

## Schottky

High Performance Schottky Diode  
Low Loss and Soft Recovery  
Common Cathode

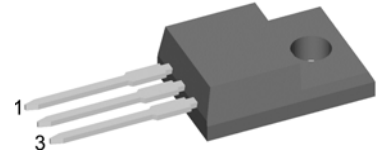
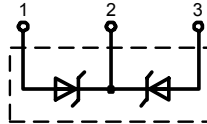
$$V_{RRM} = 60 \text{ V}$$

$$I_{FAV} = 2 \times 10 \text{ A}$$

$$V_F = 0.63 \text{ V}$$

Part number (Marking on product)

DSB 20 C 60PN



### 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-220FPAB

- Industry standard outline
- Plastic overmolded tab for electrical isolation
- Epoxy meets UL 94V-0
- RoHS compliant

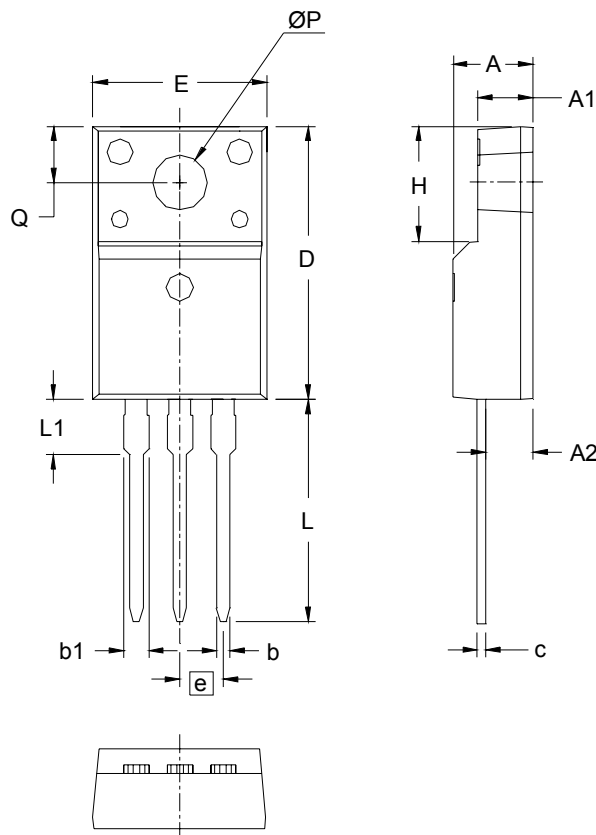
### Ratings

| Symbol     | Definition                          | Conditions  | Ratings                               |      |      | Unit             |   |
|------------|-------------------------------------|---|---------------------------------------|------|------|------------------|---|
|            |                                     |   | min.                                  | typ. | max. |                  |   |
| $V_{RRM}$  | max. repetitive reverse voltage     | $T_{VJ} = 25 \text{ }^\circ\text{C}$                    |                                       |      | 60   | V                |   |
| $I_R$      | reverse current                     | $V_R = 60 \text{ V}$                                    |                                       |      | 6    | mA               |   |
|            |                                     | $V_R = 60 \text{ V}$                                    |                                       |      | 30   | mA               |   |
| $V_F$      | forward voltage                     | $I_F = 10 \text{ A}$                                    |                                       |      | 0.73 | V                |   |
|            |                                     | $I_F = 20 \text{ A}$                                    |                                       |      | 1.11 | V                |   |
|            |                                     | $I_F = 10 \text{ A}$                                    | $T_{VJ} = 125 \text{ }^\circ\text{C}$ |      |      | 0.63             | V |
|            |                                     | $I_F = 20 \text{ A}$                                    | $T_{VJ} = 125 \text{ }^\circ\text{C}$ |      |      | 0.87             | V |
| $I_{FAV}$  | average forward current             | rectangular, $d = 0.5$                                  |                                       |      | 10   | A                |   |
| $V_{F0}$   | threshold voltage                   | } for power loss calculation only                       |                                       |      | 0.46 | V                |   |
| $r_F$      | slope resistance                    |   |                                       |      | 14.5 | m $\Omega$       |   |
| $R_{thJC}$ | thermal resistance junction to case |   |                                       |      | 4.50 | K/W              |   |
| $T_{VJ}$   | virtual junction temperature        |   | -55                                   |      | 150  | $^\circ\text{C}$ |   |
| $P_{tot}$  | total power dissipation             | $T_C = 25 \text{ }^\circ\text{C}$                       |                                       |      | 30   | W                |   |
| $I_{FSM}$  | max. forward surge current          | $t_p = 10 \text{ ms (50 Hz), sine}$                     |                                       |      | 100  | A                |   |
| $C_j$      | junction capacitance                | $V_R = \text{ V; } f = 1 \text{ MHz}$                   |                                       |      |      | pF               |   |
| $E_{AS}$   | non-repetitive avalanche energy     | $I_{AS} = \text{ A; } L = 100 \text{ } \mu\text{H}$     |                                       |      | tbd  | mJ               |   |
| $I_{AR}$   | repetitive avalanche current        | $V_A = 1.5 \cdot V_R \text{ typ.; } f = 10 \text{ kHz}$ |                                       |      | tbd  | A                |   |

| Symbol        | Definition                          | Conditions | Ratings |      |      | Unit |
|---------------|-------------------------------------|------------|---------|------|------|------|
|               |                                     |            | min.    | typ. | max. |      |
| $I_{RMS}$     | RMS current                         | per pin*   |         |      | 35   | A    |
| $R_{thCH}$    | thermal resistance case to heatsink |            |         | 0.50 |      | K/W  |
| $M_D$         | mounting torque                     |            | 0.4     |      | 0.6  | Nm   |
| $F_c$         | mounting force with clip            |            | 20      |      | 60   | N    |
| $T_{stg}$     | storage temperature                 |            | -55     |      | 150  | °C   |
| <b>Weight</b> |                                     |            |         | 2    |      | 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-220FPAB**


| SYM             | INCHES   |      | MILLIMETERS |       |
|-----------------|----------|------|-------------|-------|
|                 | MIN      | MAX  | MIN         | MAX   |
| A               | .177     | .193 | 4.50        | 4.90  |
| A1              | .092     | .108 | 2.34        | 2.74  |
| A2              | .101     | .117 | 2.56        | 2.96  |
| b               | .028     | .035 | 0.70        | 0.90  |
| b1              | .050     | .058 | 1.27        | 1.47  |
| c               | .018     | .024 | 0.45        | 0.60  |
| D               | .617     | .633 | 15.67       | 16.07 |
| E               | .392     | .408 | 9.96        | 10.36 |
| e               | .100 BSC |      | 2.54 BSC    |       |
| H               | .255     | .271 | 6.48        | 6.88  |
| L               | .499     | .523 | 12.68       | 13.28 |
| L1              | .119     | .135 | 3.03        | 3.43  |
| $\varnothing P$ | .121     | .129 | 3.08        | 3.28  |
| Q               | .126     | .134 | 3.20        | 3.40  |