

Schottky Diode Gen<sup>2</sup>

$$V_{RRM} = 200V$$

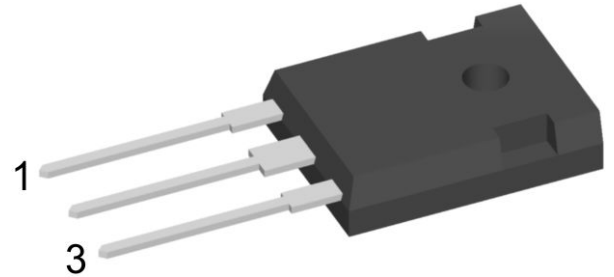
$$I_{FAV} = 2 \times 45A$$

$$V_F = 0.79V$$


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:

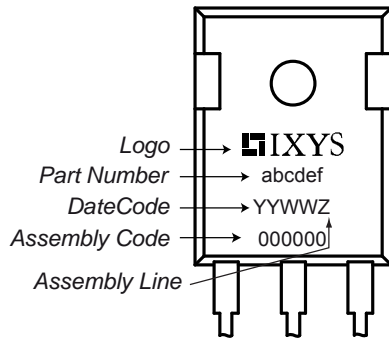
- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

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

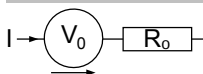
Package ISO247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
$I_{RMS}$	RMS current	per terminal <sup>1)</sup>			70	A
$T_{VJ}$	virtual junction temperature		-55		175	°C
$T_{op}$	operation temperature		-55		150	°C
$T_{stg}$	storage temperature		-55		150	°C
<b>Weight</b>				6		g
$M_D$	mounting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

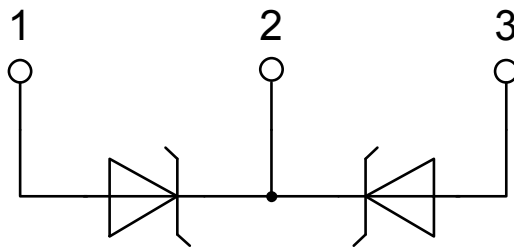
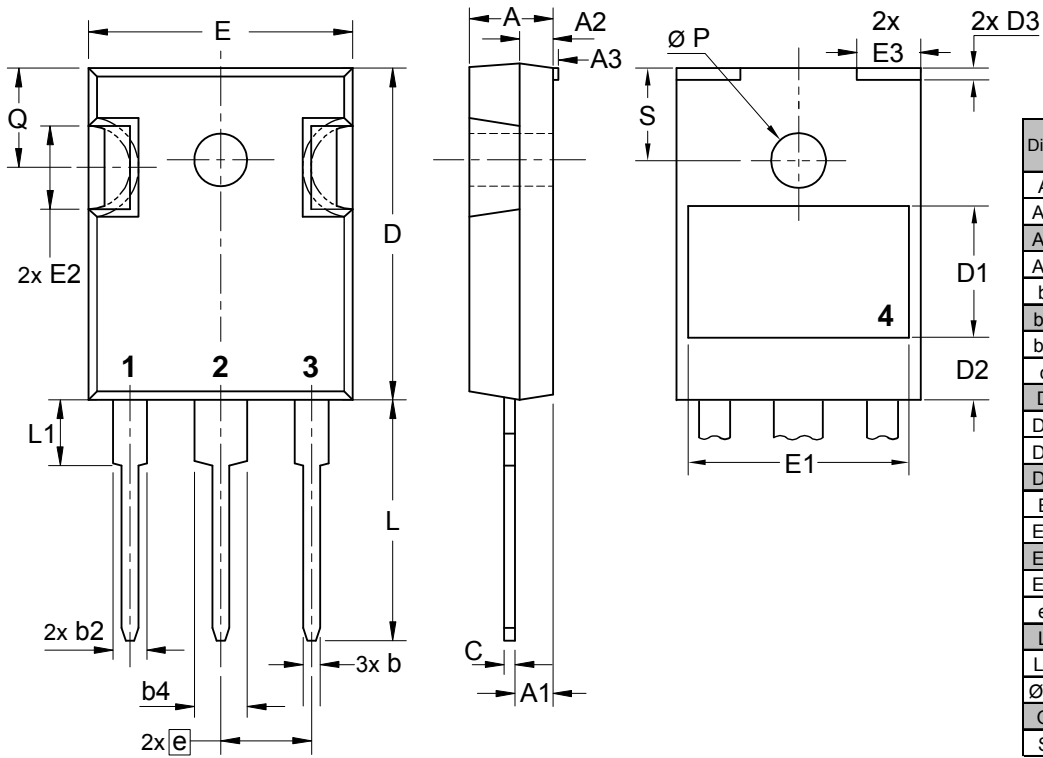
Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA90C200HR	DSA90C200HR	Tube	30	508368

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



**Schottky**

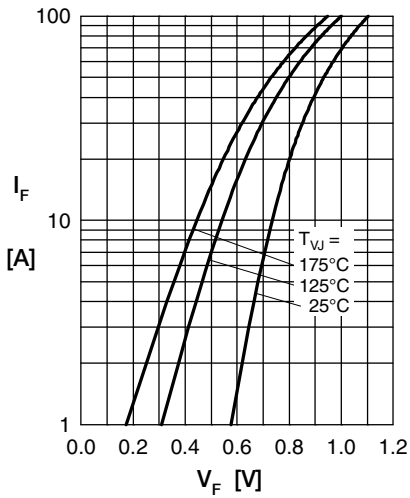


Fig. 1 Max. forward voltage drop characteristics

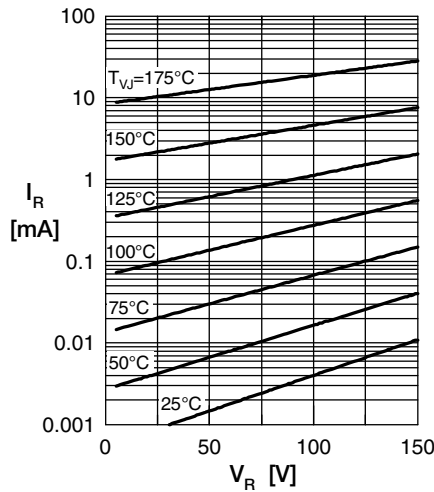


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

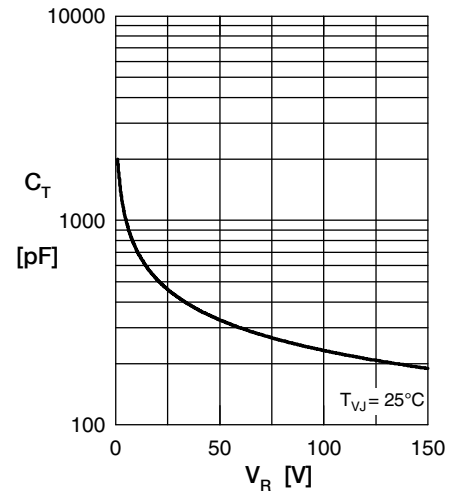


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

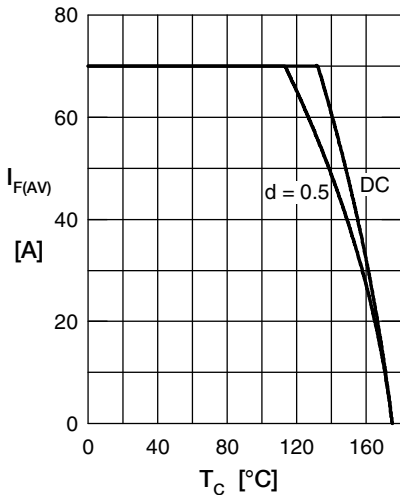


Fig. 4 Avg. forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

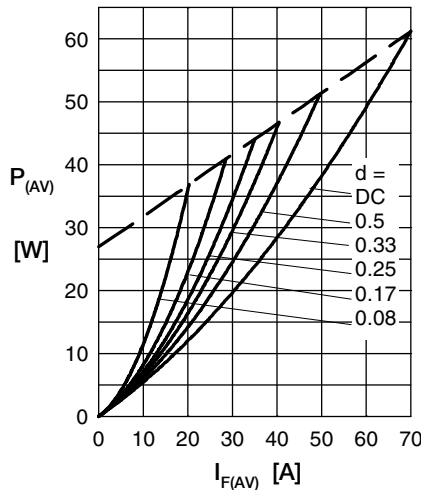


Fig. 5 Forward power loss characteristics

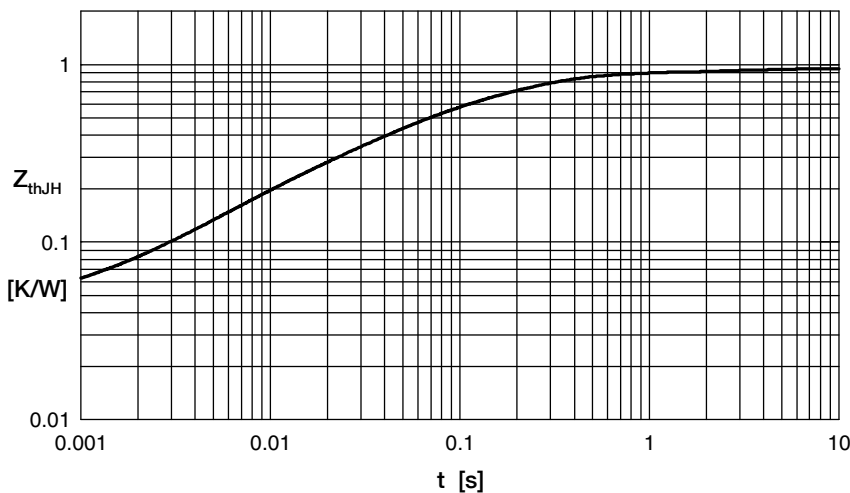


Fig. 6 Transient thermal impedance junction to heatsink

$R_{thi}$	$t_i$
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