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DSA30C100PN

Schottky Diode Gen²

preliminary

$V_{RRM} = 100V$

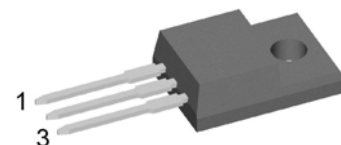
$I_{FAV} = 2 \times 15A$

$V_F = 0.73V$

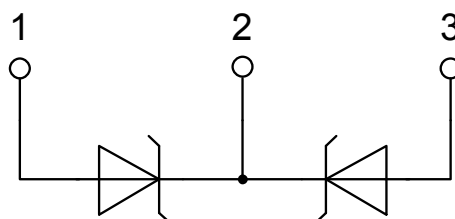
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA30C100PN



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



DSA30C100PN

preliminary

Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage		$T_{VJ} = 25^{\circ}C$			100	V
V_{RRM}	max. repetitive reverse blocking voltage		$T_{VJ} = 25^{\circ}C$			100	V
I_R	reverse current, drain current	$V_R = 100\text{ V}$	$T_{VJ} = 25^{\circ}C$			250	μA
		$V_R = 100\text{ V}$	$T_{VJ} = 125^{\circ}C$			2.5	mA
V_F	forward voltage drop	$I_F = 15\text{ A}$	$T_{VJ} = 25^{\circ}C$			0.91	V
		$I_F = 30\text{ A}$				1.08	V
		$I_F = 15\text{ A}$	$T_{VJ} = 125^{\circ}C$			0.73	V
		$I_F = 30\text{ A}$				0.91	V
I_{FAV}	average forward current	$T_C = 120^{\circ}C$ rectangular $d = 0.5$	$T_{VJ} = 175^{\circ}C$			15	A
V_{F0}	threshold voltage	} for power loss calculation only	$T_{VJ} = 175^{\circ}C$			0.46	V
r_F	slope resistance					12.4	m Ω
R_{thJC}	thermal resistance junction to case					4.2	K/W
R_{thCH}	thermal resistance case to heatsink				0.50		K/W
P_{tot}	total power dissipation		$T_C = 25^{\circ}C$			35	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^{\circ}C$			340	A
C_J	junction capacitance	$V_R = 12\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}C$		146		pF

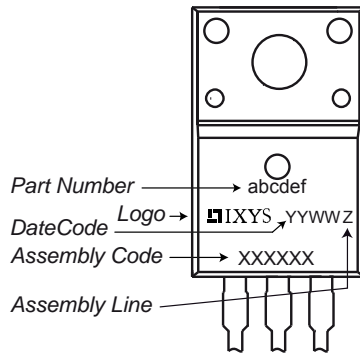


DSA30C100PN

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			2500	V
		t = 1 minute	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA		2080	V

Product Marking



Part number

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

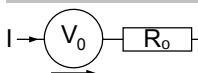
Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA30C100PN	DSA30C100PN	Tube	50	503508

Similar Part	Package	Voltage class
DSA30C100PB	TO-220AB (3)	100
DSA30C100HB	TO-247AD (3)	100
DSA30C100QB	TO-3P (3)	100

Equivalent Circuits for Simulation

* on die level

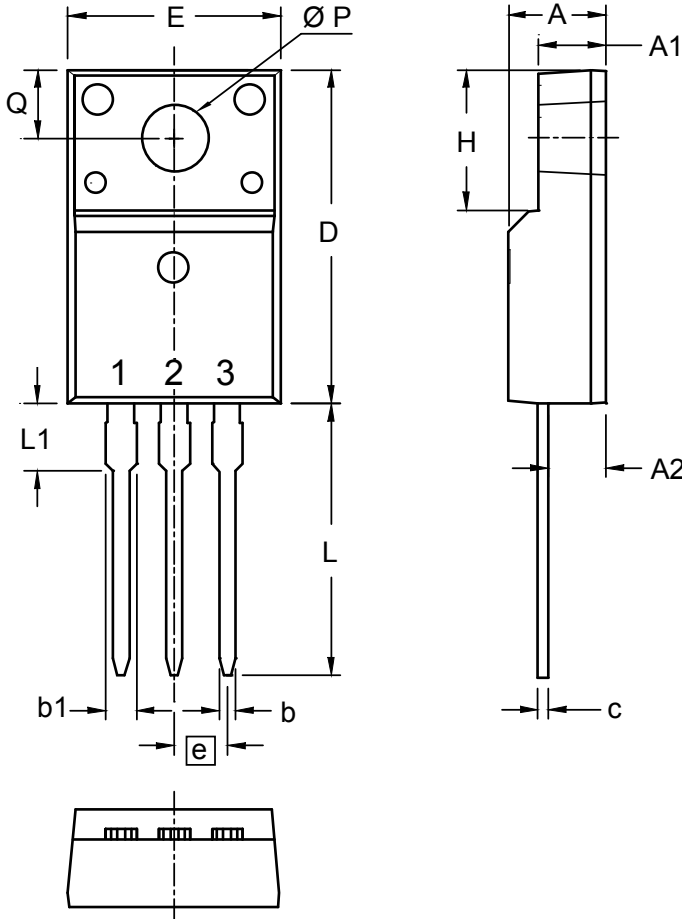
$T_{VJ} = 175^\circ\text{C}$



Schottky

$V_{0\ max}$	threshold voltage	0.46	V
$R_{0\ max}$	slope resistance *	9.2	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

