

10.0A Low VF Surface Mount Schottky Barrier Rectifiers-45V

Primary characteristics			
Parameter	Symbol	Value	Unit
Peak Forward Surge Current	I_{FSM}	275	A
Max. Reverse Current ($V_R=45V$, $T_J=25^\circ C$)	I_R	0.5	mA
Repetitive Peak Reverse Voltage	V_{RRM}	45	V
Forward Voltage ($I_F=8A$, $T_J=25^\circ C$)	V_F	0.4	V

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

Case dimensions	
Dimensions in inches and (millimeters)	
TO-277B	

Maximum ratings ($T_A = 25^\circ C$, unless otherwise noted)						
Parameter	Test condition	Symbol	Value			Unit
			Min.	Typ.	Max.	
DC Blocking Voltage	-	V_{DC}	-	45	-	V
Working Peak Reverse Voltage		V_{RWM}				
Repetitive Peak Reverse Voltage		V_{RRM}				
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 ($T_A=25^\circ C$)	-	I_{FSM}	-	275	-	A
Operating Junction Temperature Range	-	T_J	-55	-	150	$^\circ C$
Storage Temperature Range	-	T_{STG}	-55	-	150	$^\circ C$
Electrical characteristics ($T_A = 25^\circ C$, unless otherwise noted)						
Reverse Breakdown Voltage	$I_R=0.5mA$, $T_J=25^\circ C$	V_B	45	-	-	V
Forward Voltage	$I_F=8A$, $T_J=25^\circ C$	V_F	-	0.40	-	V

	$I_F=10A, T_J=25^{\circ}C$		-	0.42	0.47	
Reverse Current	$V_R=45V, T_J=25^{\circ}C$	I_R	-	0.051	0.5	mA
	$V_R=45V, T_J=100^{\circ}C$		-	5	15	
	$V_R=45V, T_J=150^{\circ}C$		-	27	75	

Thermal Characteristics

Typical thermal resistance junction to ambient ¹⁾	-	$R_{\theta JA}$	-	73	-	$^{\circ}C/W$
Typical thermal resistance junction to ambient ²⁾	-		-	31	-	

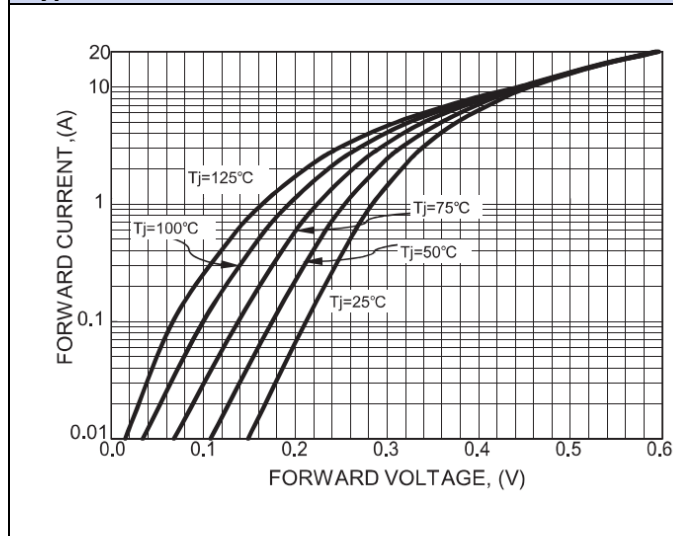
Notes:

1) FR-4 PCB, 2oz. Copper

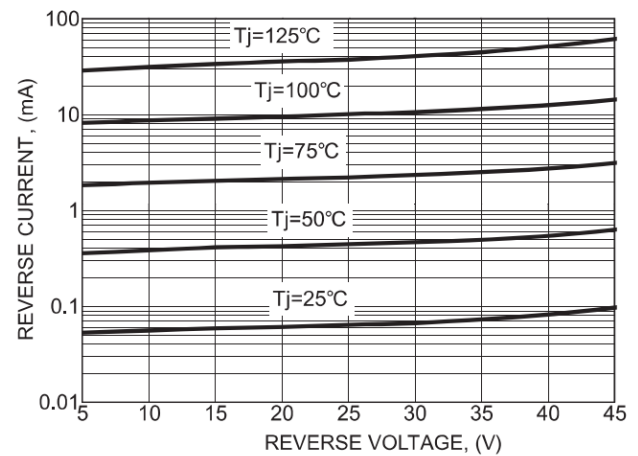
2) Polyimide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm

Rating and characteristic curves

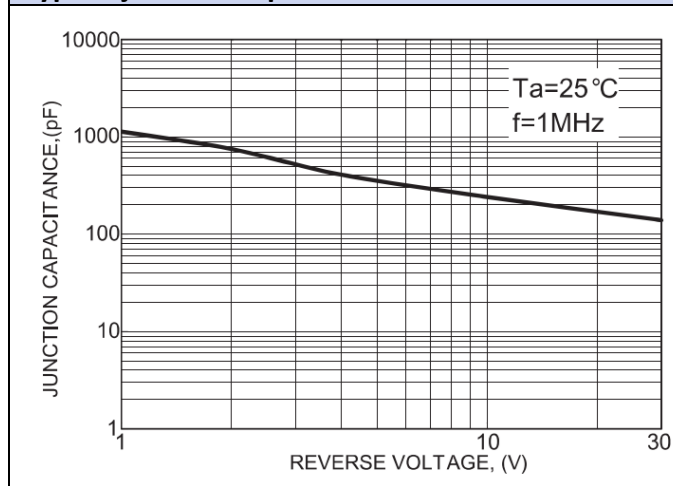
Typical forward characteristics



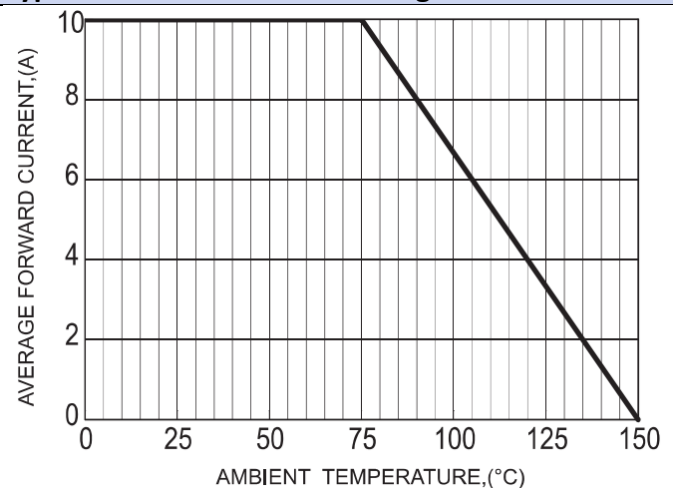
Typical reverse leakage characteristics



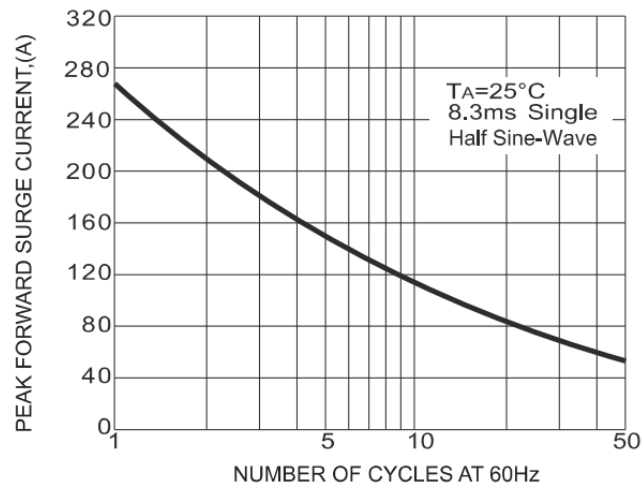
Typical junction capacitance



Typical forward current derating curve



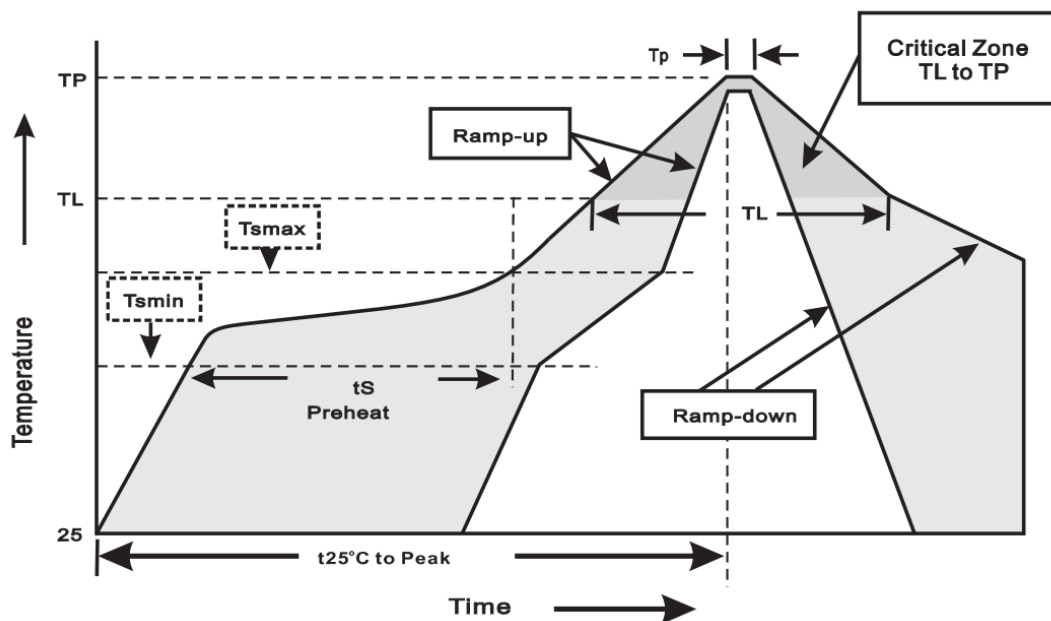
Maximum non-repetitive forward surge current



Suggested thermal profiles for soldering processes

Storage environment: Temperature=5°C~40°C, Humidity=55%±25%

Reflow soldering of surface-mount devices



Reflow soldering

Profile Feature		Soldering Condition	Unit
Average ramp-up rate (TL to TP)		<3	°C/sec
Preheat	Temperature min (T _{sm})	150	°C
	Temperature max (T _{smax})	200	°C
	Time (min to max) (t _s)	60~120	sec
T _{smax} to TL	Ramp-up rate	<3	°C/sec
Time maintained above	Temperature (TL)	217	°C
	Time (t _L)	60~260	sec

Peak Temperature (T_P)	255 ± 5 ₀	°C
Time within 5 °C of actual Peak Temperature (t_P)	10~30	sec
Ramp-down rate	<6	°C/sec
Time 25 °C to Peak Temperature	<6	minutes

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