



preliminary

# Schottky Diode Gen <sup>2</sup>

$$V_{RRM} = 150\text{ V}$$

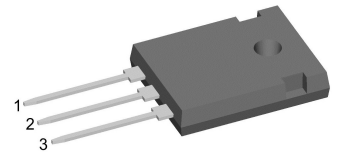
$$I_{FAV} = 2 \times 15\text{ A}$$

$$V_F = 0.74\text{ V}$$

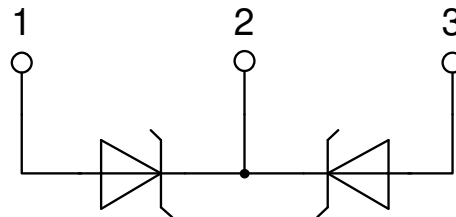
High Performance Schottky Diode  
Low Loss and Soft Recovery  
Common Cathode

Part number

**DSA30C150HB**



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-247

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

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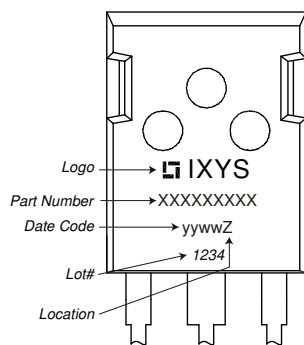
| Schottky   |  |  |                    | Ratings                      |      |      |               |
|------------|--|--|--------------------|------------------------------|------|------|---------------|
| Symbol     | Definition                                   | Conditions   |                    | min.                         | typ. | max. | Unit          |
| $V_{RSM}$  | max. non-repetitive reverse blocking voltage |  |                    |                              |      | 150  | V             |
| $V_{RRM}$  | max. repetitive reverse blocking voltage     |  |                    |                              |      | 150  | V             |
| $I_R$      | reverse current, drain current               | $V_R = 150\text{ V}$   |                    | $T_{VJ} = 25^\circ\text{C}$  |      | 250  | $\mu\text{A}$ |
|            |  | $V_R = 150\text{ V}$   |                    | $T_{VJ} = 125^\circ\text{C}$ |      | 2.5  | mA            |
| $V_F$      | forward voltage drop                         | $I_F = 15\text{ A}$  |                    | $T_{VJ} = 25^\circ\text{C}$  |      | 0.88 | V             |
|            |  | $I_F = 30\text{ A}$  |                    |                              |      | 1.00 | V             |
|            |  | $I_F = 15\text{ A}$  |                    | $T_{VJ} = 125^\circ\text{C}$ |      | 0.74 | V             |
|            |  | $I_F = 30\text{ A}$  |                    |                              |      | 0.87 | V             |
| $I_{FAV}$  | average forward current                      | $T_C = 150^\circ\text{C}$  | rectangular        | $T_{VJ} = 175^\circ\text{C}$ |      | 15   | A             |
| $V_{F0}$   | threshold voltage                            | } for power loss calculation only                                  |                    | $T_{VJ} = 175^\circ\text{C}$ |      | 0.55 | V             |
| $r_F$      | slope resistance                             |  |                    |                              |      | 8.2  | m $\Omega$    |
| $R_{thJC}$ | thermal resistance junction to case          |  |                    |                              |      | 1.75 | K/W           |
| $R_{thCH}$ | thermal resistance case to heatsink          |  |                    |                              | 0.3  |      | K/W           |
| $P_{tot}$  | total power dissipation                      |  |                    | $T_C = 25^\circ\text{C}$     |      | 85   | W             |
| $I_{FSM}$  | max. forward surge current                   | $t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$ |                    | $T_{VJ} = 45^\circ\text{C}$  |      | 330  | A             |
| $C_J$      | junction capacitance                         | $V_R = 24\text{ V}$  | $f = 1\text{ MHz}$ | $T_{VJ} = 25^\circ\text{C}$  |      | 82   | pF            |



preliminary

| Package TO-247 |                              |                            | Ratings |      |      |      |
|----------------|------------------------------|----------------------------|---------|------|------|------|
| Symbol         | Definition                   | Conditions                 | min.    | typ. | max. | Unit |
| $I_{RMS}$      | RMS current                  | per terminal <sup>1)</sup> |         |      | 50   | A    |
| $T_{VJ}$       | virtual junction temperature |                            | -55     |      | 175  | °C   |
| $T_{op}$       | operation temperature        |                            | -55     |      | 150  | °C   |
| $T_{stg}$      | storage temperature          |                            | -55     |      | 150  | °C   |
| <b>Weight</b>  |                              |                            |         | 6    |      | g    |
| $M_D$          | mounting torque              |                            | 0.8     |      | 1.2  | Nm   |
| $F_C$          | mounting force with clip     |                            | 20      |      | 120  | N    |

**Product Marking**



**Part description**

- D = Diode
- S = Schottky Diode
- A = low VF
- 30 = Current Rating [A]
- C = Common Cathode
- 150 = Reverse Voltage [V]
- HB = TO-247AD (3)

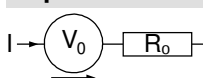
| Ordering | Ordering Number | Marking on Product | Delivery Mode | Quantity | Code No. |
|----------|-----------------|--------------------|---------------|----------|----------|
| Standard | DSA30C150HB     | DSA30C150HB        | Tube          | 30       | 503353   |

| Similar Part | Package              | Voltage class |
|--------------|----------------------|---------------|
| DSA30C150PB  | TO-220AB (3)         | 150           |
| DSA30C150PC  | TO-263AB (D2Pak) (2) | 150           |

**Equivalent Circuits for Simulation**

\* on die level

$T_{VJ} = 175^{\circ}C$



**Schottky**

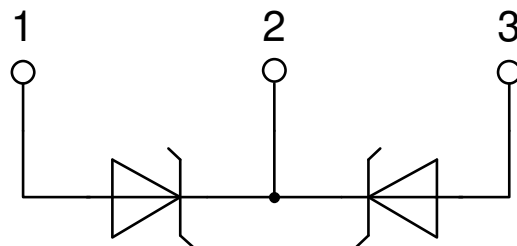
|              |                    |      |    |
|--------------|--------------------|------|----|
| $V_{0\ max}$ | threshold voltage  | 0.55 | V  |
| $R_{0\ max}$ | slope resistance * | 5.6  | mΩ |



**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     |



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