

preliminary

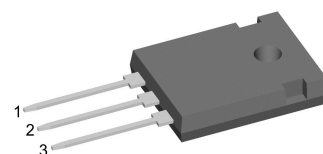
Schottky Diode

$$\begin{aligned}
 V_{RRM} &= 45 \text{ V} \\
 I_{FAV} &= 2 \times 30 \text{ A} \\
 V_F &= 0.66 \text{ V}
 \end{aligned}$$

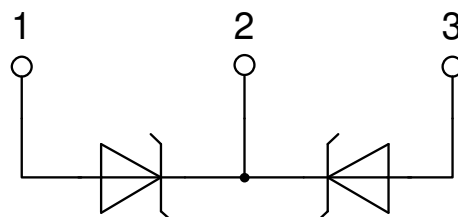
High Performance Schottky Diode
 Low Loss and Soft Recovery
 Common Cathode

Part number

DSA60C45HB



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-247

- 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°C				45	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				45	V
I _R	reverse current, drain current	V _R = 45 V	T _{VJ} = 25°C			450	μA
		V _R = 45 V	T _{VJ} = 125°C			5	mA
V _F	forward voltage drop	I _F = 30 A	T _{VJ} = 25°C			0.77	V
		I _F = 60 A				0.96	V
		I _F = 30 A	T _{VJ} = 125°C			0.66	V
		I _F = 60 A				0.84	V
I _{FAV}	average forward current	T _C = 155°C rectangular d = 0.5	T _{VJ} = 175°C			30	A
V _{F0}	threshold voltage	} for power loss calculation only				0.42	V
r _F	slope resistance					5.9	mΩ
R _{thJC}	thermal resistance junction to case					0.95	K/W
R _{thCH}	thermal resistance case to heatsink				0.25		K/W
P _{tot}	total power dissipation	T _C = 25°C				160	W
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		550	A
C _J	junction capacitance	V _R = 5 V f = 1 MHz		T _{VJ} = 25°C	980		pF
E _{AS}	non-repetitive avalanche energy	I _{AS} = 15 A L = 180 μH		T _{VJ} = 25°C		20.3	mJ
I _{AR}	repetitive avalanche current	V _A = 1.5·V _R typ. f = 10 kHz				1.5	A

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Package TO-247			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal ¹⁾			50	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
T_{stg}	storage temperature		-55		150	°C
Weight				6		g
M_D	mounting torque		0.8		1.2	Nm
F_C	mounting force with clip		20		120	N

Product Marking



Part description

D = Diode
 S = Schottky Diode
 A = low VF
 60 = Current Rating [A]
 C = Common Cathode
 45 = Reverse Voltage [V]
 HB = TO-247AD (3)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA60C45HB	DSA60C45HB	Tube	30	503755

Similar Part	Package	Voltage class
DSA60C45PB	TO-220AB (3)	45

Equivalent Circuits for Simulation

* on die level

 $T_{VJ} = 175^{\circ}\text{C}$

		Schottky	
$V_{0\max}$	threshold voltage	0.42	V
$R_{0\max}$	slope resistance *	3.3	mΩ

Outlines TO-247


Sym.	Inches		Millimeter	
	min.	max.	min.	max.
A	0.185	0.209	4.70	5.30
A1	0.087	0.102	2.21	2.59
A2	0.059	0.098	1.50	2.49
D	0.819	0.845	20.79	21.45
E	0.610	0.640	15.48	16.24
E2	0.170	0.216	4.31	5.48
e	0.215	BSC	5.46	BSC
L	0.780	0.800	19.80	20.30
L1	-	0.177	-	4.49
Ø P	0.140	0.144	3.55	3.65
Q	0.212	0.244	5.38	6.19
S	0.242	BSC	6.14	BSC
b	0.039	0.055	0.99	1.40
b2	0.065	0.094	1.65	2.39
b4	0.102	0.135	2.59	3.43
c	0.015	0.035	0.38	0.89
D1	0.515	-	13.07	-
D2	0.020	0.053	0.51	1.35
E1	0.530	-	13.45	-
Ø P1	-	0.29	-	7.39

