

Schottky Diode Gen ²

preliminary

$$V_{RRM} = 45V$$

$$I_{FAV} = 15A$$

$$V_F = 0.55V$$

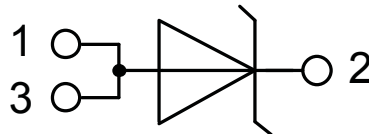
High Performance Schottky Diode
Low Loss and Soft Recovery
Single Diode

Part number

DSB15IM45IB



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-262 (I2Pak)

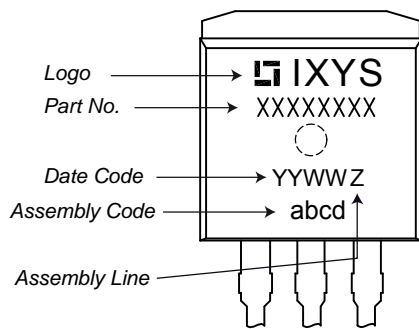
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					45	V
V_{RRM}	max. repetitive reverse blocking voltage					45	V
I_R	reverse current, drain current	$V_R = 45\text{ V}$		$T_{VJ} = 25^\circ\text{C}$		5	mA
		$V_R = 45\text{ V}$		$T_{VJ} = 100^\circ\text{C}$		50	mA
V_F	forward voltage drop	$I_F = 15\text{ A}$		$T_{VJ} = 25^\circ\text{C}$		0.59	V
		$I_F = 30\text{ A}$				0.83	V
		$I_F = 15\text{ A}$		$T_{VJ} = 125^\circ\text{C}$		0.55	V
		$I_F = 30\text{ A}$				0.80	V
I_{FAV}	average forward current	$T_C = 130^\circ\text{C}$	rectangular	$T_{VJ} = 150^\circ\text{C}$		15	A
V_{FO}	threshold voltage	} for power loss calculation only				0.31	V
r_F	slope resistance					15.5	mΩ
R_{thJC}	thermal resistance junction to case					1.75	K/W
R_{thCH}	thermal resistance case to heatsink			0.50			K/W
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$		70	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$		$T_{VJ} = 45^\circ\text{C}$		340	A
C_J	junction capacitance	$V_R = 5\text{ V}$	$f = 1\text{ MHz}$	$T_{VJ} = 25^\circ\text{C}$		497	pF

preliminary

Package TO-262 (I2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			35	A
T_{VJ}	virtual junction temperature		-55		150	°C
T_{op}	operation temperature		-55		125	°C
T_{stg}	storage temperature		-55		150	°C
Weight				1.5		g
F_C	mounting force with clip		20		60	N

Product Marking



Part number

- D = Diode
- S = Schottky Diode
- B = ultra low VF
- 15 = Current Rating [A]
- IM = Single Diode
- 45 = Reverse Voltage [V]
- IB = TO-262 (I2Pak) (3)

Ordering	Part Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSB15IM45IB	DSB15IM45IB	Tube	50	502322

Equivalent Circuits for Simulation

* on die level

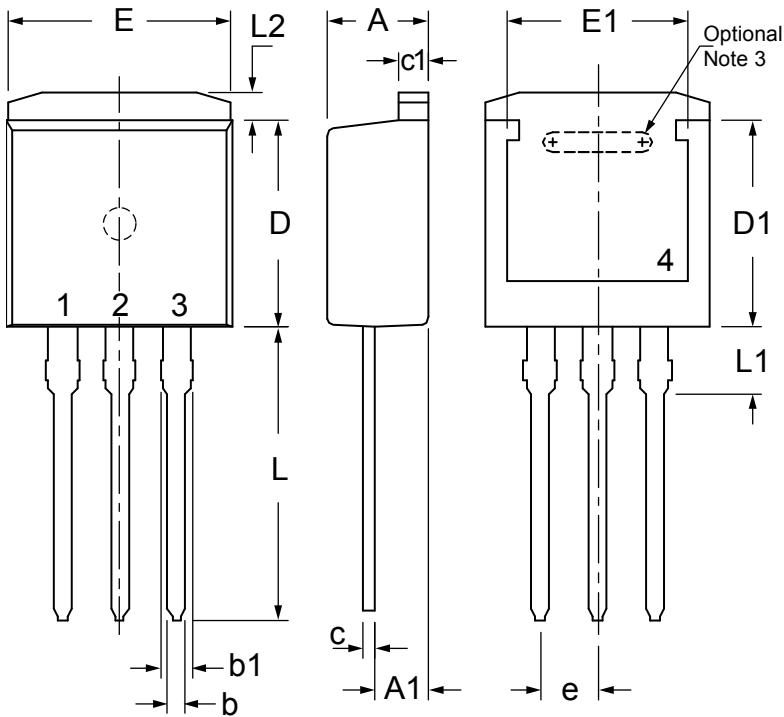
$T_{VJ} = 150\text{ }^{\circ}\text{C}$



Schottky

$V_{0\text{ max}}$	threshold voltage	0.31	V
$R_{0\text{ max}}$	slope resistance *	12.4	mΩ

Outlines TO-262 (I2Pak)



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.025	.035	0.64	0.88
b1	.025	.039	1.14	1.40
c	.018	.025	0.46	0.64
c1	.045	.055	1.14	1.40
D	.340	.380	8.64	9.65
D1	.270	.290	6.86	7.37
E	.380	.405	9.65	10.29
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.500	.560	12.70	14.22
L1	.100	.125	2.54	3.18
L2	.040	.055	1.02	1.40

NOTE:

1. This drawing will meet all dimensions requirement of JEDEC outline TO-262 AA.
2. All metal surface are matte pure tin plated except trimmed area.
3. Inter locking slot depends upon frame type.

