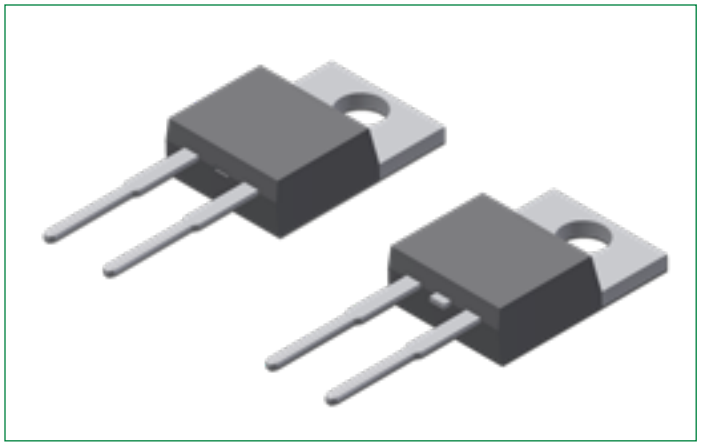
DSS25-0045A

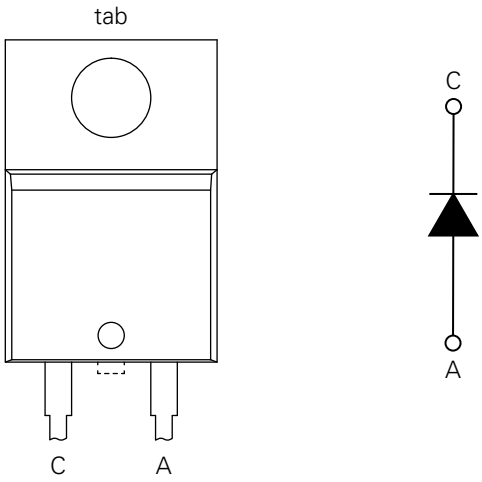
45 V, 25 A Schottky Rectifier Diode



Features & Benefits:

- Very low Vf
- Extremely low switching losses
- Low Irm 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-220AC)



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

Applications:

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

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Maximum Ratings (T_A = 25°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=155°C, rectangular wave form	25	A
I_{FSM}	Peak One Cycle Non-Repetitive Surge Current	10 ms, Half Sine pulse, T_J=25°C	400	A
P_{tot}	Total power dissipation	T_C= 25°C	135	W
E_{AS}	Non-repetitive avalanche energy	I_{AS}= 15 A, L=180 µH, T_J=25°C	20	mJ
I_{AR}	Repetitive avalanche current	V_A= 1.5·V_R, typ. f =1 kHZ	1.8	A

Electrical Characteristics (T_A = 25°C unless otherwise specified)

Symbol	Characteristics	Conditions	Typ.	Max.	Units
V_{F1}	Forward Voltage Drop[1]	@ 25A, Pulse, T_J = 25°C	–	0.68	V
V_{F1}		@ 25A, Pulse, T_J = 125°C	–	0.64	V
I_{R1}	Reverse Current[1]	@V_R = rated V_R, T_J = 25°C	–	1	mA
I_{R2}		@V_R = rated V_R, T_J = 125°C	–	10	mA
C_T	Junction Capacitance	@V_R = 5 V, T_C = 25 °C f_{SIG} = 1MHz	1405	–	pF

Note 1: Pulse width < 300 µs, duty cycle < 2%

Thermal-Mechanical Specifications

Symbol	Characteristics	Condition	Specification	Units
T_J	Junction Temperature	–	-55 to +175	°C
T_O	Operation Temperature	–	-55 to +150	°C
T_{stg}	Storage Temperature	–	-55 to +150	°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	1.1	°C/W
$R_{\theta CS}$	Typical Thermal Resistance Case to Heat Sink	–	0.5	°C/W
wt	Approximate Weight	–	1.6	g

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Characteristic Curves

Fig. 1. Typical Forward Characteristics

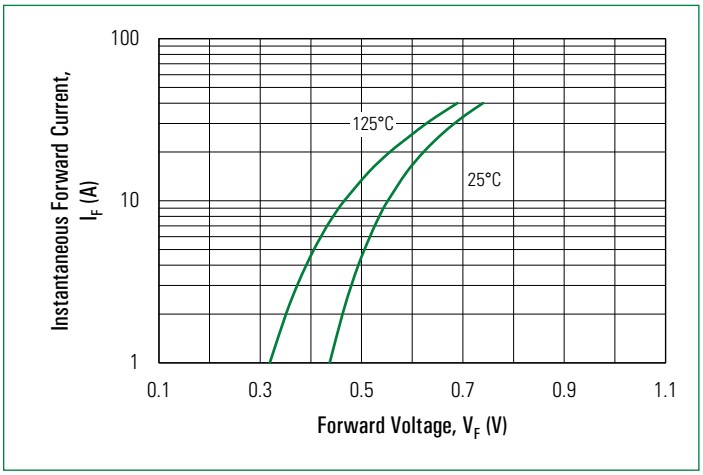


Fig. 2. Typical Reverse Characteristics

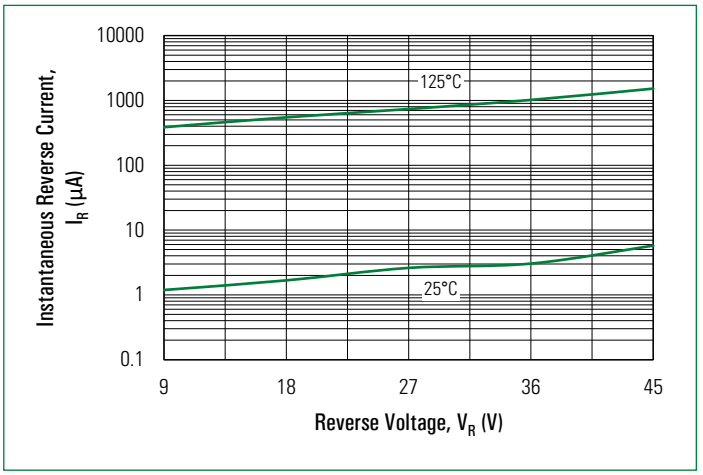
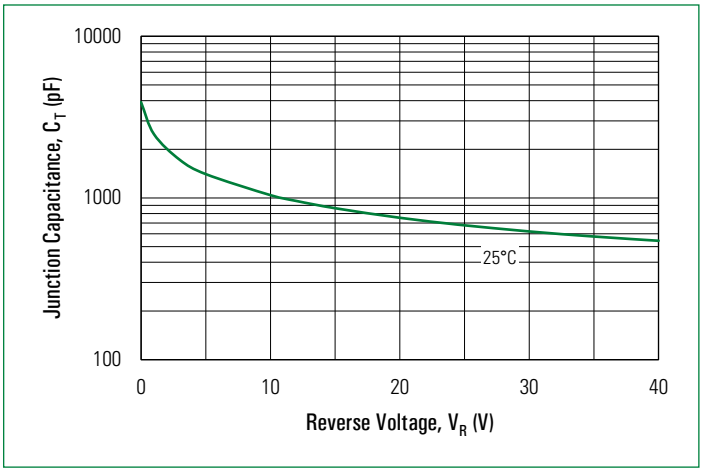


Fig. 3. Typical Junction Capacitance



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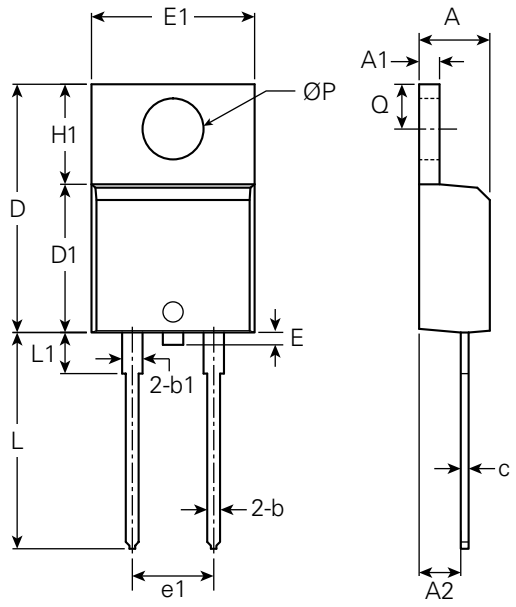
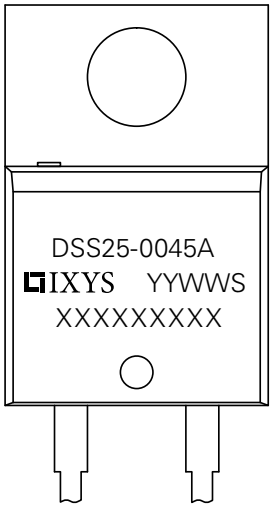
Part Outline Drawing (TO-220AC)



Symbol	Inches			Millimeters		
	Min.	Typical	Max.	Min.	Typical	Max.
A	0.14	–	0.19	3.56	–	4.83
A1	0.02	–	0.06	0.51	–	1.40
A2	0.08	–	0.11	2.03	–	2.92
b	0.01	–	0.04	0.38	–	1.02
b1	0.04	–	0.07	1.14	–	1.78
c	0.12	-	0.02	0.31	–	0.61
D	0.56	–	0.65	14.22	–	16.51
D1	0.33	–	0.37	8.38	–	9.42
E	–	–	0.07	–	–	1.78
E1	0.38	0.40	0.42	9.65	10.16	10.67
e1	–	0.20	–	–	5.08	–
H1	0.23	–	0.27	5.84	–	6.86
L	0.50	–	0.58	12.70	–	14.73
L1	–	–	0.25	–	–	6.35
Q	0.1	–	0.13	2.54	–	3.43
ØP	–	0.14	–	–	3.56	–

Part Number and Marking

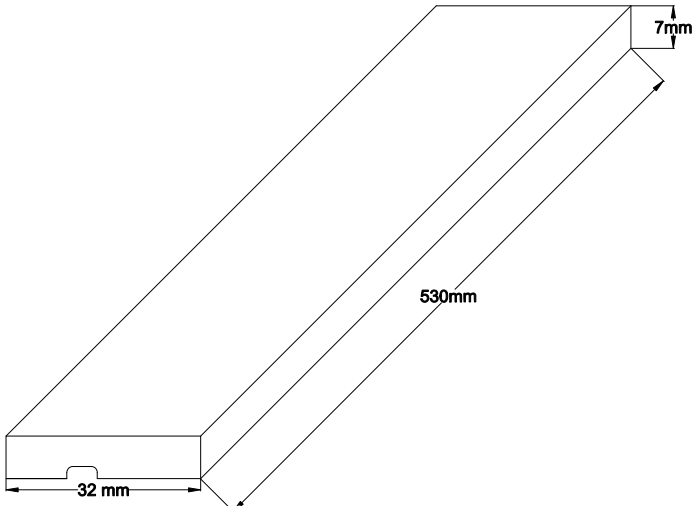


DS = Schottky Diode
S = Product Generation
25 = Current Rate
0045 = Voltage Rating
A = Package Code
YY = Year
WW = Work Week
S = Plant Location Code
XXXXXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSS25-0045A	DSS25-0045A	Tube	50 pcs/ tube

Packing Specifications



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