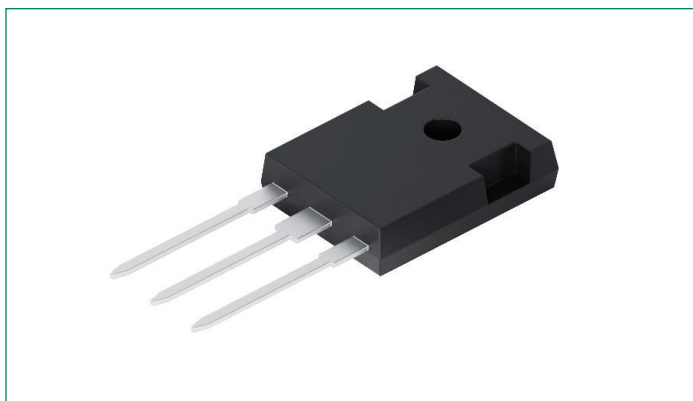


DSB60C45HB

45 V, 2 x 30 A High-Performance Schottky Diode

Low Loss and Soft Recovery Common Cathode

RoHS



Features

- Extremely low switching losses
- Very low V_F

Benefits

- Low voltage peaks for reduced protection circuits
- Low-noise switching
- High reliability circuit operation
- Improved thermal behavior
- Longer lifetime of the system

Applications

- Rectifiers in Switch Mode Power Supplies (SMPS)
- Free wheeling diode in low voltage converters

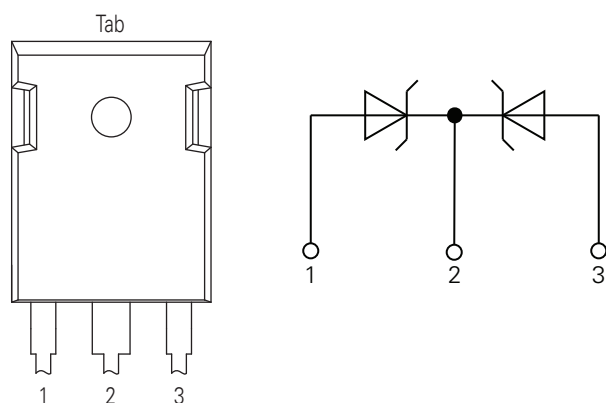
Package

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

Product Summary

Characteristic	Value	Unit
V_{RRM}	45	V
$I_{F(AV)}$	2 x 30	A
V_F	0.62	V

Pinout Diagram (TO-247)



1: Anode; **2:** Cathode ; **3:** Anode; **Tab:** Cathode

Maximum Ratings

Symbol	Characteristics	Condition	Value	Units
V_{RSM}	Non-repetitive Reverse Blocking Voltage	$T_{vj} = 25\text{ }^{\circ}\text{C}$	45	V
V_{RRM}	Repetitive Reverse Blocking Voltage	$T_{vj} = 25\text{ }^{\circ}\text{C}$	45	V
$I_{F(AV)}$	Average Forward Current	$T_c = 113\text{ }^{\circ}\text{C}$, $T_{vj} = 125\text{ }^{\circ}\text{C}$, Rectangular $d = 0.5$	30	A
I_{FSM}	Non-repetitive Forward Surge Current	$t = 10\text{ ms}$, (50 Hz), half sine, $T_{vj} = 45\text{ }^{\circ}\text{C}$	400	A
$V_{(FO)}$	Threshold Voltage	$T_{vj} = 125\text{ }^{\circ}\text{C}$	0.37	V
r_F	Slope Resistance		4.8	mΩ
P_{tot}	Total Power Dissipation	$T_c = 25\text{ }^{\circ}\text{C}$	125	W
T_{stg}	Storage Temperature Range	–	-55 to +125	°C
T_{vj}	Virtual Junction Temperature Range	–	-55 to +125	°C
T_{op}	Operating Temperature Range	–	-55 to +125	°C

Electrical Characteristics – Static

Symbol	Characteristics	Conditions	Value			Units
			Min.	Typ.	Max.	
I_R	Reverse Current	$V_R = 45\text{ V}$, $T_{vj} = 25\text{ }^{\circ}\text{C}$	–	–	2.4	mA
		$V_R = 45\text{ V}$, $T_{vj} = 100\text{ }^{\circ}\text{C}$	–	–	80	
V_F	Forward Voltage	$I_F = 30\text{ A}$; Pulse, $T_{vj} = 25\text{ }^{\circ}\text{C}$	–	–	0.65	V
		$I_F = 60\text{ A}$; Pulse, $T_{vj} = 25\text{ }^{\circ}\text{C}$	–	–	0.85	
		$I_F = 30\text{ A}$; Pulse, $T_{vj} = 125\text{ }^{\circ}\text{C}$	–	–	0.62	
		$I_F = 60\text{ A}$; Pulse, $T_{vj} = 125\text{ }^{\circ}\text{C}$	–	–	0.86	
C_j	Junction Capacitance	$V_R = 5\text{ V}$, $f = 1\text{ MHz}$, $T_{vj} = 25\text{ }^{\circ}\text{C}$	–	1200	–	pF

Thermal Specifications

Symbol	Characteristics	Value			Units
		Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	–	–	0.8	K/W
$R_{th(c-h)}$	Thermal Resistance, Case to Heatsink	–	0.3	–	K/W

Package (TO-247)

Symbol	Characteristics	Conditions	Value			Units
			Min.	Typ.	Max.	
I_{tRMS}	RMS Current	per terminal	–	–	70	A
M_s	Mounting Torque for Screw to Heatsink	–	0.8	–	1.2	Nm
F_C	Mounting Force with Clip		20	–	120	N
G	Weight	–	–	6	–	g

Characteristic Curves

Figure 1. Maximum Forward Characteristics

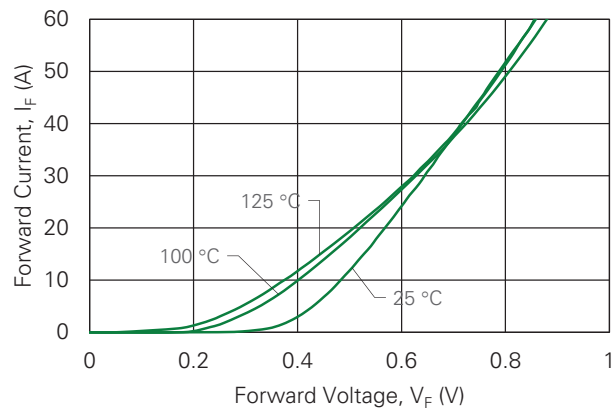


Figure 2. Typical Reverse Current vs. Reverse Voltage

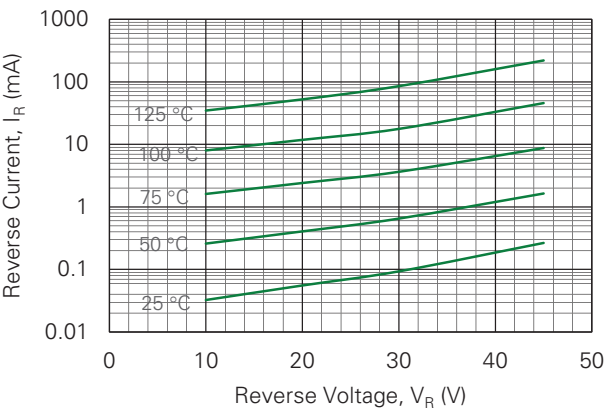


Figure 3. Typical Junction Capacitance vs. Reverse Voltage

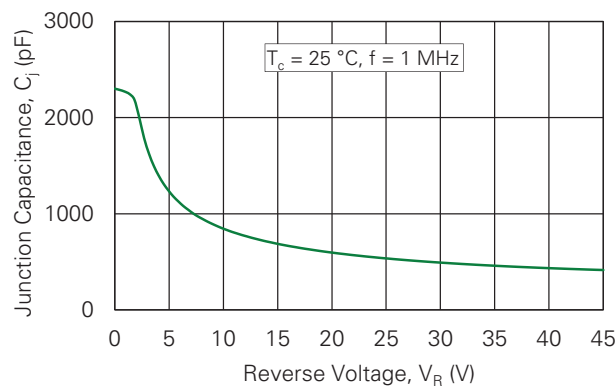


Figure 4. Average Forward Current vs. Case Temperature

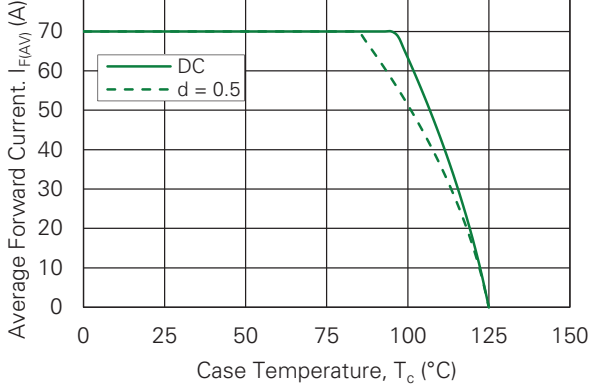


Figure 5. Forward Power Loss Characteristics

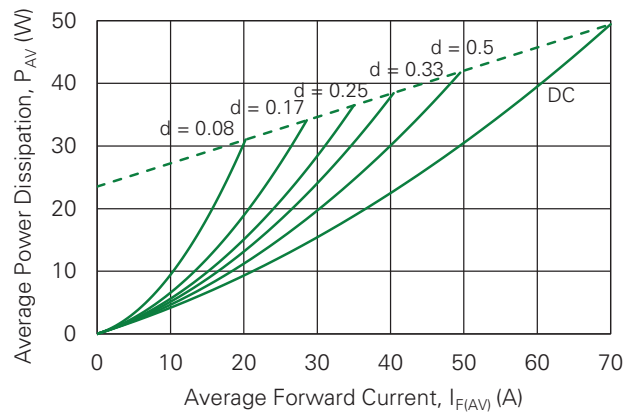
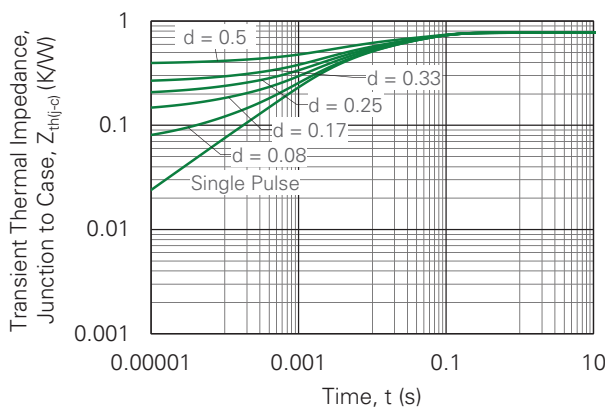
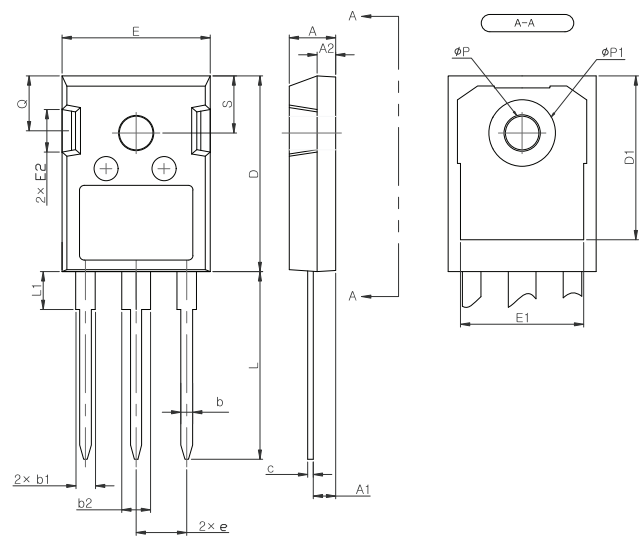


Figure 6. Transient Thermal Impedance

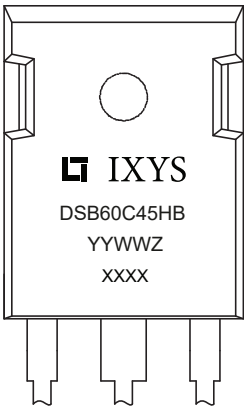


Part Outline Drawing (TO-247)



Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
A	0.189	0.205	4.80	5.20
A1	0.090	0.10	2.29	2.54
A2	0.075	0.083	1.90	2.10
b	0.043	0.051	1.10	1.30
b1	0.075	0.087	1.91	2.20
b2	0.115	0.126	2.92	3.20
c	0.020	0.027	0.50	0.70
D	0.819	0.840	20.80	21.34
D1	0.686	0.702	17.43	17.83
E	0.620	0.635	15.75	16.13
E1	0.514	0.530	13.06	13.46
E2	0.170	0.190	4.32	4.83
e	0.215 BSC		5.45 BSC	
L	0.781	0.797	19.85	20.25
L1	—	0.177	—	4.49
Ø P	0.140	0.144	3.55	3.65
Ø P1	0.281-	0.285	7.14	7.24
Q	0.220	0.244	5.59	6.19
S	0.242 BSC		6.15 BSC	

Part Number and Marking



- D = Diode
- S = Schottky Diode
- B = Ultra Low V_F
- 60 = Current (2 x 30 A)
- C = Common Cathode
- 45 = Voltage (45 V)
- HB = Package (TO-247)
- YY = Year
- WW = Work Week
- Z = Plant Location Code
- xxxx = Lot Number

Ordering Information

Part Number	Marking	Packing Mode	Quantity
DSB60C45HB	DSB60C45HB	Tube	30 pcs/ tube

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Part of:

