

# DSS16-0045AS

## 45 V, 16 A Schottky Rectifier Diode

RoHS

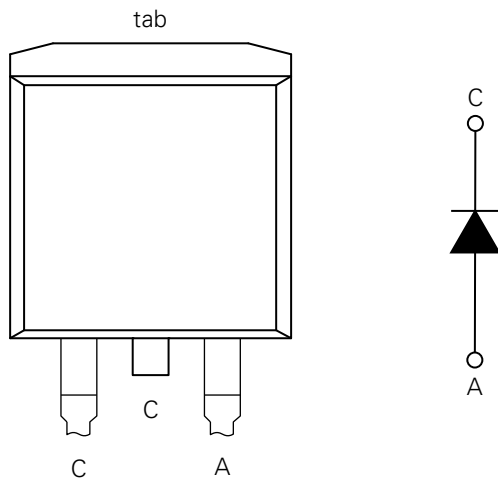
Pb



### 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-263AB)



**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	$V_A = 1.5$ , $V_R$ 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
$V_{F2}$		@ 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	@ $V_R = 5\text{V}$ , $T_C = 25^\circ\text{C}$ , $f_{\text{SIG}} = 1\text{MHz}$	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	$^\circ\text{C}$
$T_{\text{stg}}$	Storage Temperature	–	-55 to +150	$^\circ\text{C}$
$F_C$	Mounting force with clip	–	Min 20 Max 60	N
$R_{\theta\text{JC}}$	Maximum Thermal Resistance Junction to Case	DC operation	1.4	$^\circ\text{C/W}$
$R_{\theta\text{CS}}$	Typical Thermal Resistance Case to Heat Sink	–	0.25	$^\circ\text{C/W}$
wt	Approximate Weight	–	1.85	g

### Characteristic Curves

Fig. 1. Typical Forward Characteristics

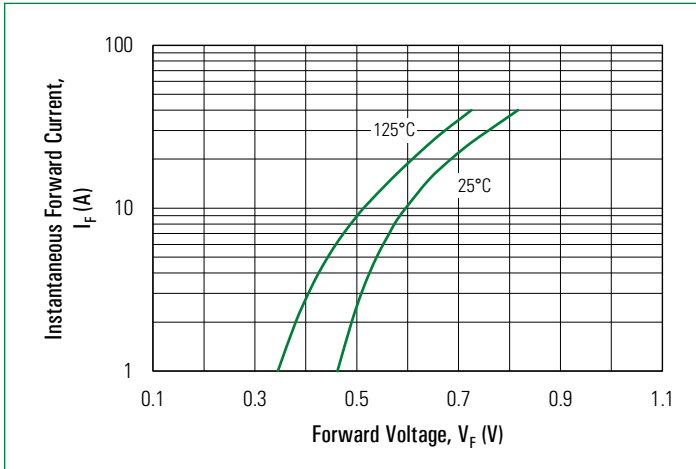


Fig. 2. Typical Reverse Characteristics

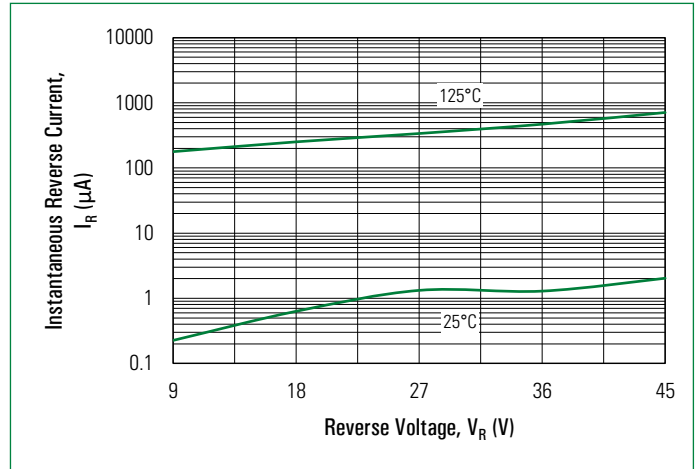
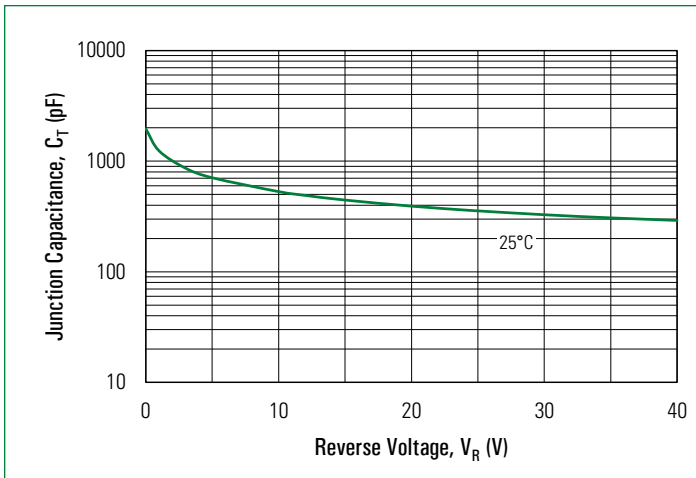
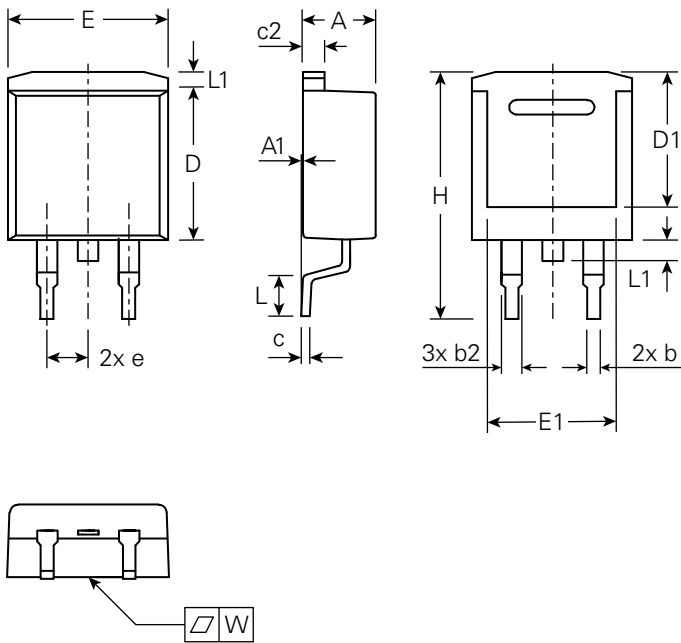


Fig. 3. Typical Junction Capacitance

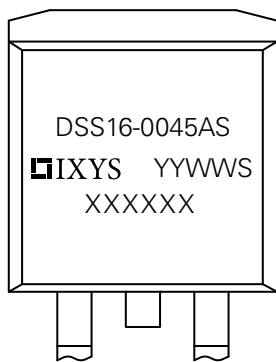


Part Outline Drawing (TO-263AB)



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

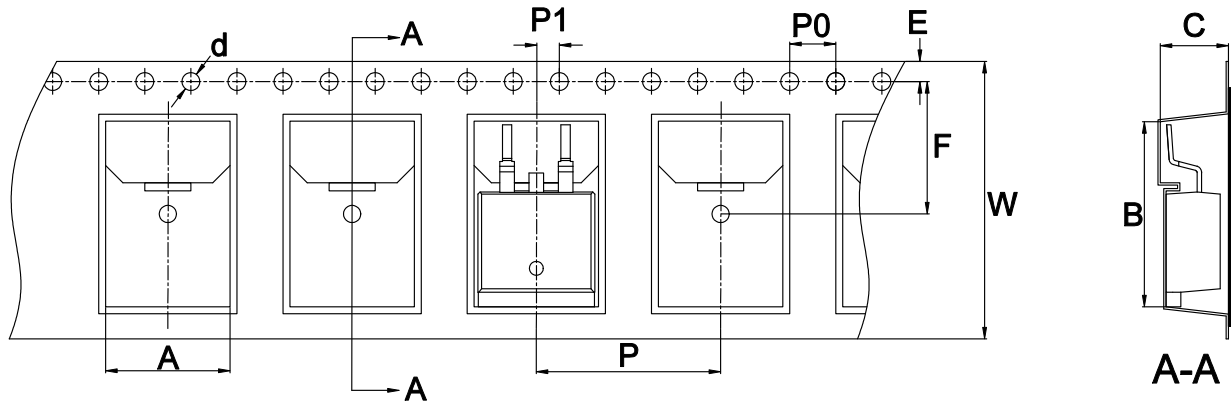


- D Diode
- S = Schottky Diode
- S = Product Generation
- 16 = Current Rate
- 0045 = Voltage Rating
- AS = Package Code
- YY = Year
- WW = Work Week
- S = Plant Location Code
- XXXXXX = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSS16-0045AS-TRL	DSS16-0045AS	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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