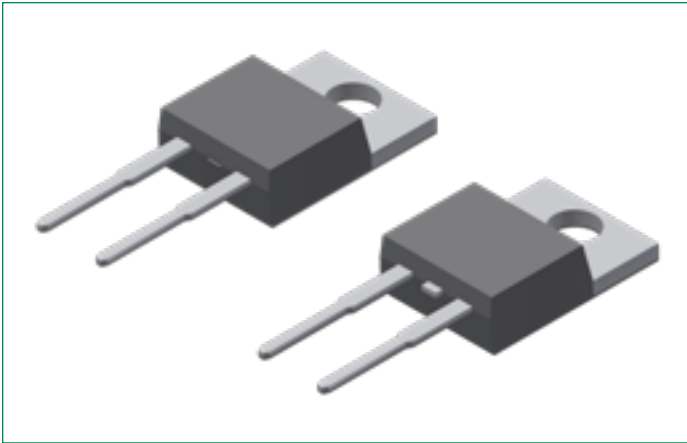


# DSS16-0045A

## 45 V, 16 A Schottky Rectifier Diode

RoHS

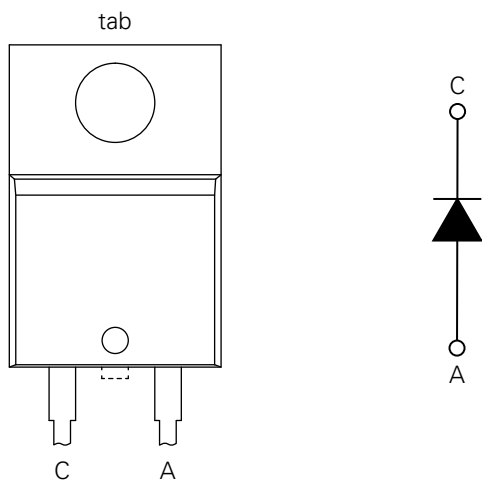
Pb



### Features & Benefits:

- 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-220AC)



**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 @ $T_C=160^\circ\text{C}$ , rectangular wave form	16	A
$I_{FSM}$	Peak One Cycle Non-Repetitive Surge Current	10 ms, Half Sine pulse, $T_J=25^\circ\text{C}$	280	A
$P_{tot}$	Total power dissipation	$T_C=25^\circ\text{C}$	105	W
$E_{AS}$	Non-repetitive avalanche energy	$I_{AS}=15\text{A}$ , $L=180\mu\text{H}$ , $T_J=25^\circ\text{C}$	20	mJ
$I_{AR}$	Repetitive avalanche current	$V_A=1.5\cdot V_{R'}$ , typ. $f=1\text{ kHz}$	1.5	A

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

Symbol	Characteristics	Conditions	Typ.	Max.	Units
$V_{F1}$	Forward Voltage Drop <sup>1</sup>	@ 16A, Pulse, $T_J = 25^\circ\text{C}$	–	0.68	V
$V_{F1}$		@ 16A, Pulse, $T_J = 125^\circ\text{C}$	–	0.60	V
$I_{R1}$	Reverse Current*	@ $V_R = \text{rated } V_{R'}$ , $T_J = 25^\circ\text{C}$	–	500	$\mu\text{A}$
$I_{R2}$		@ $V_R = \text{rated } V_{R'}$ , $T_J = 125^\circ\text{C}$	–	5	mA
$C_T$	Junction Capacitance	@ $V_R = 5\text{ V}$ , $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$	707	–	pF

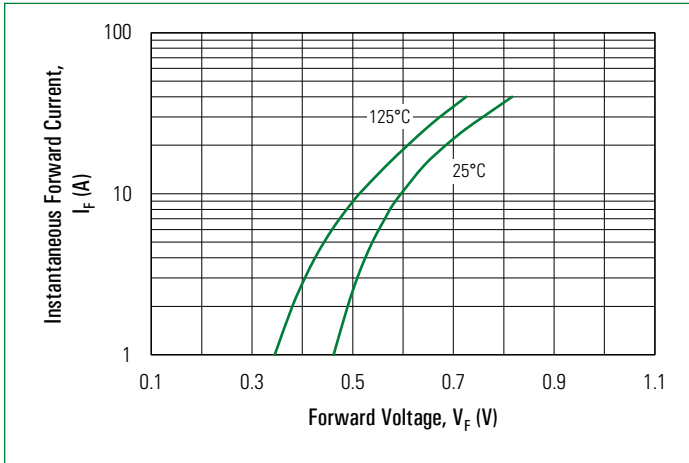
**Note 1:** Pulse width < 300  $\mu\text{s}$ , duty cycle < 2%

**Thermal-Mechanical Specifications**

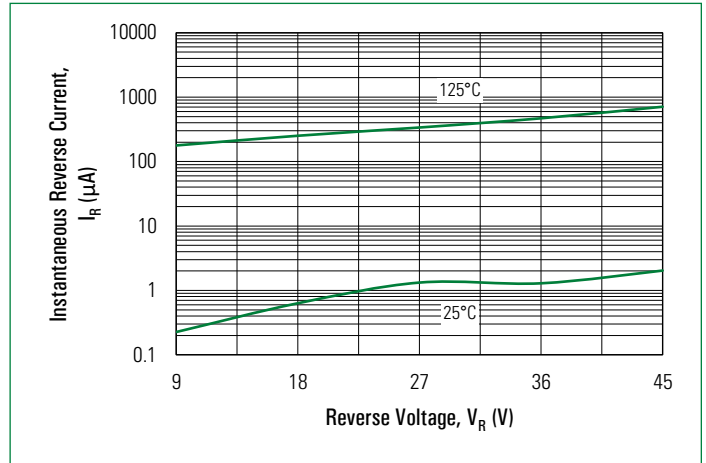
Symbol	Characteristics	Condition	Specification	Units
$T_J$	Junction Temperature	–	-55 to +175	$^\circ\text{C}$
$T_O$	Operation Temperature	–	-55 to +150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	–	-55 to +150	$^\circ\text{C}$
$M_D$	Mounting torque	–	Min 0.4 Max 0.6	Nm
$F_C$	Mounting force with clip	–	Min 20 Max 60	N
$R_{\theta JC}$	Maximum Thermal Resistance Junction to Case	DC operation	1.4	$^\circ\text{C/W}$
$R_{\theta CS}$	Typical Thermal Resistance Case to Heat Sink	–	0.5	$^\circ\text{C/W}$
wt	Approximate Weight	–	1.6	g

## Characteristic Curves

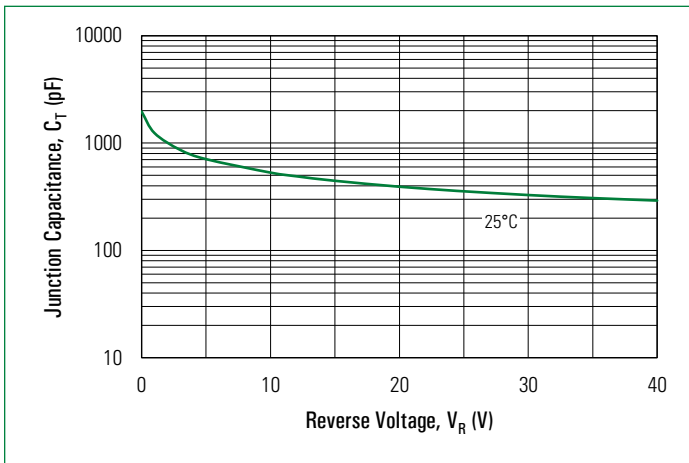
**Fig. 1. Typical Forward Characteristics**



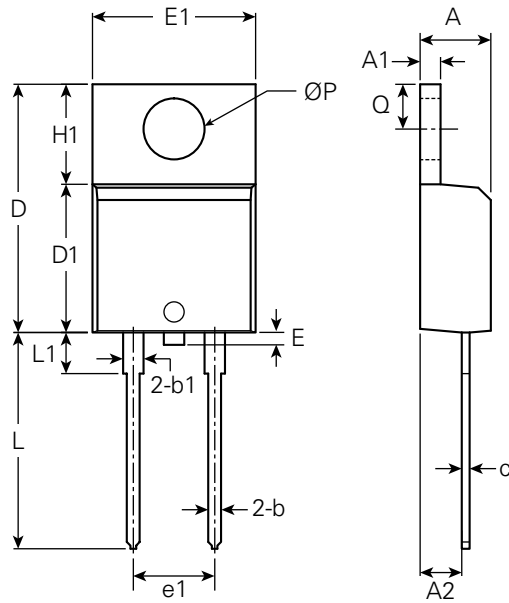
**Fig. 2. Typical Reverse Characteristics**



**Fig. 3. Typical Junction Capacitance**

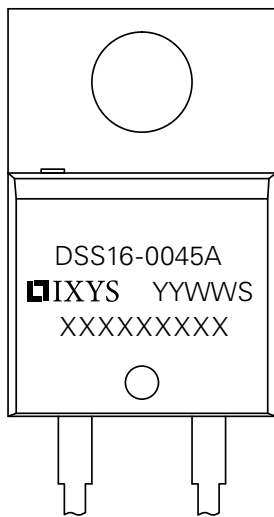


Part Outline Drawing (TO-220AC)



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

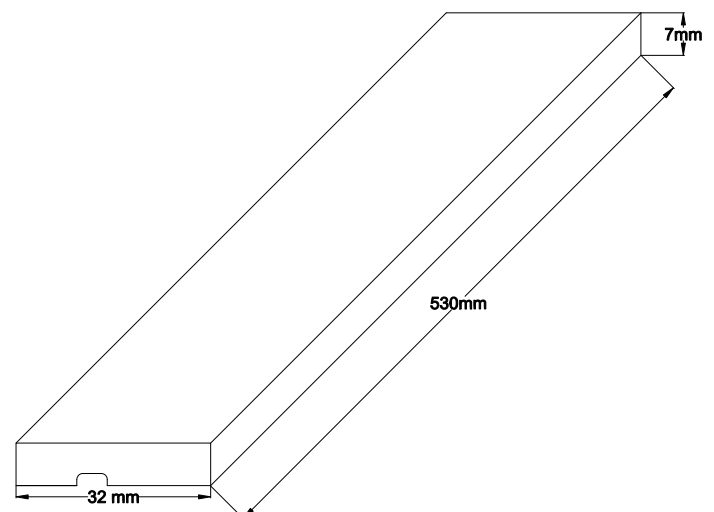


- DS = Schottky Diode
- S = Product Generation
- 16 = Current Rate
- 0045 = Voltage Rating
- A = Package Code
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSS16-0045A	DSS16-0045A	Tube	50 pcs/ tube

Packing Specifications



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