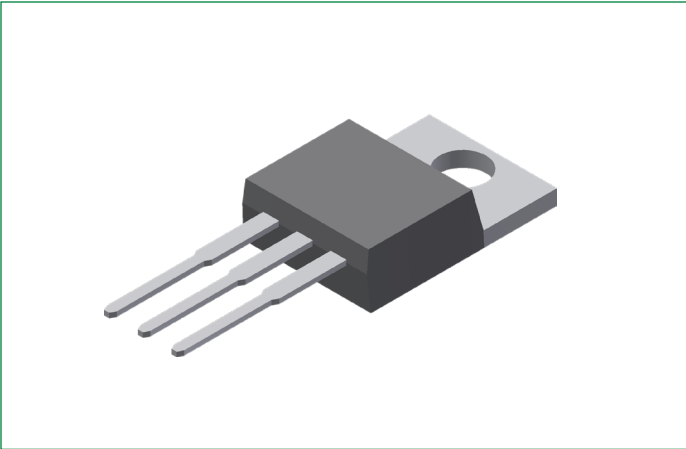


# DSA20C45PB

## 45 V, 20 A Schottky Rectifier Diode

RoHS



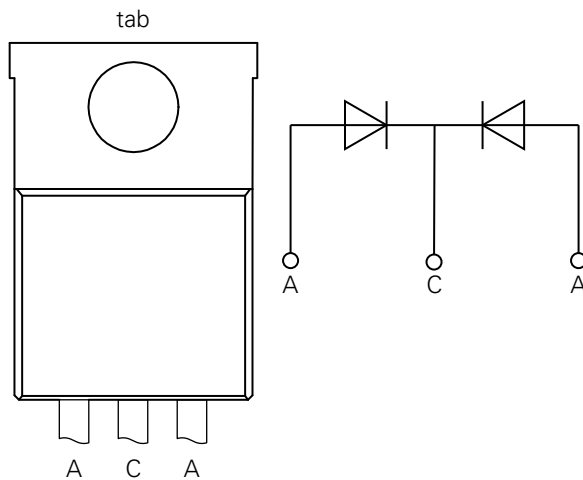
### Features

- Very low  $V_F$
- Extremely low switching losses
- Low  $I_{RM}$  values
- Improved thermal behavior
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- Terminals finish: 100% Pure Tin
- Epoxy meets UL 94V-0

### Applications

- Rectifiers in Switch Mode Power Supplies (SMPS)
- Free wheeling diode in low voltage converters

### Pinout Diagram (TO-220-3L AB)



**C:** Cathode; **A:** Anode, **tab:** Cathode

**Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Characteristics	Condition	Max.	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	-	45	V
$V_{RWM}$	Working Peak Reverse Voltage			
$V_R$	DC Blocking Voltage			
$I_{F(AV)}$	Average Rectified Forward Current	50% duty cycle @ $T_C = 160^\circ\text{C}$ , rectangular wave form	10 (Per Leg) 20 (Per Device)	A
$I_{FSM}$	Peak One Cycle Non-Repetitive Surge Current (Per Leg)	10 ms, Half Sine pulse, $T_J = 25^\circ\text{C}$	260	A
$P_{tot}$	Total power dissipation	$T_C = 25^\circ\text{C}$	65	W

**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Symbol	Characteristics	Conditions	Typ.	Max.	Units
$V_{F1}$	Forward Voltage Drop (Per Leg) <sup>1</sup>	@ 10A, Pulse, $T_J = 25^\circ\text{C}$	—	0.72	V
$V_{F2}$		@ 10A, Pulse, $T_J = 125^\circ\text{C}$	—	0.64	V
$I_{R1}$	Reverse Current (Per Leg) <sup>1</sup>	@ $V_R = \text{rated } V_R$ , $T_J = 25^\circ\text{C}$	—	200	uA
$I_{R2}$		@ $V_R = \text{rated } V_R$ , $T_J = 125^\circ\text{C}$	—	2	mA
$C_T$	Junction Capacitance (Per Leg)	@ $V_R = 5\text{ V}$ , $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$	380	—	pF

**Note 1:** Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%**Thermal-Mechanical Specifications**

Symbol	Characteristics	Condition	Specification	Units
$T_J$	Junction Temperature	—	-55 to +175	$^\circ\text{C}$
$T_O$	Operation temperature	—	-55 to +150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	—	-55 to +150	$^\circ\text{C}$
$M_D$	Mounting torque	—	Min 0.4 Max 0.6	Nm
$F_C$	Mounting force with clip	—	Min 20 Max 60	N
$R_{thJC}$	Maximum Thermal Resistance Junction to Case	DC operation	2.4	K/W
$R_{thJH}$	Typical Thermal Resistance Junction to Heat Sink	—	0.5	K/W
wt	Approximate Weight	—	2	g

Characteristic Curves

Fig. 1. Typical Forward Characteristics

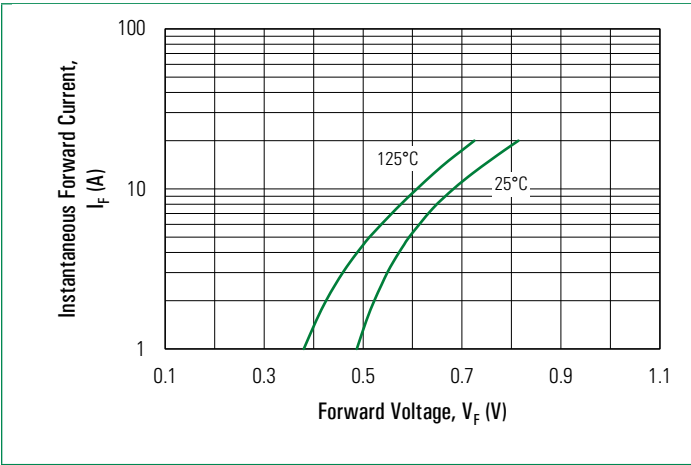


Fig. 2. Typical Reverse Characteristics

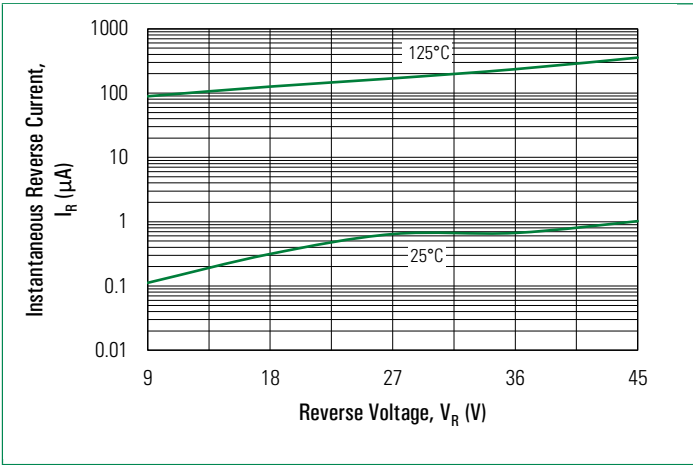
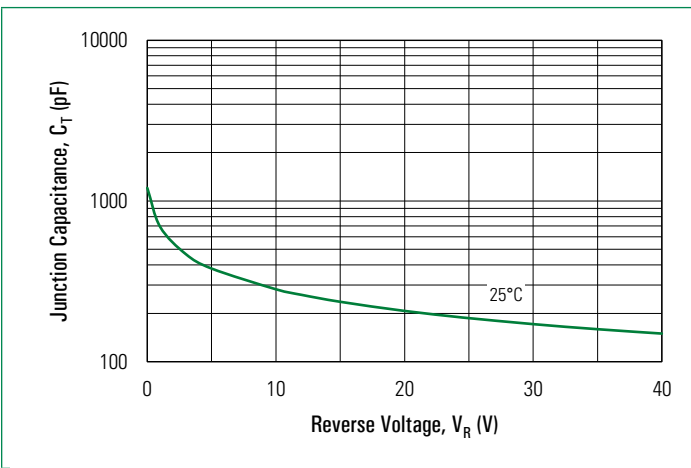
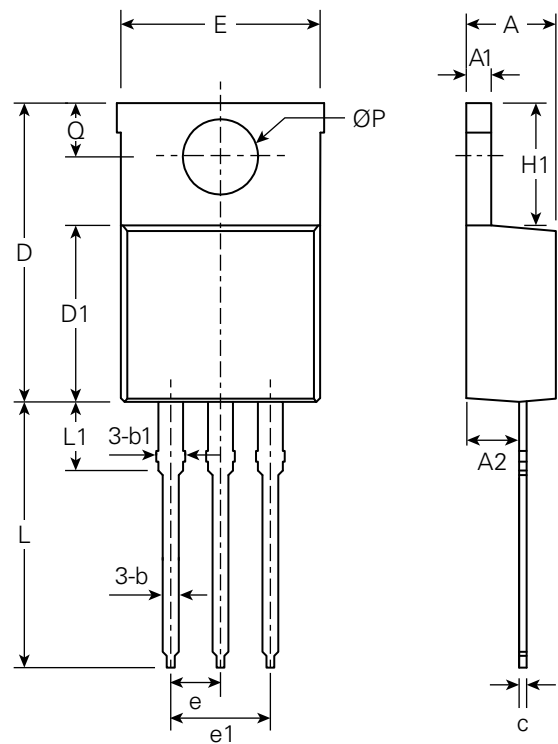


Fig. 3. Typical Junction Capacitance

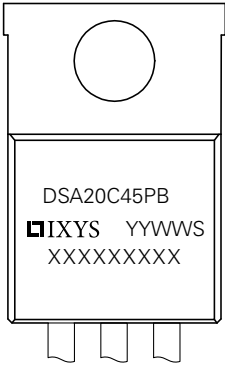


Part Outline Drawing (TO-220-3L AB)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max.
A	0.140	–	0.190	3.56	–	4.83
A1	0.020	–	0.055	0.51	–	1.40
A2	0.080	–	0.115	2.03	–	2.92
b	0.015	–	0.040	0.38	–	1.02
b1	0.045	–	0.070	1.14	–	1.78
c	0.012	–	0.024	0.31	–	0.61
D	0.560	–	0.650	14.22	–	16.51
D1	0.330	–	0.371	8.38	–	9.42
E	0.380	–	0.420	9.65	–	10.67
e	–	0.100	–	–	2.54	–
e1	–	0.200	–	–	5.08	–
H1	0.230	–	0.270	5.84	–	6.86
L	0.500	–	0.580	12.70	–	14.73
L1	–	–	0.250	–	–	6.35
ØP	–	0.140	–	–	3.56	–
Q	0.100	–	0.135	2.54	–	3.43

Part Number and Marking

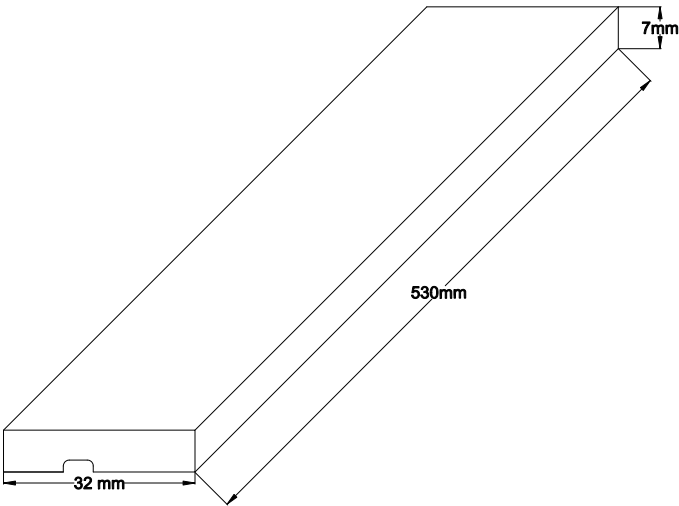


D = Diode  
S = Schottky Diode  
A Low  $V_F$   
20 = Current Rate (20A)  
C Common Cathode  
45 = Voltage Rating (45V)  
PB = Package Code (TO-220AB)  
YY = Year  
WW = Work Week  
S = Plant Location Code  
XXXXXXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSA20C45PB	DSA20C45PB	Tube	50 pcs/tube

Packing Specifications



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Part of:

