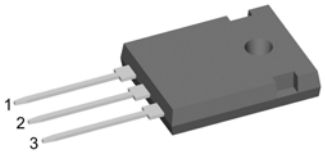
Schottky Diode Gen ²

V_{RRM} = 150V
I_{FAV} = 2x 35A
V_F = 0.77V

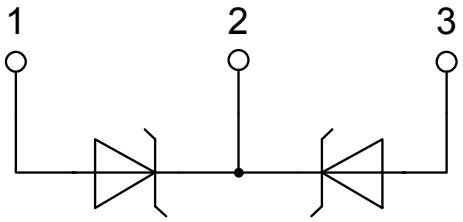
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA70C150HB



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-247

- 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*		T_{VJ} = 25°C			150	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			150	V
I_R	*reverse current, drain current*	V_R = 150 V	T_{VJ} = 25°C			680	µA
		V_R = 150 V	T_{VJ} = 125°C			7.5	mA
V_F	*forward voltage drop*	I_F = 35 A	T_{VJ} = 25°C			0.90	V
		I_F = 70 A				1.06	V
		I_F = 35 A	T_{VJ} = 125°C			0.77	V
		I_F = 70 A				0.94	V
I_{FAV}	*average forward current*	T_C = 150°C	T_{VJ} = 175°C			35	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.53	V
r_F	*slope resistance* }					4.9	mΩ
R_{thJC}	*thermal resistance junction to case*					0.7	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			215	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			600	A
C_J	*junction capacitance*	V_R = 24 V f = 1 MHz	T_{VJ} = 25°C		226		pF

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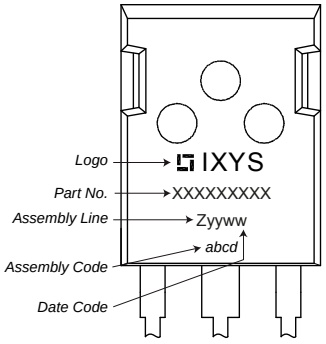
Package TO-247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal [1]			50	A
T_{VJ}	*virtual junction temperature*		-55		175	°C
T_{op}	*operation temperature*		-55		150	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				6		g
M_D	*mounting torque*		0.8		1.2	Nm
F_C	*mounting force with clip*		20		120	N

Product Marking

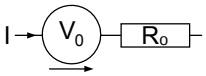


Part number

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

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA70C150HB	DSA70C150HB	Tube	30	506708

Equivalent Circuits for Simulation ** on die level* T_{VJ} = 175 °C



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$V_{0\,max}$	*threshold voltage*	0.53	V
$R_{0\,max}$	*slope resistance **	2.3	mΩ

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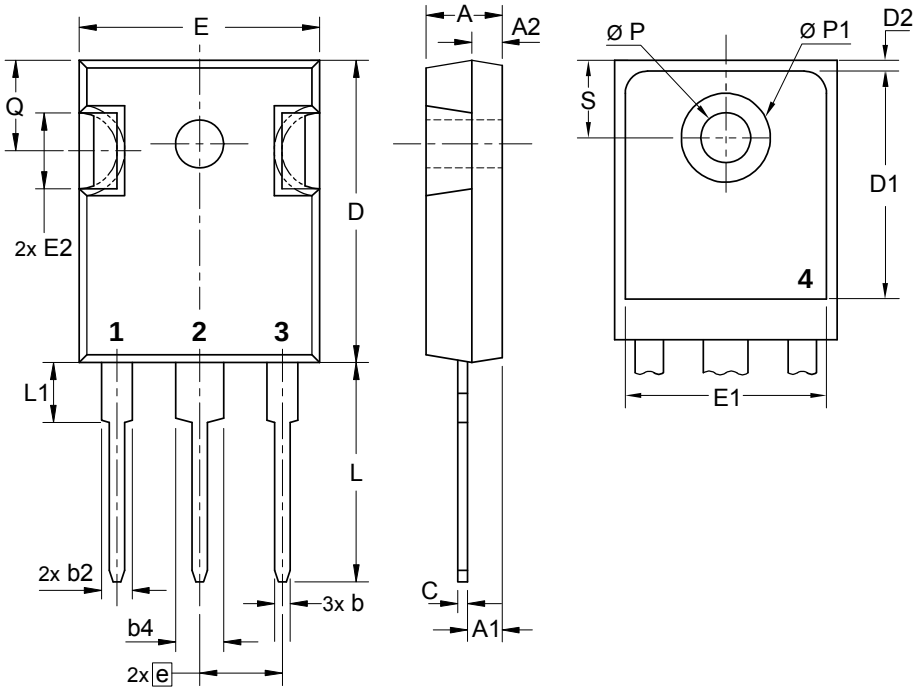
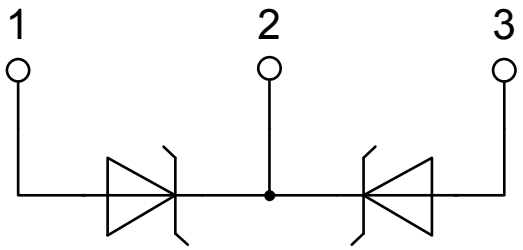
Outlines TO-247



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	0.215 BSC		5.46 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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Schottky

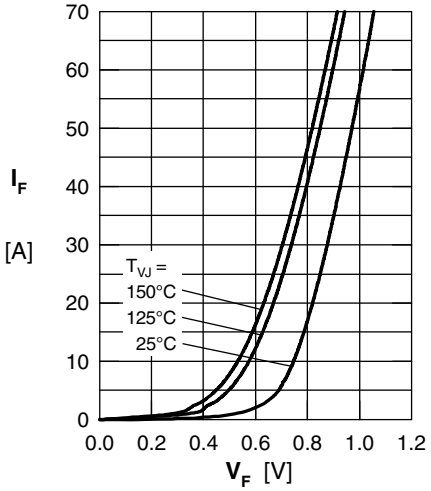

Fig. 1 Maximum forward voltage drop characteristics

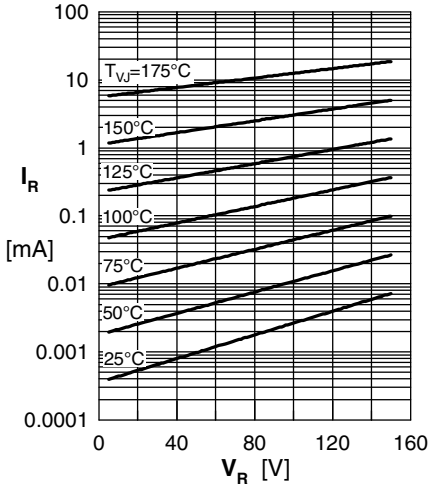

Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

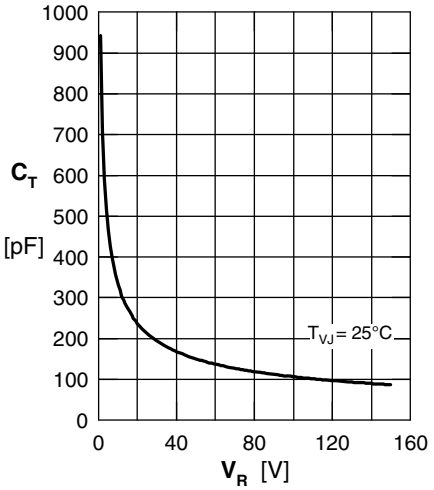

Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

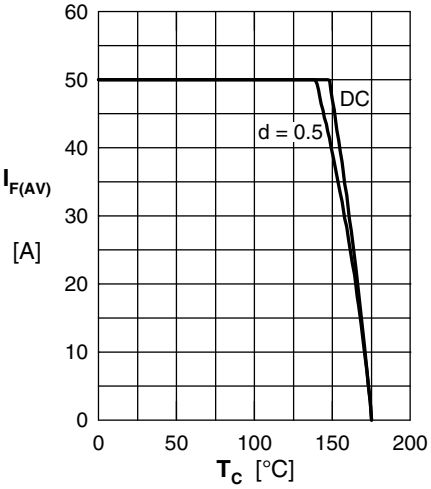

Fig. 4 Average forward current $I_{F(AV)}$ vs. case temperature T_C

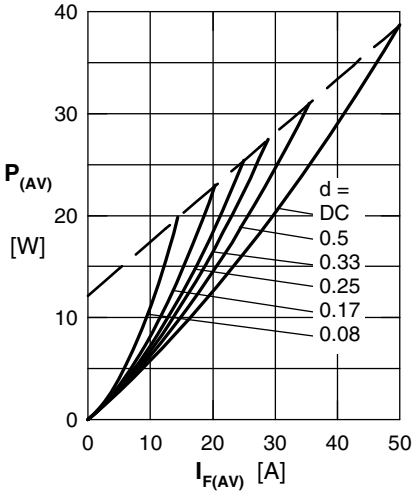

Fig. 5 Forward power loss characteristics

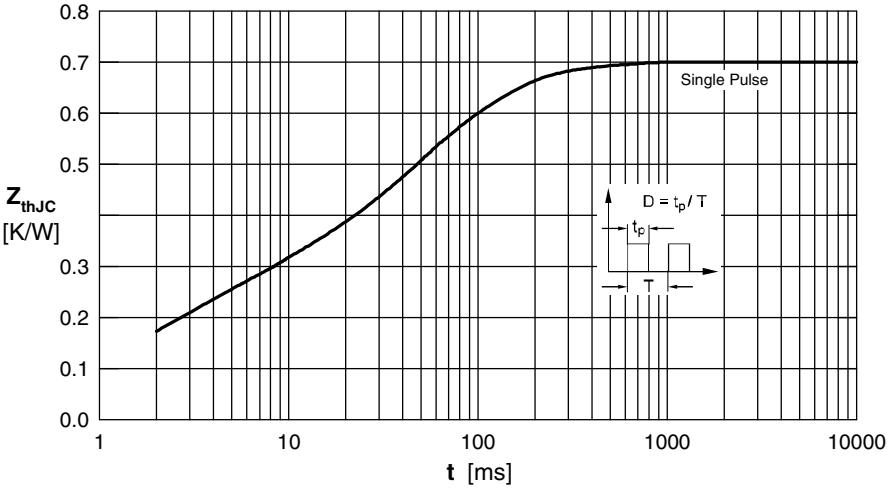

Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode

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