Schottky Diode

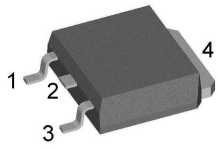
V_{RRM}	=	30 V
I_{FAV}	=	15 A
V_F	=	0.44 V

High Performance Schottky Diode
Low Loss and Soft Recovery
Single Diode

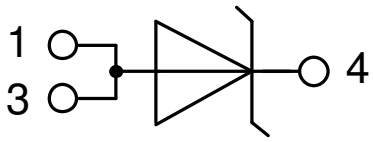
Part number

DSB15IM30UC

Marking on Product: SFEBUI



Backside: cathode



Features / Advantages:

- Very low Vf
- Extremely low switching losses
- Low Irm 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-252 (DPak)

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

Terms and 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 your local sales office.
Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact your local sales office.
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.

IXYS reserves the right to change limits, conditions and dimensions. Data according to IEC 60747and per semiconductor unless otherwise specified 20170911c

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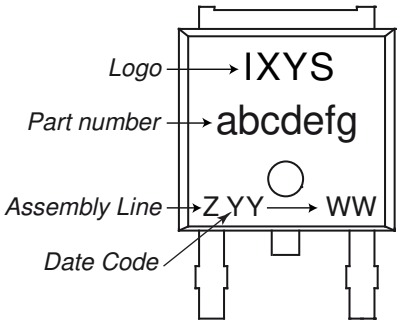
Schottky				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			30	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			30	V
I_R	*reverse current, drain current*	V_R = 30 V	T_{VJ} = 25°C			5	mA
		V_R = 30 V	T_{VJ} = 100°C			40	mA
V_F	*forward voltage drop*	I_F = 15 A	T_{VJ} = 25°C			0.51	V
		I_F = 30 A				0.66	V
		I_F = 15 A	T_{VJ} = 125°C			0.44	V
		I_F = 30 A				0.64	V
I_{FAV}	*average forward current*	T_C = 130°C	T_{VJ} = 150°C			15	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0.21	V
r_F	*slope resistance* }					13.9	mΩ
R_{thJC}	*thermal resistance junction to case*					2	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.50		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			65	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			300	A
C_J	*junction capacitance*	V_R = 24 V f = 1 MHz	T_{VJ} = 25°C		292		pF

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Package TO-252 (DPak)			Ratings			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal [1]			20	A
T_{VJ}	*virtual junction temperature*		-55		150	°C
T_{op}	*operation temperature*		-55		125	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				0.3		g
F_C	*mounting force with clip*		20		60	N

[1] I_{RMS} is typically limited by the pin-to-chip resistance (1); or by the current capability of the chip (2). In case of (1) and a product with multiple pins for one chip-potential, the current capability can be increased by connecting the pins as one contact.

Product Marking



Part description

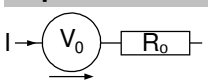
D = Diode
S = Schottky Diode
B = ultra low VF
15 = Current Rating [A]
IM = Single Diode
30 = Reverse Voltage [V]
UC = TO-252AA (DPak)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSB15IM30UC	SFEBUI	Tape & Reel	2500	519510

Similar Part	Package	Voltage class
DSA15IM45UC	TO-252AA (DPak)	45
DSA10IM100UC	TO-252AA (DPak)	100
DSA15IM150UC	TO-252AA (DPak)	150
DSA15IM200UC	TO-252AA (DPak)	200

Equivalent Circuits for Simulation

** on die level* T_{VJ} = 150 °C

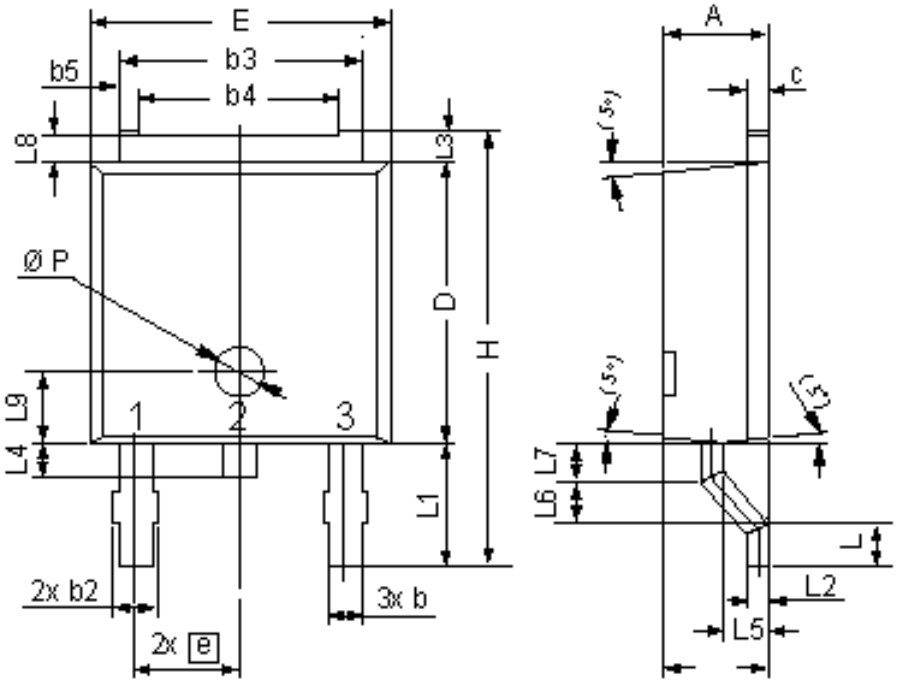


Schottky

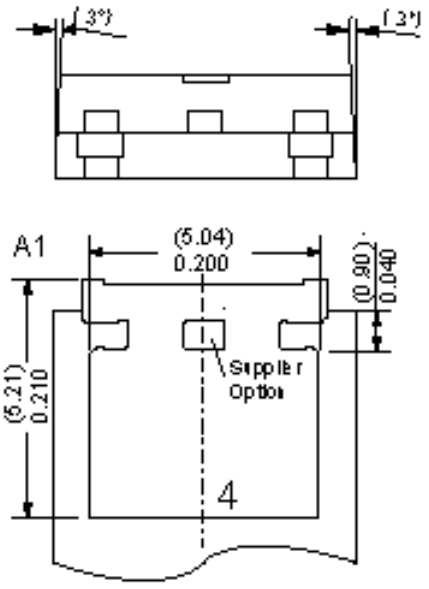
$V_{0\,max}$	*threshold voltage*	0.21	V
$R_{0\,max}$	*slope resistance **	10.7	mΩ

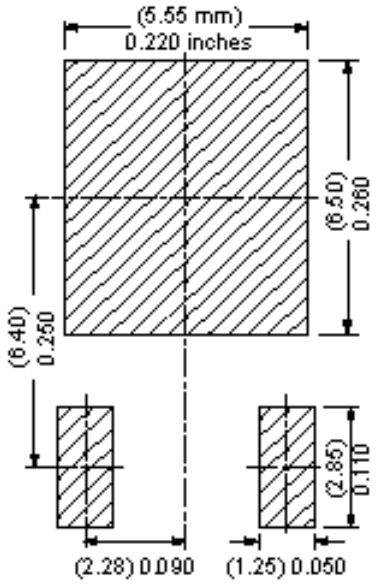
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Outlines TO-252 (DPak)

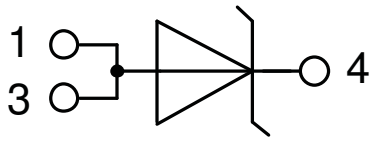


Dim.	Millimeters		Inches	
	min	max	min	max
A	2.20	2.40	0.087	0.094
A1	2.10	2.50	0.083	0.098
b	0.66	0.86	0.026	0.034
b2	-	0.96	-	0.038
b3	5.04	5.64	0.198	0.222
b4	4.34 BSC		0.171 BSC	
b5	0.50 BSC		0.020 BSC	
c	0.40	0.86	0.016	0.034
D	5.90	6.30	0.232	0.248
E	6.40	6.80	0.252	0.268
e	2.10	2.50	0.083	0.098
H	9.20	10.10	0.362	0.398
L	0.55	1.28	0.022	0.050
L1	2.50	2.90	0.098	0.114
L2	0.40	0.60	0.016	0.024
L3	0.50	0.90	0.020	0.035
L4	0.60	1.00	0.024	0.039
L5	0.82	1.22	0.032	0.048
L6	0.79	0.99	0.031	0.039
L7	0.81	1.01	0.032	0.040
L8	0.40	0.80	0.016	0.031
L9	1.50 BSC		0.059 BSC	
Ø P	1.00 BSC		0.039 BSC	





Recommended min. foot print



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Schottky

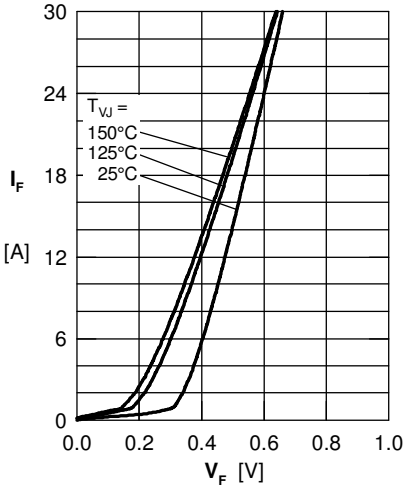


Fig. 1 Maximum forward voltage drop characteristics

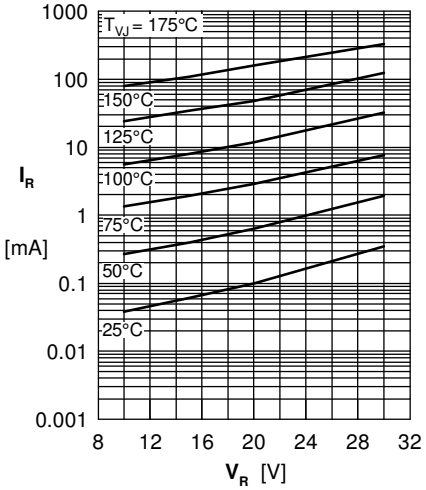


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

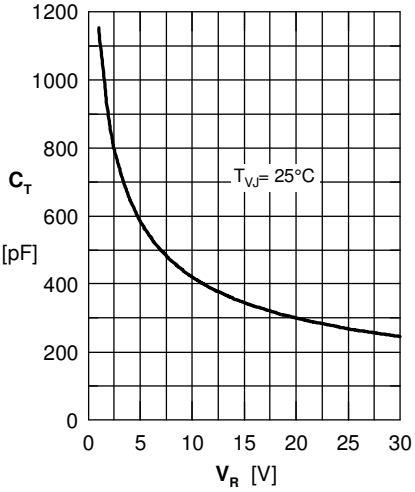


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

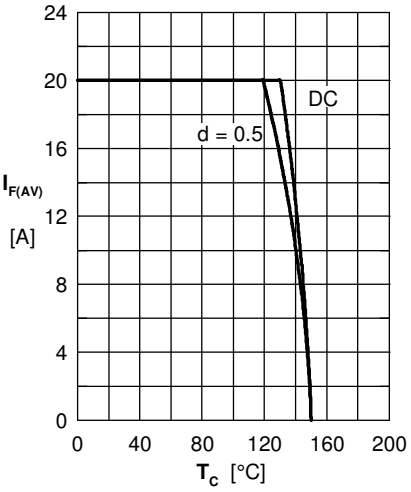


Fig. 4 Avg: forward current $I_{F(AV)}$ vs. case temperature T_C

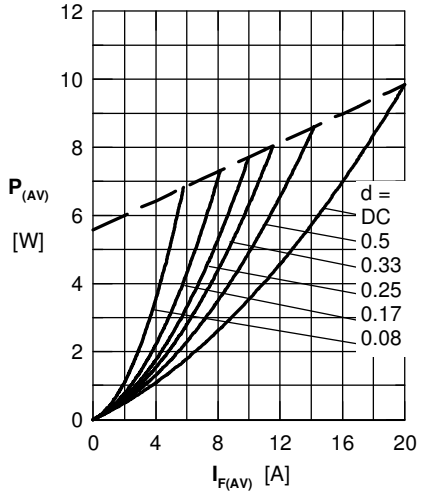
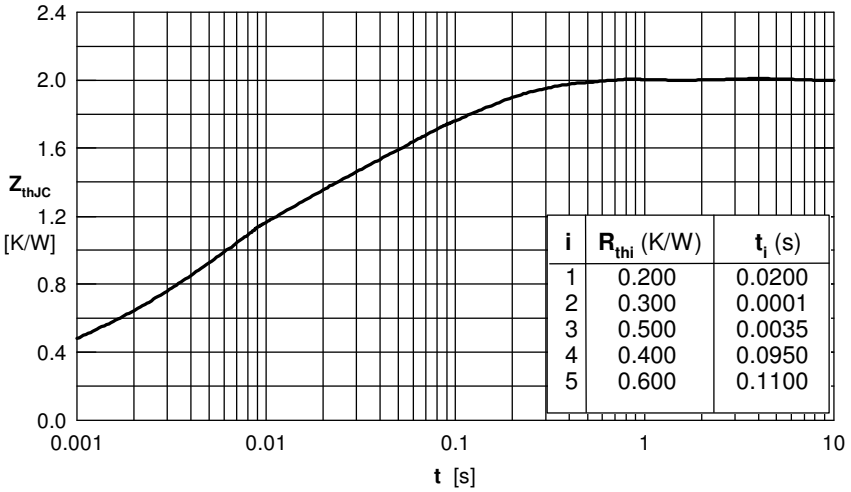


Fig. 5 Forward power loss characteristics



i	R_{thi} (K/W)	t_i (s)
1	0.200	0.0200
2	0.300	0.0001
3	0.500	0.0035
4	0.400	0.0950
5	0.600	0.1100

Fig. 6 Transient thermal impedance junction to case

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