

## TO-263-2L Plastic-Encapsulate Diodes

### SBDB4045TCTB SCHOTTKY BARRIER RECTIFIER

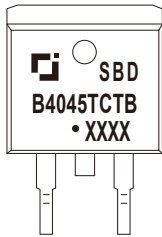
#### MAIN CHARACTERISTICS

$I_O$	<b>40 (2×20) A</b>
$V_{RRM}$	<b>45 V</b>
$T_j$	<b>150 °C</b>
$V_{F(typ)}$	<b>0.40V (@Ta=125°C)</b>

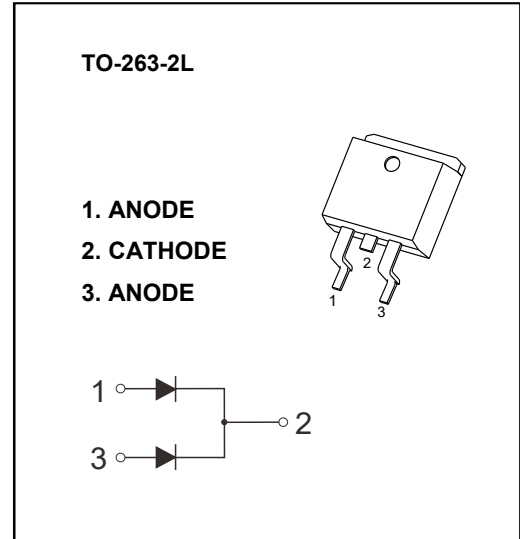
#### FEATURES

- Low Power Loss, High Efficiency
- Guard Ring Die Construction for Transient Protection
- High Current Capability and Low Forward Voltage Drop

#### MARKING



SBDB4045TCTB = Device code  
 Solid dot = Green molding compound device  
 if none, the normal device  
 XXXX = Code



#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted )

Symbol	Parameter	Value	Unit
$V_{RRM}$	Peak repetitive reverse voltage	45	V
$V_{RWM}$	Working peak reverse voltage		
$V_R$	DC blocking voltage		
$V_{R(RMS)}$	RMS reverse voltage	31.5	V
$I_O$	Average rectified output current	40	A
$I_{FSM}$	Non-Repetitive peak forward surge current (8.3ms half sine wave)	250	A
$R_{\theta JC}$	Thermal resistance from junction to case , $T_c=25^\circ\text{C}$	2.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal resistance from junction to ambient	62.5	$^\circ\text{C/W}$
$T_j$	Junction temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage temperature	-55~+150	$^\circ\text{C}$

#### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse voltage	$V_{(BR)}$	$I_R=1\text{mA}$	45			V
Reverse current	$I_R$	$V_R=45\text{V}$	$T_j=25^\circ\text{C}$	50	200	$\mu\text{A}$
			$T_j=125^\circ\text{C}$	50		mA
Forward voltage	$V_F$	$I_F=10\text{A}$	$T_j=25^\circ\text{C}$	0.42		V
			$T_j=125^\circ\text{C}$	0.31		V
		$I_F=20\text{A}$	$T_j=25^\circ\text{C}$	0.47	0.55	V
			$T_j=125^\circ\text{C}$	0.40		V

\*Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycles  $\leq 2.0\%$ .

# Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

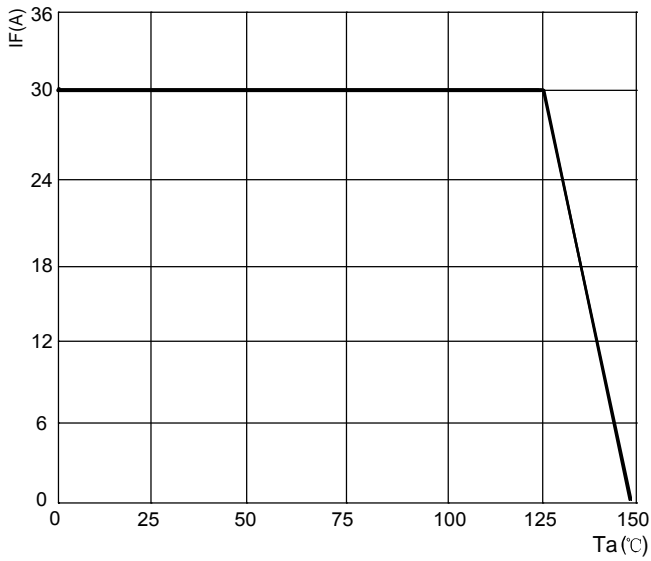


FIG.2: TYPICAL FORWARD CHARACTERISTICS

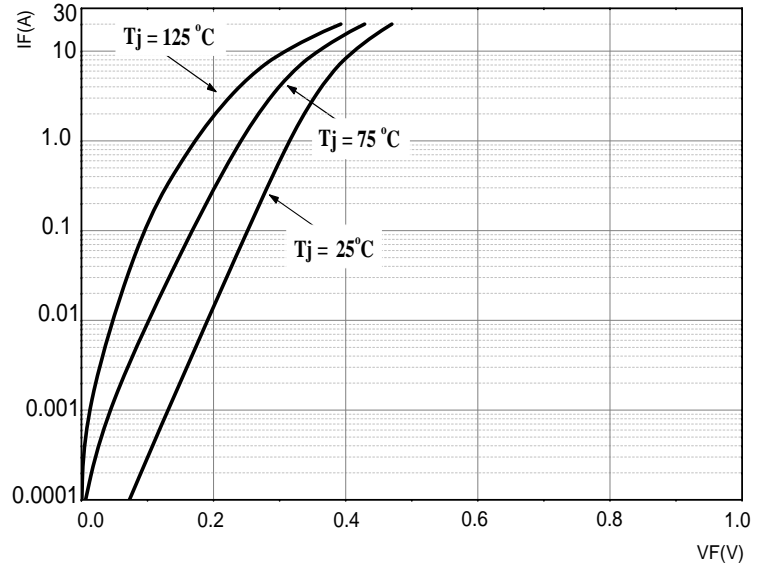


FIG.3: TOTAL CAPACITANCE DERATING CURVE

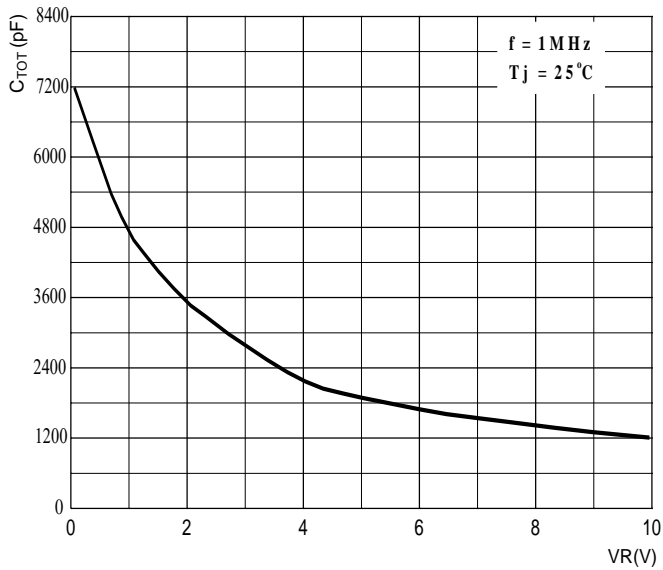
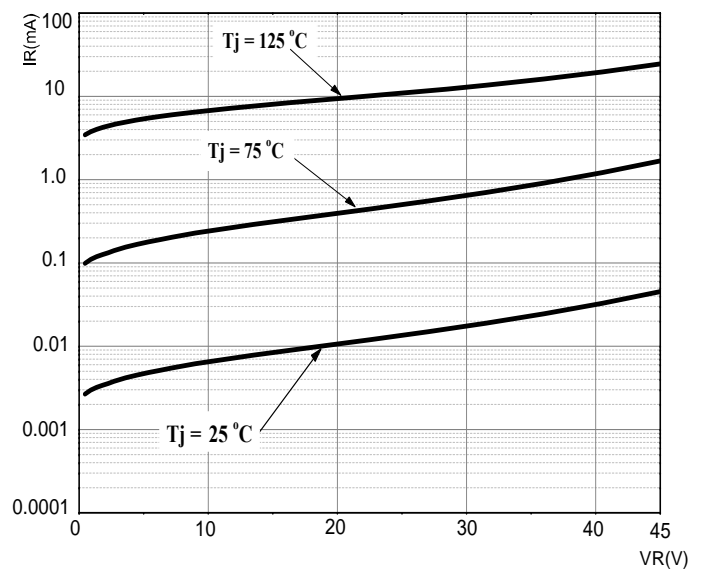
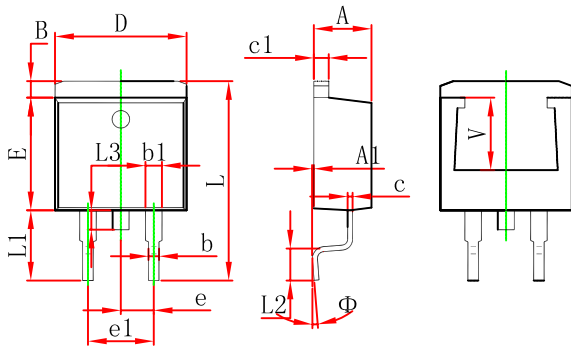


FIG.4: TYPICAL REVERSE CHARACTERISTICS

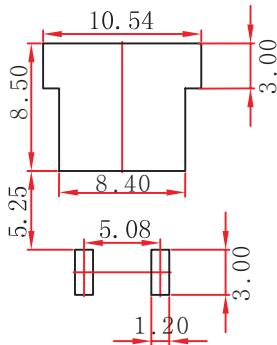


## TO-263-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	

## TO-263-2L Suggested Pad Layout



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.