

Schottky Diode

$$V_{RRM} = 150 \text{ V}$$

$$I_{FAV} = 2 \times 5 \text{ A}$$

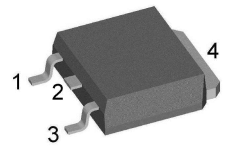
$$V_F = 0.71 \text{ V}$$

High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

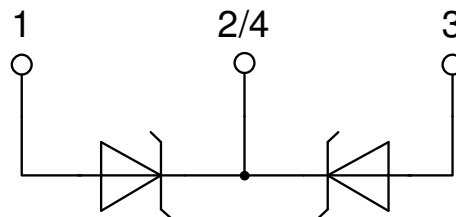
Part number

DSA10C150UC

Marking on Product: SAKAUC



Backside: cathode



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-252 (DPak)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Terms and Conditions of Usage

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact your local sales office.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact your local sales office.

Should you intend to use the product in aviation, in health or life endangering or life support applications, please notify. For any such application we urgently recommend

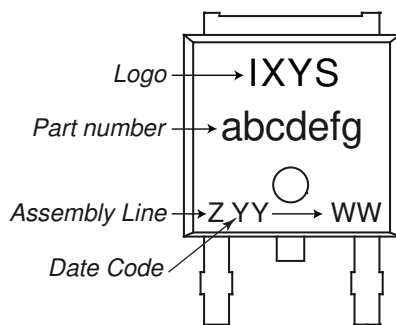
- to perform joint risk and quality assessments;

- the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

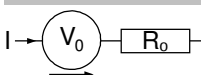
Schottky				Ratings				
Symbol	Definition	Conditions		min.	typ.	max.	Unit	
V_{RSM}	max. non-repetitive reverse blocking voltage					150	V	
V_{RRM}	max. repetitive reverse blocking voltage					150	V	
I_R	reverse current, drain current	$V_R = 150\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		100	μA	
		$V_R = 150\text{ V}$		$T_{VJ} = 125^\circ\text{C}$		0.9	mA	
V_F	forward voltage drop	$I_F = 5\text{ A}$		$T_{VJ} = 25^\circ\text{C}$		0.86	V	
		$I_F = 10\text{ A}$				0.93	V	
		$I_F = 5\text{ A}$		$T_{VJ} = 125^\circ\text{C}$		0.71	V	
		$I_F = 10\text{ A}$				0.81	V	
I_{FAV}	average forward current	$T_C = 155^\circ\text{C}$	rectangular	$T_{VJ} = 175^\circ\text{C}$		5	A	
V_{F0}	threshold voltage	} for power loss calculation only				0.54	V	
r_F	slope resistance					19.4	m Ω	
R_{thJC}	thermal resistance junction to case					4.8	K/W	
R_{thCH}	thermal resistance case to heatsink			0.50			K/W	
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$			30	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$		$T_{VJ} = 45^\circ\text{C}$			150	A
C_J	junction capacitance	$V_R = 24\text{ V}$	$f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$	29	pF		

Package TO-252 (DPak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			20	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
T_{stg}	storage temperature		-55		150	°C
Weight				0.3		g
F_C	mounting force with clip		20		60	N

Product Marking

Part description

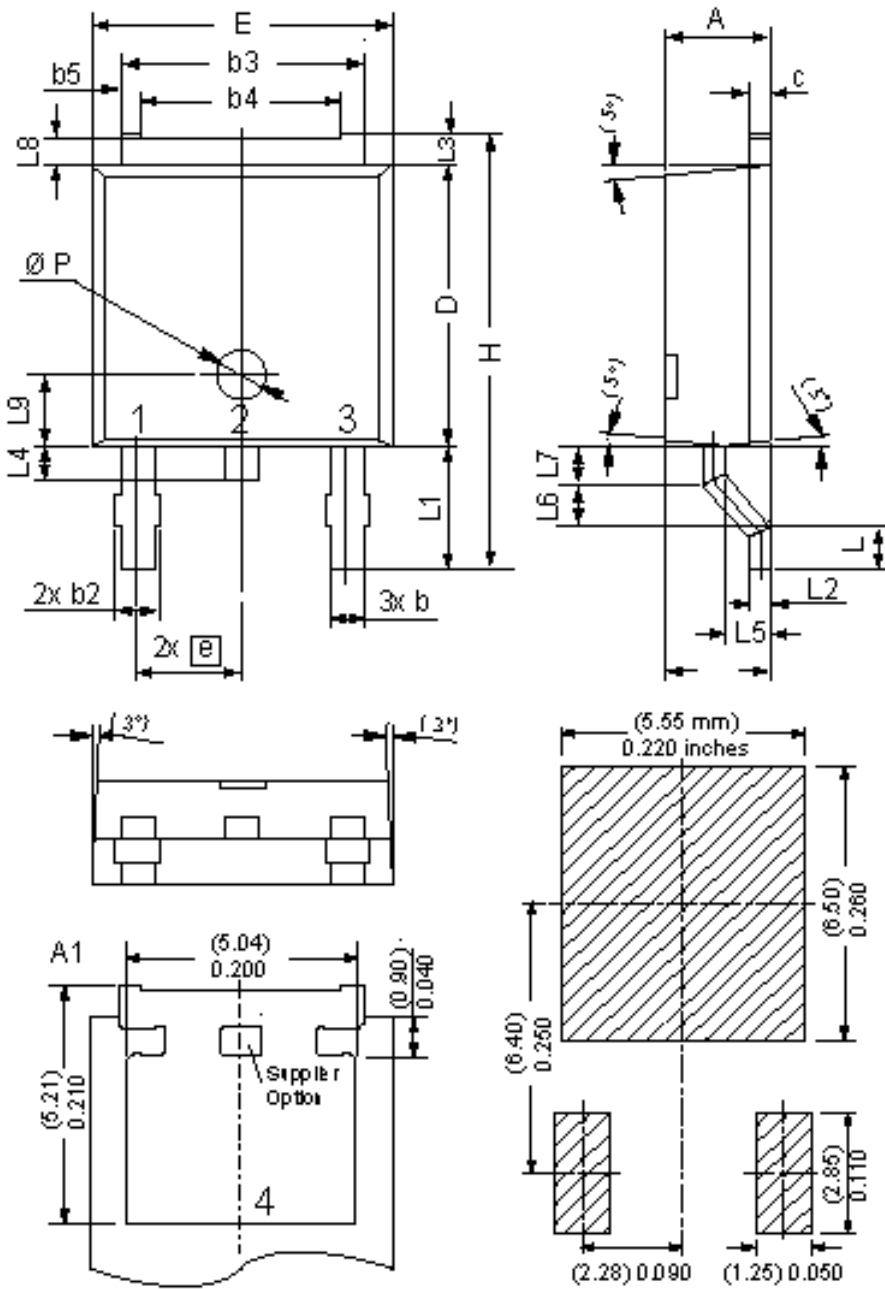
D = Diode
 S = Schottky Diode
 A = low VF
 10 = Current Rating [A]
 C = Common Cathode
 150 = Reverse Voltage [V]
 UC = TO-252AA (DPak)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA10C150UC	SAKAUC	Tape & Reel	2500	518381

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

Schottky

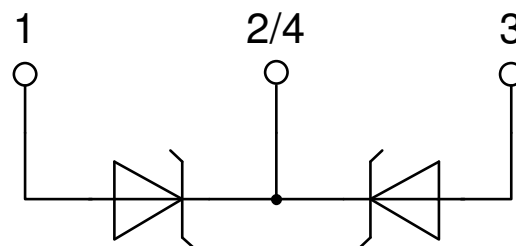
$V_{0\ max}$	threshold voltage	0.54	V
$R_{0\ max}$	slope resistance *	6.7	mΩ

Outlines TO-252 (DPak)



Dim	Millimeters		Inches	
	min	max	min	max
A	2.20	2.40	0.087	0.094
A1	2.10	2.50	0.083	0.098
b	0.66	0.86	0.026	0.034
b2	-	0.96	-	0.038
b3	5.04	5.64	0.198	0.222
b4	4.34 BSC		0.171 BSC	
b5	0.50 BSC		0.020 BSC	
c	0.40	0.86	0.016	0.034
D	5.90	6.30	0.232	0.248
E	6.40	6.80	0.252	0.268
e	2.10	2.50	0.083	0.098
H	9.20	10.10	0.362	0.398
L	0.55	1.28	0.022	0.050
L1	2.50	2.90	0.098	0.114
L2	0.40	0.60	0.016	0.024
L3	0.50	0.90	0.020	0.035
L4	0.60	1.00	0.024	0.039
L5	0.82	1.22	0.032	0.048
L6	0.79	0.99	0.031	0.039
L7	0.81	1.01	0.032	0.040
L8	0.40	0.80	0.016	0.031
L9	1.50 BSC		0.059 BSC	
Ø P	1.00 BSC		0.039 BSC	

Recommended min. foot print



Schottky

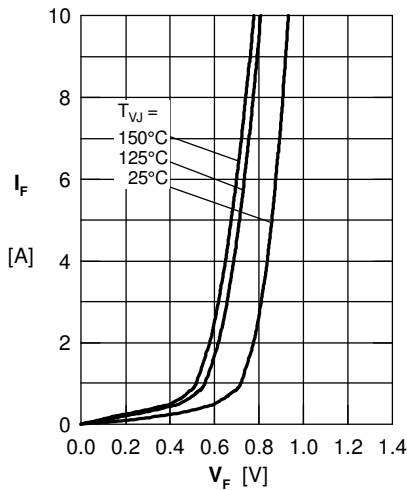


Fig. 1 Maximum forward voltage drop characteristics

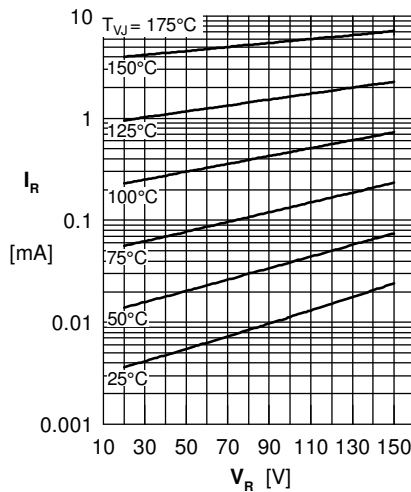


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

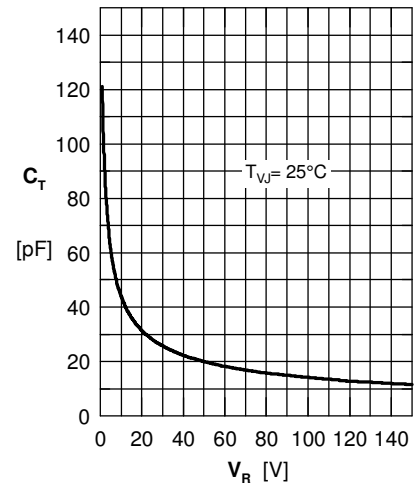


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

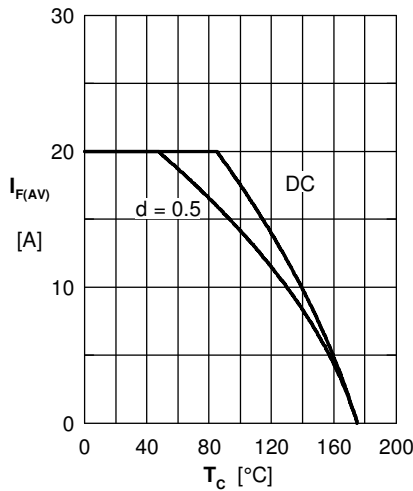


Fig. 4 Avg: forward current $I_{F(AV)}$ vs. case temperature T_C

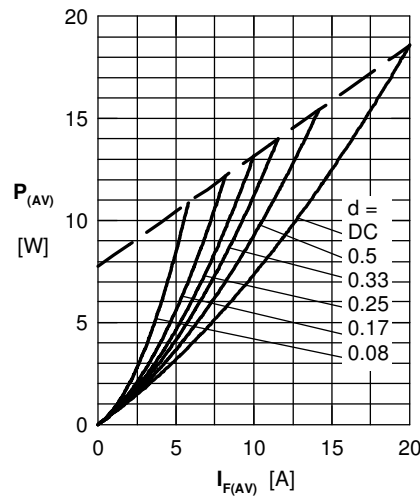


Fig. 5 Forward power loss characteristics

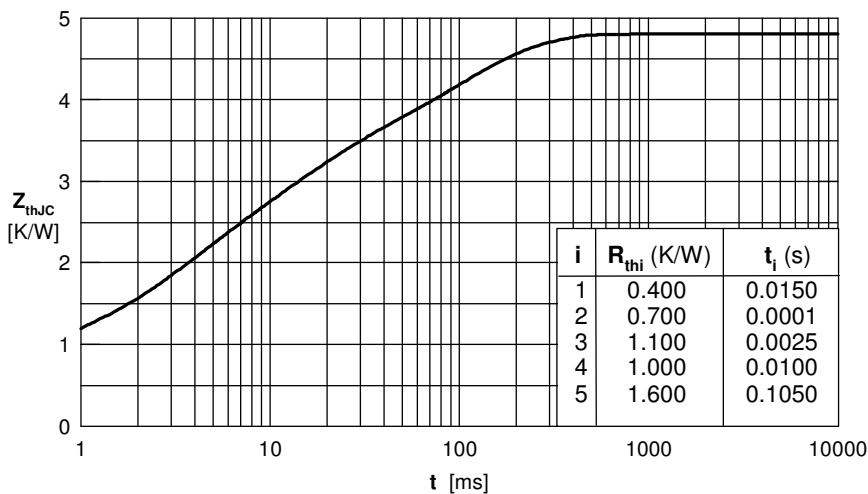


Fig. 6 Transient thermal impedance junction to case