preliminary

# Schottky Diode Gen ²

$V_{RRM}$ = 45V
$I_{FAV}$ = 15A
$V_F$ = 0.55V

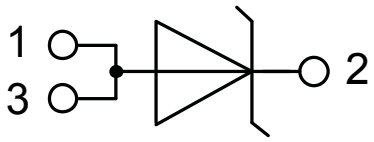
High Performance Schottky Diode
Low Loss and Soft Recovery
Single Diode

**Part number**

DSB15IM45IB




Backside: cathode




**Features / Advantages:**

- Very low 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-262 (I2Pak)

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



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| Schottky | | | | Ratings | | | |
|---|---|---|---|---|---|---|---|
| Symbol | Definition | Conditions | | 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 | | | 5 | mA |
| | | $V_R$ = 45 V | $T_{VJ}$ = 100°C | | | 50 | mA |
| $V_F$ | *forward voltage drop* | $I_F$ = 15 A | $T_{VJ}$ = 25°C | | | 0.59 | V |
| | | $I_F$ = 30 A | | | | 0.83 | V |
| | | $I_F$ = 15 A | $T_{VJ}$ = 125°C | | | 0.55 | V |
| | | $I_F$ = 30 A | | | | 0.80 | V |
| $I_{FAV}$ | *average forward current* | $T_C$ = 130°C | $T_{VJ}$ = 150°C | | | 15 | A |
| | | rectangular d = 0.5 | | | | | |
| $V_{F0}$ | *threshold voltage* } *for power loss calculation only* | | $T_{VJ}$ = 150°C | | | 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°C | | | 70 | W |
| $I_{FSM}$ | *max. forward surge current* | t = 10 ms; (50 Hz), sine; $V_R$ = 0 V | $T_{VJ}$ = 45°C | | | 340 | A |
| $C_J$ | *junction capacitance* | $V_R$ = 5 V f = 1 MHz | $T_{VJ}$ = 25°C | | 497 | | pF |

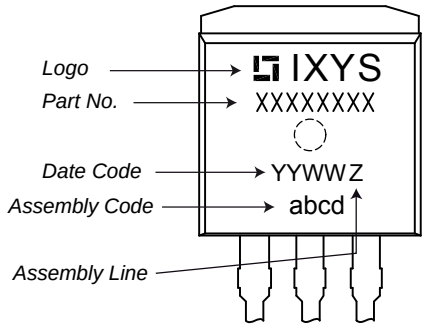


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| Package TO-262 (I2Pak) | | | Ratings | | | |
|---|---|---|---|---|---|---|
| Symbol | Definition | Conditions | min. | typ. | max. | Unit |
| $I_{RMS}$ | *RMS current* | per terminal | | | 35 | A |
| $T_{VJ}$ | *virtual junction temperature* | | -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



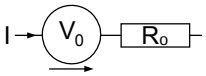

**Part number**

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 °C



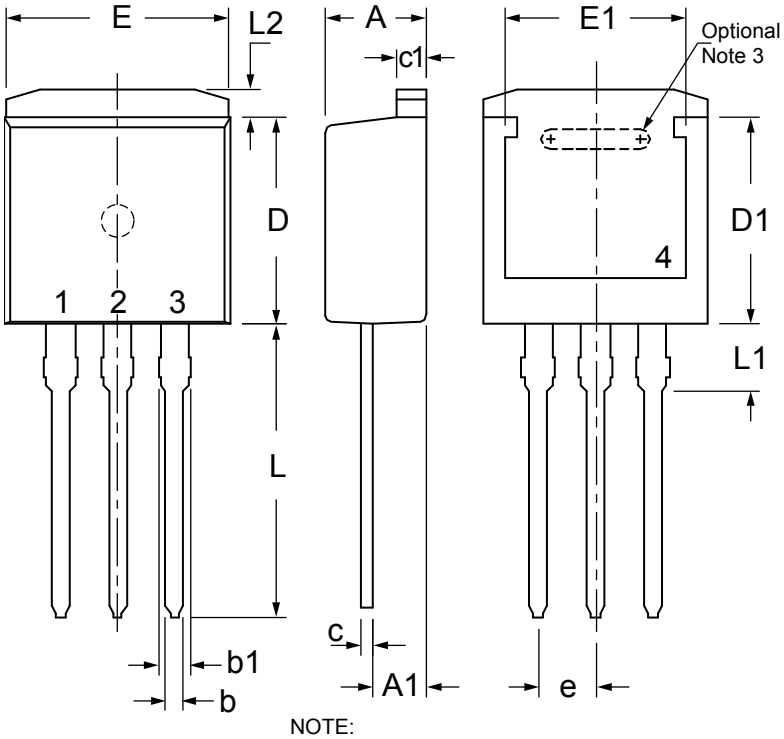

**Schottky**

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

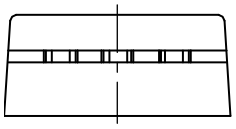


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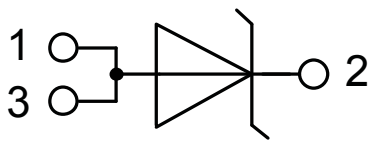
## Outlines TO-262 (I2Pak)




| 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.






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