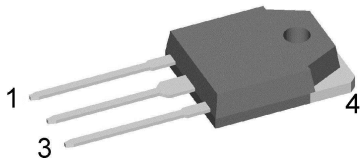
Schottky Diode Gen ²

V_{RRM}	=	150 V
I_{FAV}	= 2x	60 A
V_F	=	0.8 V

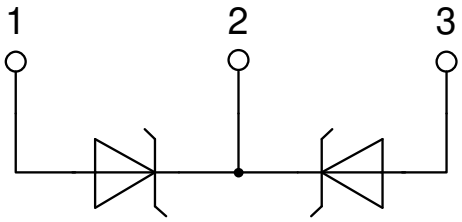
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA120C150QB



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

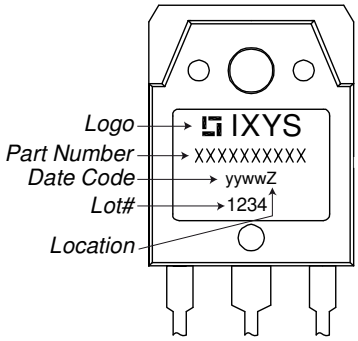
Package: TO-3P

- Industry standard outline compatible with TO-247
- 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			900	µA
		V_R = 150 V	T_{VJ} = 125°C			5	mA
V_F	*forward voltage drop*	I_F = 60 A	T_{VJ} = 25°C			0.93	V
		I_F = 120 A				1.13	V
		I_F = 60 A	T_{VJ} = 125°C			0.80	V
		I_F = 120 A				1.03	V
I_{FAV}	*average forward current*	T_C = 150°C	T_{VJ} = 175°C			60	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.51	V
r_F	*slope resistance* }					3.9	mΩ
R_{thJC}	*thermal resistance junction to case*					0.4	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.3		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			375	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			1.20	kA
C_J	*junction capacitance*	V_R = 24 V f = 1 MHz	T_{VJ} = 25°C		481		pF

Package TO-3P			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				5		g
M_D	*mounting torque*		0.8		1.2	Nm
F_C	*mounting force with clip*		20		120	N

Product Marking



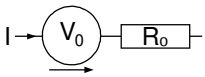
Part description

D = Diode
S = Schottky Diode
A = low VF
120 = Current Rating [A]
C = Common Cathode
150 = Reverse Voltage [V]
QB = TO-3P (3)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA120C150QB	DSA120C150QB	Tube	30	501788
			Tube		

Equivalent Circuits for Simulation

** on die level* $T_{VJ} = 175°C$



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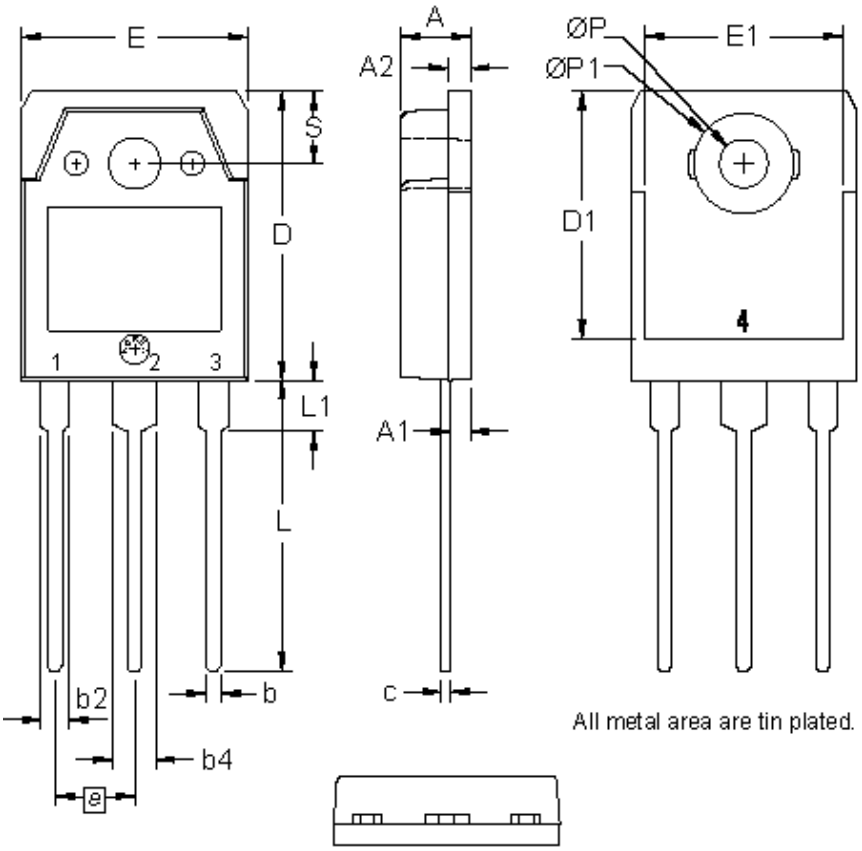
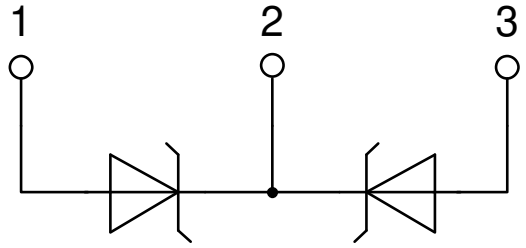
$V_{0\,max}$	*threshold voltage*	0.51	V
$R_{0\,max}$	*slope resistance **	1.3	mΩ

Outlines TO-3P



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
Ø P	3.20	3.40	0.126	0.134
ØP1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201



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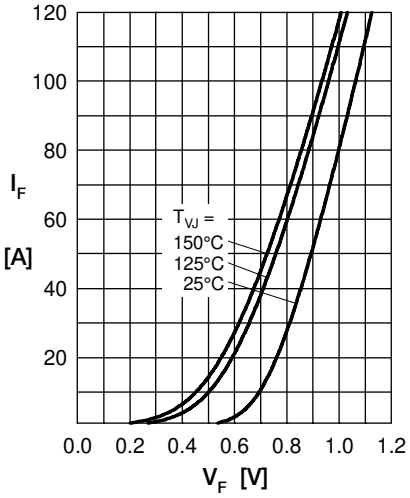


Fig. 1 Max. forward voltage drop characteristics

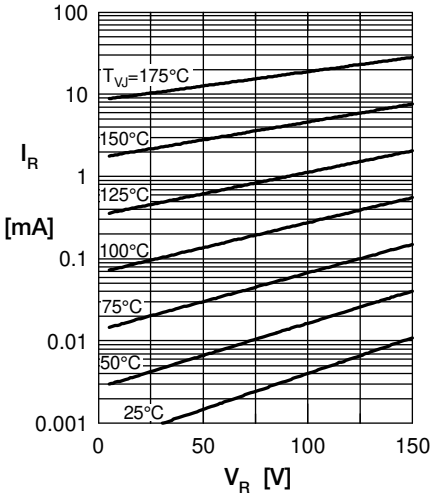


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

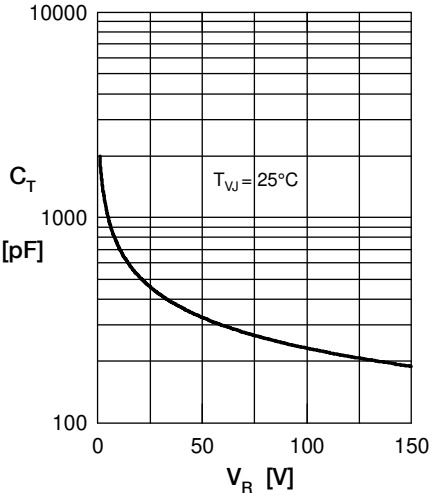


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

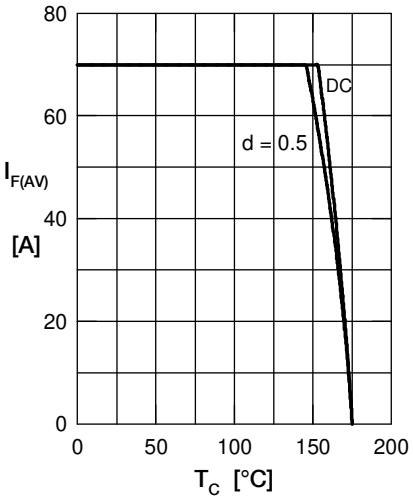


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temp T_C

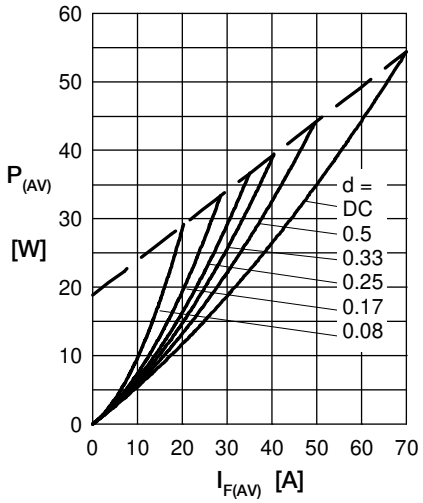
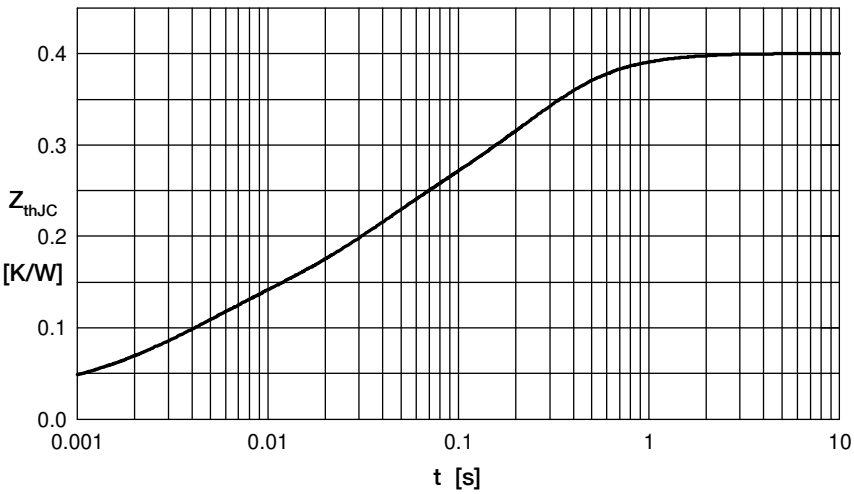


Fig. 5 Forward power loss characteristics



R_{thi}	t_i
0.022	0.0002
0.082	0.0032
0.104	0.026
0.165	0.208
0.027	0.79

Note: All curves are per diode

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