

Schottky Diode

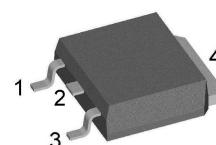
$$\begin{aligned} V_{RRM} &= 150 \text{ V} \\ I_{FAV} &= 2 \times 5 \text{ A} \\ V_F &= 0.71 \text{ V} \end{aligned}$$

High Performance Schottky Diode
 Low Loss and Soft Recovery
 Common Cathode

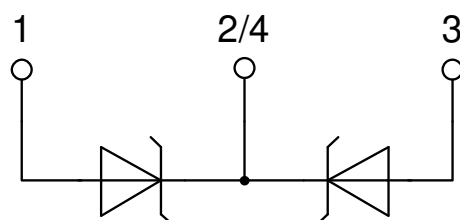
Part number

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

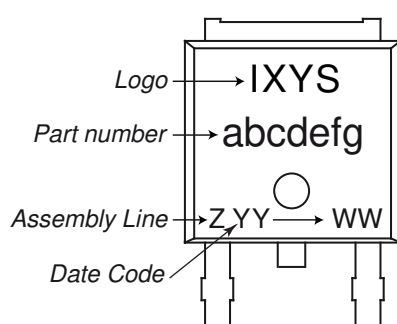
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Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				150	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				150	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 $d = 0.5$	$T_{VJ} = 175^{\circ}\text{C}$			5	A
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 175^{\circ}\text{C}$		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

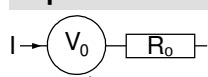
D = Diode
 S = Schottky Diode
 A = low VF
 10 = Current Rating [A]
 C = Common Cathode
 150 = Reverse Voltage [V]
 UC = TO-252AA (DPak)

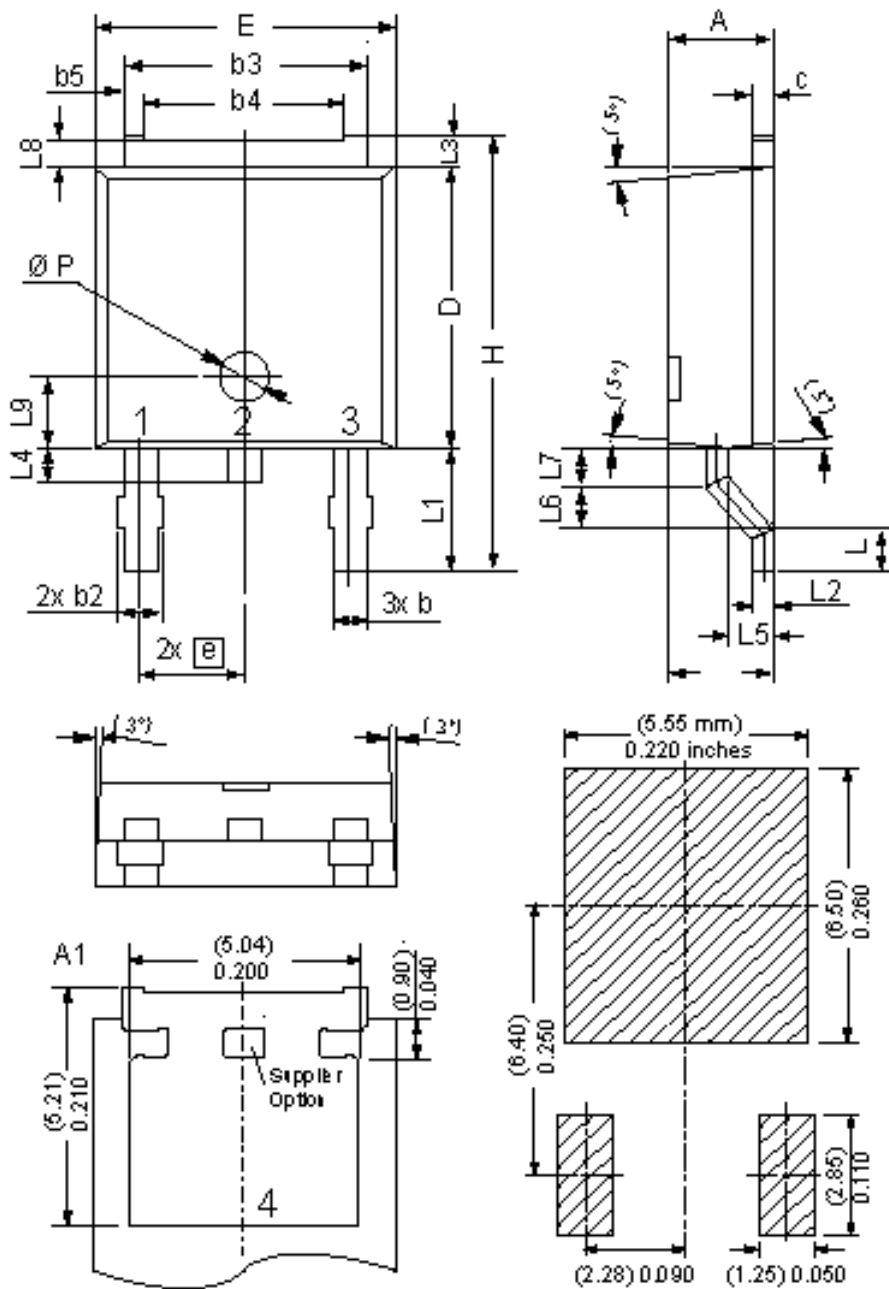
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA10C150UC-TRL	SAKAUC	Tape & Reel	2500	518381
Alternative	DSA10C150UC-TUB	SAKAUC	Tube	70	520268

Equivalent Circuits for Simulation

* on die level

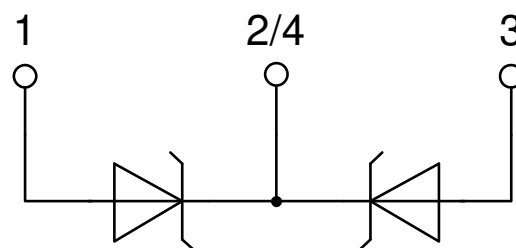
$T_{VJ} = 175\text{ °C}$

		Schottky	
$V_{0\text{ max}}$	threshold voltage	0.54	V
$R_{0\text{ max}}$	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



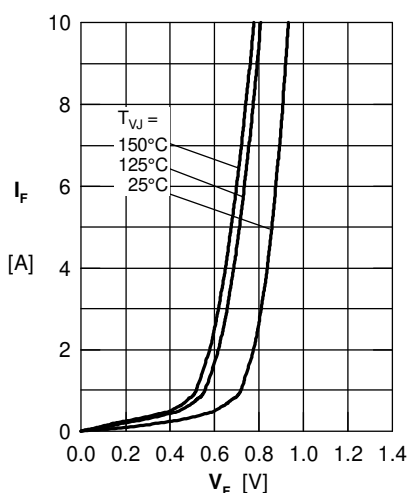
Schottky


Fig. 1 Maximum forward voltage drop characteristics

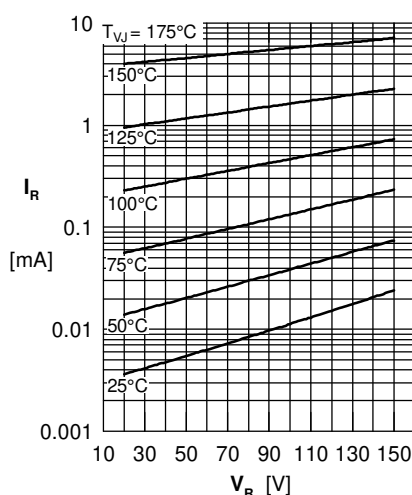
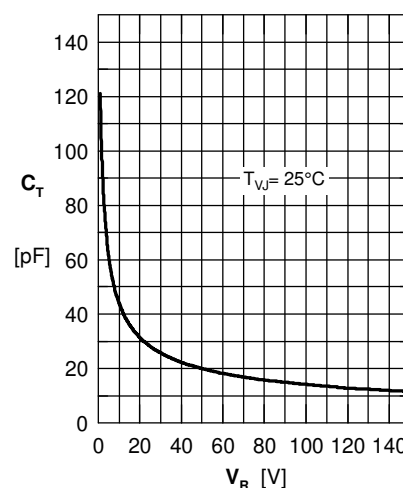
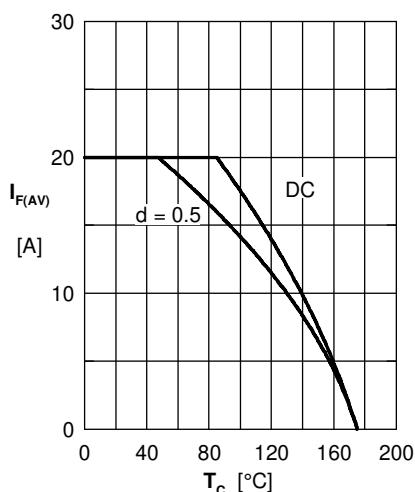
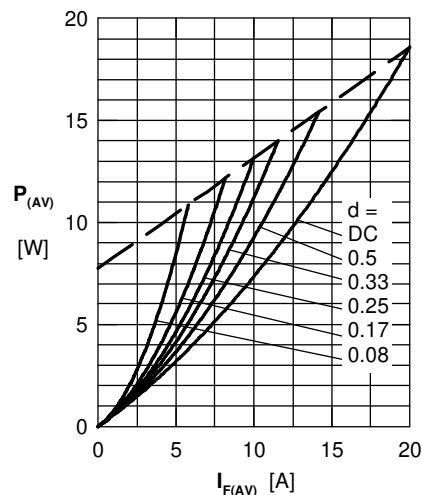

 Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

 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

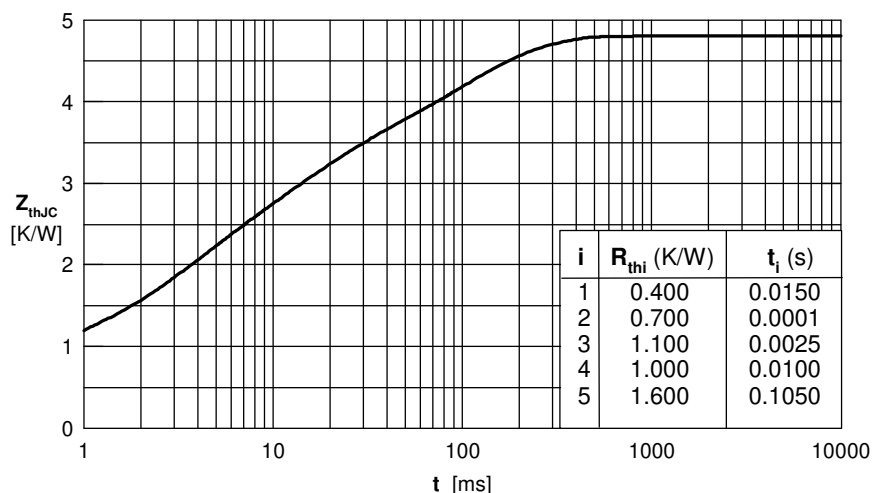


Fig. 6 Transient thermal impedance junction to case