



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Schottky Diode Gen<sup>2</sup>

preliminary

$$V_{RRM} = 45V$$

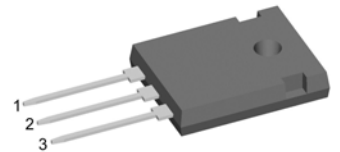
$$I_{FAV} = 2 \times 40A$$

$$V_F = 0.69V$$

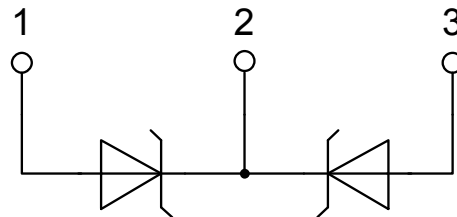
High Performance Schottky Diode  
Low Loss and Soft Recovery  
Common Cathode

Part number

DSA80C45HB



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**

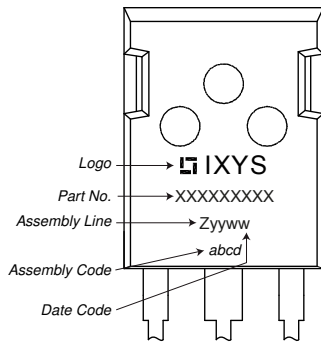
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

| Schottky   |  |  |                         | Ratings |      |            |
|------------|--|--|-------------------------|---------|------|------------|
| Symbol     | Definition                                   | Conditions   | min.                    | typ.    | max. | Unit       |
| $V_{RSM}$  | max. non-repetitive reverse blocking voltage | $T_{VJ} = 25^{\circ}C$   |                         |         | 45   | V          |
| $V_{RRM}$  | max. repetitive reverse blocking voltage     | $T_{VJ} = 25^{\circ}C$   |                         |         | 45   | V          |
| $I_R$      | reverse current, drain current               | $V_R = 45\text{ V}$  | $T_{VJ} = 25^{\circ}C$  |         | 680  | $\mu A$    |
|            |  | $V_R = 45\text{ V}$  | $T_{VJ} = 125^{\circ}C$ |         | 7.5  | mA         |
| $V_F$      | forward voltage drop                         | $I_F = 40\text{ A}$  | $T_{VJ} = 25^{\circ}C$  |         | 0.78 | V          |
|            |  | $I_F = 80\text{ A}$  |                         |         | 0.99 | V          |
|            |  | $I_F = 40\text{ A}$  | $T_{VJ} = 125^{\circ}C$ |         | 0.69 | V          |
|            |  | $I_F = 80\text{ A}$  |                         |         | 0.90 | V          |
| $I_{FAV}$  | average forward current                      | $T_C = 150^{\circ}C$<br>rectangular $d = 0.5$                      | $T_{VJ} = 175^{\circ}C$ |         | 40   | A          |
| $V_{FO}$   | threshold voltage                            | } for power loss calculation only                                  | $T_{VJ} = 175^{\circ}C$ |         | 0.43 | V          |
| $r_F$      | slope resistance                             |  |                         |         | 5.1  | m $\Omega$ |
| $R_{thJC}$ | thermal resistance junction to case          |  |                         |         | 0.7  | K/W        |
| $R_{thCH}$ | thermal resistance case to heatsink          |  |                         | 0.25    |      | K/W        |
| $P_{tot}$  | total power dissipation                      |  | $T_C = 25^{\circ}C$     |         | 215  | W          |
| $I_{FSM}$  | max. forward surge current                   | $t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$ | $T_{VJ} = 45^{\circ}C$  |         | 600  | A          |
| $C_J$      | junction capacitance                         | $V_R = 5\text{ V}$ $f = 1\text{ MHz}$                              | $T_{VJ} = 25^{\circ}C$  |         | 1.38 | nF         |

preliminary

| Package TO-247 |                              |                            | Ratings |      |      |      |
|----------------|------------------------------|----------------------------|---------|------|------|------|
| Symbol         | Definition                   | Conditions                 | min.    | typ. | max. | Unit |
| $I_{RMS}$      | RMS current                  | per terminal <sup>1)</sup> |         |      | 70   | 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 number

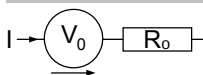
- D = Diode
- S = Schottky Diode
- A = low VF
- 80 = Current Rating [A]
- C = Common Cathode
- 45 = Reverse Voltage [V]
- HB = TO-247AD (3)

| Ordering | Part Number | Marking on Product | Delivery Mode | Quantity | Code No. |
|----------|-------------|--------------------|---------------|----------|----------|
| Standard | DSA80C45HB  | DSA80C45HB         | Tube          | 30       | 504890   |

### Equivalent Circuits for Simulation

\* on die level

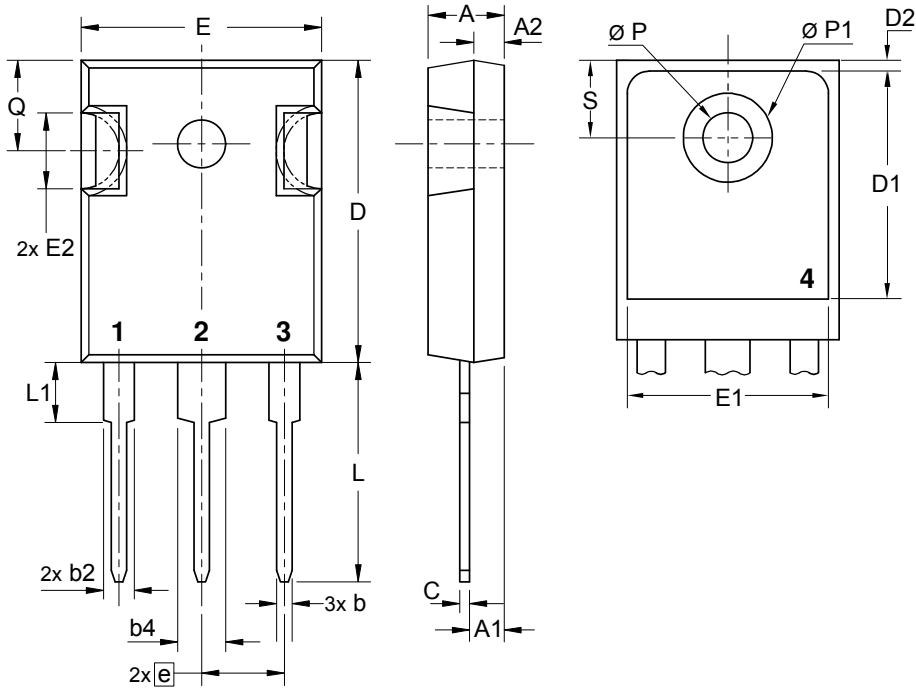
$T_{VJ} = 175\text{ °C}$



Schottky

|             |                    |      |    |
|-------------|--------------------|------|----|
| $V_{0\max}$ | threshold voltage  | 0.43 | V  |
| $R_{0\max}$ | slope resistance * | 2.5  | 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  |
| $\varnothing P$  | 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      | -     |
| $\varnothing P1$ | -         | 0.29  | -          | 7.39  |

