

Schottky Diode Gen ²

$$V_{RRM} = 200V$$

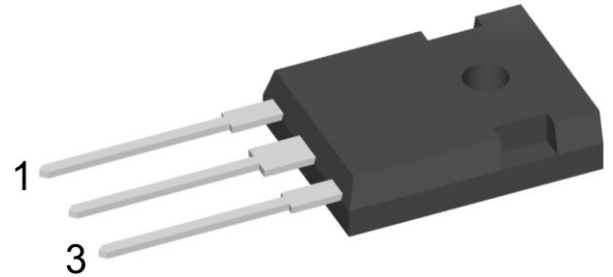
$$I_{FAV} = 2 \times 45A$$

$$V_F = 0.79V$$

High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

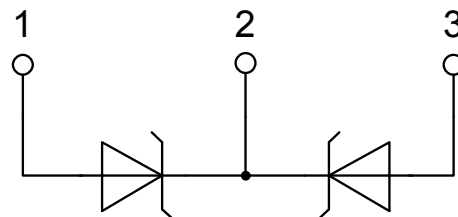
Part number

DSA90C200HR



Backside: isolated

 E72873



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

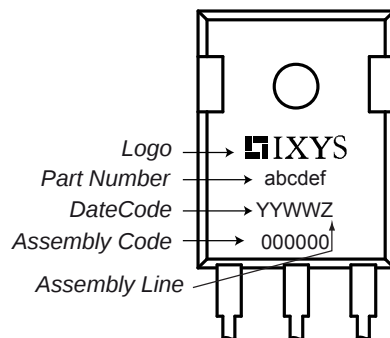
Package: ISO247

- Isolation Voltage: 3600 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				200	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				200	V
I_R	reverse current, drain current	$V_R = 200\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			2	mA
		$V_R = 200\text{ V}$	$T_{VJ} = 125^{\circ}\text{C}$			5	mA
V_F	forward voltage drop	$I_F = 45\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			0.91	V
		$I_F = 90\text{ A}$				1.10	V
		$I_F = 45\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			0.79	V
		$I_F = 90\text{ A}$				1.03	V
I_{FAV}	average forward current	$T_C = 145^{\circ}\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 175^{\circ}\text{C}$			45	A
V_{FO}	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^{\circ}\text{C}$		0.49	V
r_F	slope resistance					5.5	mΩ
R_{thJC}	thermal resistance junction to case					0.7	K/W
R_{thCH}	thermal resistance case to heatsink				0.25		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				215	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^{\circ}\text{C}$			600	A
C_J	junction capacitance	$V_R = 24\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		394		pF

Package ISO247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I _{RMS}	RMS current	per terminal ¹⁾			70	A
T _{VJ}	virtual junction temperature		-55		175	°C
T _{op}	operation temperature		-55		150	°C
T _{stg}	storage temperature		-55		150	°C
Weight				6		g
M _D	mounting torque		0.8		1.2	Nm
F _C	mounting force with clip		20		120	N
d _{Spp/App}	creepage distance on surface striking distance through air	terminal to terminal	2.7			mm
d _{Spb/Apb}		terminal to backside	4.1			mm
V _{ISOL}	isolation voltage	t = 1 second	3600			V
		t = 1 minute	3000			V
50/60 Hz, RMS; I _{ISOL} ≤ 1 mA						

Product Marking



Part number

D = Diode
 S = Schottky Diode
 A = low VF
 90 = Current Rating [A]
 C = Common Cathode
 200 = Reverse Voltage [V]
 HR = ISO247 (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA90C200HR	DSA90C200HR	Tube	30	508368

Similar Part	Package	Voltage class
DSSK60-02AR	ISOPLUS247 (3)	200
DSSK60-02A	TO-247AD (3)	200

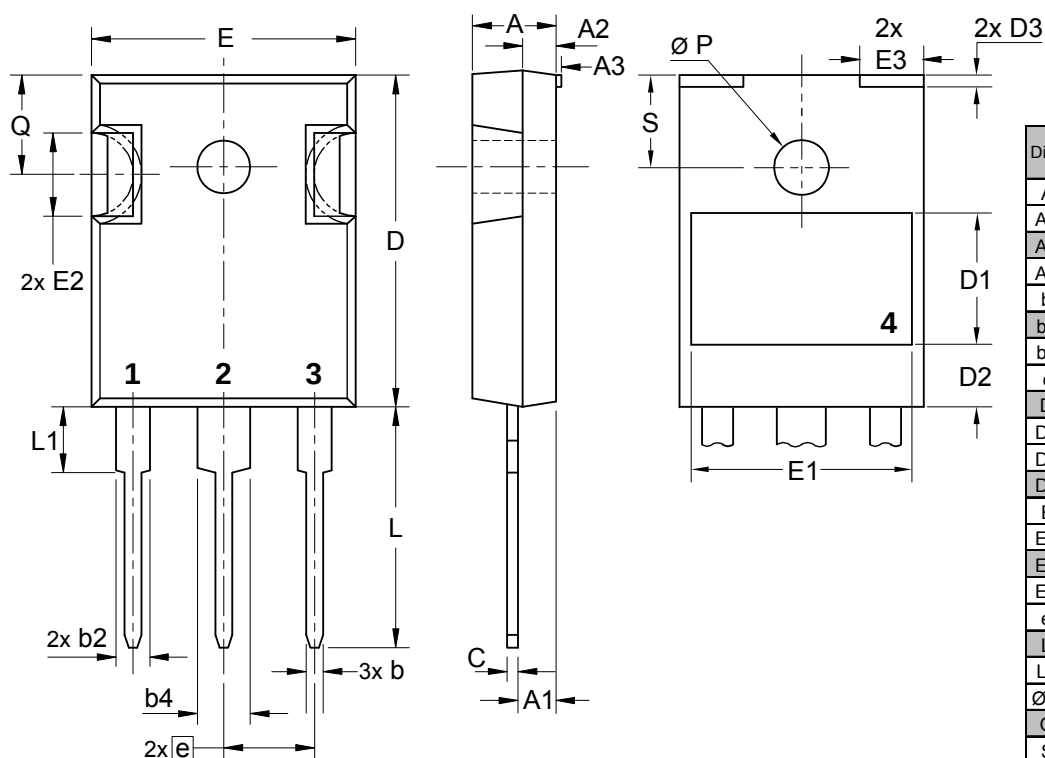
Equivalent Circuits for Simulation

* on die level

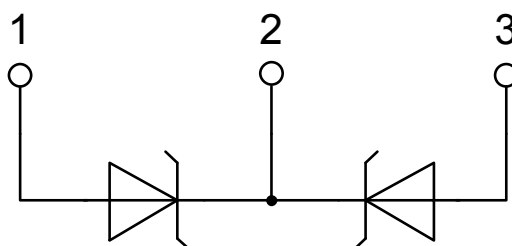
 $T_{VJ} = 175^\circ\text{C}$

			Schottky
$V_{0\max}$	threshold voltage	0.49	V
$R_{0\max}$	slope resistance *	2.9	mΩ

Outlines ISO247



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
A3	typ. 0.05		typ. 0.002	
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.844
D1	typ. 8.90		typ. 0.350	
D2	typ. 2.90		typ. 0.114	
D3	typ. 1.00		typ. 0.039	
E	15.49	16.24	0.610	0.639
E1	typ. 13.45		typ. 0.530	
E2	4.31	5.48	0.170	0.216
E3	typ. 4.00		typ. 0.157	
e	5.46 BSC		0.215 BSC	
L	19.80	20.30	0.780	0.799
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	



Schottky

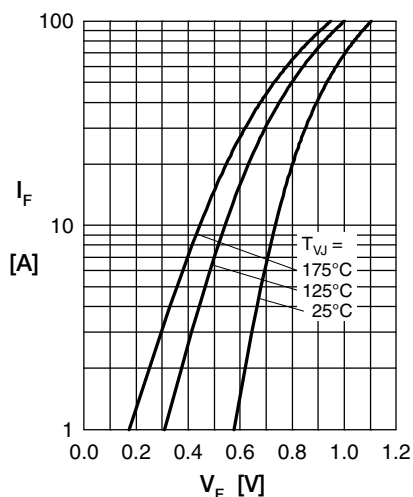


Fig. 1 Max. forward voltage drop characteristics

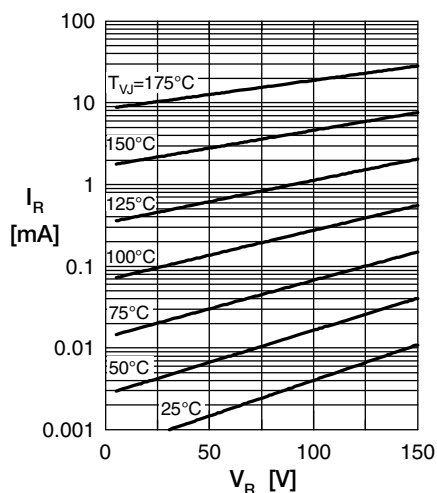


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

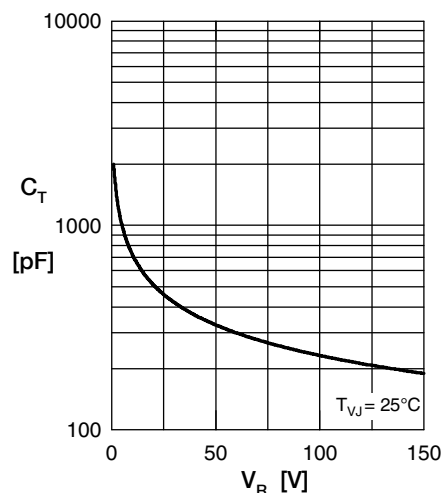


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

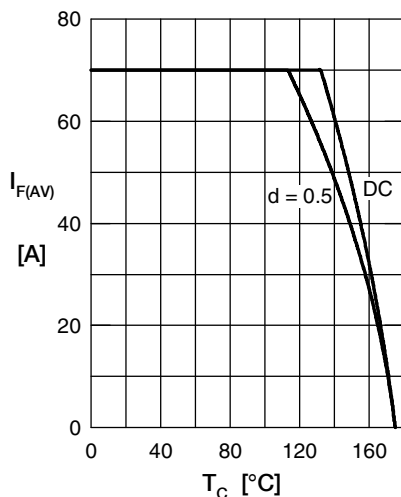


Fig. 4 Avg. forward current $I_{F(AV)}$ vs. case temp. T_C

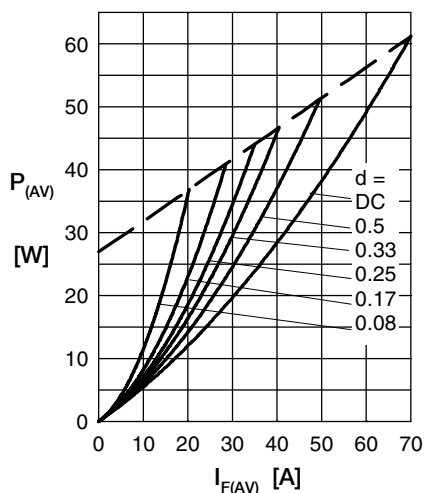


Fig. 5 Forward power loss characteristics

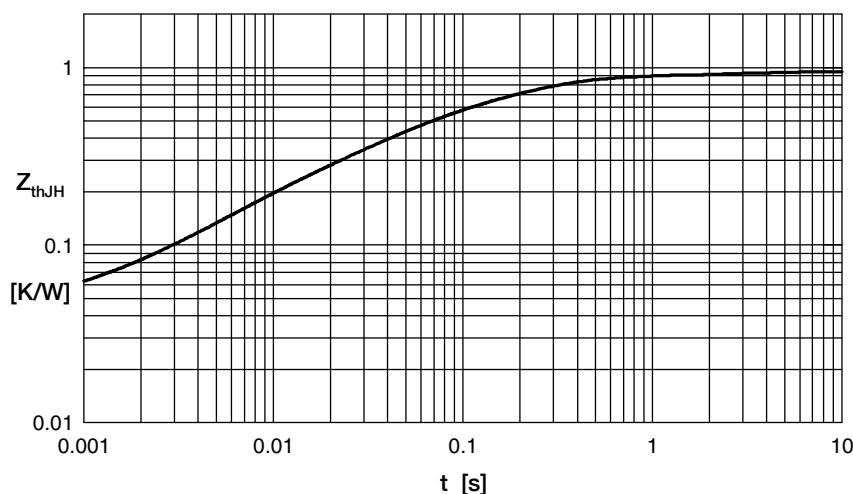


Fig. 6 Transient thermal impedance junction to heatsink

R_{thi}	t_i
0.041	0.0002
0.087	0.0065
0.258	0.037
0.486	0.182
0.078	2.43

Note: All curves are per diode