

## Schottky Diode

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

$$I_{FAV} = 6 \text{ A}$$

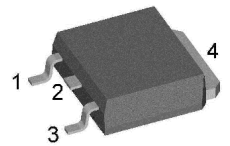
$$V_F = 0.62 \text{ V}$$

High Performance Schottky Diode  
Low Loss and Soft Recovery  
Single Diode

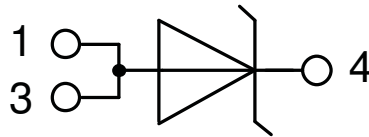
Part number

**DSS6-015AS**

Marking on Product: 6Y150AS



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-252 (DPak)

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

### Terms Conditions of usage:

The data contained in this product data sheet is exclusively intended for technically trained staff. The user will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to his application. The specifications of our components may not be considered as an assurance of component characteristics. The information in the valid application- and assembly notes must be considered. Should you require product information in excess of the data given in this product data sheet or which concerns the specific application of your product, please contact the sales office, which is responsible for you.

Due to technical requirements our product may contain dangerous substances. For information on the types in question please contact the sales office, which is responsible for you.

Should you intend to use the product in aviation, in health or live endangering or life support applications, please notify. For any such application we urgently recommend

- to perform joint risk and quality assessments;

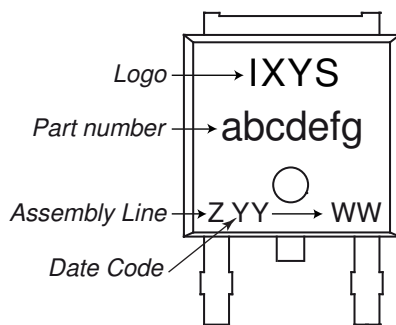
- the conclusion of quality agreements;

- to establish joint measures of an ongoing product survey, and that we may make delivery dependent on the realization of any such measures.

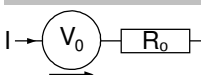
| Schottky   |  |  |                    | Ratings                      |      |      |               |
|------------|--|--|--------------------|------------------------------|------|------|---------------|
| Symbol     | Definition                                   | Conditions   |                    | 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                         | $I_F = 6\text{ A}$   |                    | $T_{VJ} = 25^\circ\text{C}$  |      | 0.78 | V             |
|            |  | $I_F = 12\text{ A}$  |                    |                              |      | 0.86 | V             |
|            |  | $I_F = 6\text{ A}$   |                    | $T_{VJ} = 125^\circ\text{C}$ |      | 0.62 | V             |
|            |  | $I_F = 12\text{ A}$  |                    |                              |      | 0.71 | V             |
| $I_{FAV}$  | average forward current                      | $T_C = 165^\circ\text{C}$  | rectangular        | $T_{VJ} = 175^\circ\text{C}$ |      | 6    | A             |
| $V_{FO}$   | threshold voltage                            | } for power loss calculation only                                  |                    |                              |      | 0.45 | V             |
| $r_F$      | slope resistance                             |  |                    |                              |      | 14.6 | m $\Omega$    |
| $R_{thJC}$ | thermal resistance junction to case          |  |                    |                              |      | 3    | K/W           |
| $R_{thCH}$ | thermal resistance case to heatsink          |  |                    |                              |      | 0.50 | K/W           |
| $P_{tot}$  | total power dissipation                      |  |                    | $T_C = 25^\circ\text{C}$     |      | 50   | W             |
| $I_{FSM}$  | max. forward surge current                   | $t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$ |                    | $T_{VJ} = 45^\circ\text{C}$  |      | 120  | A             |
| $C_J$      | junction capacitance                         | $V_R = 24\text{ V}$  | $f = 1\text{ MHz}$ | $T_{VJ} = 25^\circ\text{C}$  |      | 82   | pF            |

| Package TO-252 (DPak) |                              |                            | Ratings |      |      |      |
|-----------------------|------------------------------|----------------------------|---------|------|------|------|
| Symbol                | Definition                   | Conditions                 | min.    | typ. | max. | Unit |
| $I_{RMS}$             | RMS current                  | per terminal <sup>1)</sup> |         |      | 20   | 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>         |                              |                            |         | 0.3  |      | g    |
| $F_C$                 | mounting force with clip     |                            | 20      |      | 60   | N    |

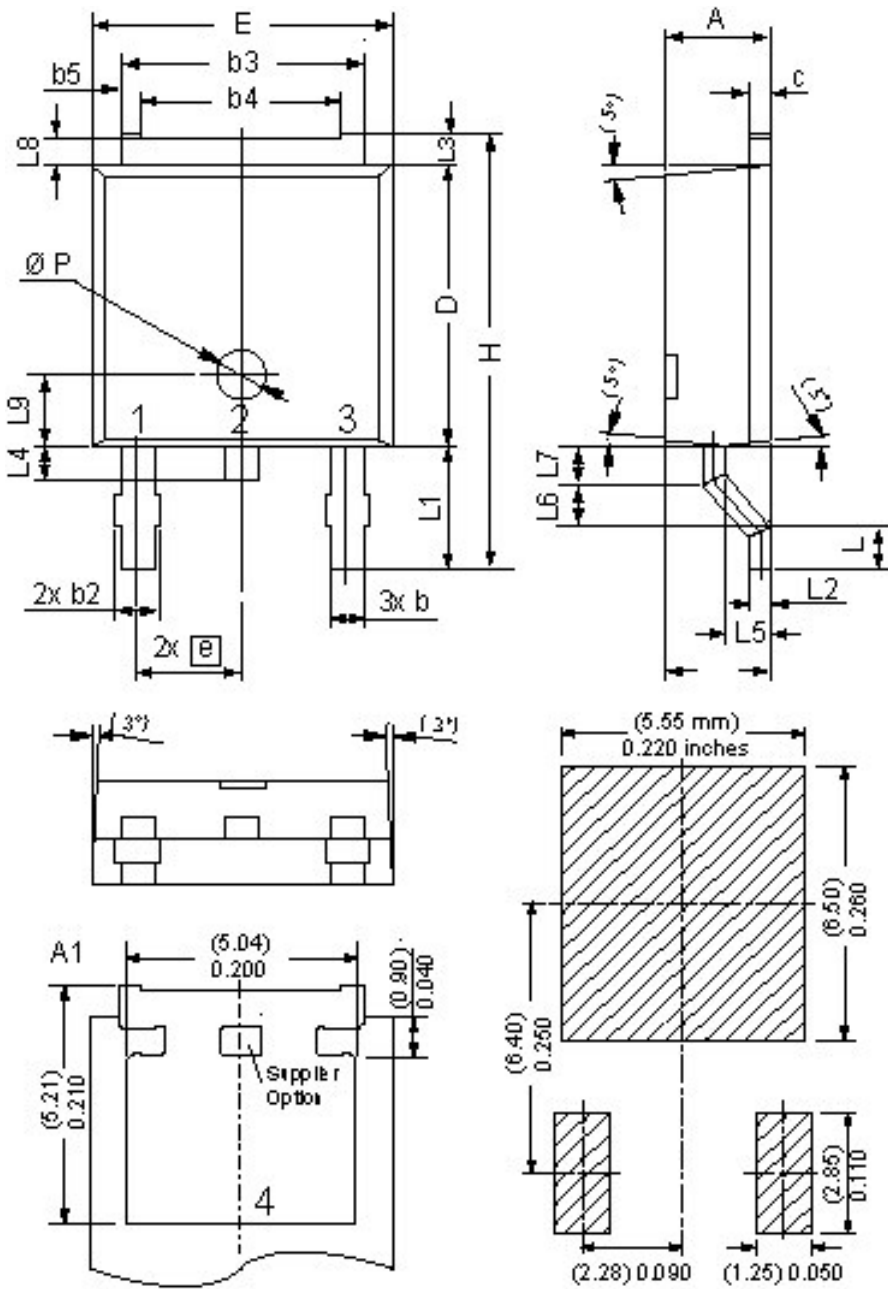
<sup>1)</sup>  $I_{RMS}$  is typically limited by the pin-to-chip resistance (1); or by the current capability of the chip (2). In case of (1) and a product with multiple pins for one chip-potential, the current capability can be increased by connecting the pins as one contact.

**Product Marking**


| Ordering | Ordering Number | Marking on Product | Delivery Mode | Quantity | Code No. |
|----------|-----------------|--------------------|---------------|----------|----------|
| Standard | DSS6-015AS      | 6Y150AS            | Tape & Reel   | 2500     | 498912   |

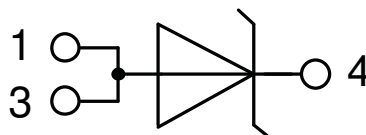
**Equivalent Circuits for Simulation**
*\* on die level*
 $T_{VJ} = 175\text{ °C}$ 

**Schottky**

|              |                    |      |    |
|--------------|--------------------|------|----|
| $V_{0\ max}$ | threshold voltage  | 0.45 | V  |
| $R_{0\ max}$ | slope resistance * | 11.4 | mΩ |

**Outlines TO-252 (DPak)**


| Dim | Millimeters |       | Inches |       |
|-----|-------------|-------|--------|-------|
|     | min         | max   | min    | max   |
| A   | 2.20        | 2.40  | 0.087  | 0.094 |
| A1  | 2.10        | 2.50  | 0.083  | 0.098 |
| b   | 0.66        | 0.86  | 0.026  | 0.034 |
| b2  | -           | 0.96  | -      | 0.038 |
| b3  | 5.04        | 5.64  | 0.198  | 0.222 |
| b4  | 4.34        | BSC   | 0.171  | BSC   |
| b5  | 0.50        | BSC   | 0.020  | BSC   |
| c   | 0.40        | 0.86  | 0.016  | 0.034 |
| D   | 5.90        | 6.30  | 0.232  | 0.248 |
| E   | 6.40        | 6.80  | 0.252  | 0.268 |
| e   | 2.10        | 2.50  | 0.083  | 0.098 |
| H   | 9.20        | 10.10 | 0.362  | 0.398 |
| L   | 0.55        | 1.28  | 0.022  | 0.050 |
| L1  | 2.50        | 2.90  | 0.098  | 0.114 |
| L2  | 0.40        | 0.60  | 0.016  | 0.024 |
| L3  | 0.50        | 0.90  | 0.020  | 0.035 |
| L4  | 0.60        | 1.00  | 0.024  | 0.039 |
| L5  | 0.82        | 1.22  | 0.032  | 0.048 |
| L6  | 0.79        | 0.99  | 0.031  | 0.039 |
| L7  | 0.81        | 1.01  | 0.032  | 0.040 |
| L8  | 0.40        | 0.80  | 0.016  | 0.031 |
| L9  | 1.50        | BSC   | 0.059  | BSC   |
| Ø P | 1.00        | BSC   | 0.039  | BSC   |

Recommended  
min. footprint



**Schottky**

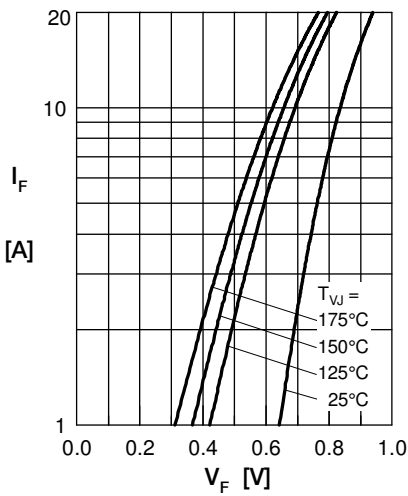


Fig. 1 Max. forward voltage drop characteristics

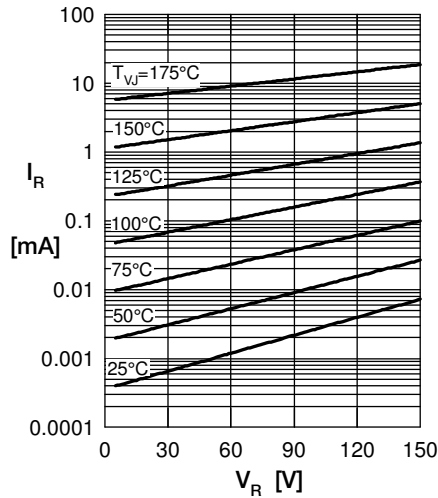


Fig. 2 Typ. reverse current  $I_R$  vs. reverse voltage  $V_R$

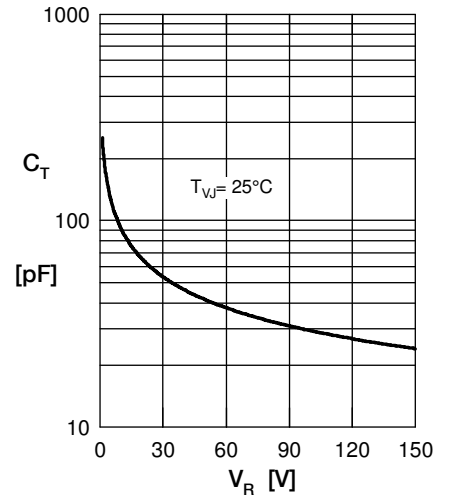


Fig. 3 Typ. junction capacitance  $C_T$  vs. reverse voltage  $V_R$

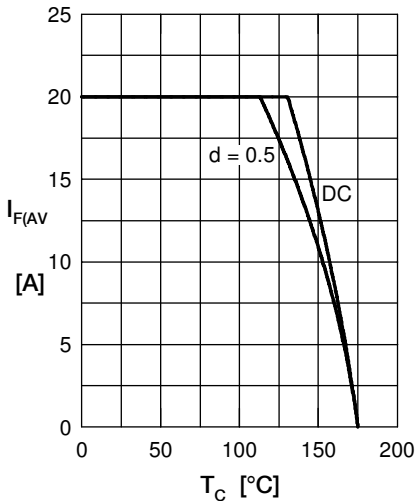


Fig. 4 Average forward current  $I_{F(AV)}$  vs. case temp.  $T_C$

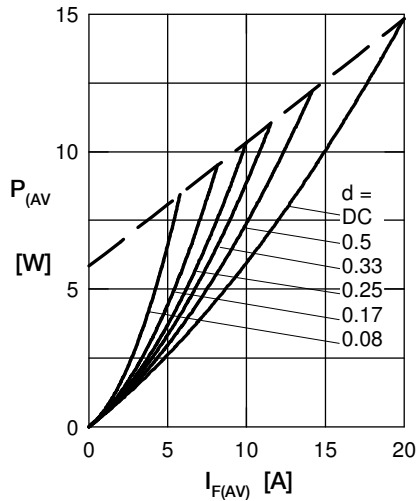


Fig. 5 Forward power loss characteristics

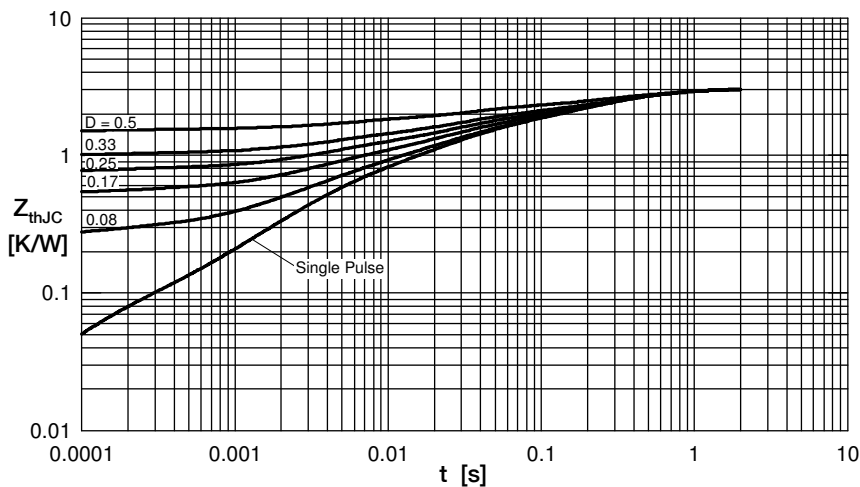


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode