

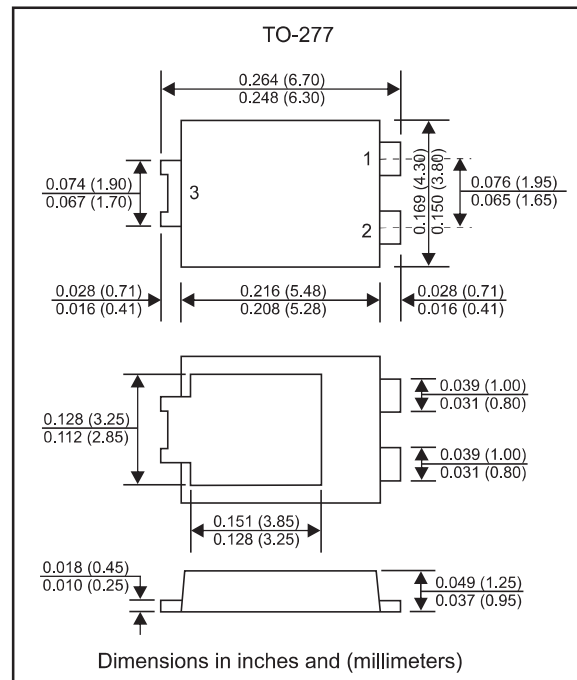
## Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Metal silicon junction, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed: 260°C/10 seconds at terminals
- ◆ Compliant to RoHS Directive 2011/65/EU
- ◆ Compliant to Halogen-free

## Mechanical data

- ◆ **Case:** JEDEC TO-277B molded plastic body
- ◆ **Terminals:** Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ **Polarity:** Color band denotes cathode end
- ◆ **Mounting Position:** Any

## Package outline



## Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	ST20100L	Unit
DC Blocking Voltage	$V_{DC}$	100	V
Working Peak Reverse Voltage	$V_{RWM}$		
Repetitive Peak Reverse Voltage	$V_{RRM}$		
RMS Reverse Voltage	$V_{RMS}$	70	V
Average Forward Rectified Current	$I_{F(AV)}$	20.0	A
Peak Forward Surge Current, 8.3ms Half Sine-wave ( $T_A=25^\circ\text{C}$ )	$I_{FSM}$	280	A
Operating junction temperature range	$T_J$	-55 to +150	$^\circ\text{C}$
Storage temperature range	$T_{STG}$	-55 to +150	$^\circ\text{C}$

## Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Test Conditions	Symbol	MIN.	TYP.	MAX.	Unit
Reverse Breakdown Voltage	$I_R=0.1\text{mA}, T_J=25^\circ\text{C}$	$V_B$	100	-	-	V
Forward voltage	$I_F=20\text{A}, T_J=25^\circ\text{C}$	$V_F$		0.65	0.70	V
Reverse current	$V_R=100\text{V}, T_J=25^\circ\text{C}$	$I_R$			0.10	mA
	$V_R=100\text{V}, T_J=125^\circ\text{C}$				20	

## Thermal characteristics

PARAMETER	SYMBOLS	ST20100L	UNITS
Typical thermal resistance junction to ambient	$R_{\theta JA}$	80	$^\circ\text{C} / \text{W}$
Typical thermal resistance junction to terminal	$R_{\theta JL}$	10	$^\circ\text{C} / \text{W}$

## Rating and characteristic curves

FIG.1: Forward Output Current Derating Curve

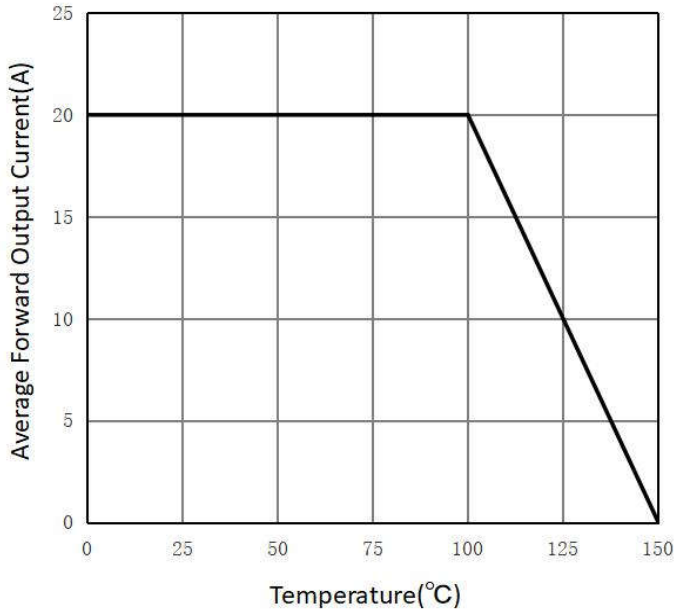


FIG.2: Maximum Non-Repetitive Peak Forward Surge Current

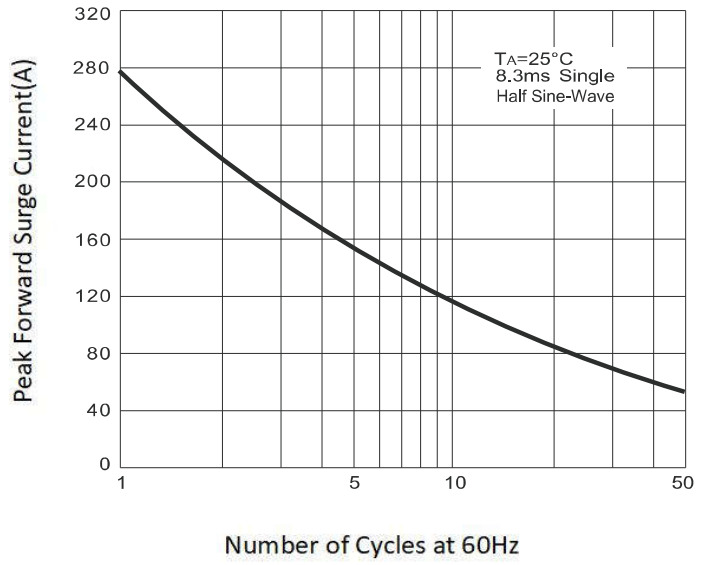


FIG.3: Typical Forward Characteristics

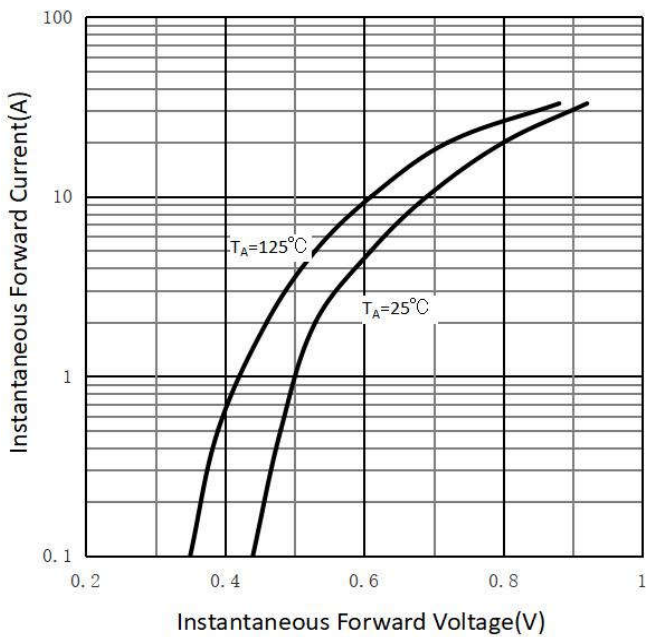
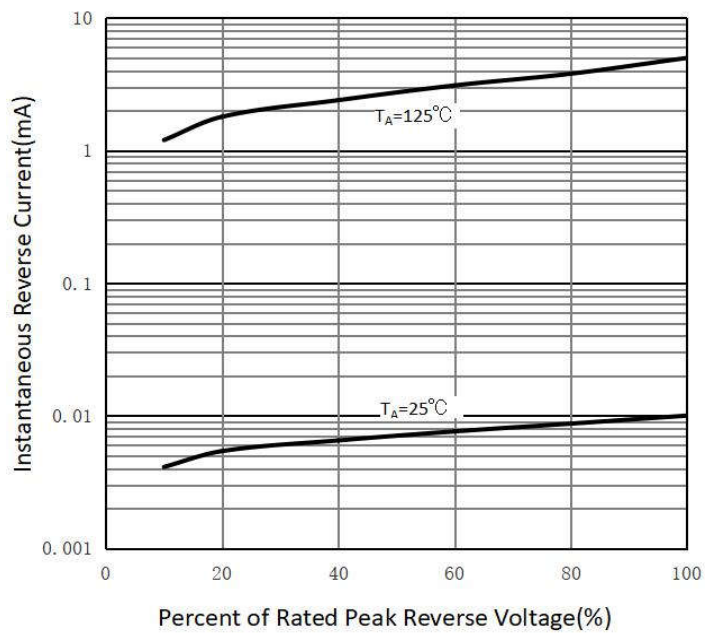


FIG.4: Typical Reverse Characteristics



## Pinning information

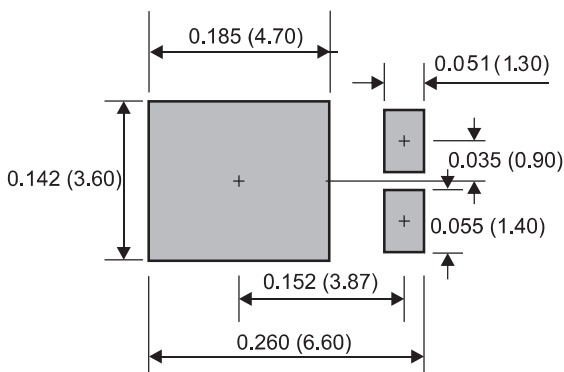
Pin	Simplified outline	Symbol
Pin2 cathode Pin1 anode Pin3 anode		

## Marking

Type number	Marking code
ST20100L	

## Suggested solder pad layout

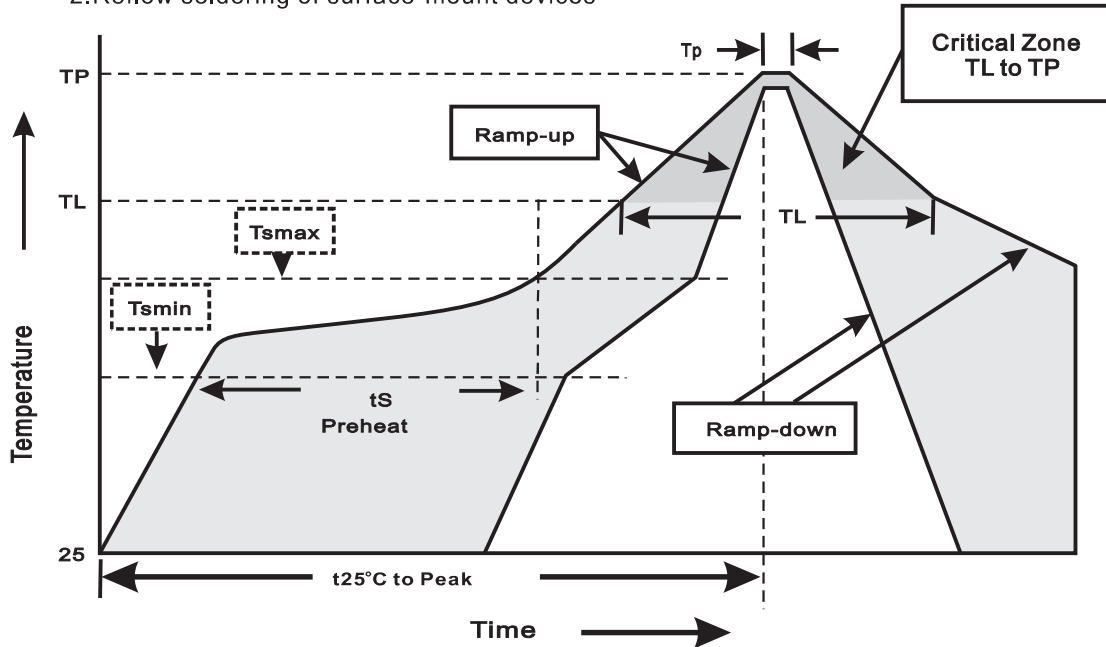
TO-277



Dimensions in inches and (millimeters)

**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(T <sub>L</sub> to T <sub>P</sub> )	<3°C/sec
Preheat -Temperature Min(T <sub>smmin</sub> ) -Temperature Max(T <sub>smmax</sub> ) -Time(min to max)(t <sub>s</sub> )	150°C 200°C 60~120sec
T <sub>smmax</sub> to T <sub>L</sub> -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T <sub>L</sub> ) -Time(t <sub>L</sub> )	217°C 60~260sec
Peak Temperature(T <sub>P</sub> )	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t <sub>P</sub> )	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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