

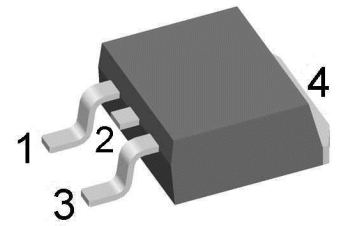
## Schottky Diode

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

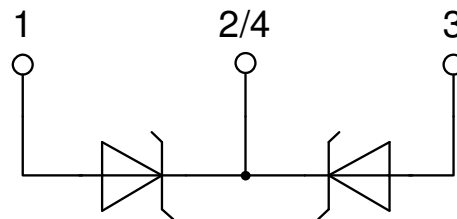
High Performance Schottky Diode  
Low Loss and Soft Recovery  
Common Cathode

Part number

**DSSK48-003BS**



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

### Terms Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact the sales office, which is responsible for you.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend

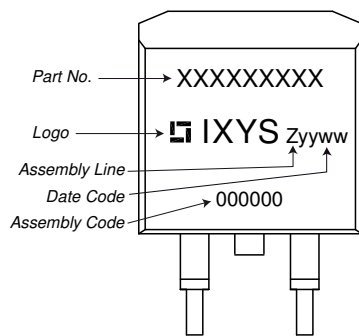
- to perform joint risk and quality assessments;

- the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

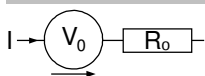
Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM}$	max. non-repetitive reverse blocking voltage					30	V
$V_{RRM}$	max. repetitive reverse blocking voltage					30	V
$I_R$	reverse current, drain current	$V_R = 30\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		20	mA
		$V_R = 30\text{ V}$		$T_{VJ} = 100^\circ\text{C}$		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	$T_{VJ} = 150^\circ\text{C}$		25	A
$V_{F0}$	threshold voltage	} for power loss calculation only				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
<b>Weight</b>				2		g
$F_C$	mounting force with clip		20		60	N

**Product Marking**


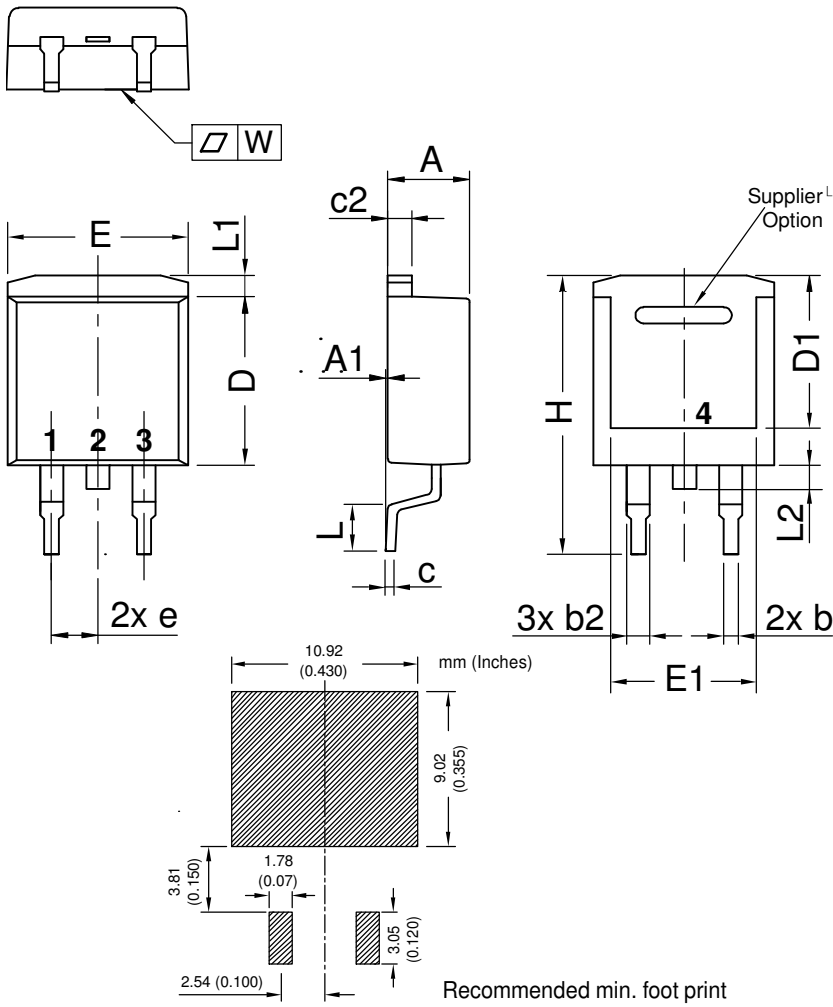
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSSK48-003BS	DSSK48-003BS	Tape & Reel	800	484326
Alternative	DSSK48-003BS-TUB	DSSK48-003BS	Tube	50	484318

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

**Equivalent Circuits for Simulation**
*\* on die level*
 $T_{VJ} = 150\text{ °C}$ 

**Schottky**

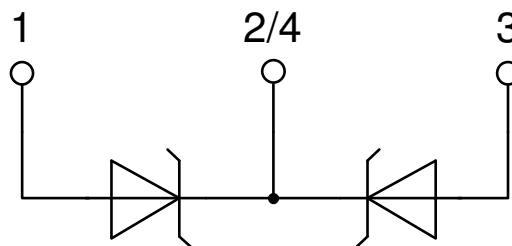
$V_{0\ max}$	threshold voltage	0.19	V
$R_{0\ max}$	slope resistance *		mΩ

## 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**

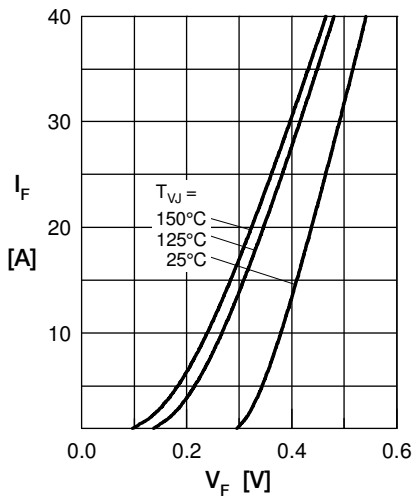


Fig. 1 Max. forward voltage drop characteristics

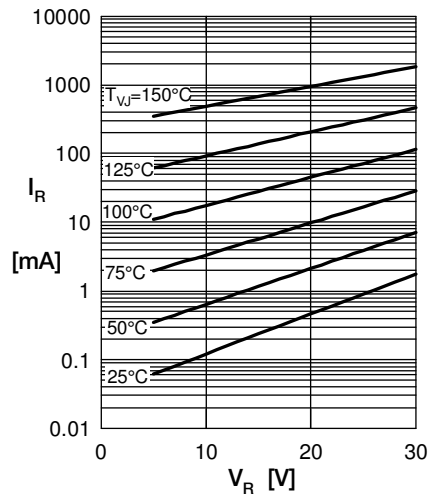


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

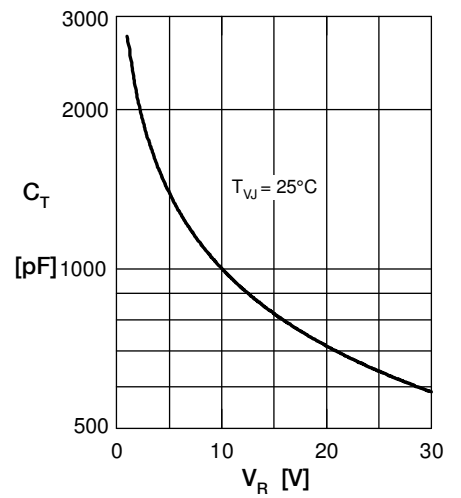


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

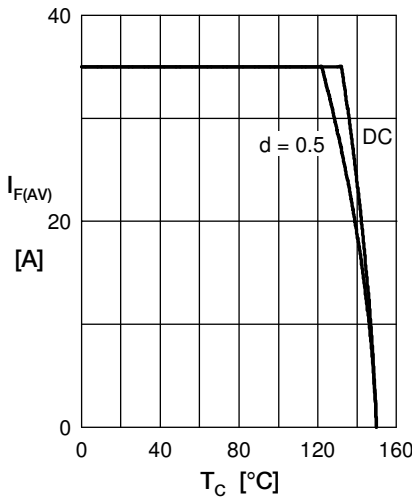


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

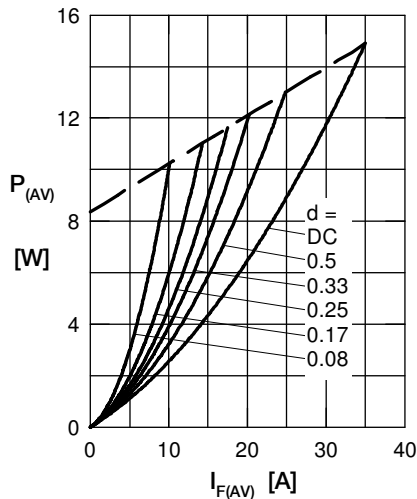


Fig. 5 Forward power loss characteristics

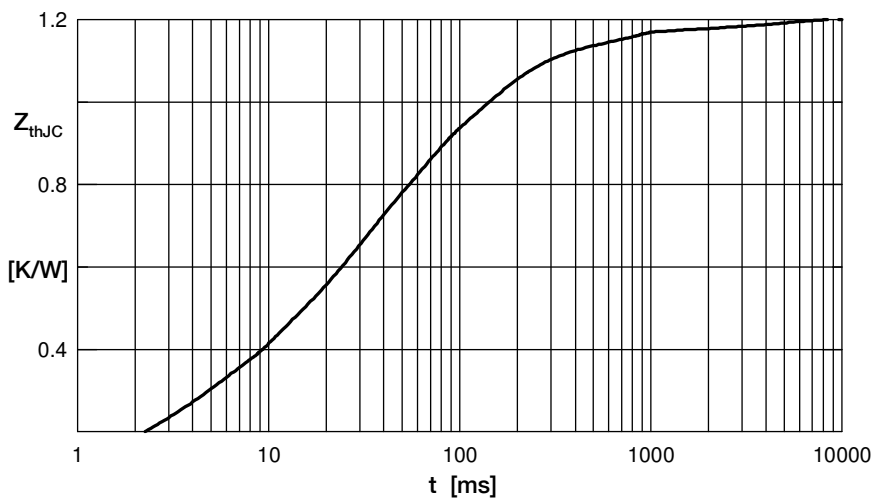


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode