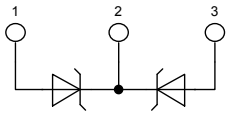
Schottky Diode

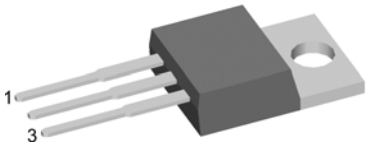
V_{RRM} = 30 V
I_{FAV} = 2x 25 A
V_F = 0.35 V

High Performance Schottky Diode
Low Loss and Soft Recovery
Common Cathode

Part number

DSSK48-003B





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:

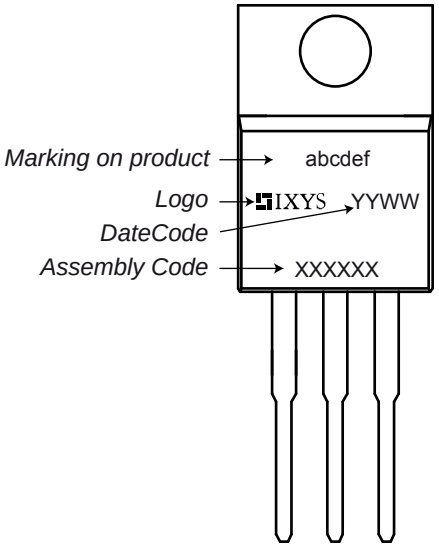
- Housing: TO-220
- Industry standard outline
- Epoxy meets UL 94V-0
- RoHS compliant

				Ratings			
Symbol	**Definition**	**Conditions**		**min.**	**typ.**	**max.**	**Unit**
V_{RRM}	*max. repetitive reverse voltage*		T_{VJ} = 25°C			30	V
I_R	*reverse current*	V_R = 30 V	T_{VJ} = 25°C			20	mA
		V_R = 30 V	T_{VJ} = 100°C			60	mA
V_F	*forward voltage*	I_F = 20 A	T_{VJ} = 25°C			0.44	V
		I_F = 40 A				0.54	V
		I_F = 20 A	T_{VJ} = 125°C			0.35	V
		I_F = 40 A				0.48	V
I_{FAV}	*average forward current*	rectangular d = 0.5	T_C = 130°C			25	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 150°C			0.19	V
r_F	*slope resistance* }					6.8	mΩ
R_{thJC}	*thermal resistance junction to case*					1.20	K/W
T_{VJ}	*virtual junction temperature*			-55		150	°C
P_{tot}	*total power dissipation*		T_C = 25°C			105	W
I_{FSM}	*max. forward surge current*	t = 10 ms (50 Hz), sine	T_{VJ} = 45°C			300	A
C_J	*junction capacitance*	V_R = 5 V; f = 1 MHz	T_{VJ} = 25°C		1.77		nF

Symbol	Definition	Conditions	Ratings min.	typ.	max.	Unit
I_{RMS}	*RMS current*	per pin [1]			35	A
R_{thCH}	*thermal resistance case to heatsink*			0.50		K/W
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

[1] I_{RMS} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.
In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

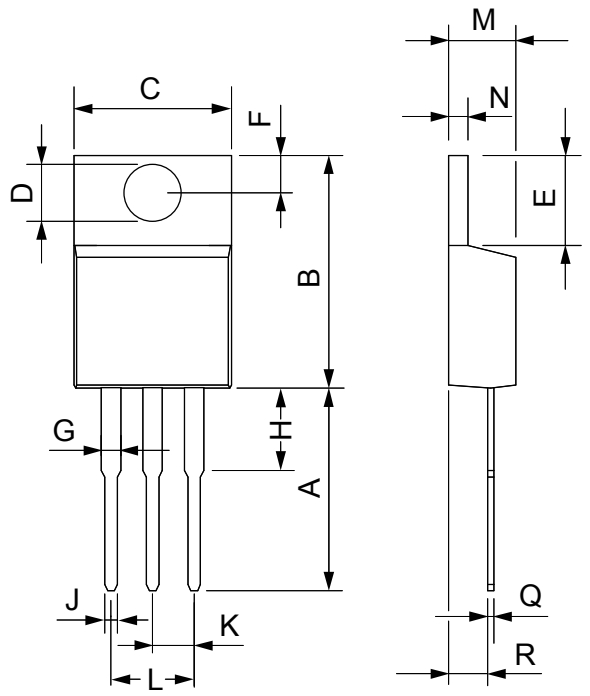
Product Marking



Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Code Key
Standard	DSSK48-003B	DSSK48-003B	Tube	50	484008

Similar Part	Package	Voltage class
DSSK48-003BS	TO-263AB (D2Pak)	30
DSSK48-0025B	TO-220AB (3)	25

Outlines TO-220



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	12.70	13.97	0.500	0.550
B	14.73	16.00	0.580	0.630
C	9.91	10.66	0.390	0.420
D	3.54	4.08	0.139	0.161
E	5.85	6.85	0.230	0.270
F	2.54	3.18	0.100	0.125
G	1.15	1.65	0.045	0.065
H	2.79	5.84	0.110	0.230
J	0.64	1.01	0.025	0.040
K	2.54	BSC	0.100	BSC
M	4.32	4.82	0.170	0.190
N	1.14	1.39	0.045	0.055
Q	0.35	0.56	0.014	0.022
R	2.29	2.79	0.090	0.110

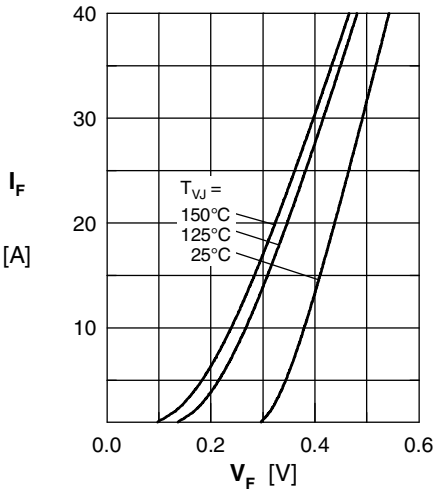


Fig. 1 Maximum forward voltage drop characteristics

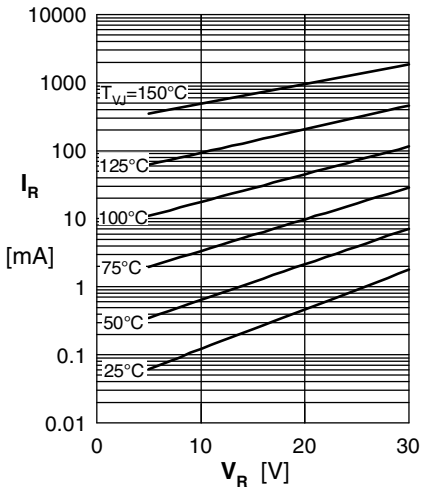


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

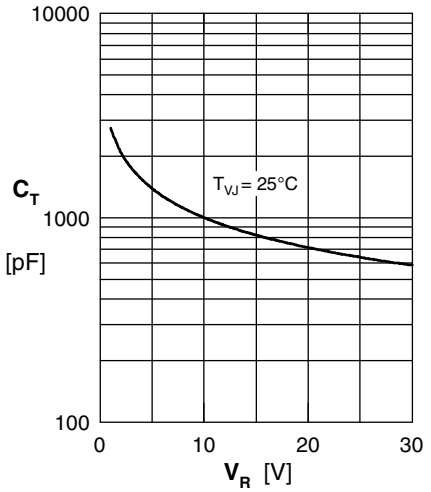


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

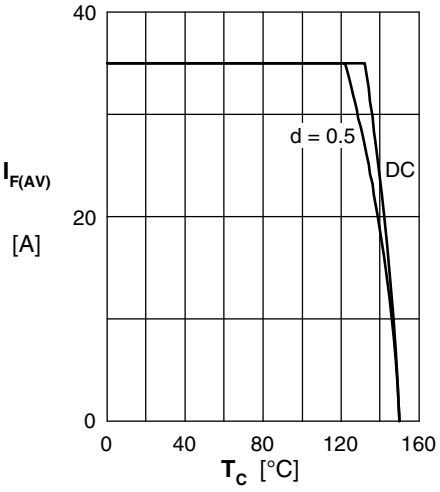


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temperature T_C

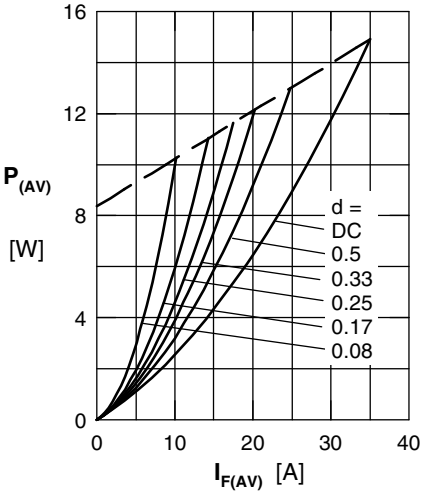


Fig. 5 Forward power loss characteristics

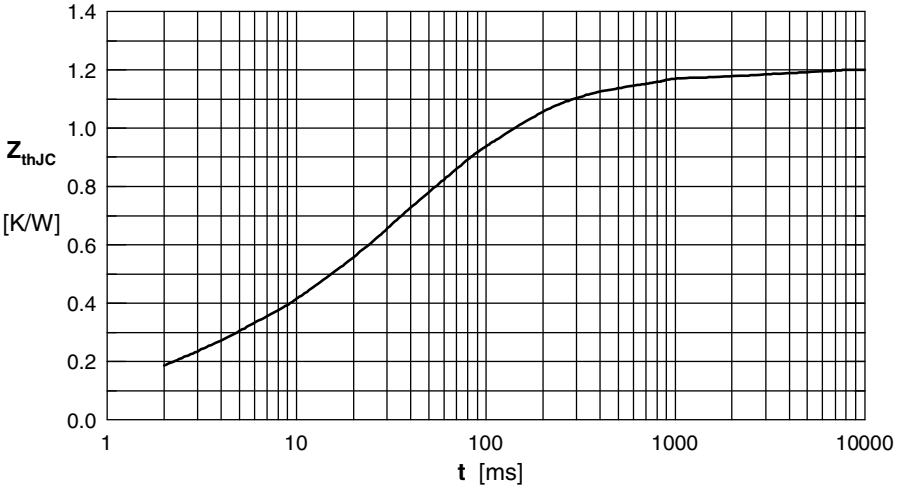


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode