

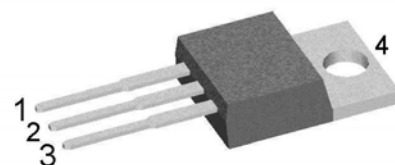
Schottky Diode Gen ²

$$\begin{aligned} V_{RRM} &= 100V \\ I_{FAV} &= 2 \times 40A \\ V_F &= 0.8V \end{aligned}$$

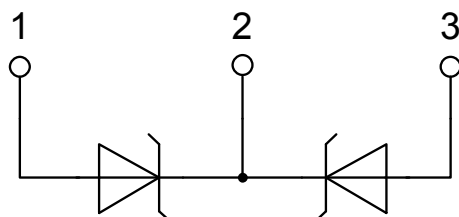
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA80C100PB



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

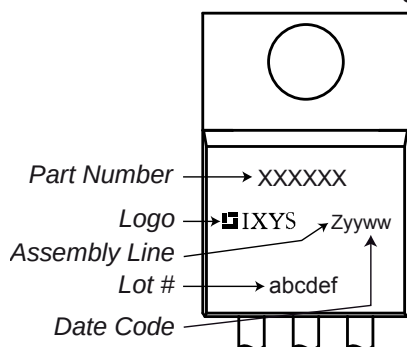
Package: TO-220

- 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				100	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				100	V
I _R	reverse current, drain current	V _R = 100 V	T _{VJ} = 25°C			680	μA
		V _R = 100 V	T _{VJ} = 125°C			7	mA
V _F	forward voltage drop	I _F = 40 A	T _{VJ} = 25°C			0.97	V
		I _F = 80 A				1.19	V
		I _F = 40 A	T _{VJ} = 125°C			0.80	V
		I _F = 80 A				1.05	V
I _{FAV}	average forward current	T _C = 150°C rectangular d = 0.5	T _{VJ} = 175°C			40	A
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		0.45	V
r _F	slope resistance					6.5	mΩ
R _{thJC}	thermal resistance junction to case					0.6	K/W
R _{thCH}	thermal resistance case to heatsink				0.50		K/W
P _{tot}	total power dissipation	T _C = 25°C				250	W
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		490	A
C _J	junction capacitance	V _R = 12 V f = 1 MHz		T _{VJ} = 25°C		406	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
 80 = Current Rating [A]
 C = Common Cathode
 100 = Reverse Voltage [V]
 PB = TO-220AB (3)

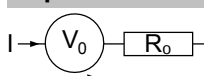
Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA80C100PB	DSA80C100PB	Tube	50	502795

Similar Part	Package	Voltage class
DSA70C100HB	TO-247AD (3)	100

Equivalent Circuits for Simulation

* on die level

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



Schottky

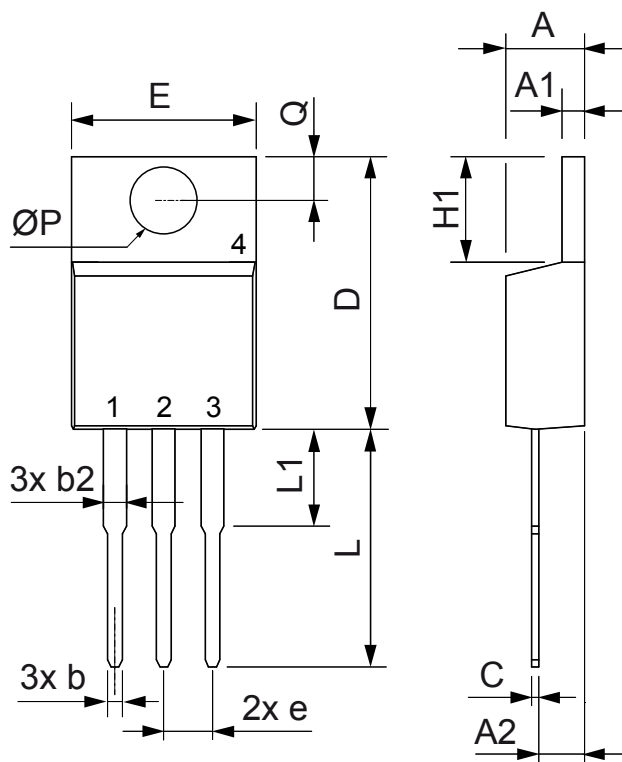
$V_{0\max}$ threshold voltage 0.45

V

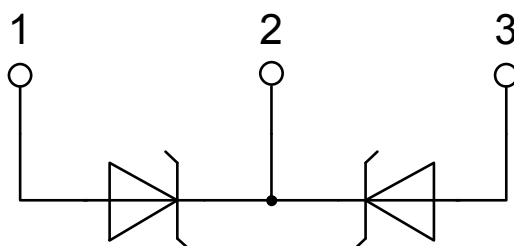
$R_{0\max}$ slope resistance * 3.3

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
$\varnothing P$	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125



Schottky

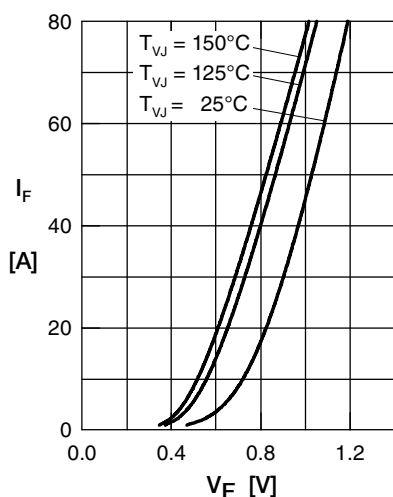


Fig. 1 Max. forward voltage drop characteristics

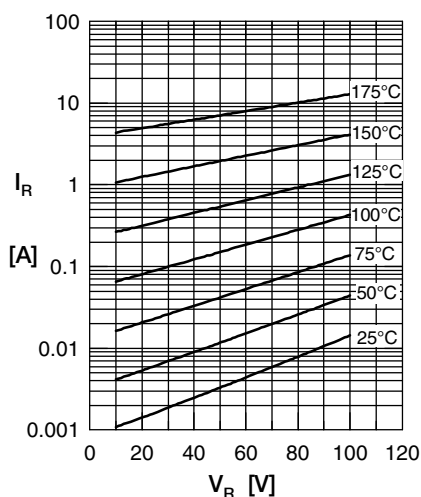


Fig. 2 Typ. value of rev. current I_R vs. reverse voltage V_R

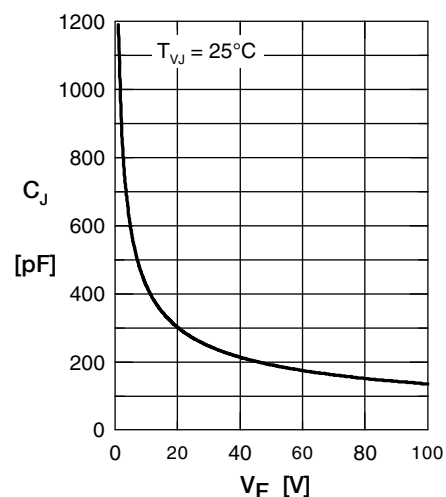


Fig. 3 Typ. junction capacitance C_J vs. reverse voltage V_R

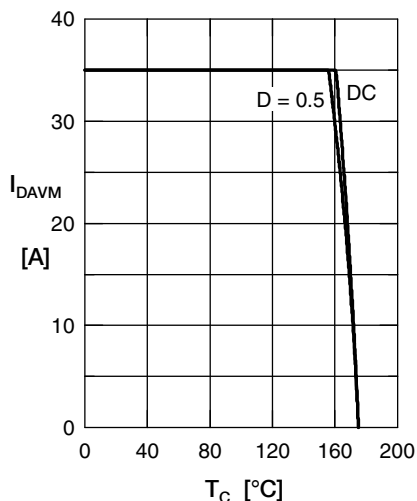


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temp. T_C

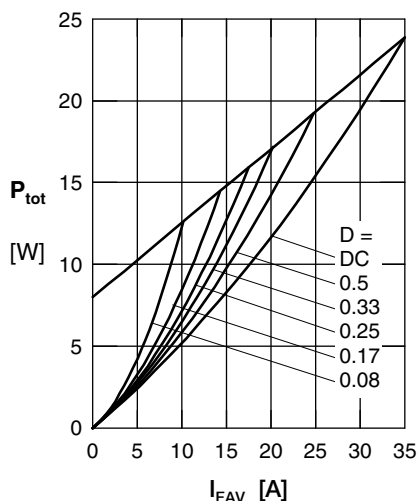


Fig. 5 Forward power loss characteristics

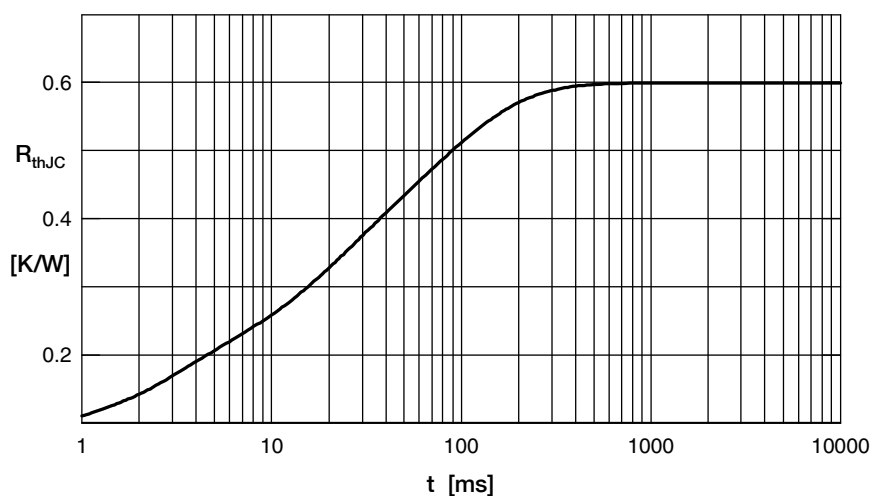


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode

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