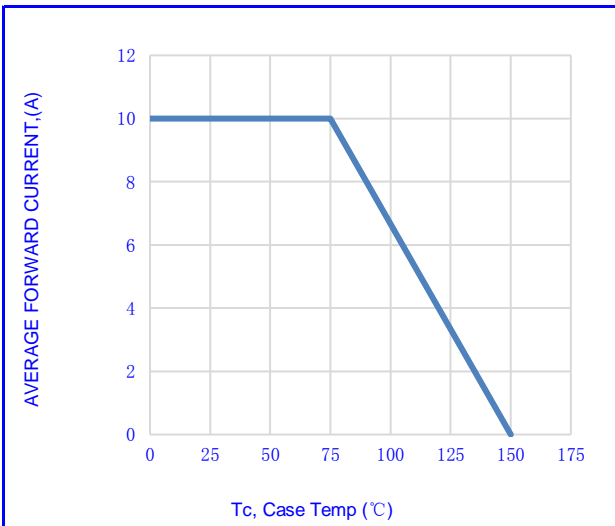


Fig.1- FORWARD CURRENT DERATING CURVE

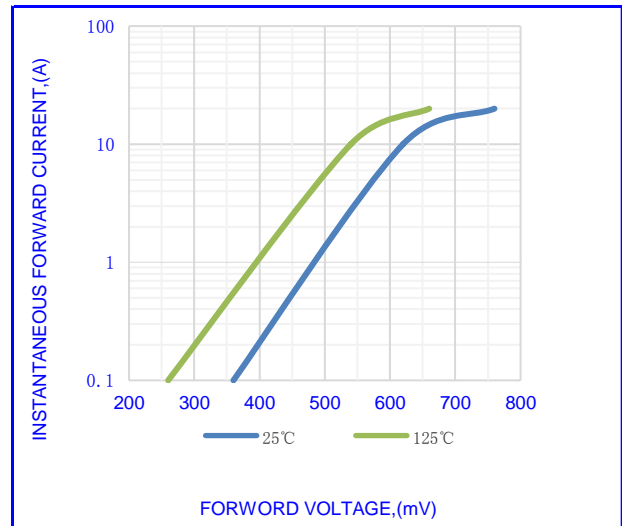


Fig.2-TYPICAL INSTANTANEOUS FORWARD

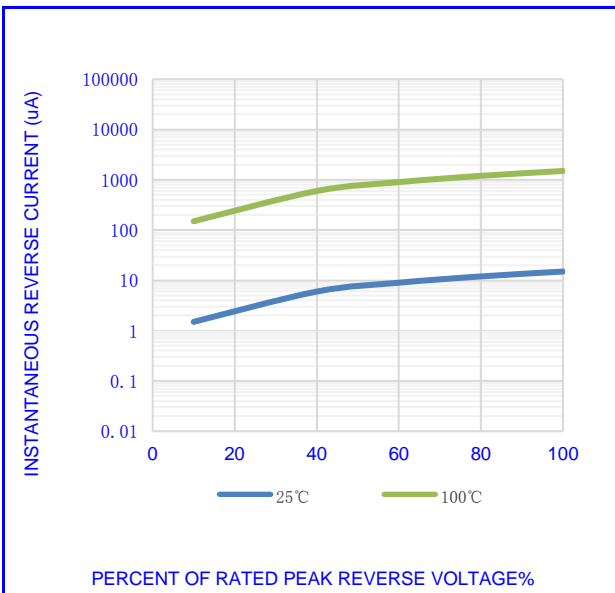


Fig.3-TYPICAL REVERSE CHARACTERISTICS

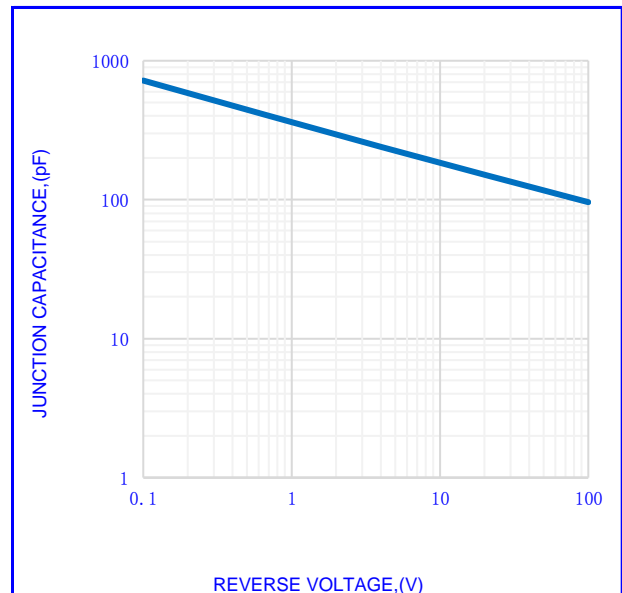


Fig.4- TYPICAL JUNCTION CAPACITANCE

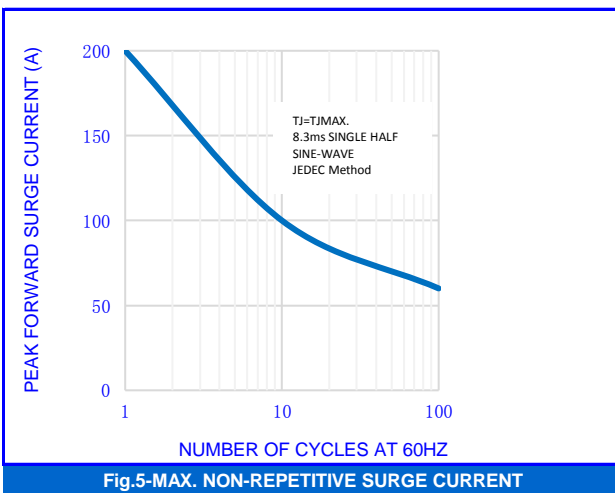


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

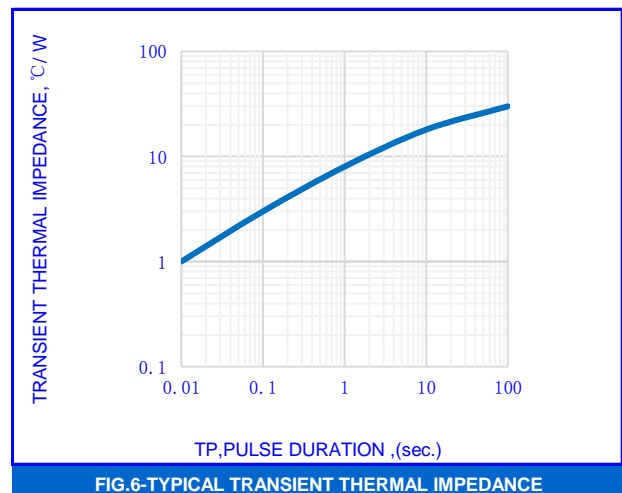


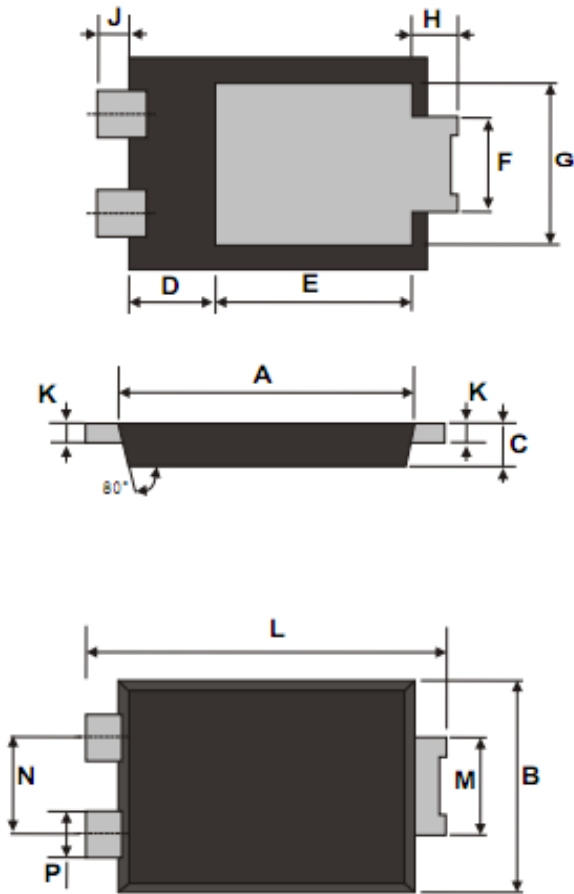
FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE

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OUTLINE DRAWINGS

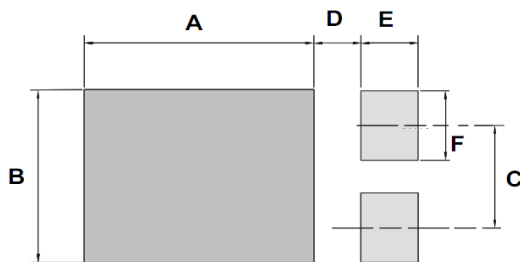
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| OUTLINE DIMENSIONS | | | | | | |
|--------------------|-------------|------|-------|--------|------|-------|
| DIM | MILLIMETERS | | | INCHES | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 5.280 | - | 5.480 | 0.208 | - | 0.216 |
| B | 3.900 | - | 4.100 | 0.154 | - | 0.161 |
| C | 0.095 | - | 1.250 | 0.004 | - | 0.049 |
| D | 1.150 | - | 1.350 | 0.045 | - | 0.053 |
| E | 3.400 | - | 3.700 | 0.134 | - | 0.146 |
| F | 1.750 | - | 1.950 | 0.069 | - | 0.077 |
| G | 2.850 | - | 3.150 | 0.112 | - | 0.124 |
| H | 0.800 | - | 0.900 | 0.031 | - | 0.035 |
| J | 0.510 | - | 0.610 | 0.020 | - | 0.024 |
| K | 0.170 | - | 0.280 | 0.007 | - | 0.011 |
| L | 6.350 | - | 6.650 | 0.250 | - | 0.262 |
| M | 1.750 | - | 1.950 | 0.069 | - | 0.077 |
| N | 1.740 | - | 1.940 | 0.069 | - | 0.076 |
| P | 0.850 | - | 0.950 | 0.033 | - | 0.037 |

MOUNTING PAD LAYOUT

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| OUTLINE DIMENSIONS | | | | | | |
|--------------------|-------------|-------|------|--------|-------|------|
| Dim. | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | - | 4.650 | - | - | 0.183 | - |
| B | - | 3.500 | - | - | 0.138 | - |
| C | - | 2.100 | - | - | 0.083 | - |
| D | - | 0.970 | - | - | 0.038 | - |
| E | - | 1.180 | - | - | 0.046 | - |
| F | - | 1.400 | - | - | 0.055 | - |

Packing Information

| Package | Pack | Box Size LxWxH(mm) | Quantity (pcs/box) | Carton Size LxWxH(mm) | Quantity (pcs/carton) |
|---------|------|-----------------------|-----------------------|--------------------------|--------------------------|
| TO-277 | T/R | 350x350x40 | 5000 | 360x360x310 | 30000 |

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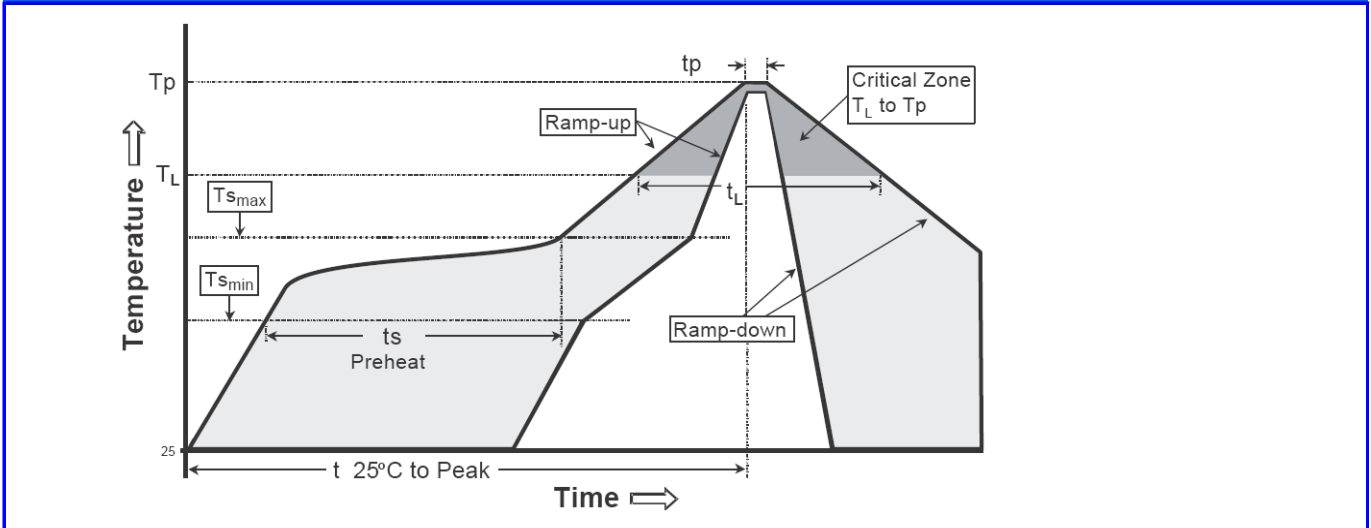
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Recommended wave soldering condition

| | | |
|-----------------|------------------|-----------------|
| 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 (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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