

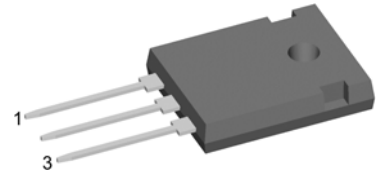
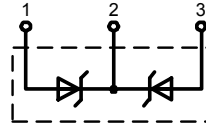
Schottky

High Performance Schottky Diode
 Low Loss and Soft Recovery
 Common Cathode

$V_{RRM} = 200\text{ V}$
 $I_{FAV} = 2 \times 45\text{ A}$
 $V_F = 0.86\text{ V}$

Part number

DSA 90 C 200HB



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
- Low losses

Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

Package:

- TO-247AD
- Industry standard outline
 - Epoxy meets UL 94V-0
 - RoHS compliant

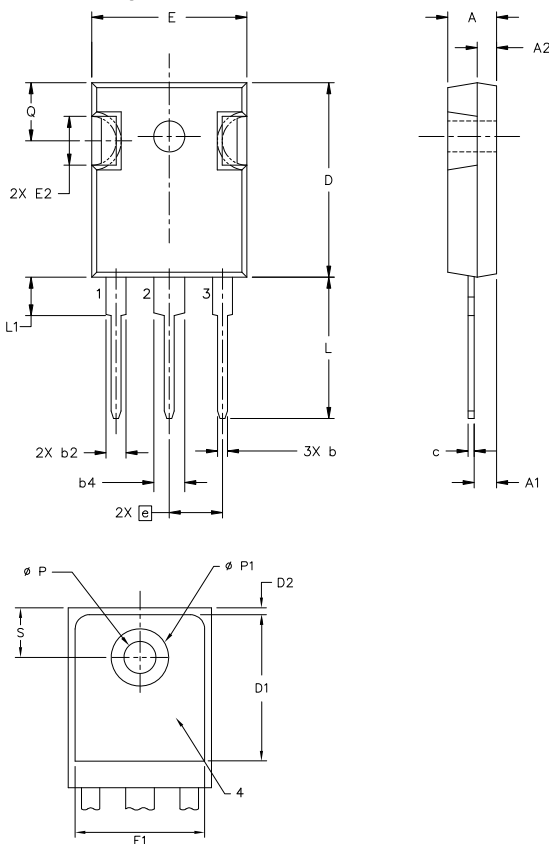
Ratings

| Symbol | Definition | Conditions | Ratings | | | Unit |
|------------|-------------------------------------|---|---------|------|------|------------------|
| | | | min. | typ. | max. | |
| V_{RRM} | max. repetitive reverse voltage | $T_{VJ} = 25\text{ }^\circ\text{C}$ | | | 200 | V |
| I_R | reverse current | $V_R = 200\text{ V}$ $T_{VJ} = 25\text{ }^\circ\text{C}$ | | | 1.8 | mA |
| | | $V_R = 200\text{ V}$ $T_{VJ} = 125\text{ }^\circ\text{C}$ | | | 5 | mA |
| V_F | forward voltage | $I_F = 45\text{ A}$ $T_{VJ} = 25\text{ }^\circ\text{C}$ | | | 0.96 | V |
| | | $I_F = 90\text{ A}$ $T_{VJ} = 25\text{ }^\circ\text{C}$ | | | 1.18 | V |
| | | $I_F = 45\text{ A}$ $T_{VJ} = 125\text{ }^\circ\text{C}$ | | | 0.86 | V |
| | | $I_F = 90\text{ A}$ $T_{VJ} = 125\text{ }^\circ\text{C}$ | | | 1.14 | V |
| I_{FAV} | average forward current | rectangular, $d = 0.5$ $T_C = 150\text{ }^\circ\text{C}$ | | | 45 | A |
| V_{F0} | threshold voltage | } for power loss calculation only $T_{VJ} = 175\text{ }^\circ\text{C}$ | | | 0.52 | V |
| r_F | slope resistance | | | | 6.5 | m Ω |
| R_{thJC} | thermal resistance junction to case | | | | 0.55 | K/W |
| T_{VJ} | virtual junction temperature | | -55 | | 175 | $^\circ\text{C}$ |
| P_{tot} | total power dissipation | $T_C = 25\text{ }^\circ\text{C}$ | | | 275 | W |
| I_{FSM} | max. forward surge current | $t_p = 10\text{ ms (50 Hz), sine}$ $T_{VJ} = 45\text{ }^\circ\text{C}$ | | | 450 | A |
| C_J | junction capacitance | $V_R = 100\text{ V}; f = 1\text{ MHz}$ $T_{VJ} = 25\text{ }^\circ\text{C}$ | | 115 | | pF |
| E_{AS} | non-repetitive avalanche energy | $I_{AS} = \text{tbdA}; L = 100\text{ }\mu\text{H}$ $T_{VJ} = 25\text{ }^\circ\text{C}$ | | | tbd | mJ |
| I_{AR} | repetitive avalanche current | $V_A = 1.5 \cdot V_R$ typ.; $f = 10\text{ kHz}$ | | | tbd | A |

| Symbol | Definition | Conditions | Ratings | | | |
|---------------|-------------------------------------|------------|---------|------|------|------|
| | | | min. | typ. | max. | Unit |
| I_{RMS} | RMS current | per pin* | | | 70 | A |
| R_{thCH} | thermal resistance case to heatsink | | | 0.25 | | K/W |
| M_b | mounting torque | | 0.8 | | 1.2 | Nm |
| F_c | mounting force with clip | | 20 | | 120 | N |
| T_{stg} | storage temperature | | -55 | | 150 | °C |
| Weight | | | | 6 | | g |

* I_{rms} is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip.

In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Outlines TO-247AD


| Symbol | Inches | | Millimeters | |
|--------|-----------|-------|-------------|-------|
| | 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 |
| ØP | 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 | - |
| ØP1 | - | 0.291 | - | 7.39 |

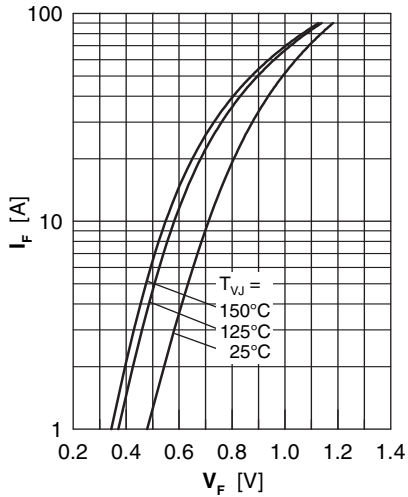


Fig. 1 Maximum forward voltage drop characteristics

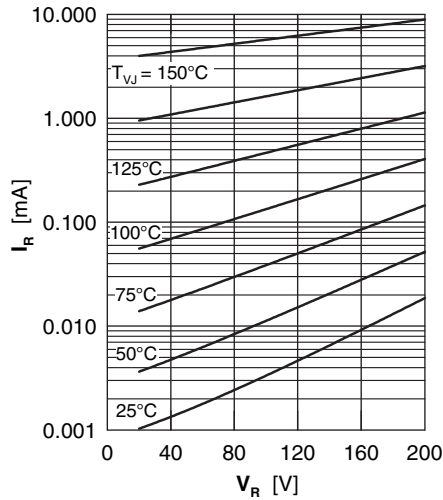


Fig. 2 Typ. reverse current I_R versus reverse voltage V_R

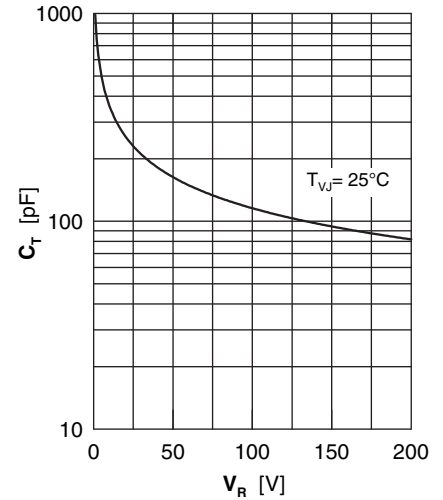


Fig. 3 Typ. junction capacitance C_T versus reverse voltage V_R

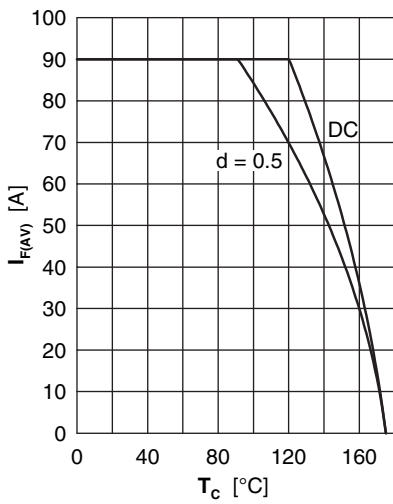


Fig. 4 Avg: forward current $I_{F(AV)}$ versus case temperature T_C

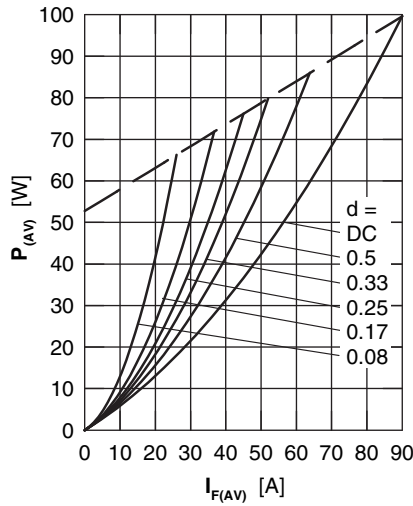


Fig. 5 Forward power loss characteristics

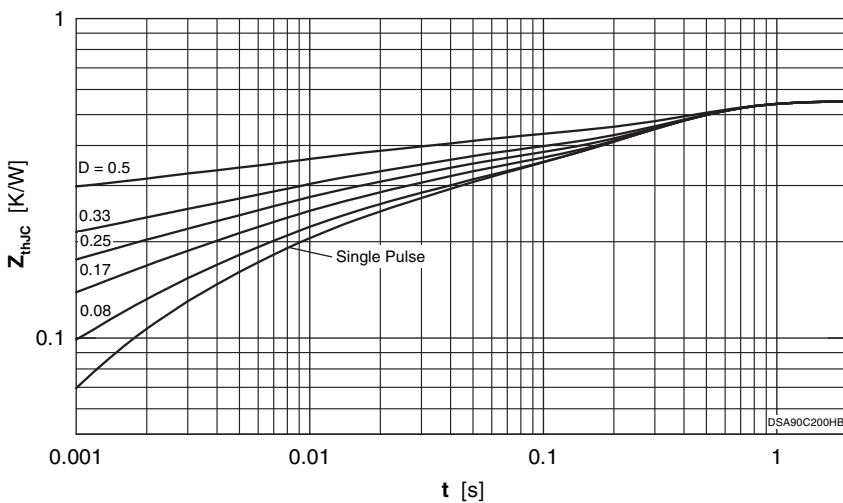


Fig. 6 Transient thermal impedance junction to case at various duty cycles