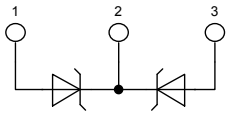
Schottky Diode Gen ²

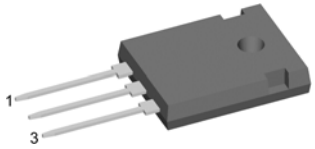
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

V_{RRM} = 100 V
I_{FAV} = 2x 25 A
V_F = 0.72 V

Part number

DSA 50 C 100 HB





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:

- Housing: TO-247
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25 °C			100	V
I_R	*reverse current*	V_R = 100 V	T_{VJ} = 25 °C			0.45	mA
		V_R = 100 V	T_{VJ} = 125 °C			5	mA
V_F	*forward voltage*	I_F = 25 A	T_{VJ} = 25 °C			0.90	V
		I_F = 50 A				1.07	V
		I_F = 25 A	T_{VJ} = 125 °C			0.72	V
		I_F = 50 A				0.90	V
I_{FAV}	*average forward current*	rectangular d = 0.5	T_C = 155 °C			25	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175 °C			0.45	V
r_F	*slope resistance* } *for power loss calculation only*					7.3	mΩ
R_{thJC}	*thermal resistance junction to case*					0.95	K/W
T_{VJ}	*virtual junction temperature*			-55		175	°C
P_{tot}	*total power dissipation*		T_C = 25 °C			160	W
I_{FSM}	*max. forward surge current*	t = 10 ms (50 Hz), sine	T_{VJ} = 45 °C			230	A
C_J	*junction capacitance*	V_R = 12 V; f = 1 MHz	T_{VJ} = 25 °C		289		pF

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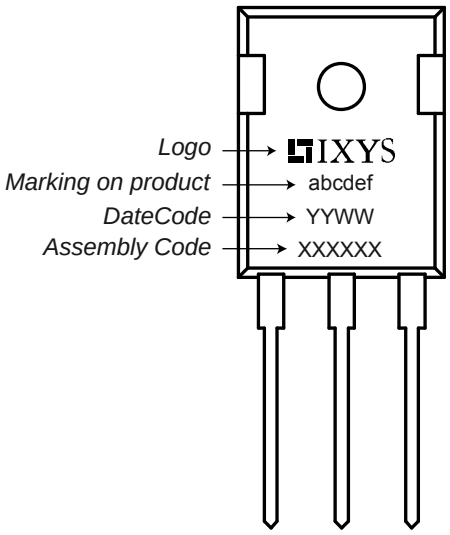
Symbol	Definition	Conditions	Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per pin [1)]			50	A
R_{thCH}	*thermal resistance case to heatsink*			0.25		K/W
T_{stg}	*storage temperature*		-55		150	°C
Weight				6		g
M_D	*mounting torque*		0.8		1.2	Nm
F_C	*mounting force with clip*		20		120	N

[1)] I_{RMS} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.
In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Product Marking



Part number

D = Diode
S = Schottky Diode
A = low VF
50 = Current Rating [A]
C = Common Cathode
100 = Reverse Voltage [V]
HB = TO-247AD (3)

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DSA 50 C 100 HB	DSA50C100HB	Tube	30	502774

Similar Part	Package	Voltage class
DSA50C100QB	TO-3P (3)	100
DSA60C100PB	TO-220AB (3)	100

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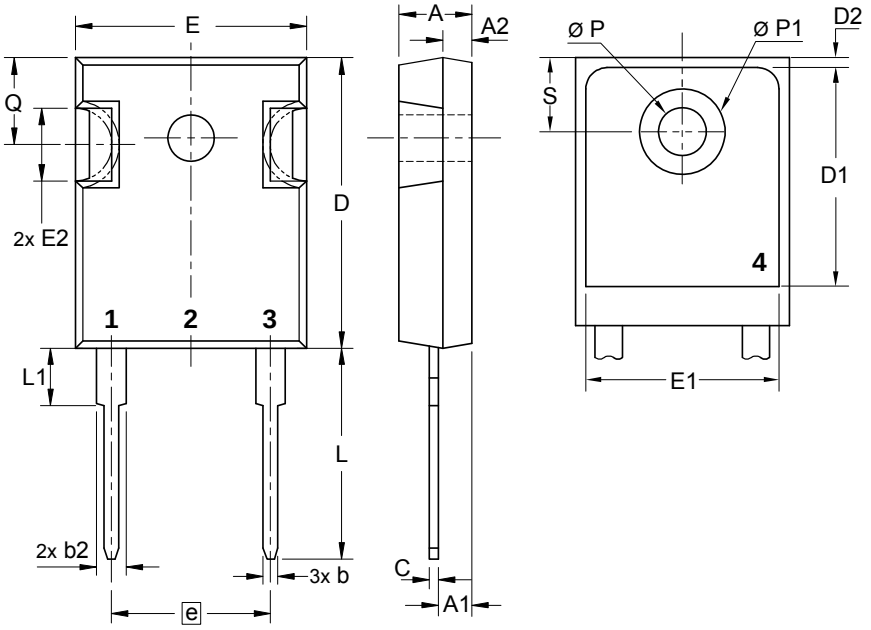
Outlines TO-247



Sym.	Inches		Millimeter	
	min.	max.	min.	max.
A	0.185	0.209	4.70	5.30
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
D	0.819	0.845	20.79	21.45
E	0.610	0.640	15.48	16.24
E2	0.170	0.216	4.31	5.48
e	0.430 BSC		10.92 BSC	
L	0.780	0.800	19.80	20.30
L1	-	0.177	-	4.49
Ø P	0.140	0.144	3.55	3.65
Q	0.212	0.244	5.38	6.19
S	0.242 BSC		6.14 BSC	
b	0.039	0.055	0.99	1.40
b2	0.065	0.094	1.65	2.39
b4	0.102	0.135	2.59	3.43
c	0.015	0.035	0.38	0.89
D1	0.515	-	13.07	-
D2	0.020	0.053	0.51	1.35
E1	0.530	-	13.45	-
Ø P1	-	0.29	-	7.39

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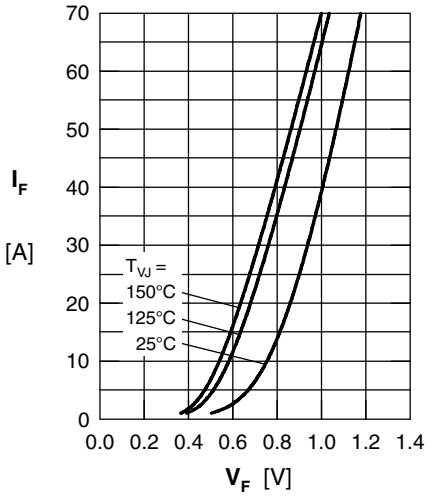

Fig. 1 Maximum forward voltage drop characteristics

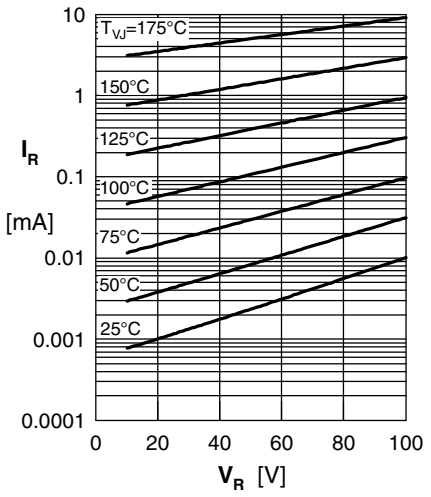

Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

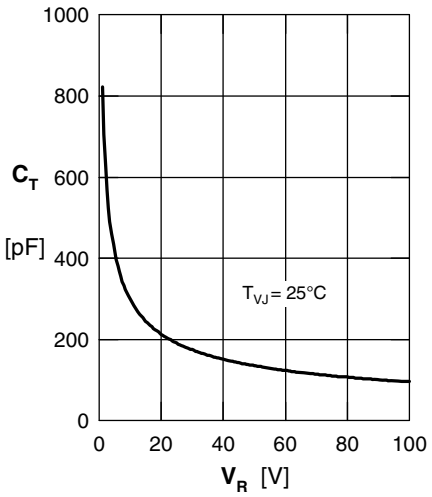

Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

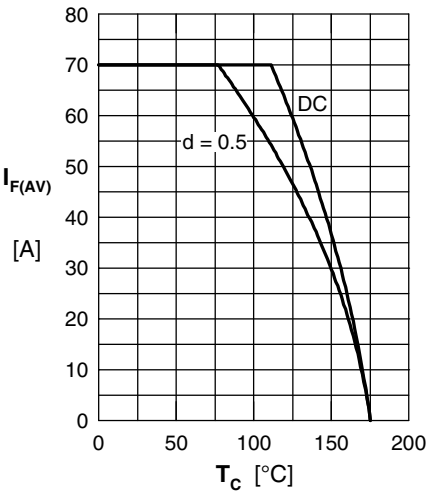

Fig. 4 Average forward current $I_{F(AV)}$ vs. case temperature T_C

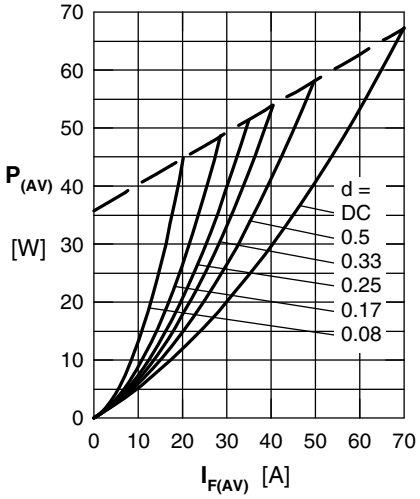

Fig. 5 Forward power loss characteristics

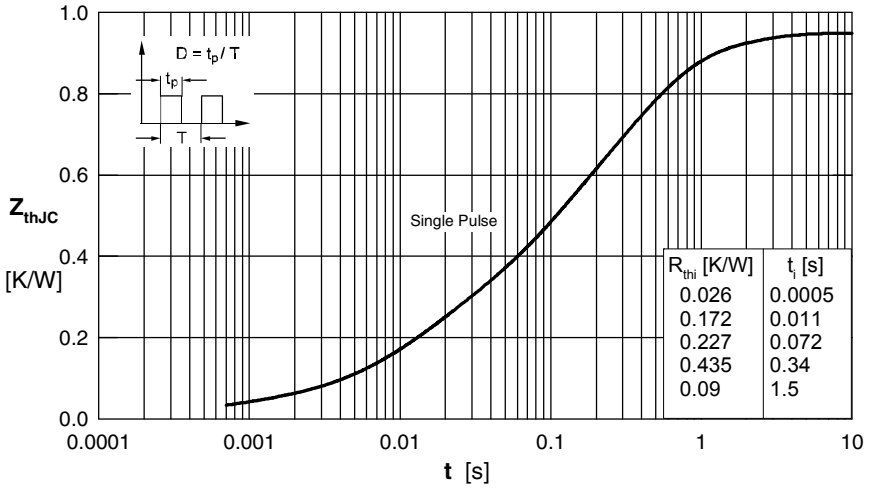

Fig. 6 Transient thermal impedance junction to case

Note: All curves are per diode

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