

Schottky Diode Gen ²

preliminary

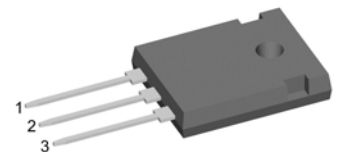
$$V_{RRM} = 200V$$

$$I_{FAV} = 2 \times 35A$$

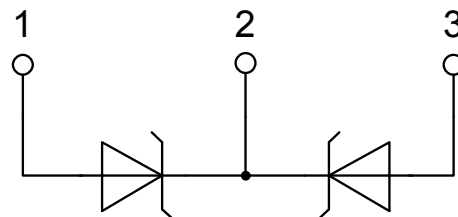
$$V_F = 0.79V$$

High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA70C200HB


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-247

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

Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				200	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				200	V
I _R	reverse current, drain current	V _R = 200 V	T _{VJ} = 25°C			640	μA
		V _R = 200 V	T _{VJ} = 125°C			7	mA
V _F	forward voltage drop	I _F = 35 A	T _{VJ} = 25°C			0.93	V
		I _F = 70 A					1.07
		I _F = 35 A	T _{VJ} = 125°C			0.79	V
		I _F = 70 A					0.95
I _{FAV}	average forward current	T _C = 150°C rectangular d = 0.5	T _{VJ} = 175°C			35	A
V _{F0}	threshold voltage	} for power loss calculation only				0.55	V
r _F	slope resistance					4.8	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			550	A
C _J	junction capacitance	V _R = 24 V f = 1 MHz	T _{VJ} = 25°C		261		pF

preliminary

Package TO-247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal ¹⁾			70	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
 200 = Reverse Voltage [V]
 HB = TO-247AD (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA70C200HB	DSA70C200HB	Tube	30	509195

Equivalent Circuits for Simulation

* on die level

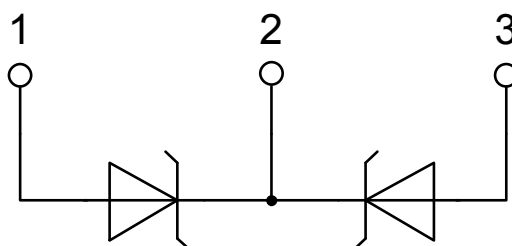
$T_{VJ} = 175^{\circ}\text{C}$

			Schottky
$V_{0\max}$	threshold voltage	0.55	V
$R_{0\max}$	slope resistance *	2.2	mΩ

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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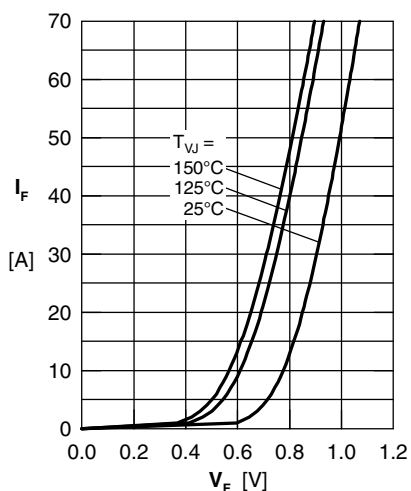


Fig. 1 Maximum forward voltage drop characteristics

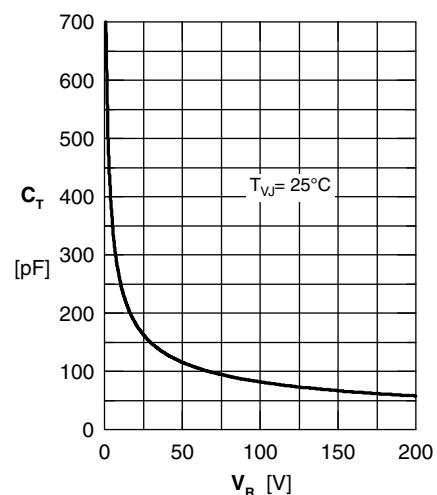


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

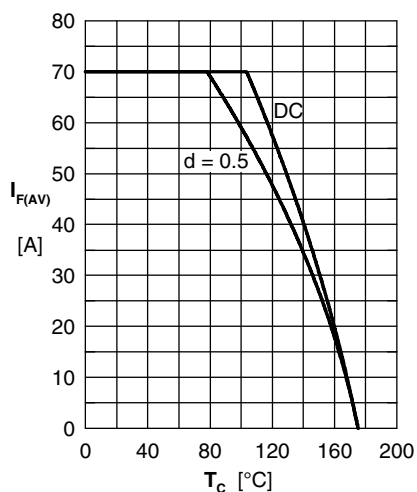


Fig. 4 Avg: forward current $I_{F(AV)}$ vs. case temperature T_c

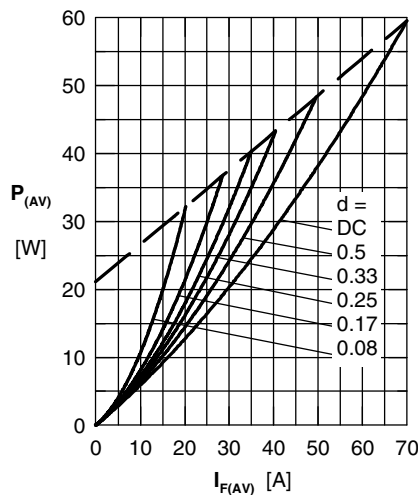


Fig. 5 Forward power loss characteristics

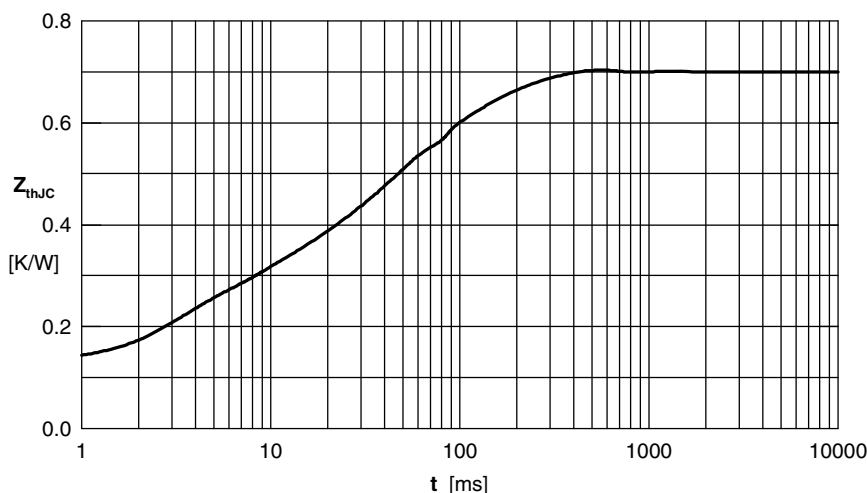


Fig. 6 Transient thermal impedance junction to case