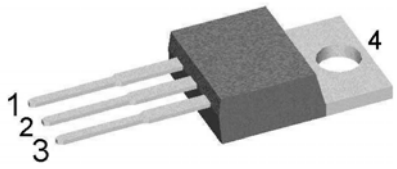
Schottky Diode Gen ²

V_{RRM} = 150V
I_{FAV} = 2x 10A
V_F = 0.73V

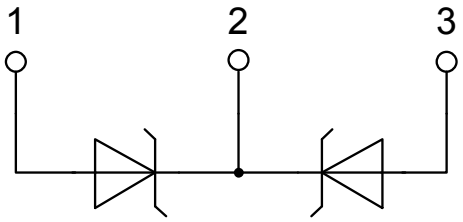
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA20C150PB



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

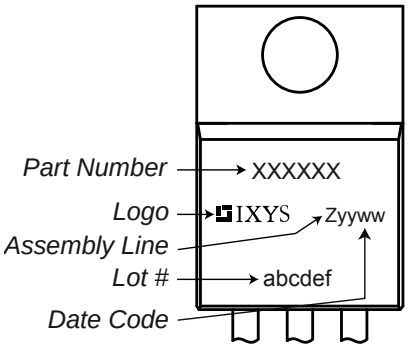
Package: TO-220

- 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			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			200	µA
		V_R = 150 V	T_{VJ} = 125°C			2	mA
V_F	*forward voltage drop*	I_F = 10 A	T_{VJ} = 25°C			0.87	V
		I_F = 20 A				0.98	V
		I_F = 10 A	T_{VJ} = 125°C			0.73	V
		I_F = 20 A				0.85	V
I_{FAV}	*average forward current*	T_C = 155°C	T_{VJ} = 175°C			10	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.54	V
r_F	*slope resistance* }					11.4	mΩ
R_{thJC}	*thermal resistance junction to case*					2.4	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			220	A
C_J	*junction capacitance*	V_R = 24 V f = 1 MHz	T_{VJ} = 25°C		53		pF

Package TO-220			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal [1]			35	A
T_{VJ}	*virtual junction temperature*		-55		175	°C
T_{op}	*operation temperature*		-55		150	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				2		g
M_D	*mounting torque*		0.4		0.6	Nm
F_C	*mounting force with clip*		20		60	N

Product Marking



Part number

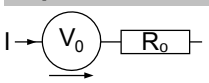
D = Diode
S = Schottky Diode
A = low VF
20 = Current Rating [A]
C = Common Cathode
150 = Reverse Voltage [V]
PB = TO-220AB (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA20C150PB	DSA20C150PB	Tube	50	503913

Similar Part	Package	Voltage class
DSA20C150PN	TO-220ABFP (3)	150

Equivalent Circuits for Simulation

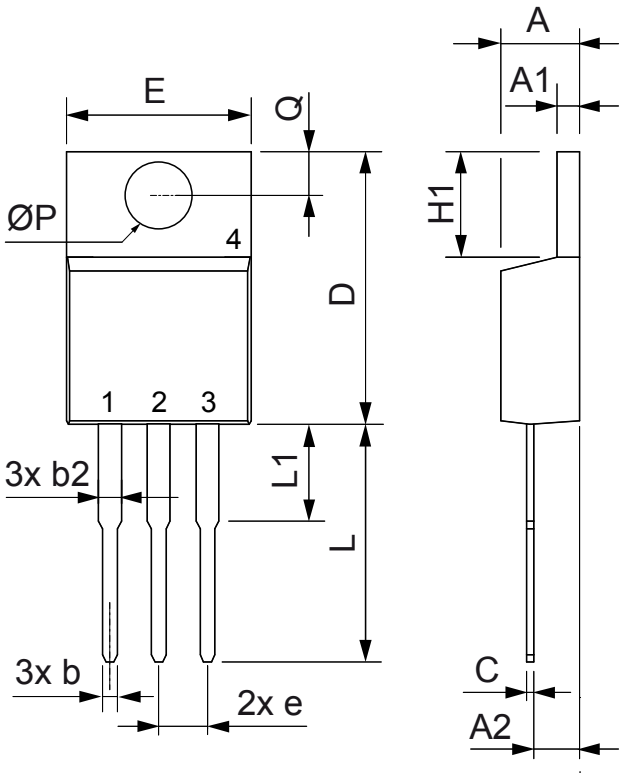
** on die level* T_{VJ} = 175 °C



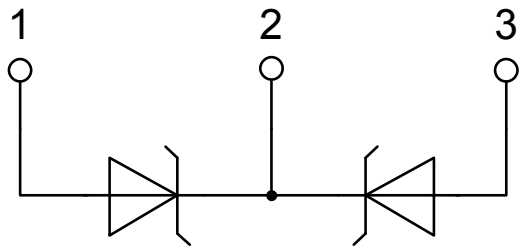
Schottky

$V_{0\,max}$	*threshold voltage*	0.54	V
$R_{0\,max}$	*slope resistance **	8.2	mΩ

Outlines TO-220



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	2.54	BSC	0.100	BSC
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
ØP	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125



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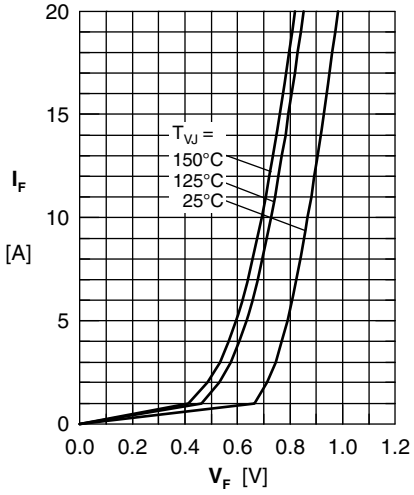

Fig. 1 Maximum forward voltage drop characteristics

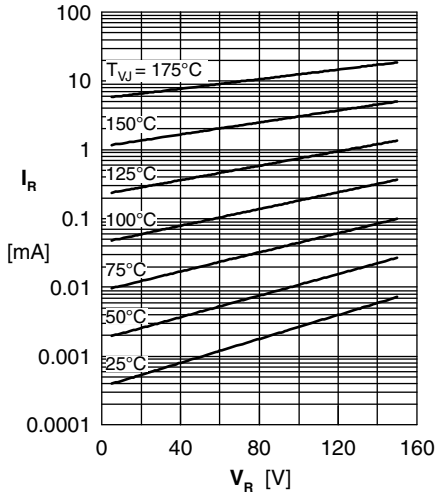

Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

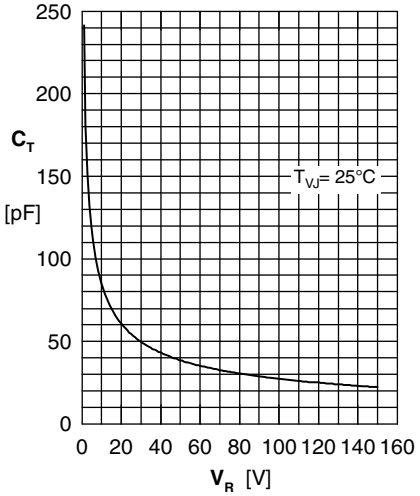

Fig. 3 Typ. junction capacitance C_T versus reverse voltage V_R

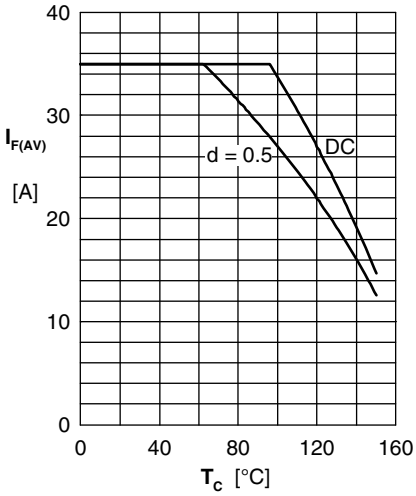

Fig. 4 Avg: forward current $I_{F(AV)}$ vs. case temperature T_C

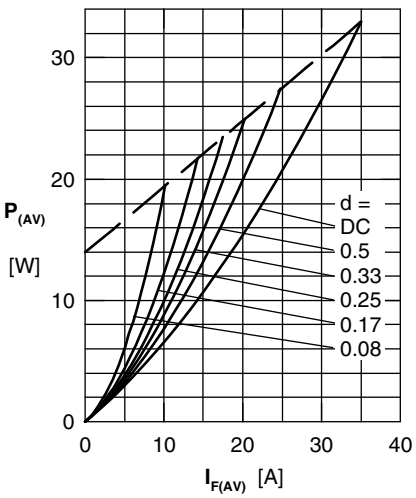

Fig. 5 Forward power loss characteristics

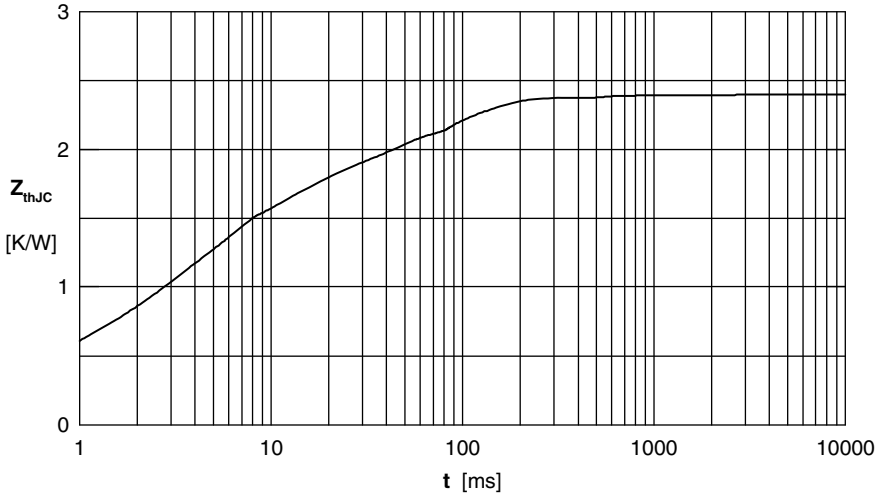

Fig. 6 Transient thermal impedance junction to case