preliminary

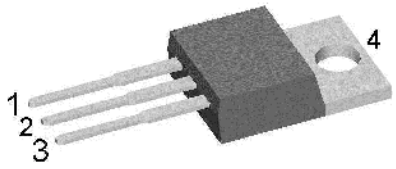
Schottky Diode

V_{RRM} = 45 V
I_{FAV} = 2x 30 A
V_F = 0.67 V

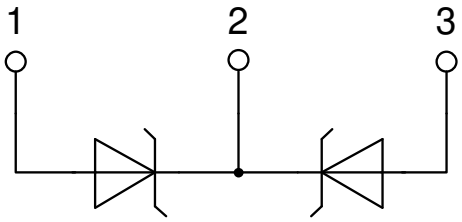
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSA60C45PB



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-220

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

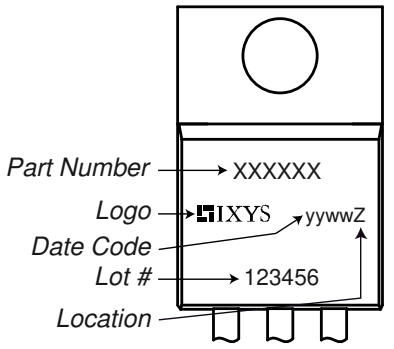
Schottky

Symbol	Definition	Conditions		Ratings 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			0.79	V
		I_F = 60 A				0.99	V
		I_F = 30 A	T_{VJ} = 125°C			0.67	V
		I_F = 60 A				0.88	V
I_{FAV}	*average forward current*	T_C = 155°C	T_{VJ} = 175°C			30	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.42	V
r_F	*slope resistance* }					6.6	mΩ
R_{thJC}	*thermal resistance junction to case*					0.85	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.5		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			175	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			490	A
C_J	*junction capacitance*	V_R = 5 V f = 1 MHz	T_{VJ} = 25°C		980		pF

preliminary

Package TO-220			Ratings			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal 1)			35	A
T_{VJ}	*virtual junction temperature*		-55		175	°C
T_{op}	*operation temperature*		-55		150	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				2		g
M_D	*mounting torque*		0.4		0.6	Nm
F_C	*mounting force with clip*		20		60	N

Product Marking



Part description

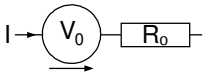
D = Diode
S = Schottky Diode
A = low VF
60 = Current Rating [A]
C = Common Cathode
45 = Reverse Voltage [V]
PB = TO-220AB (3)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSA60C45PB	DSA60C45PB	Tube	50	505556

Similar Part	Package	Voltage class
DSA60C45HB	TO-247AD (3)	45

Equivalent Circuits for Simulation

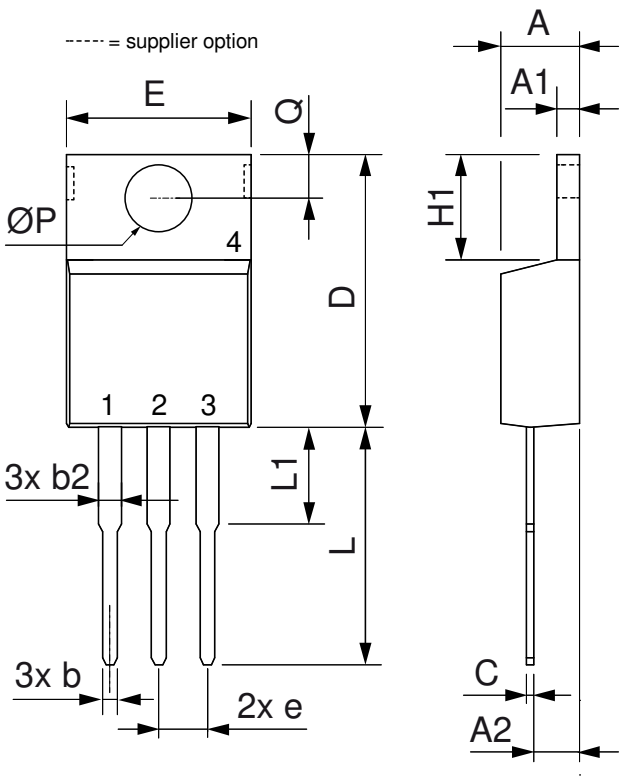
** on die level* $T_{VJ} = 175°C$



Schottky

$V_{0\,max}$	*threshold voltage*	0.42	V
$R_{0\,max}$	*slope resistance **	3.4	mΩ

Outlines TO-220



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	2.54	BSC	0.100	BSC
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
ØP	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125