Schottky Diode

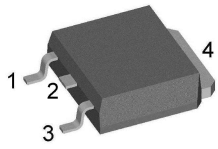
V_{RRM}	=	200 V
I_{FAV}	=	15 A
V_F	=	0.78 V

High Performance Schottky Diode
Low Loss and Soft Recovery
Single Diode

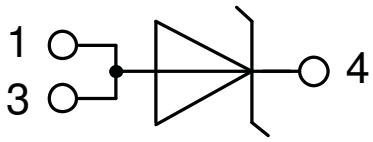
Part number

DSA15IM200UC

Marking on Product: SFMAUI



Backside: cathode



Features / Advantages:

- Very low Vf
- Extremely low switching losses
- Low Irm 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)

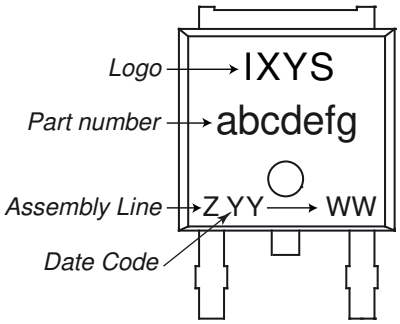
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Schottky				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			200	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			200	V
I_R	*reverse current, drain current*	V_R = 200 V	T_{VJ} = 25°C			250	µA
		V_R = 200 V	T_{VJ} = 125°C			2.5	mA
V_F	*forward voltage drop*	I_F = 15 A	T_{VJ} = 25°C			0.94	V
		I_F = 30 A				1.10	V
		I_F = 15 A	T_{VJ} = 125°C			0.78	V
		I_F = 30 A				0.95	V
I_{FAV}	*average forward current*	T_C = 150°C	T_{VJ} = 175°C			15	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.53	V
r_F	*slope resistance* }					10.8	mΩ
R_{thJC}	*thermal resistance junction to case*					2	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.50		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			75	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			200	A
C_J	*junction capacitance*	V_R = 24 V f = 1 MHz	T_{VJ} = 25°C		67		pF

Package TO-252 (DPak)			Ratings			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal [1]			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

[1] I_{RMS} is typically limited by the pin-to-chip resistance (1); or by the current capability of the chip (2). In case of (1) and a product with multiple pins for one chip-potential, the current capability can be increased by connecting the pins as one contact.

Product Marking



Part description

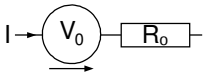
D = Diode
S = Schottky Diode
A = low VF
15 = Current Rating [A]
IM = Single Diode
200 = Reverse Voltage [V]
UC = TO-252AA (DPak)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA15IM200UC	SFMAUI	Tape & Reel	2500	510408

Similar Part	Package	Voltage class
DSB15IM30UC	TO-252AA (DPak)	30
DSA15IM45UC	TO-252AA (DPak)	45
DSA10IM100UC	TO-252AA (DPak)	100
DSA15IM150UC	TO-252AA (DPak)	150

Equivalent Circuits for Simulation

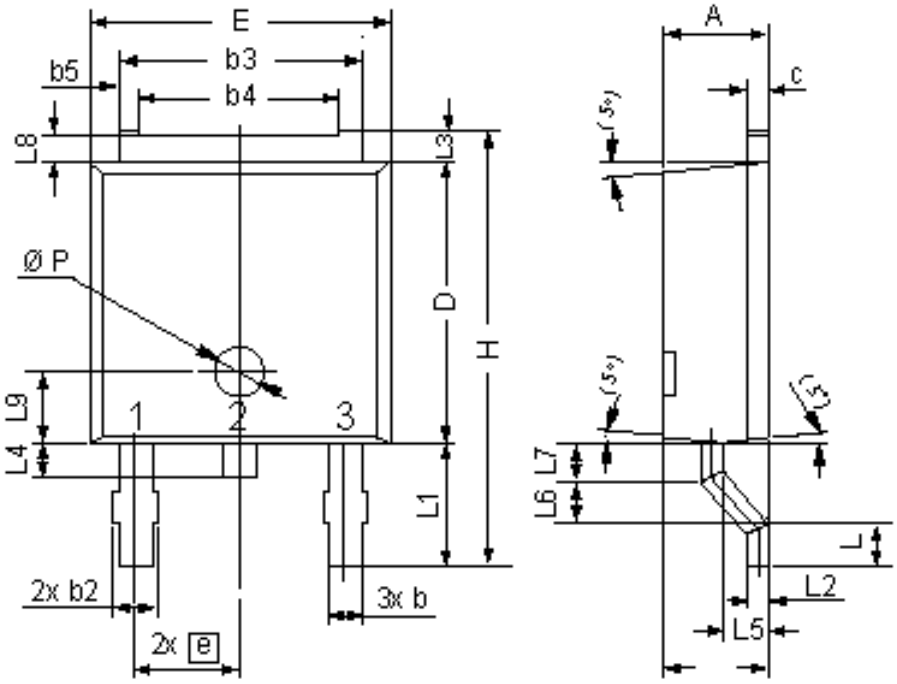
** on die level* T_{VJ} = 175 °C

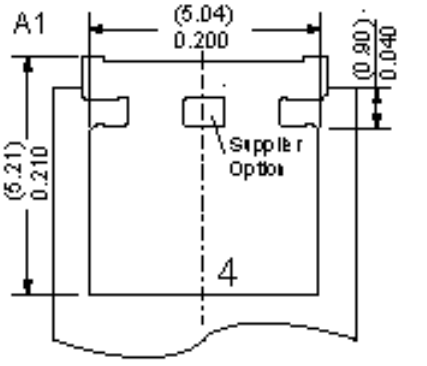


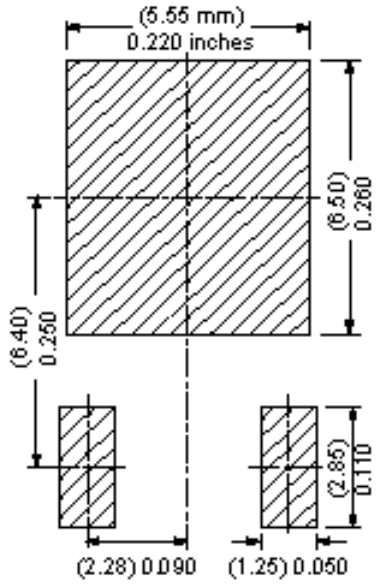
Schottky

$V_{0\,max}$	*threshold voltage*	0.53	V
$R_{0\,max}$	*slope resistance **	7.6	mΩ

Outlines TO-252 (DPak)

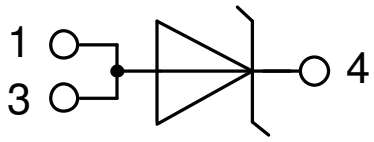






Recommended min. foot print

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	



Schottky

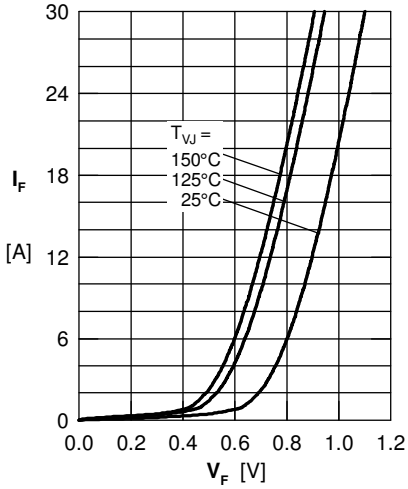


Fig. 1 Maximum forward voltage drop characteristics

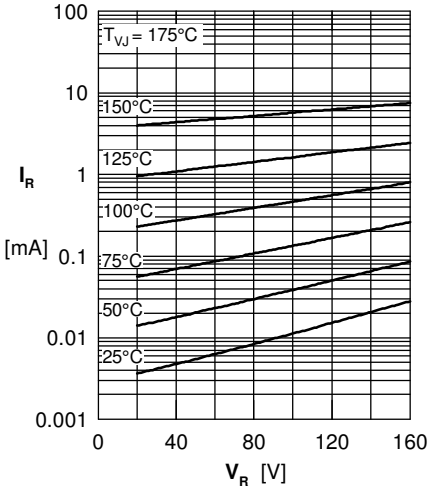


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

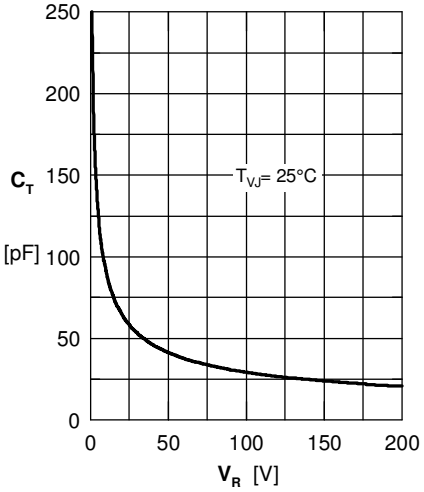


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

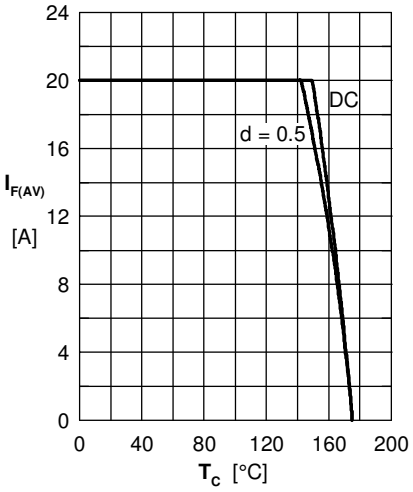


Fig. 4 Avg: forward current $I_{F(AV)}$ vs. case temperature T_C

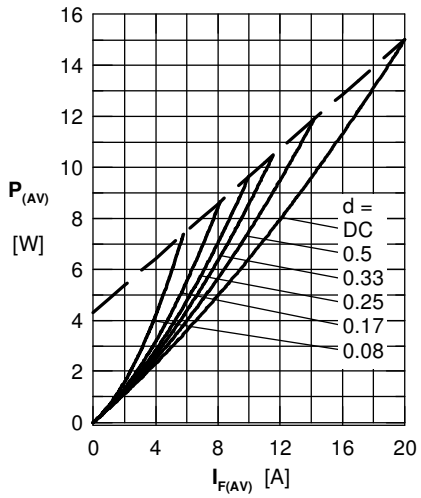
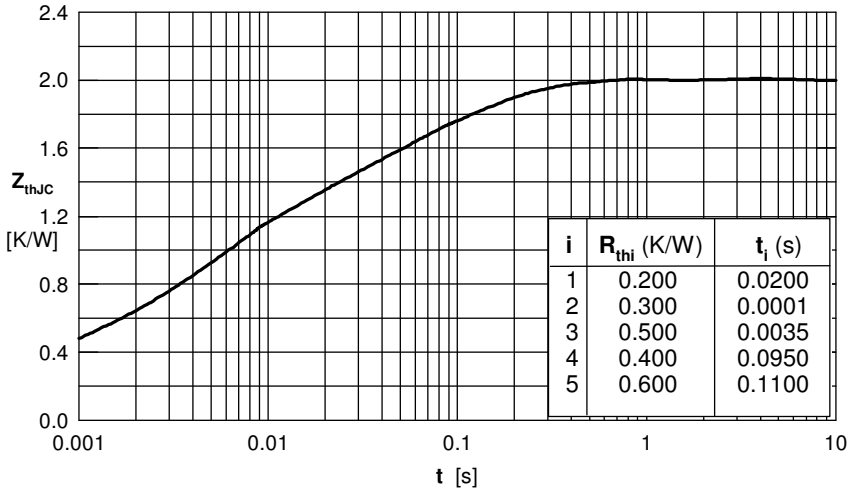


Fig. 5 Forward power loss characteristics



i	R_{thi} (K/W)	t_i (s)
1	0.200	0.0200
2	0.300	0.0001
3	0.500	0.0035
4	0.400	0.0950
5	0.600	0.1100

Fig. 6 Transient thermal impedance junction to case