preliminary

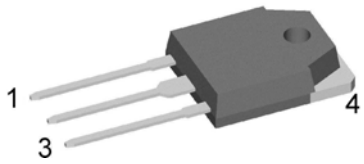
Schottky Diode Gen ²

V_{RRM} = 100V
I_{FAV} = 2x 15A
V_F = 0.72V

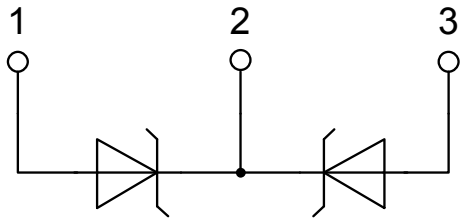
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA30C100QB



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

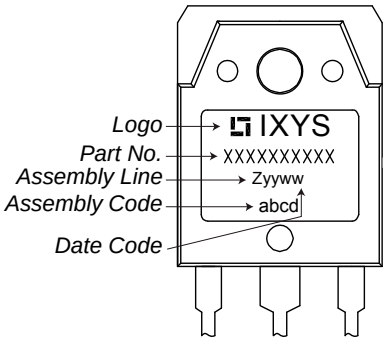
preliminary

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			250	µA
		V_R = 100 V	T_{VJ} = 125°C			2.5	mA
V_F	*forward voltage drop*	I_F = 15 A	T_{VJ} = 25°C			0.91	V
		I_F = 30 A				1.06	V
		I_F = 15 A	T_{VJ} = 125°C			0.72	V
		I_F = 30 A				0.90	V
I_{FAV}	*average forward current*	T_C = 150°C	T_{VJ} = 175°C			15	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.46	V
r_F	*slope resistance* }					11.7	mΩ
R_{thJC}	*thermal resistance junction to case*					1.75	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			85	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			340	A
C_J	*junction capacitance*	V_R = 12 V f = 1 MHz	T_{VJ} = 25°C		146		pF

preliminary

Package TO-3P			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per terminal [1)]			50	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



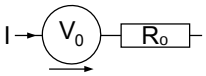
Part number

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

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA30C100QB	DSA30C100QB	Tube	30	503339

Similar Part	Package	Voltage class
DSA30C100HB	TO-247AD (3)	100
DSA30C100PB	TO-220AB (3)	100
DSA30C100PN	TO-220ABFP (3)	100

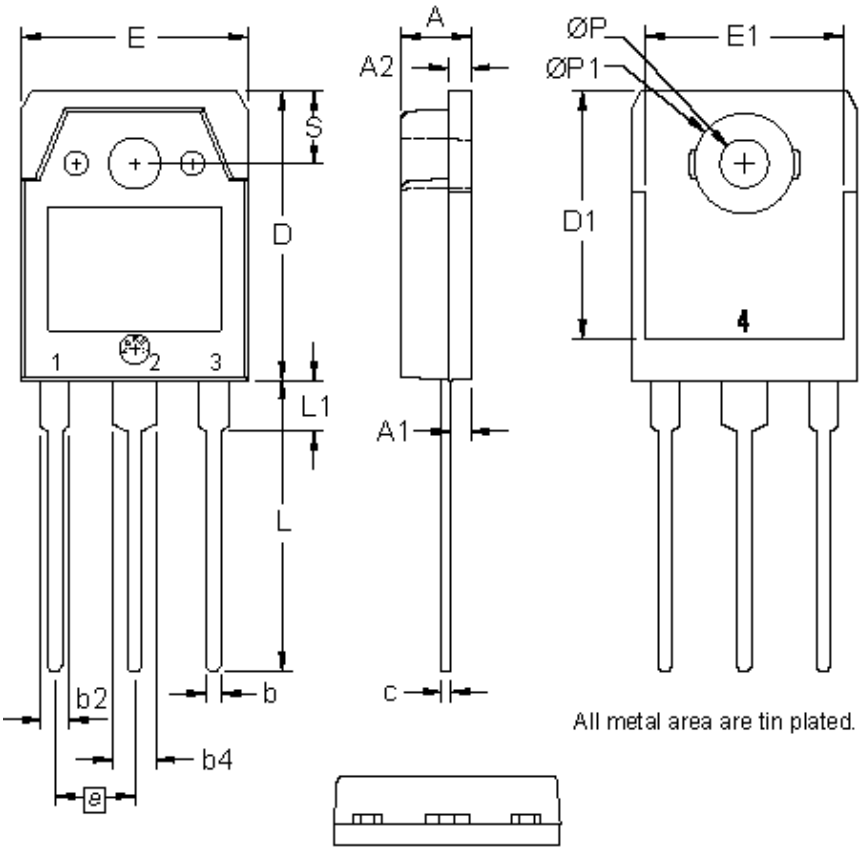
Equivalent Circuits for Simulation ** on die level* T_{VJ} = 175 °C



Schottky

$V_{0\,max}$	*threshold voltage*	0.46	V
$R_{0\,max}$	*slope resistance **	9.1	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