

Schottky Diode

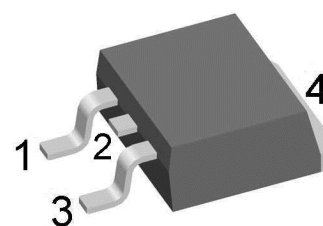
$$\begin{aligned} V_{RRM} &= 30 \text{ V} \\ I_{FAV} &= 2 \times 25 \text{ A} \\ V_F &= 0.35 \text{ V} \end{aligned}$$

High Performance Schottky Diode
 Low Loss and Soft Recovery
 Common Cathode

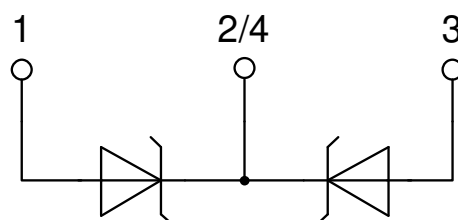
Part number

DSSK48-003BS

Marking on Product: DSSK48-003BS



Backside: cathode



Features / Advantages:

- Very low V_f
- Extremely low switching losses
- Low I_{rm} values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

Applications:

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

Package: TO-263 (D2Pak)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

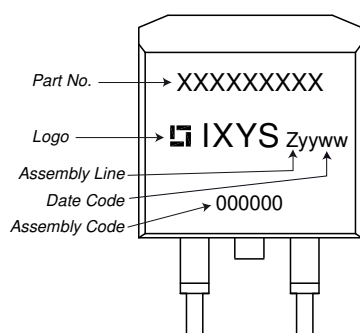
Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				30	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				30	V
I_R	reverse current, drain current	$V_R = 30\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			20	mA
		$V_R = 30\text{ V}$	$T_{VJ} = 100^{\circ}\text{C}$			60	mA
V_F	forward voltage drop	$I_F = 20\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			0.44	V
		$I_F = 40\text{ A}$				0.54	V
		$I_F = 20\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			0.35	V
		$I_F = 40\text{ A}$				0.48	V
I_{FAV}	average forward current	$T_C = 130^{\circ}\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 150^{\circ}\text{C}$			25	A
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^{\circ}\text{C}$		0.19	V
r_F	slope resistance					6.8	mΩ
R_{thJC}	thermal resistance junction to case					1.2	K/W
R_{thCH}	thermal resistance case to heatsink				0.25		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				105	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^{\circ}\text{C}$			300	A
C_J	junction capacitance	$V_R = 5\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		1.77		nF

Package TO-263 (D2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			35	A
T_{VJ}	virtual junction temperature		-55		150	°C
T_{op}	operation temperature		-55		125	°C
T_{stg}	storage temperature		-55		150	°C
Weight				2		g
F_c	mounting force with clip		20		60	N

Product Marking



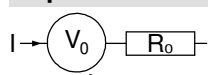
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSSK48-003BS-TRL	DSSK48-003BS	Tape & Reel	800	484326
Alternative	DSSK48-003BS-TUB	DSSK48-003BS	Tube	50	484318

Similar Part	Package	Voltage class
DSSK48-003B	TO-220AB (3)	30
DSSK48-0025B	TO-220AB (3)	25

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150^{\circ}\text{C}$



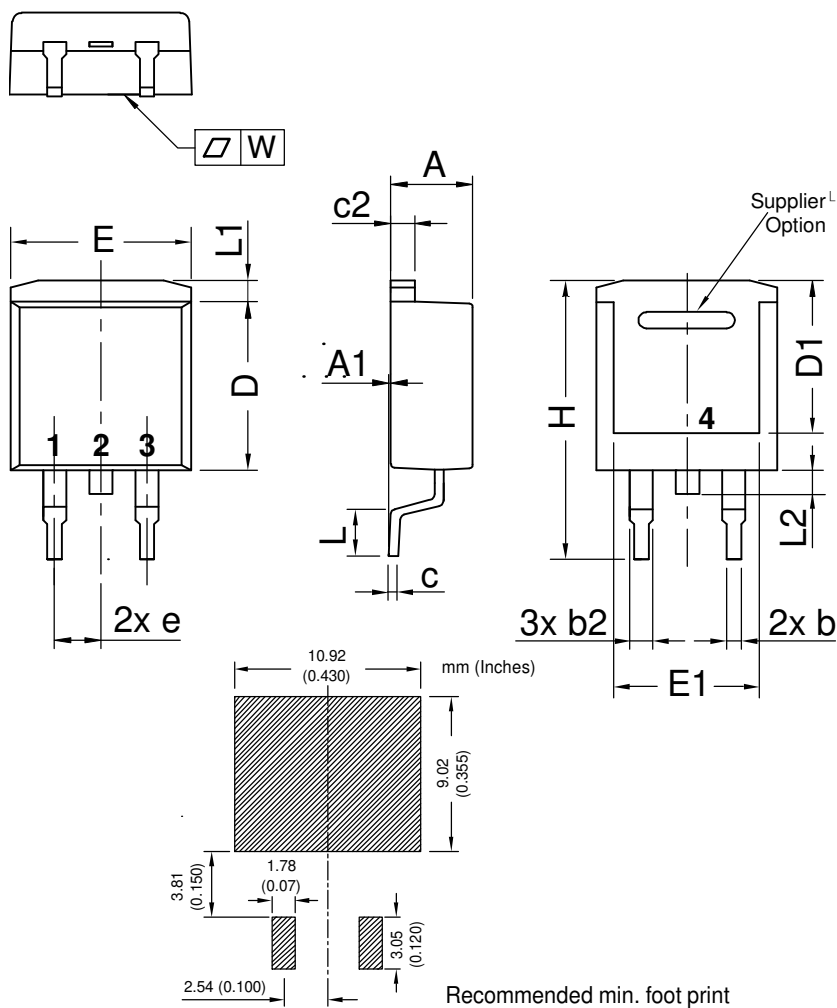
Schottky

$V_{0\max}$ threshold voltage 0.19

$R_{0\max}$ slope resistance *

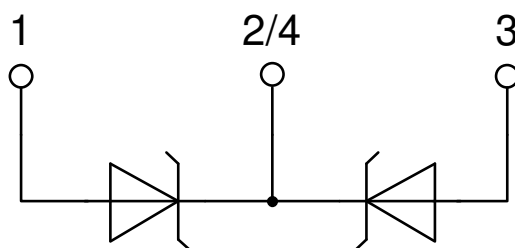
V

mΩ

Outlines TO-263 (D2Pak)


Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

All dimensions conform with and/or within JEDEC standard.



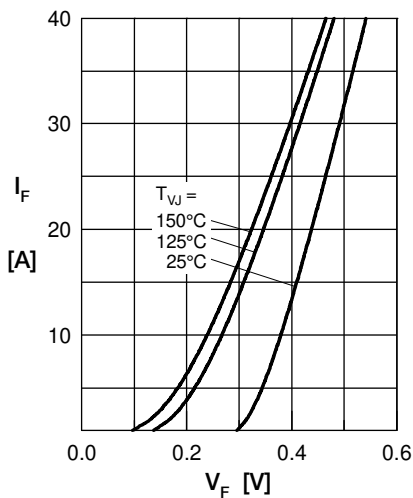
Schottky


Fig. 1 Max. forward voltage drop characteristics

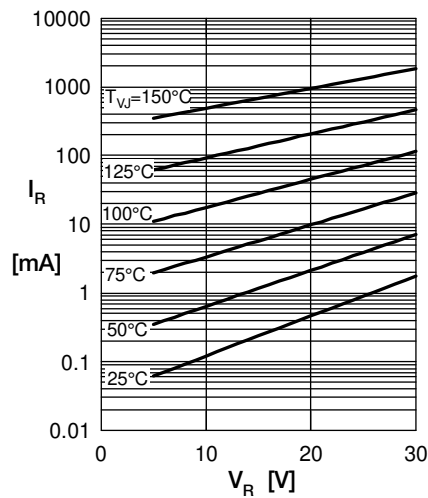


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

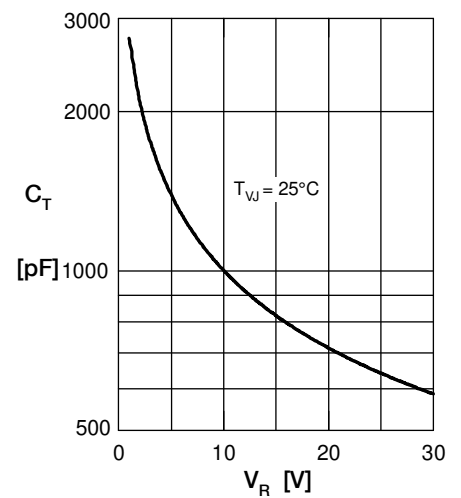


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

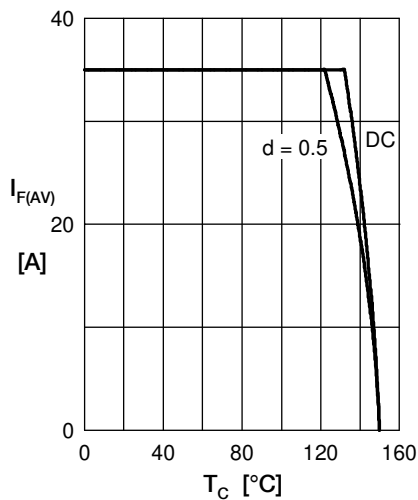


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temp. T_C

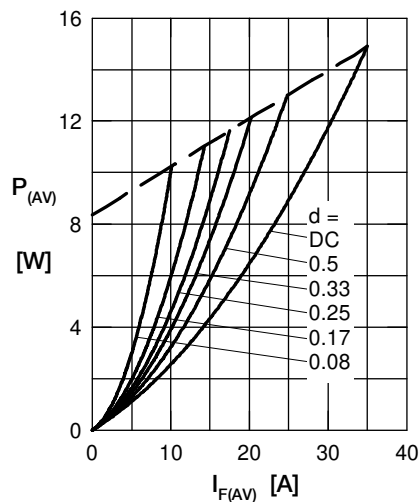


Fig. 5 Forward power loss characteristics

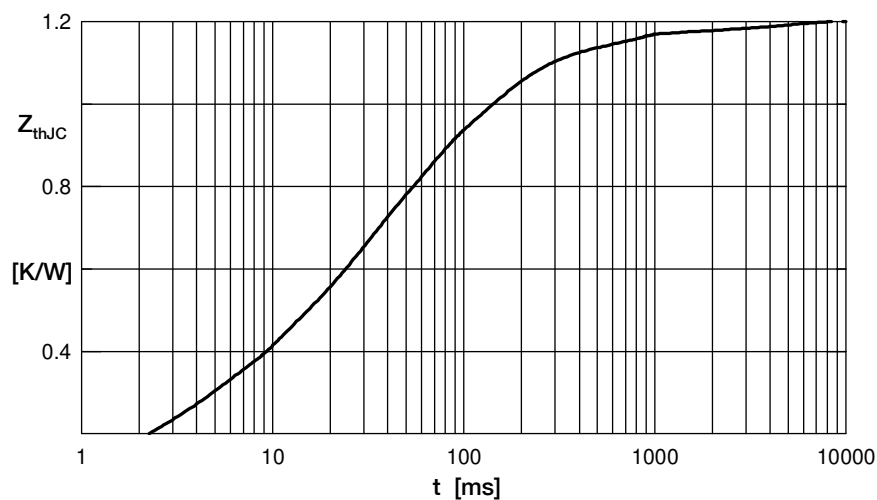


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode