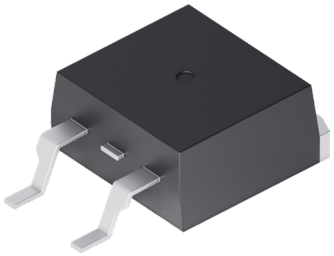
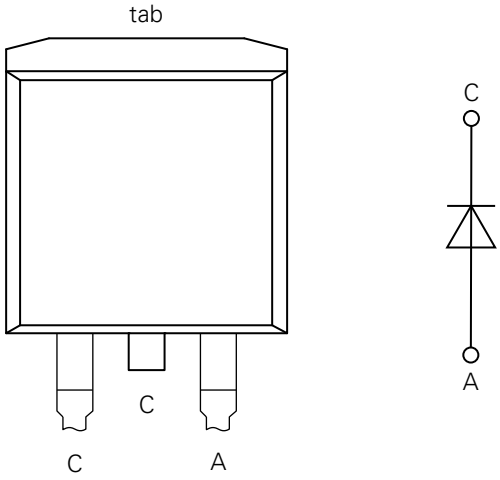
DSS16-0045AS

45 V, 16 A Schottky Rectifier Diode

RoHS



Pinout Diagram (TO-263AB)



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

Features

- Extremely low switching losses
- Very low V_F
- Low I_{RM} values

Benefits

- Low voltage peaks for reduced protection circuits
- High reliability circuit operation
- Low-noise switching
- Improved thermal behavior
- Longer lifetime of the system

Applications

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

Package

- Terminals finish: 100% pure tin
- RoHS compliant
- Epoxy meets UL 94V-0

Product Summary

Characteristic	Value	Unit
V_{RRM}	45	V
$I_{F(AV)}$	16	A
V_F	0.60	V

Revised: TK.07/03/2025

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 = 160 °C, rectangular wave form	16	A
I_{FSM}	Peak One Cycle Non-Repetitive Surge Current	10 ms, Half Sine pulse, T_{vj} = 25 °C	280	A
P_{tot}	Total power dissipation	T_c = 25 °C	105	W
E_{AS}	Non-repetitive avalanche energy	I_{AS} = 15 A, L = 180 µH, T_{vj} = 25 °C	20	mJ
I_{AR}	Repetitive avalanche current	V_A = 1.5, V_R typ., f = 1 kHz	1.5	A

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

Symbol	Characteristics	Conditions	Typ.	Max.	Units
V_{F1}	Forward Voltage Drop[1]	@ 16 A, Pulse, T_{vj} = 25 °C	–	0.68	V
V_{F2}		@ 16 A, Pulse, T_{vj} = 125 °C	–	0.60	V
I_{R1}	Reverse Current*	@V_R = rated V_R, T_{vj} = 25 °C	–	500	µA
I_{R2}		@V_R = rated V_R, T_{vj} = 125 °C	–	5	mA
C_j	Junction Capacitance	@V_R = 5 V, T_c = 25 °C, f_{SIG} = 1 MHz	707	–	pF

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

Thermal-Mechanical Specifications

Symbol	Characteristics	Condition	Specification	Units
T_{vj}	Virtual Junction Temperature Range	–	-55 to +175	°C
T_{op}	Operating Temperature Range	–	-55 to +150	°C
T_{stg}	Storage Temperature Range	–	-55 to +150	°C
F_C	Mounting force with clip	–	Min 20 Max 60	N
$R_{th(j-c)}$	Maximum Thermal Resistance Junction to Case	DC operation	1.4	K/W
$R_{th(c-h)}$	Typical Thermal Resistance Case to Heat Sink	–	0.25	K/W
wt	Approximate Weight	–	1.85	g

Characteristic Curves

Fig. 1. Typical Forward Characteristics

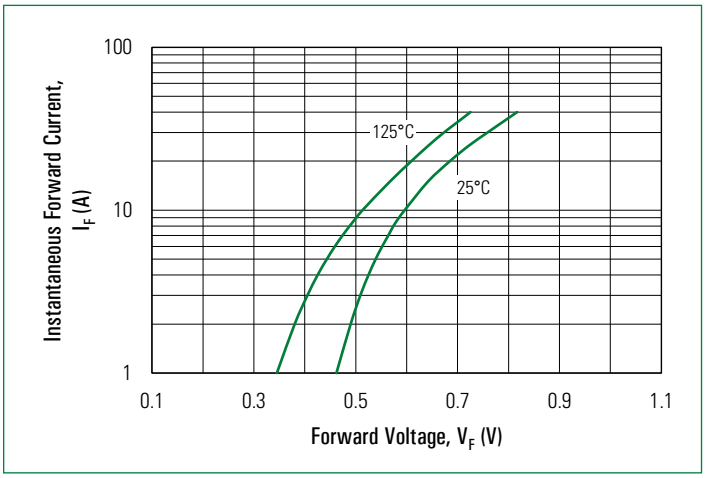


Fig. 2. Typical Reverse Characteristics

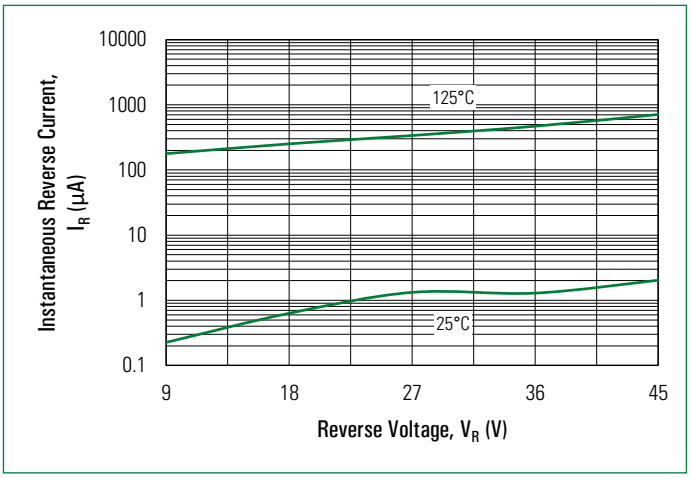
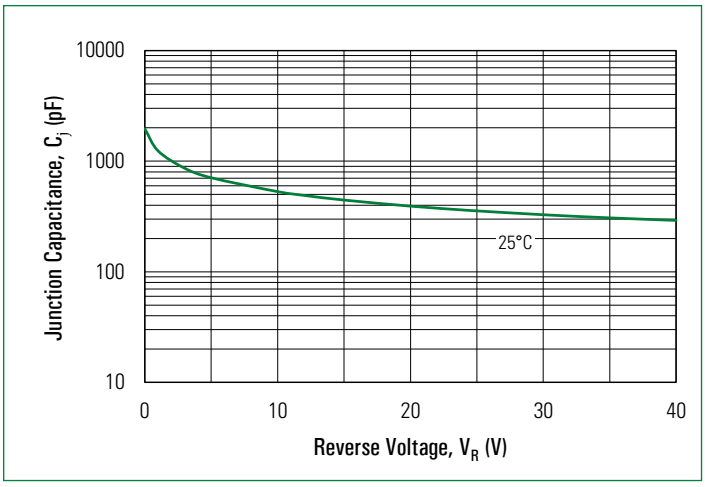
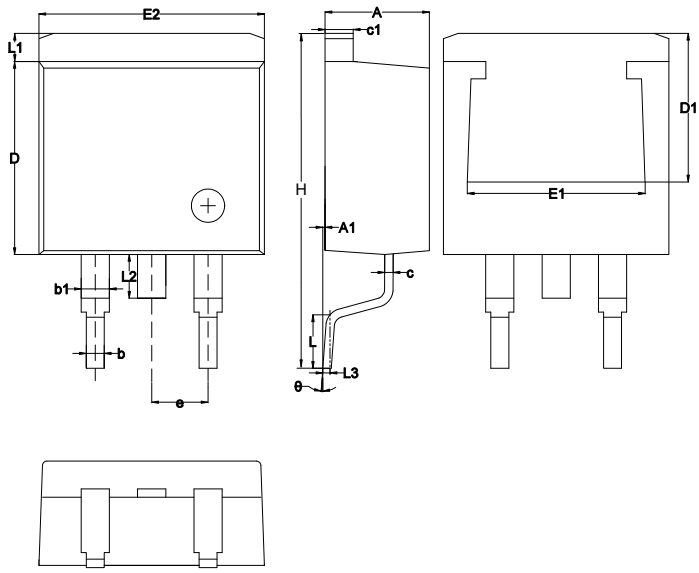


Fig. 3. Typical Junction Capacitance

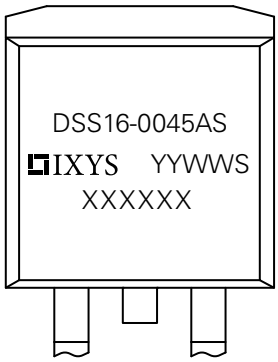


Part Outline Drawing (TO-263AB)



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		
θ	0	–	8°	0	–	8°

Part Number and Marking

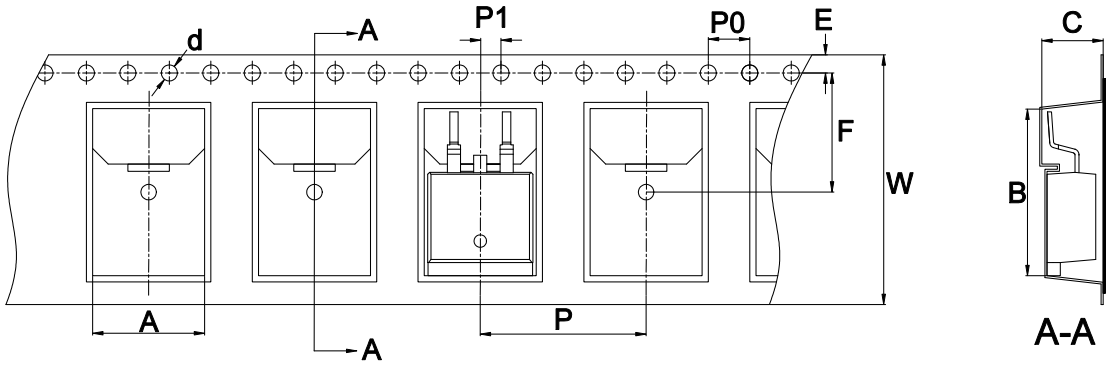


D Diode
S = Schottky Diode
S = Product Generation
16 = Current Rate
0045 = Voltage Rating
AS = Package Code
YY = Year
WW = Work Week
S = Plant Location Code
XXXXXX = Lot Number

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