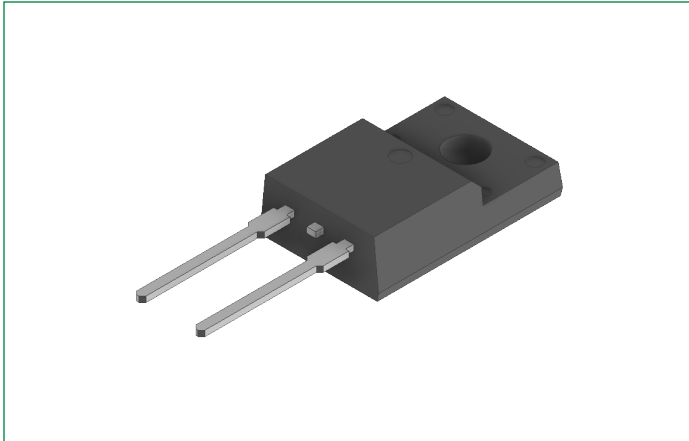


# DSB10I45PM

## 45 V, 10 A Schottky Rectifier Diode

RoHS

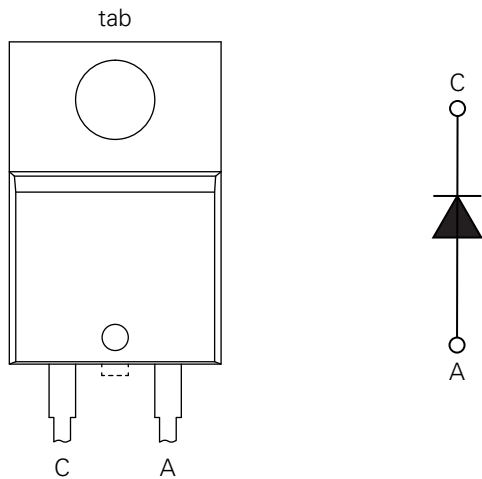
Pb



### 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
- This is a Pb – Free Device
- Epoxy meets UL 94V-0

### Pinout Diagram (TO-220ACFP)



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

### Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

**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 @ $T_C=115^\circ\text{C}$ , rectangular wave form	10	A
$I_{FSM}$	Peak One Cycle Non-Repetitive Surge Current	10 ms, Half Sine pulse, $T_J=25^\circ\text{C}$	260	A
$P_{tot}$	Total power dissipation	$T_C=25^\circ\text{C}$	30	W

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

Symbol	Characteristics	Conditions	Min.	Typ.	Max.	Units
$V_{F1}$	Forward Voltage Drop <sup>1</sup>	@ 10A, Pulse, $T_J = 25^\circ\text{C}$	-	-	0.56	V
$V_{F1}$		@ 10A, Pulse, $T_J = 125^\circ\text{C}$	-	-	0.52	V
$I_{R1}$	Reverse Current <sup>1</sup>	@ $V_R = \text{rated } V_R, T_J = 25^\circ\text{C}$	-	-	3.5	mA
$I_{R2}$		@ $V_R = \text{rated } V_R, T_J = 100^\circ\text{C}$	-	-	35	mA
$C_T$	Junction Capacitance	@ $V_R = 5\text{V}, T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{MHz}$	-	367	-	pF
$V_{ISO}$	Isolation Voltage	t = 1 second, 50/60 Hz, RMS, $I_{ISOL} \leq 1\text{ mA}$	2500	-	-	V
		t = 1 minute, 50/60 Hz, RMS, $I_{ISOL} \leq 1\text{ mA}$	2100	-	-	

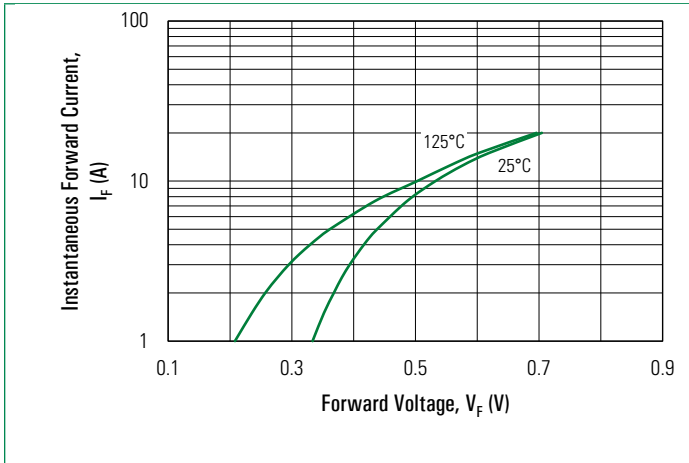
**Note 1:** Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications**

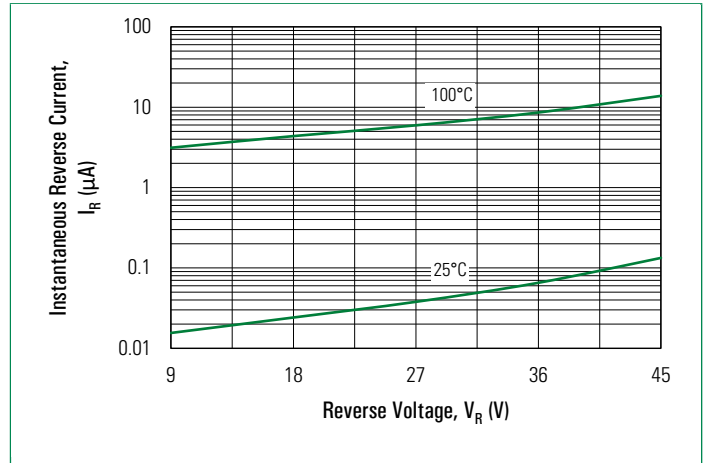
Symbol	Characteristics	Condition	Specification	Units
$T_J$	Junction Temperature	-	-55 to +150	$^\circ\text{C}$
$T_O$	Operation temperature	-	-55 to +125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-	-55 to +150	$^\circ\text{C}$
$M_D$	Mounting torque	-	Min 0.4 Max 0.6	Nm
$F_C$	Mounting force with clip	-	Min 20 Max 60	N
$R_{\theta JC}$	Maximum Thermal Resistance Junction to Case	DC operation	4.5	$^\circ\text{C}/\text{W}$
$R_{\theta CS}$	Typical Thermal Resistance Case to Heat Sink	-	0.5	$^\circ\text{C}/\text{W}$
wt	Approximate Weight	-	1.6	g

### Characteristic Curves

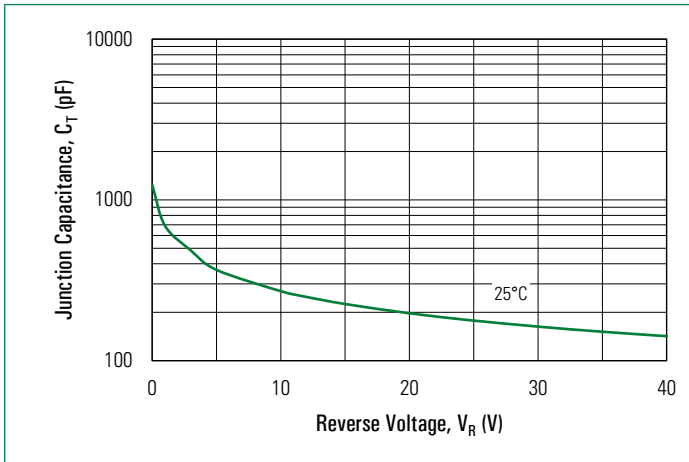
**Fig. 1. Typical Forward Characteristics**



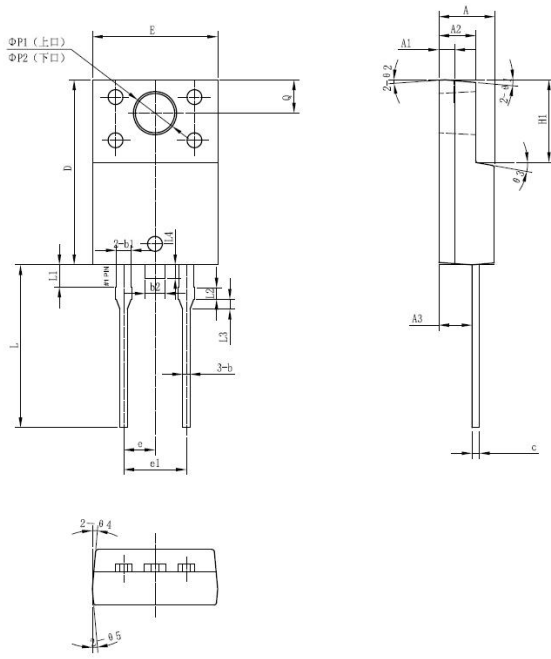
**Fig. 2. Typical Reverse Characteristics**



**Fig. 3. Typical Junction Capacitance**

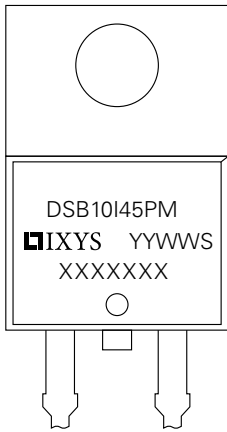


Part Outline Drawing (TO-220ACFP)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max.
A	0.169	0.177	0.185	4.30	4.50	4.70
A1	0.043	0.051	0.059	1.10	1.30	1.50
A2	0.110	0.118	0.126	2.80	3.00	3.20
A3	0.098	0.106	0.114	2.50	2.70	2.90
b	0.020	0.024	0.03	0.50	0.60	0.75
b1	0.043	0.047	0.053	1.10	1.20	1.35
b2	0.059	0.063	0.069	1.50	1.60	1.75
c	0.021	0.024	0.030	0.55	0.60	0.75
D	0.583	0.591	0.598	14.80	15.00	15.20
E	0.392	0.400	0.408	9.96	10.16	10.36
e	-	0.100	-	-	2.55	-
e1	-	0.201	-	-	5.10	-
H1	0.256	0.264	0.272	6.50	6.70	6.90
L	0.500	0.520	0.539	12.70	13.20	13.70
L1	0.063	0.071	0.079	1.60	1.80	2.00
L2	0.031	0.039	0.047	0.80	1.00	1.20
L3	0.024	0.031	0.039	0.60	0.80	1.00
L4	-	0.043	0.059	-	1.10	1.50
ØP1	0.130	0.138	0.146	3.30	3.50	3.70
ØP2	0.118	0.126	0.133	2.99	3.19	3.39
Q	0.098	0.106	0.114	2.50	2.70	2.90

Part Number and Marking

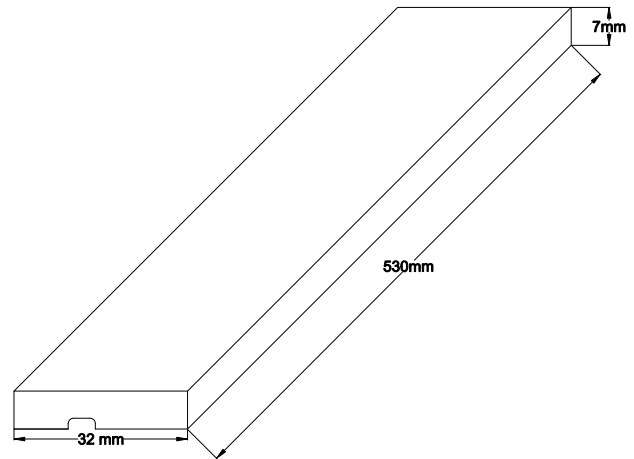


- D = Diode
- S = Schottky Diode
- B = Ultra Low VF
- 10 = Forward Current
- I = Single Diode
- 45 = Reverse Voltage
- PM = Package Code
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSB10I45PM	DSB10I45PM	Tube	50 pcs/ tube

Packing Specifications



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