

## Schottky Diode Gen<sup>2</sup>

$$V_{RRM} = 200V$$

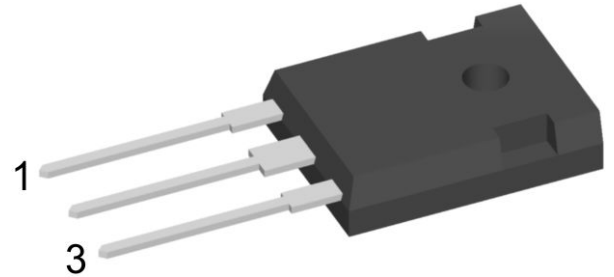
$$I_{FAV} = 2 \times 45A$$

$$V_F = 0.79V$$


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:

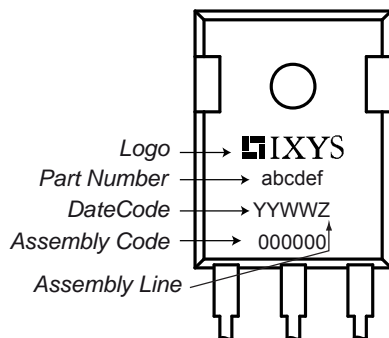
- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

### 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	$T_{VJ} = 25^{\circ}C$			200	V
$V_{RRM}$	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}C$			200	V
$I_R$	reverse current, drain current	$V_R = 200 V$	$T_{VJ} = 25^{\circ}C$		2	mA
		$V_R = 200 V$	$T_{VJ} = 125^{\circ}C$		5	mA
$V_F$	forward voltage drop	$I_F = 45 A$	$T_{VJ} = 25^{\circ}C$		0.91	V
					1.10	V
		$I_F = 90 A$	$T_{VJ} = 125^{\circ}C$		0.79	V
					1.03	V
$I_{FAV}$	average forward current	$T_C = 145^{\circ}C$ rectangular $d = 0.5$	$T_{VJ} = 175^{\circ}C$		45	A
$V_{FO}$	threshold voltage	} for power loss calculation only	$T_{VJ} = 175^{\circ}C$		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		$T_C = 25^{\circ}C$		215	W
$I_{FSM}$	max. forward surge current	$t = 10 \text{ ms}; (50 \text{ Hz}), \text{ sine}; V_R = 0 V$	$T_{VJ} = 45^{\circ}C$		600	A
$C_J$	junction capacitance	$V_R = 24 V \quad f = 1 \text{ MHz}$	$T_{VJ} = 25^{\circ}C$		394	pF

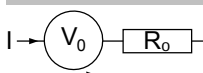
Package ISO247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
$I_{RMS}$	RMS current	per terminal <sup>1)</sup>			70	A
$T_{VJ}$	virtual junction temperature		-55		175	°C
$T_{op}$	operation temperature		-55		150	°C
$T_{stg}$	storage temperature		-55		150	°C
<b>Weight</b>				6		g
$M_D$	mounting 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

**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)

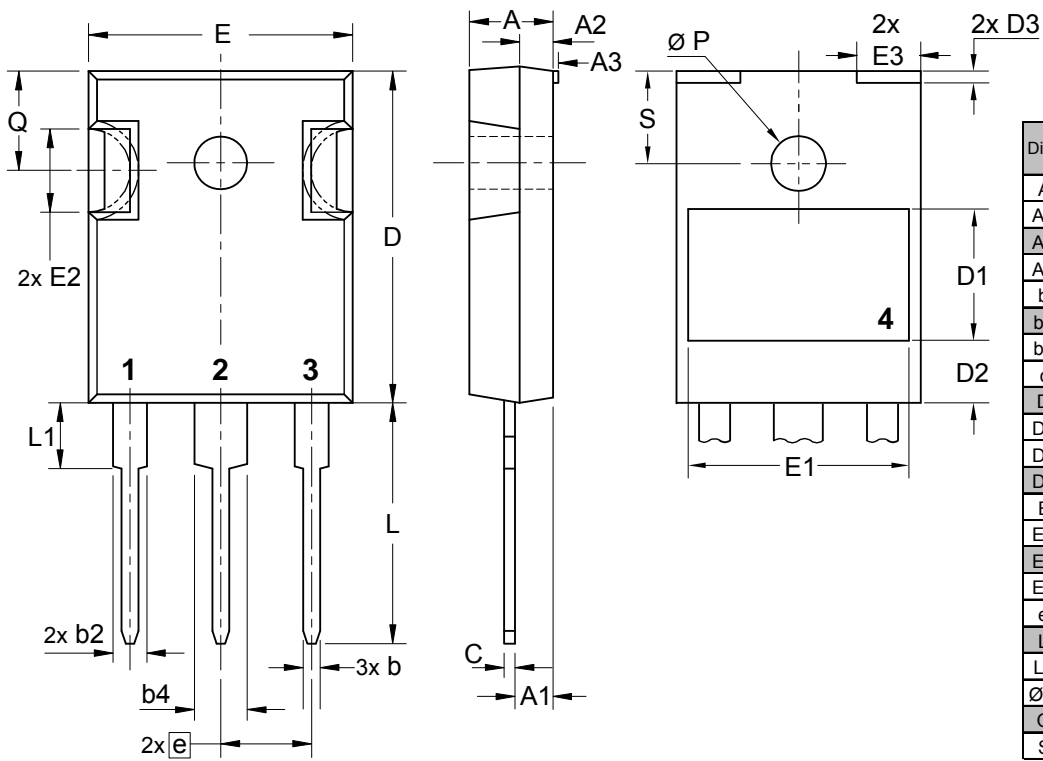
Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA90C200HR	DSA90C200HR	Tube	30	508368

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

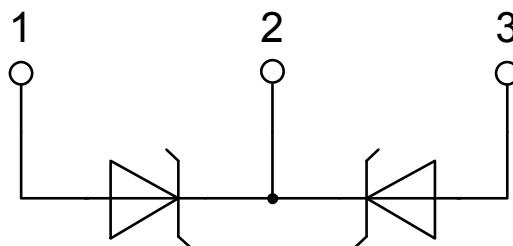
**Equivalent Circuits for Simulation**
*\* on die level*
 $T_{VJ} = 175\text{ °C}$ 

**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

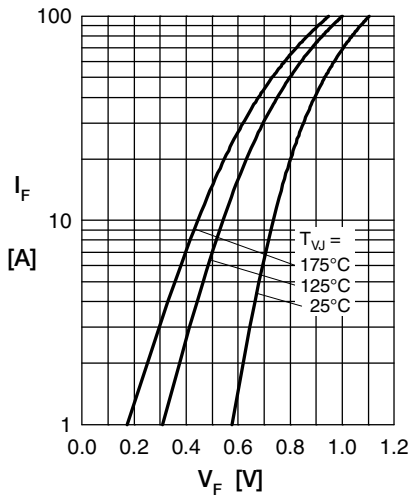


Fig. 1 Max. forward voltage drop characteristics

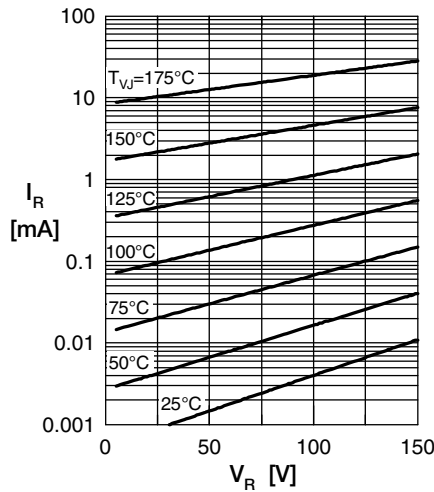


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

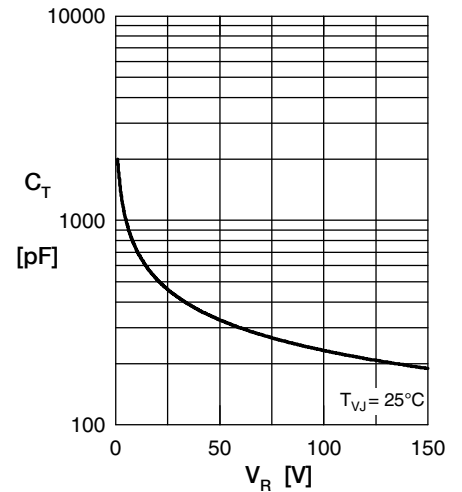


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

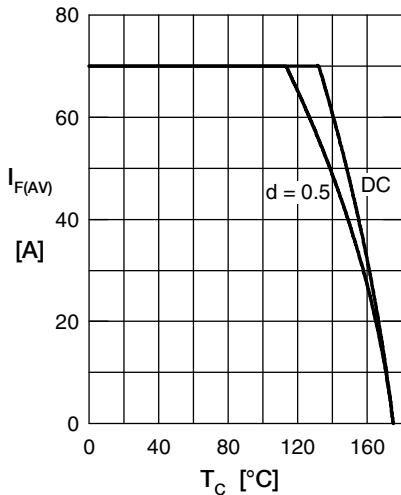


Fig. 4 Avg. forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

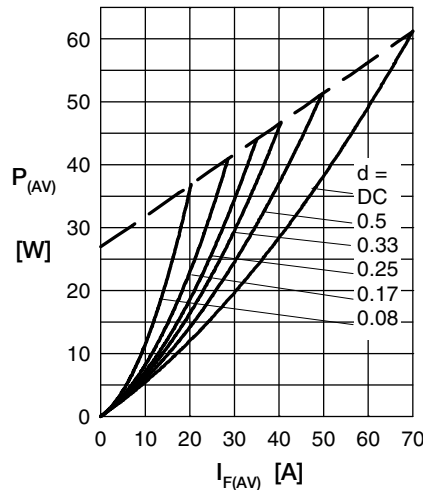


Fig. 5 Forward power loss characteristics

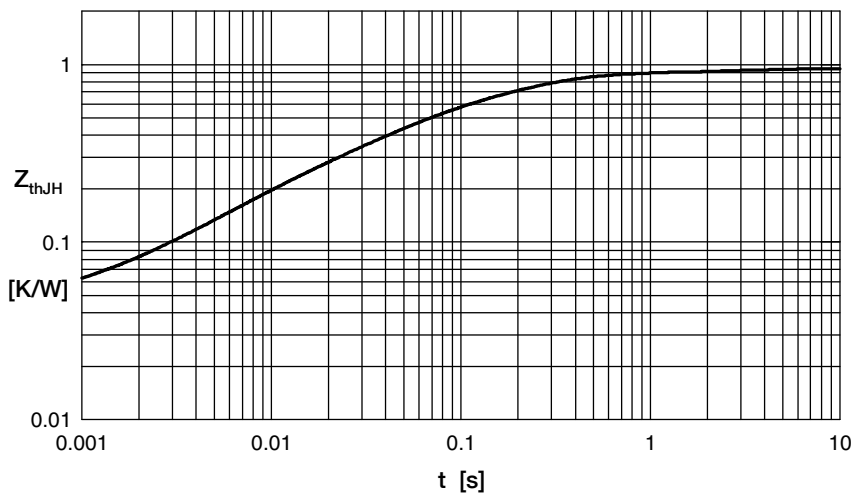


Fig. 6 Transient thermal impedance junction to heatsink

$R_{thi}$	$t_i$
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

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