



preliminary

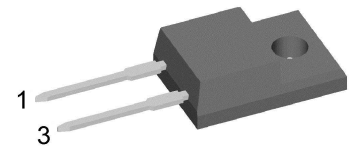
Schottky Diode Gen ²

V_{RRM}	=	100 V
I_{FAV}	=	10 A
V_F	=	0.71 V

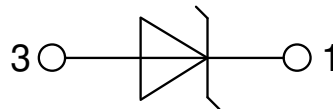
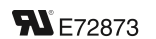
High Performance Schottky Diode
 Low Loss and Soft Recovery
 Single Diode

Part number

DSA10I100PM



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

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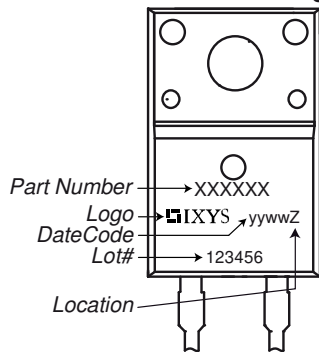


Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					100	V
V_{RRM}	max. repetitive reverse blocking voltage					100	V
I_R	reverse current, drain current	$V_R = 100\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		200	μA
		$V_R = 100\text{ V}$		$T_{VJ} = 125^\circ\text{C}$		2	mA
V_F	forward voltage drop	$I_F = 10\text{ A}$		$T_{VJ} = 25^\circ\text{C}$		0.89	V
		$I_F = 20\text{ A}$				1.04	V
		$I_F = 10\text{ A}$		$T_{VJ} = 125^\circ\text{C}$		0.71	V
		$I_F = 20\text{ A}$				0.87	V
I_{FAV}	average forward current	$T_C = 140^\circ\text{C}$		$T_{VJ} = 175^\circ\text{C}$		10	A
		rectangular	$d = 0.5$				
V_{F0}	threshold voltage			$T_{VJ} = 175^\circ\text{C}$		0.45	V
r_F	slope resistance	} for power loss calculation only				16.1	m Ω
R_{thJC}	thermal resistance junction to case					4.5	K/W
R_{thCH}	thermal resistance case to heatsink				0.5		K/W
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$		35	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$		$T_{VJ} = 45^\circ\text{C}$		240	A
C_J	junction capacitance	$V_R = 12\text{ V}$ $f = 1\text{ MHz}$		$T_{VJ} = 25^\circ\text{C}$		96	pF



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	3.2	2.7		mm
$d_{Spb/ Apb}$		terminal to backside	2.5	2.5		mm
V_{ISOL}	isolation voltage	t = 1 second	2500			V
		t = 1 minute	2100			V

Product Marking



Part description

- D = Diode
- S = Schottky Diode
- A = low VF
- 10 = Current Rating [A]
- I = Single Diode
- 100 = Reverse Voltage [V]
- PM = TO-220ACFP (2)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA10I100PM	DSA10I100PM	Tube	50	503362

Equivalent Circuits for Simulation

* on die level

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

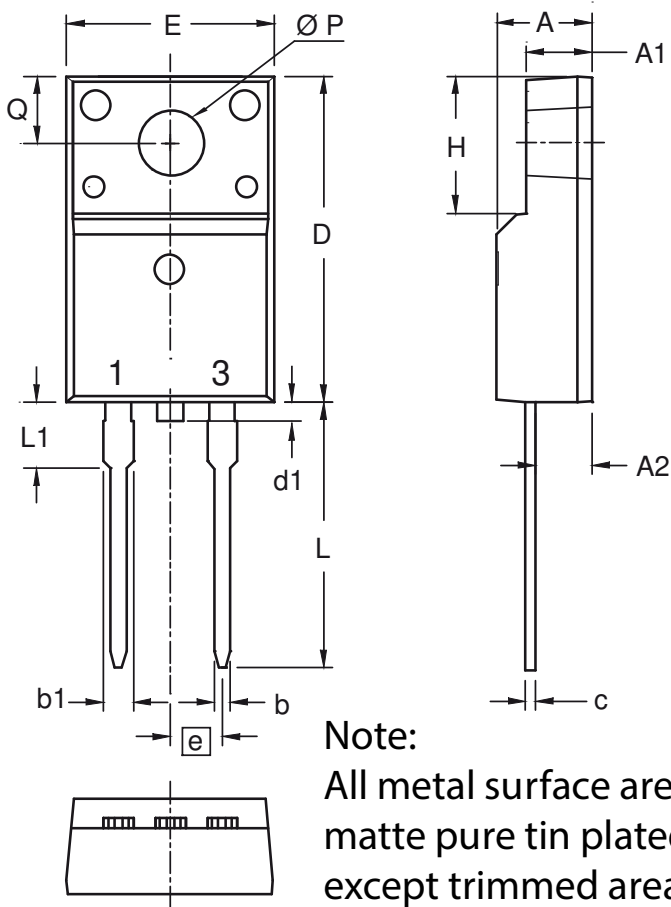


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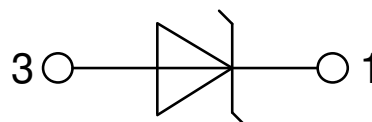
$V_{0\ max}$	threshold voltage	0.45	V
$R_{0\ max}$	slope resistance *	12.9	mΩ



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
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
d1	0	1.10	0	0.043
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





Schottky

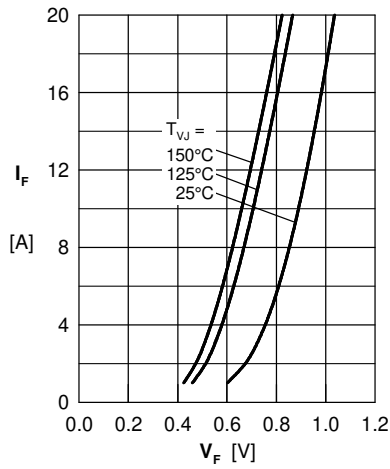


Fig. 1 Maximum forward voltage drop characteristics

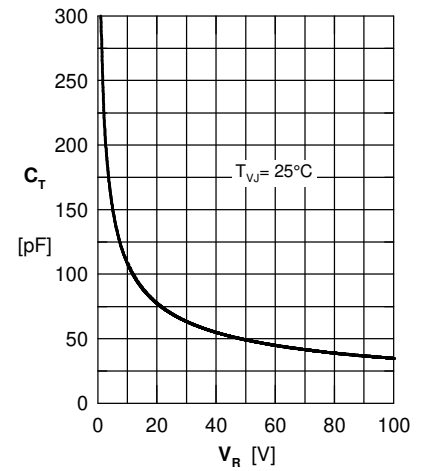


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

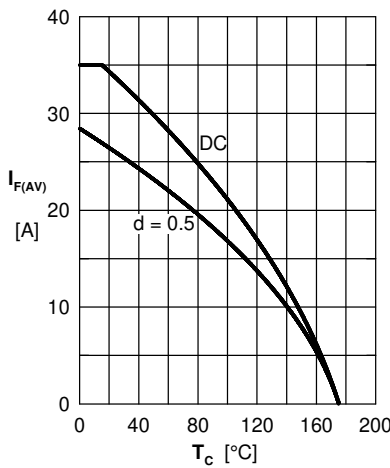


Fig. 4 Avg: forward current $I_{F(AV)}$ vs. case temperature T_C

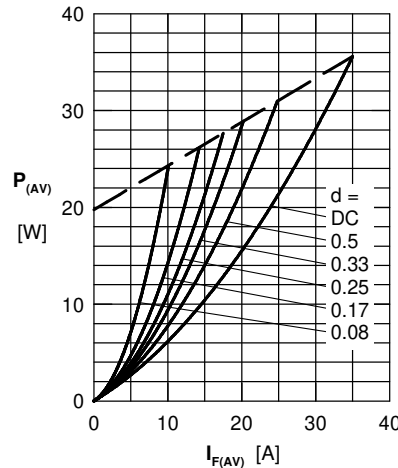


Fig. 5 Forward power loss characteristics

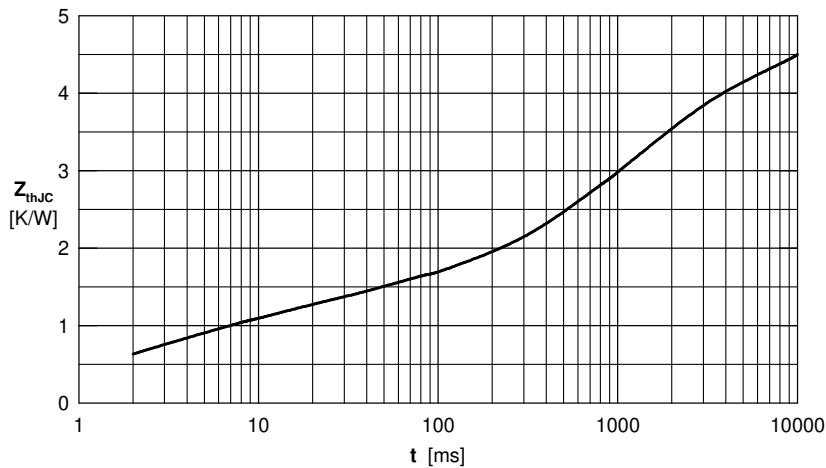


Fig. 6 Transient thermal impedance junction to case