

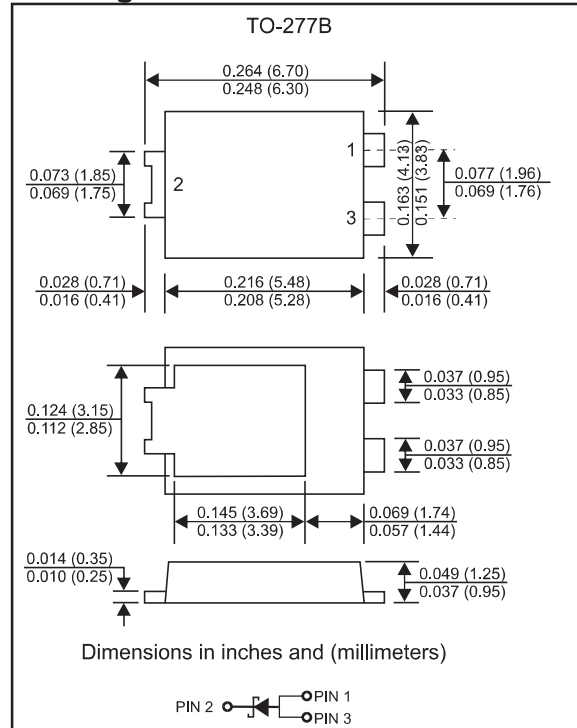
Features

- Ultra Low Forward Voltage Drop .
- Very low profile-typical height of 1.10mm
- Low Power Losses,High Efficiency Operation
- Low Thermal Resistance Package.
- High Operating Junction Temperature.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : TO-277 ,molded Plastic
- Terminals:Solderable per MIL-STD-750,Method 2026
- Marking:SB1045L

Package outline



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

Parameter	Symbol	SD10U45L	Unit
DC Blocking Voltage Working Peak Reverse Voltage Repetitive Peak Reverse Voltage	V_{DC} V_{RWM} V_{RRM}	45	V
RMS Reverse Voltage	V_{RMS}	31,5	V
Average Forward Rectified Current	$I_{F(AV)}$	10.0	A
Peak Forward Surge Current,8.3ms Half Sine-wave($T_A=25^{\circ}\text{C}$)	I_{FSM}	275	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	$I_R=0.5\text{mA}, T_J=25^{\circ}\text{C}$	V_B	45	-	-	V
Forward voltage	$I_F=8\text{A}, T_J=25^{\circ}\text{C}$	V_F	-	0.40	-	V
	$I_F=10\text{A}, T_J=25^{\circ}\text{C}$		-	0.42	0.45	
Reverse current	$V_R=45\text{V}, T_J=25^{\circ}\text{C}$	I_R	-	0.051	0.5	mA
	$V_R=45\text{V}, T_J=100^{\circ}\text{C}$		-	5	15	
	$V_R=45\text{V}, T_J=150^{\circ}\text{C}$		-	27	75	

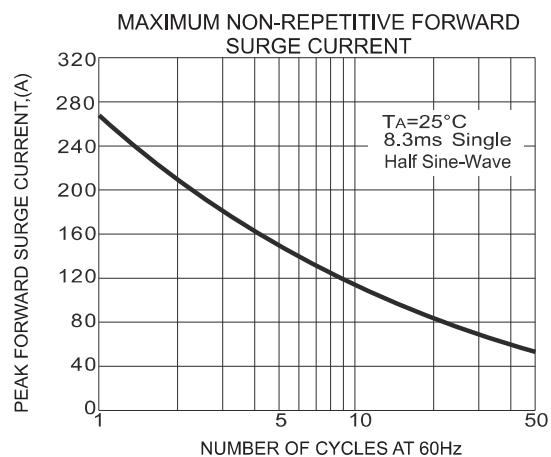
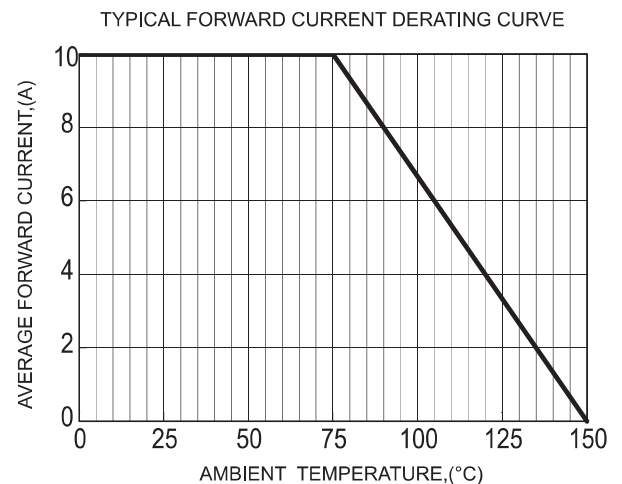
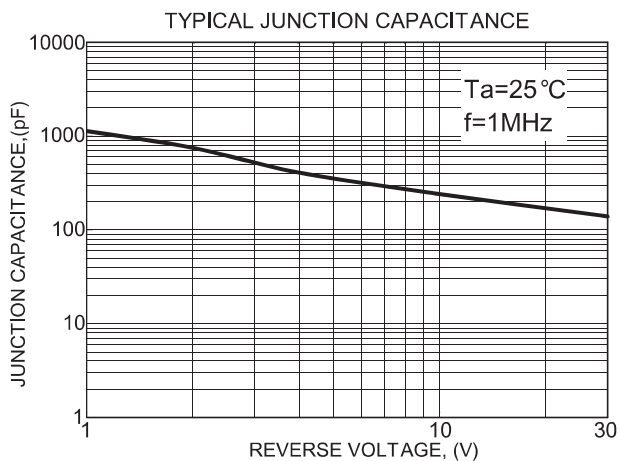
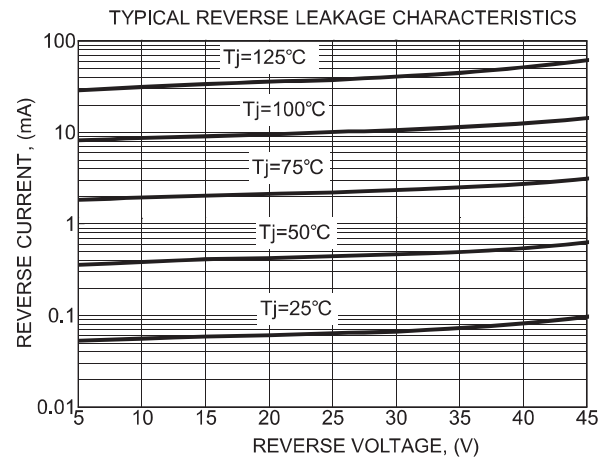
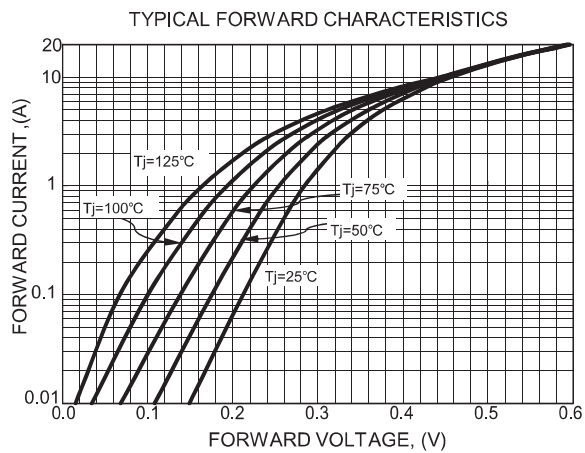
Thermal Characteristics

Parameter	Symbol	SD10U45L	Unit
Typical thermal resistance junction to ambient ,Note 1	$R_{\theta JA}$	73	$^{\circ}\text{C/W}$
Typical thermal resistance junction to ambient ,Note 2	$R_{\theta JA}$	31	$^{\circ}\text{C/W}$

Note : 1.FR-4 PCB, 2oz.Copper.

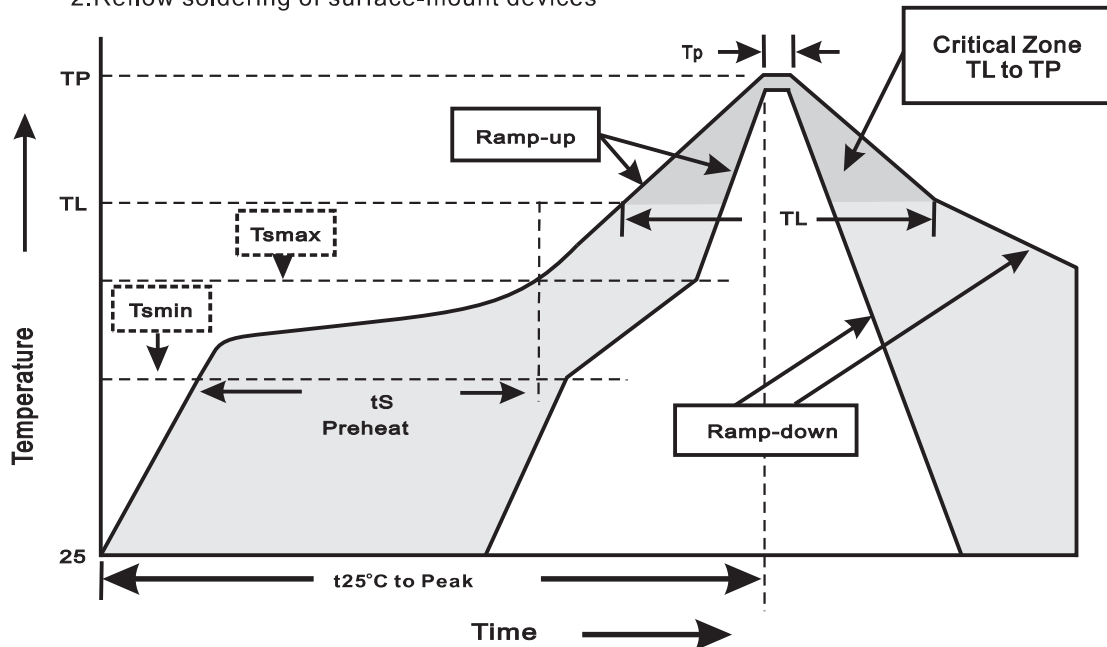
2.Polyimide PCB, 2oz.Copper.Cathode pad dimensions 18.8mm x 14.4mm.Anode pad dimensions 5.6mm x 14.4mm.

Rating and characteristic curves



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_L to T_P)	$<3^{\circ}\text{C}/\text{sec}$
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} to T_L -Ramp-upRate	$<3^{\circ}\text{C}/\text{sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$