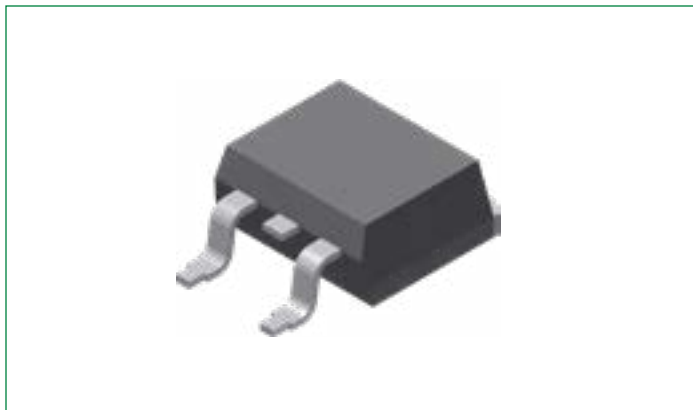


# DSA30C45PC

## 45 V, 30 A Schottky Rectifier Diode

RoHS

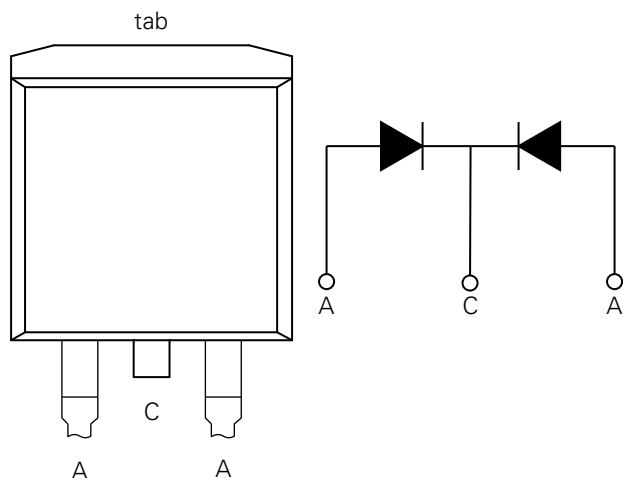
Pb



### 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 94 V-0

### Pinout Diagram (TO-263AB)



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

### Applications:

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

### Product Summary

Characteristic	Value	Unit
$V_{RRM}$	45	V
$I_{FAV}$	2 x 15	A
$V_F$	0.63	V

**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			
$I_{FAV}$	Average Rectified Forward Current	50% duty cycle @ $T_C = 155^\circ\text{C}$ , rectangular wave form	15 (Per Leg) 30 (Per Device)	A
$I_{FSM}$	Peak One Cycle Non-Repetitive Surge Current (Per Leg)	10 ms, Half Sine pulse, $T_{VJ} = 25^\circ\text{C}$	340	A
$P_{tot}$	Total Power Dissipation	$T_C = 25^\circ\text{C}$	85	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>	@ 15 A, Pulse, $T_{VJ} = 25^\circ\text{C}$	-	0.75	V
$V_{F2}$		@ 15 A, Pulse, $T_{VJ} = 125^\circ\text{C}$	-	0.63	V
$I_{R1}$	Reverse Current (Per Leg) <sup>1</sup>	@ $V_R = \text{rated } V_R, T_{VJ} = 25^\circ\text{C}$	-	250	$\mu\text{A}$
$I_{R2}$		@ $V_R = \text{rated } V_R, T_{VJ} = 125^\circ\text{C}$	-	2.5	mA
$C_T$	Junction Capacitance (Per Leg)	@ $V_R = 5 \text{ V}, T_C = 25^\circ\text{C}$ $f_{SIG} = 1 \text{ MHz}$	522	-	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	$^\circ\text{C}$
$F_C$	Mounting force with clip	-	Min 20 Max 60	N
$R_{thJC}$	Maximum Thermal Resistance Junction to Case	DC operation	1.75	K/W
$R_{thCS}$	Typical Thermal Resistance Case to Heat Sink	-	0.25	K/W
wt	Approximate Weight	-	1.85	g

### Characteristic Curves

Fig. 1. Typical Forward Characteristics

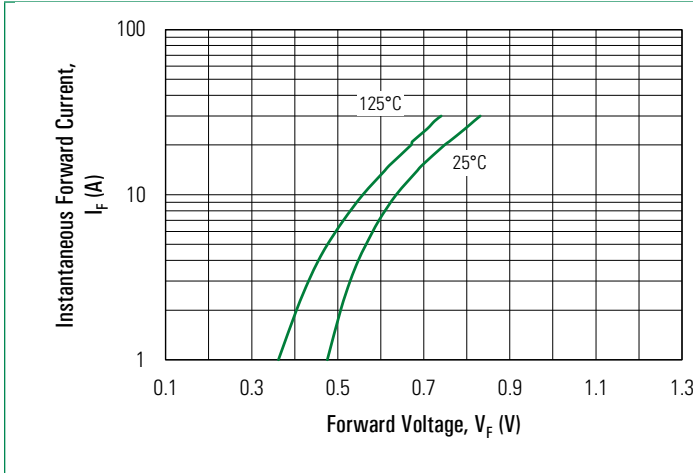


Fig. 2. Typical Reverse Characteristics

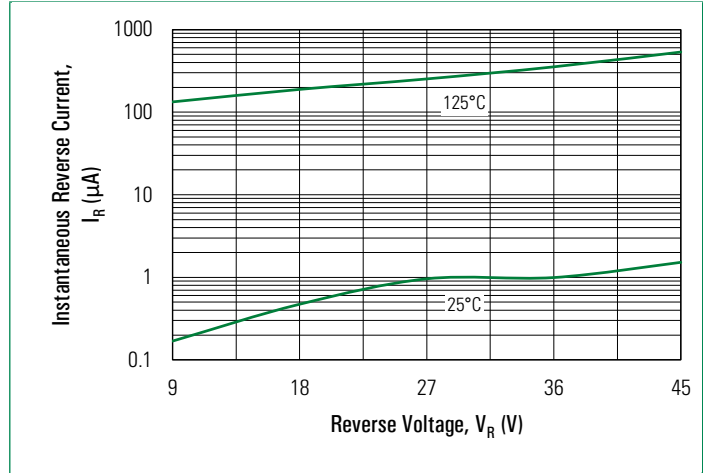
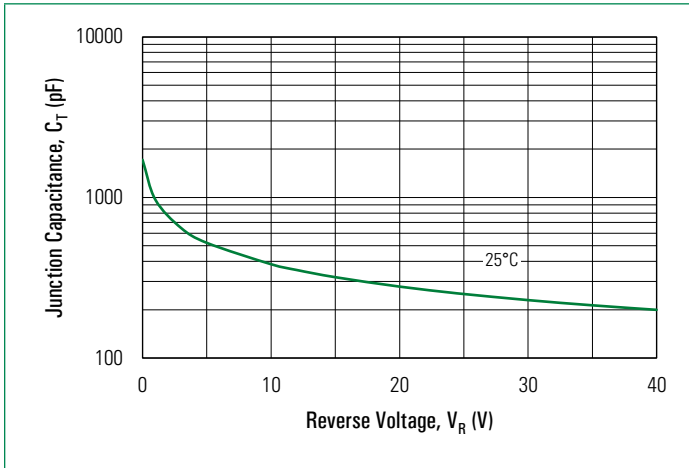
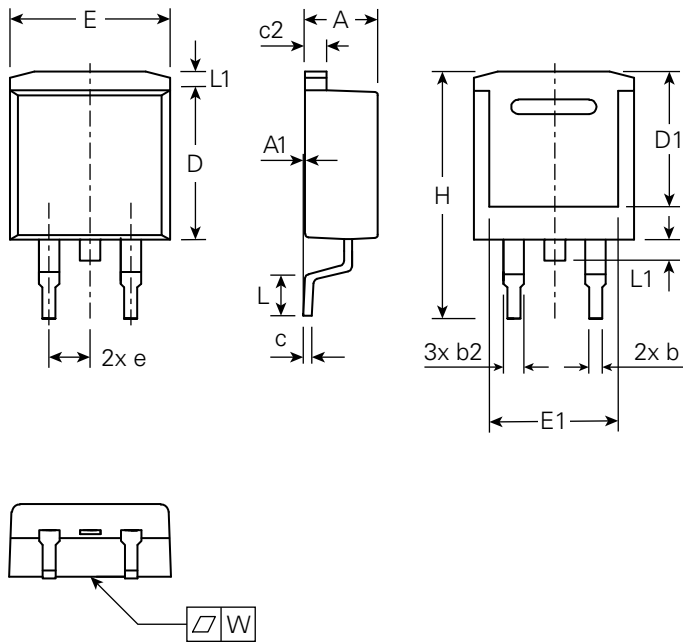


Fig. 3. Typical Junction Capacitance

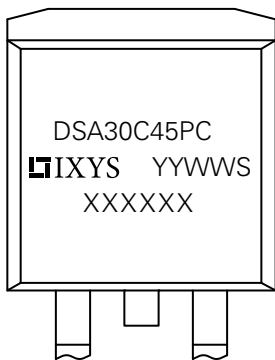


Part Outline Drawing (TO-263AB)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max.
A	0.16	–	0.19	4.06	–	4.83
A1	0	–	0.010	0	–	0.26
b	0.020	–	0.039	0.51	–	0.99
b1	0.045	–	0.070	1.14	–	1.78
c	0.012	–	0.029	0.31	–	0.74
c1	0.045	–	0.064	1.14	–	1.65
D	0.330	–	0.379	8.38	–	9.65
D1	0.251	–	–	6.40	–	–
E1	0.244	–	–	6.22	–	–
E2	0.379	–	0.420	9.65	–	10.67
e	0.100 BSC			2.54 BSC		
H	0.575	–	0.625	14.61	–	15.88
L	0.070	–	0.110	1.78	–	2.80
L1	–	–	0.066	–	–	1.68
L2	–	–	0.086	–	–	2.20
L3	0.010 BSC			0.255 BSC		

Part Number and Marking

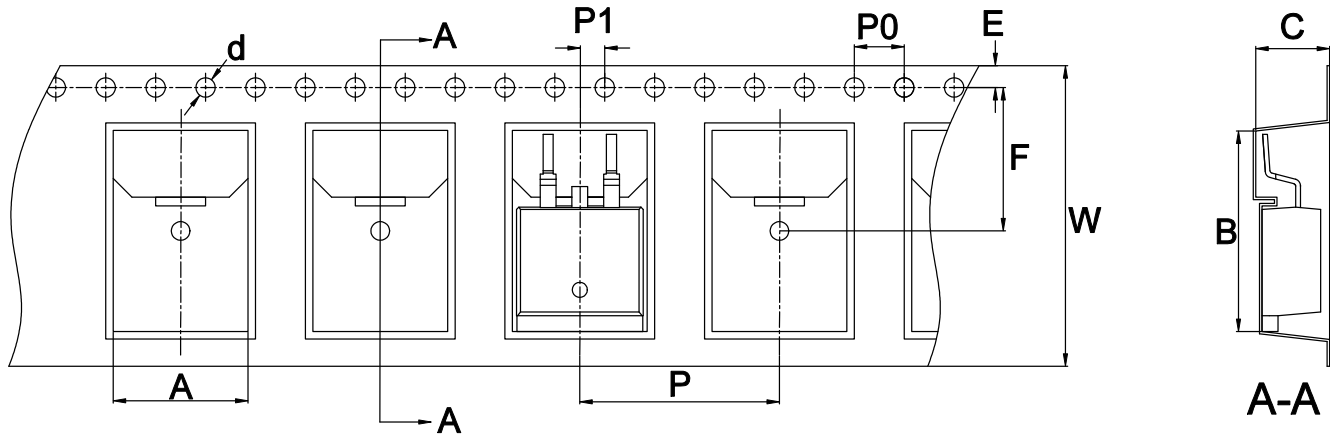


- D = Diode
- S = Schottky Diode
- A Low  $V_F$
- 30 = Forward Current (30 A)
- C Common Cathode
- 45 = Reverse Voltage (45 V)
- PC = Package Code (TO-263AB)
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSA30C45PC-TRL	DSA30C45PC	Reel	800 pcs/ reel

Carrier Tape Specification (TO-263AB)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max.
A	0.421	–	0.429	10.70	–	10.90
B	0.631	–	0.639	16.03	–	16.23
C	0.201	–	0.209	5.11	–	5.31
d	0.057	–	0.065	1.45	–	1.65
E	0.065	–	0.07	1.65	–	1.85
F	0.449	–	0.457	11.40	–	11.60
P0	0.153	–	0.161	3.90	–	4.10
P	0.626	–	0.664	15.90	–	16.10
P1	0.075	–	0.082	1.90	–	2.10
W	0.941	–	0.957	23.90	–	24.30

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Part of:

