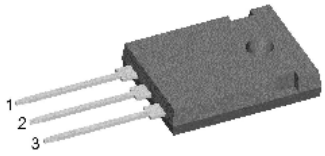
Schottky Diode

V_{RRM} = 100 V
I_{FAV} = 2x 15 A
V_F = 0.63 V

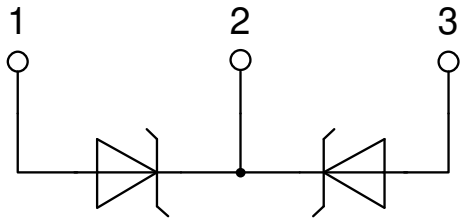
High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSSK30-01A



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-247

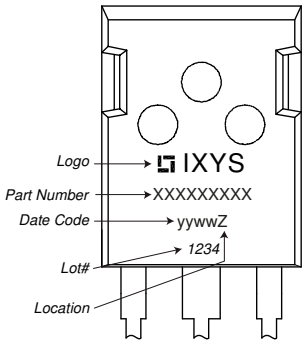
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Schottky

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			100	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			100	V
I_R	*reverse current, drain current*	V_R = 100 V	T_{VJ} = 25°C			500	µA
		V_R = 100 V	T_{VJ} = 125°C			5	mA
V_F	*forward voltage drop*	I_F = 15 A	T_{VJ} = 25°C			0.81	V
		I_F = 30 A				0.94	V
		I_F = 15 A	T_{VJ} = 125°C			0.63	V
		I_F = 30 A				0.76	V
I_{FAV}	*average forward current*	T_C = 160°C	T_{VJ} = 175°C			15	A
		rectangular d = 0.5					
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0.43	V
r_F	*slope resistance* }					8	mΩ
R_{thJC}	*thermal resistance junction to case*					1.4	K/W
R_{thCH}	*thermal resistance case to heatsink*				0.25		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			105	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine; V_R = 0 V	T_{VJ} = 45°C			230	A
C_J	*junction capacitance*	V_R = 12 V f = 1 MHz	T_{VJ} = 25°C		289		pF
E_{AS}	*non-repetitive avalanche energy*	I_{AS} = 10 A L = 100 µH	T_{VJ} = 25°C			5	mJ
I_{AR}	*repetitive avalanche current*	V_A = 1.5·V_R typ. f = 10 kHz				1	A

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



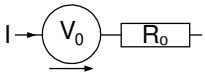
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSSK30-01A	DSSK30-01A	Tube	30	473243

Similar Part	Package	Voltage class
DSSK28-01AS	TO-263AB (D2Pak) (2)	100
DSA30C100HB	TO-247AD (3)	100
DSA30C100QB	TO-3P (3)	100
DSA30C100PB	TO-220AB (3)	100

DSA30C100PN	TO-220ABFP (3)	100
DSA60C100PB	TO-220AB (3)	100
DSA50C100HB	TO-247AD (3)	100

Equivalent Circuits for Simulation

** on die level* $T_{VJ} = 175°C$



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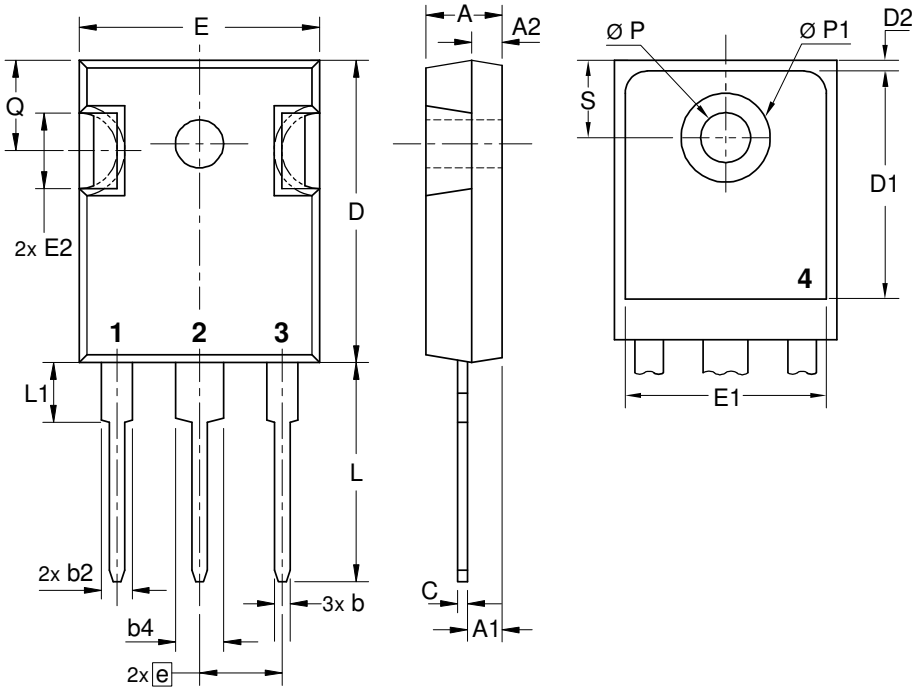
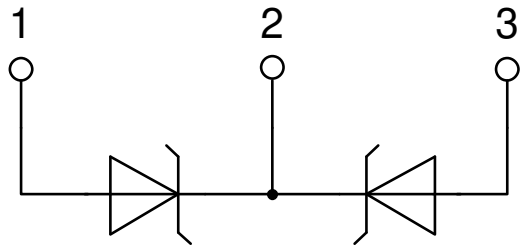
$V_{0\,max}$	*threshold voltage*	0.43	V
$R_{0\,max}$	*slope resistance **	5.5	mΩ

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



Schottky

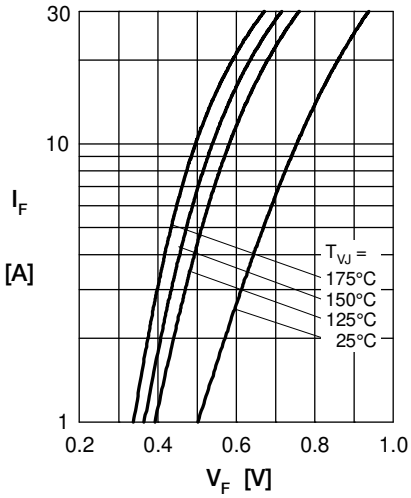


Fig. 1 Max. forward voltage drop characteristics

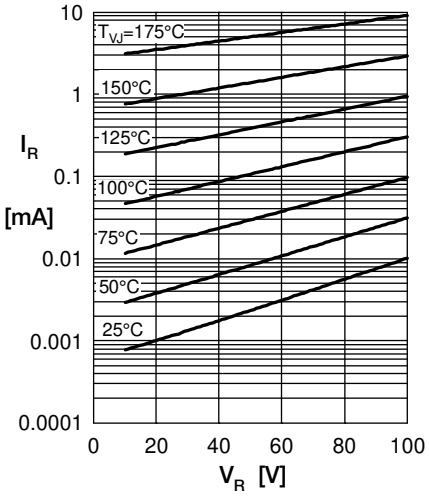


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

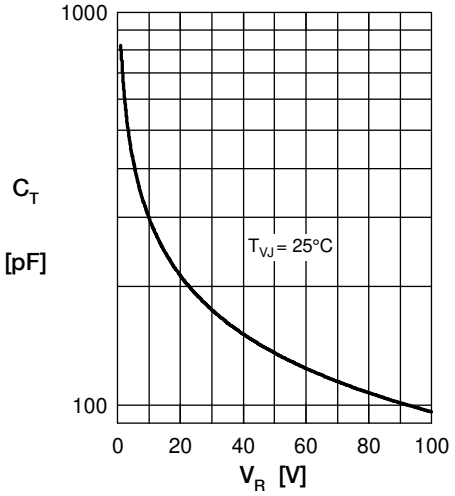


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

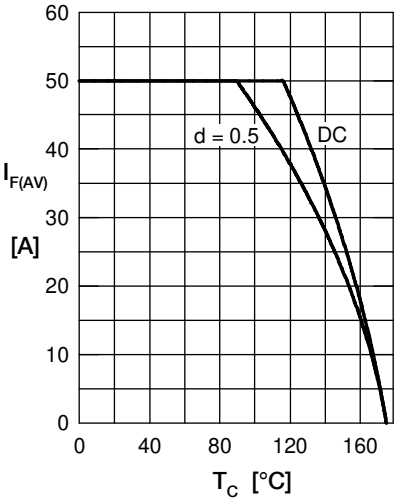


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temp. T_C

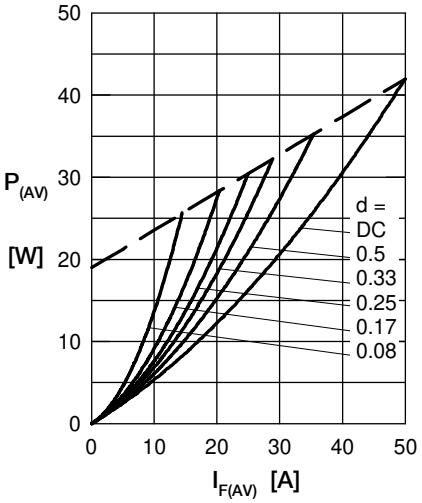


Fig. 5 Forward power loss characteristics

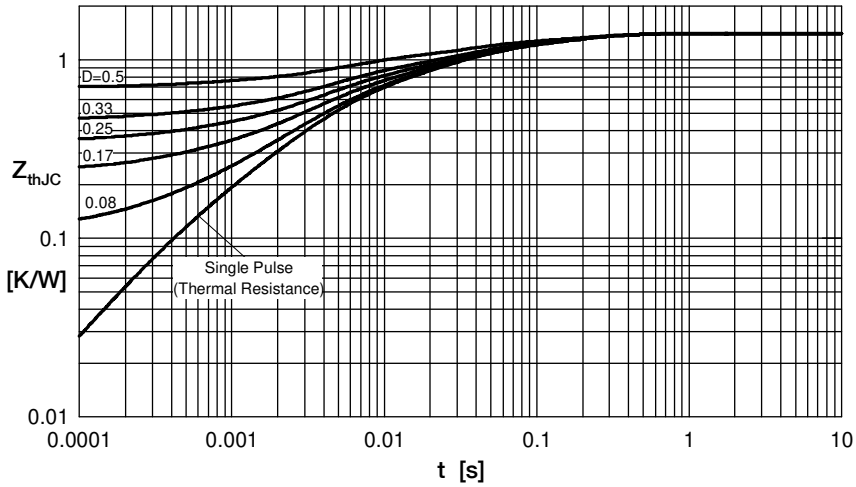


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode