

# Schottky Diode

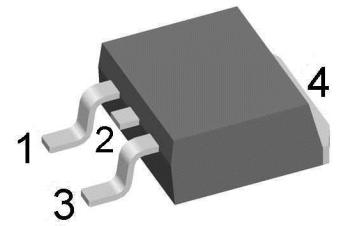
$V_{RRM} = 45\text{ V}$   
 $I_{FAV} = 2 \times 15\text{ A}$   
 $V_F = 0.43\text{ V}$

High Performance Schottky Diode  
 Low Loss and Soft Recovery  
 Common Cathode

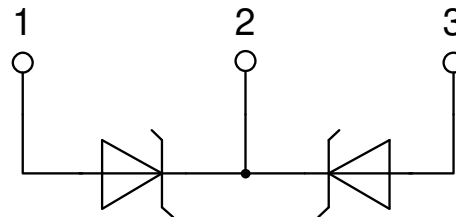
Part number

**DSSK28-0045BS**

Marking on Product: DSSK28-0045BS



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

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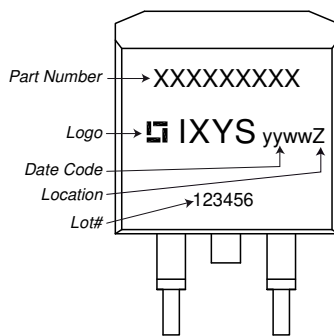


Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
$V_{RSM}$	max. non-repetitive reverse blocking voltage					45	V
$V_{RRM}$	max. repetitive reverse blocking voltage					45	V
$I_R$	reverse current, drain current	$V_R = 45\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		20	mA
		$V_R = 45\text{ V}$		$T_{VJ} = 100^\circ\text{C}$		100	mA
$V_F$	forward voltage drop	$I_F = 15\text{ A}$		$T_{VJ} = 25^\circ\text{C}$		0.48	V
		$I_F = 30\text{ A}$					V
		$I_F = 15\text{ A}$		$T_{VJ} = 125^\circ\text{C}$		0.43	V
		$I_F = 30\text{ A}$				0.60	V
$I_{FAV}$	average forward current	$T_C = 135^\circ\text{C}$	rectangular	$T_{VJ} = 150^\circ\text{C}$		15	A
$V_{F0}$	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^\circ\text{C}$		0.24	V
$r_F$	slope resistance					11.1	mΩ
$R_{thJC}$	thermal resistance junction to case					1.4	K/W
$R_{thCH}$	thermal resistance case to heatsink				0.25		K/W
$P_{tot}$	total power dissipation			$T_C = 25^\circ\text{C}$		90	W
$I_{FSM}$	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$		$T_{VJ} = 45^\circ\text{C}$		320	A
$C_J$	junction capacitance	$V_R = 5\text{ V}$	$f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		980	pF



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>				1.5		g
$F_C$	mounting force with clip		20		60	N

**Product Marking**



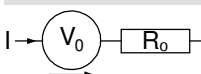
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSSK28-0045BS-TRL	DSSK28-0045BS	Tape & Reel	800	484296
Alternative	DSSK28-0045BS-TUB	DSSK28-0045BS	Tube	50	484288

Similar Part	Package	Voltage class
DSB30C45PB	TO-220AB (3)	45
DSB30C45HB	TO-247AD (3)	45
DSB60C45PB	TO-220AB (3)	45
DSB60C45HB	TO-247AD (3)	45

**Equivalent Circuits for Simulation**

\* on die level

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

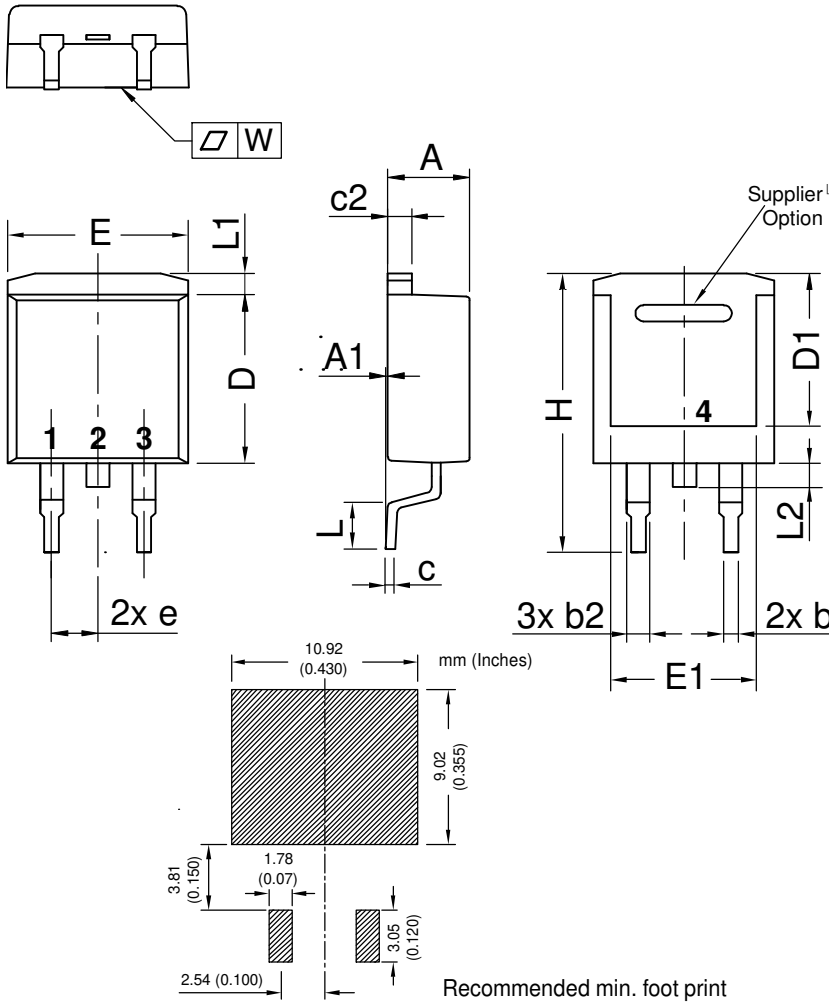


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$V_{0\ max}$  threshold voltage 0.24 V  
 $R_{0\ max}$  slope resistance \* mΩ

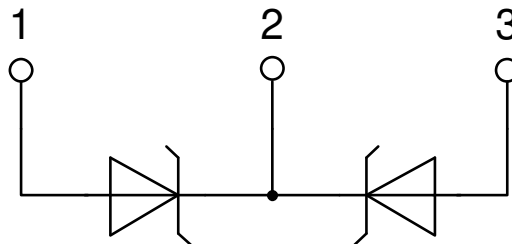


**Outlines TO-263 (D2Pak)**



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**

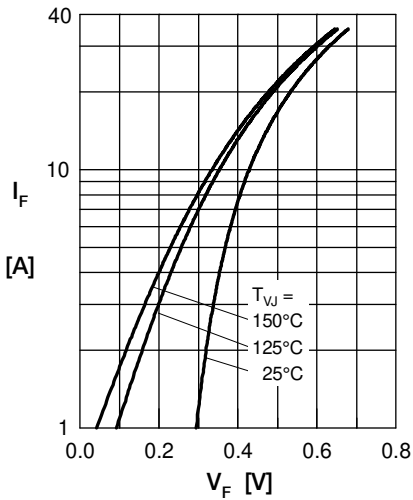


Fig. 1 Max. forward voltage drop characteristics

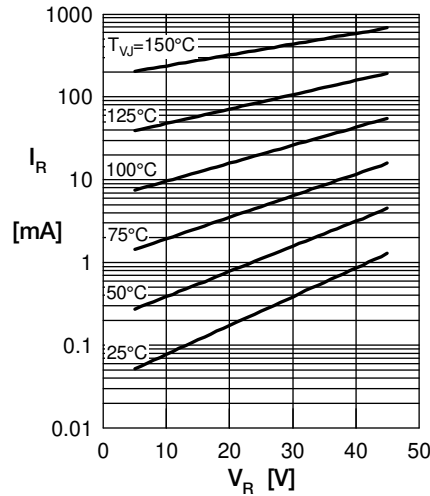


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

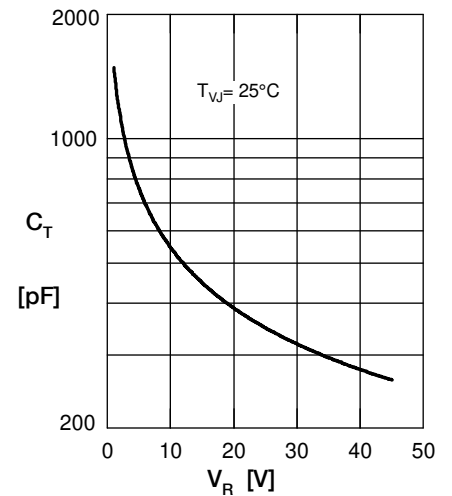


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

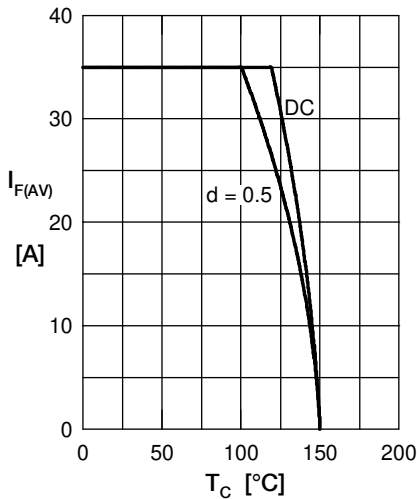


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

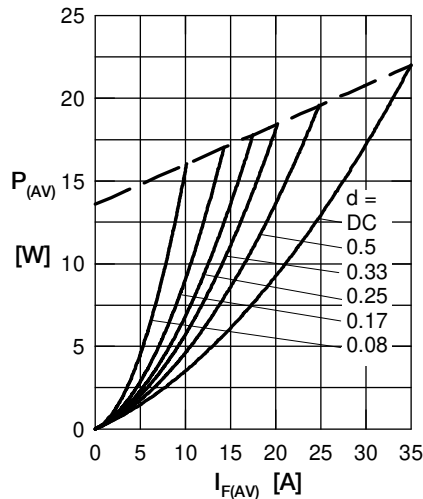


Fig. 5 Forward power loss characteristics

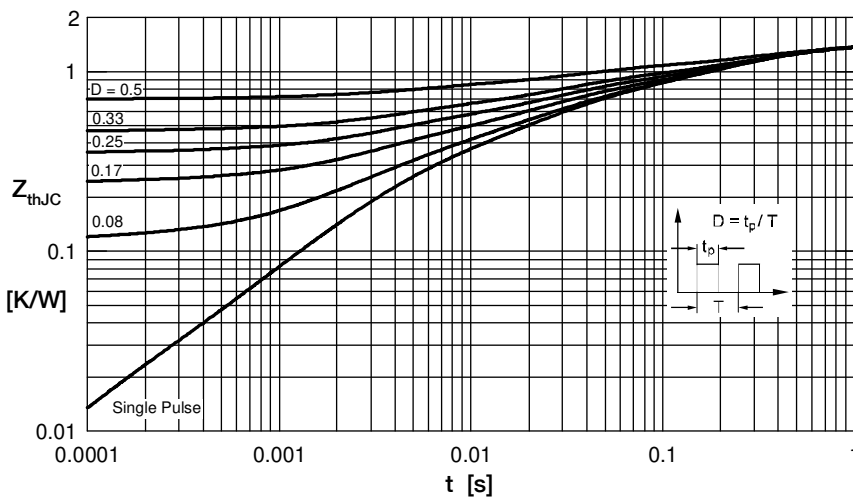


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode

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