

Schottky Diode Gen ²

preliminary

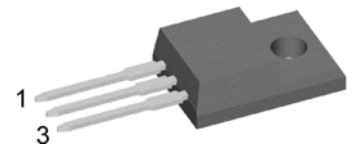
$$V_{RRM} = 150V$$

$$I_{FAV} = 2 \times 10A$$

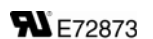
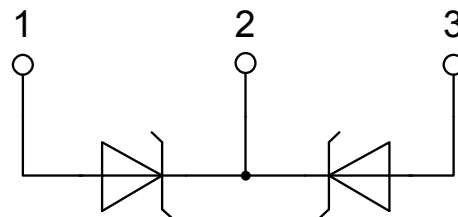
$$V_F = 0.73V$$

High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA20C150PN


Backside: isolated

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-220FP

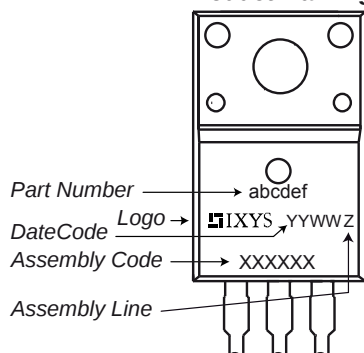
- Isolation Voltage: 2500 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Base plate: Plastic overmolded tab
- Reduced weight

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 = 140°C rectangular d = 0.5	T _{VJ} = 175°C			10	A
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					4.5	K/W
R _{thCH}	thermal resistance case to heatsink				0.50		K/W
P _{tot}	total power dissipation	T _C = 25°C				35	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

preliminary

Package TO-220FP				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal				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
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	1.6	1.0			mm
$d_{Spb/Apb}$		terminal to backside	2.5	2.5			mm
V_{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	2500			V
		t = 1 minute		2080			V

Product Marking



Part number

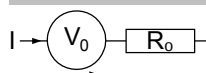
D = Diode
 S = Schottky Diode
 A = low VF
 20 = Current Rating [A]
 C = Common Cathode
 150 = Reverse Voltage [V]
 PN = TO-220ABFP (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA20C150PN	DSA20C150PN	Tube	50	503682

Similar Part	Package	Voltage class
DSA20C150PB	TO-220AB (3)	150

Equivalent Circuits for Simulation

* on die level

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

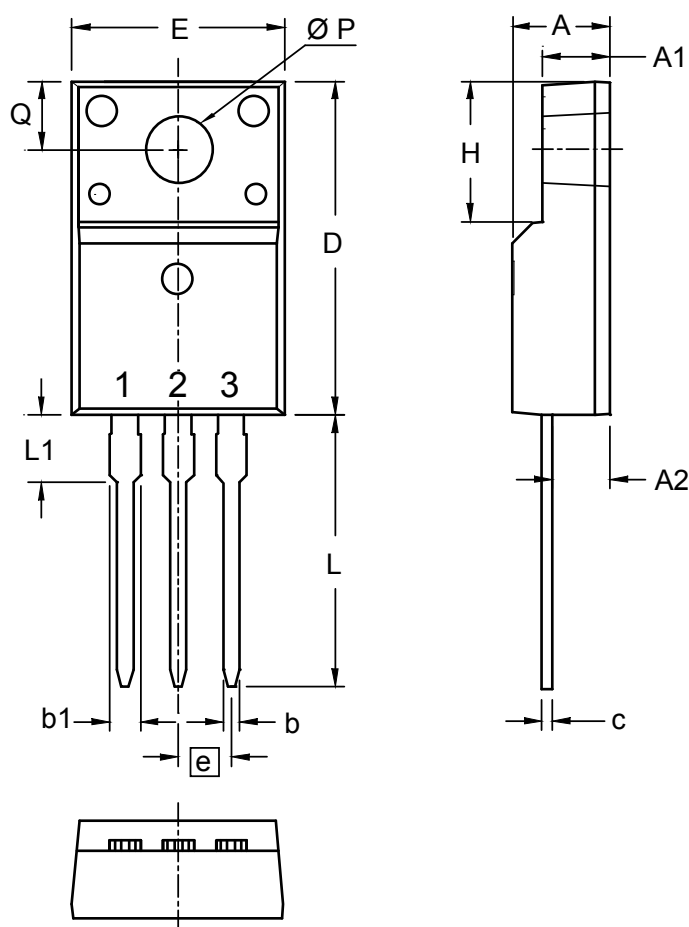
Schottky

 $V_{0\max}$ threshold voltage 0.54

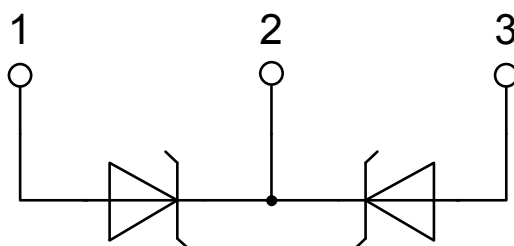
V

 $R_{0\max}$ slope resistance * 8.2

mΩ

Outlines TO-220FP


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
ØP	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134



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