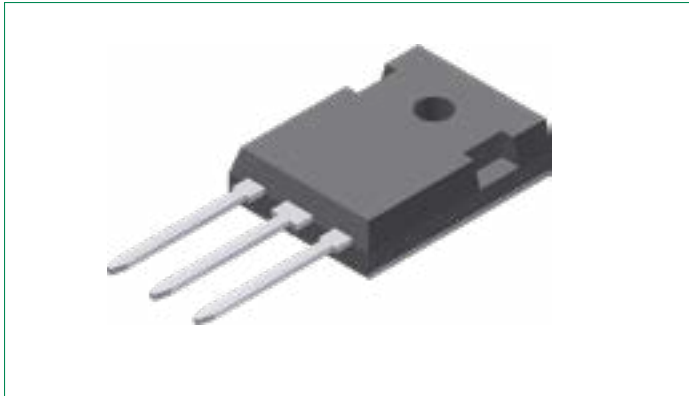


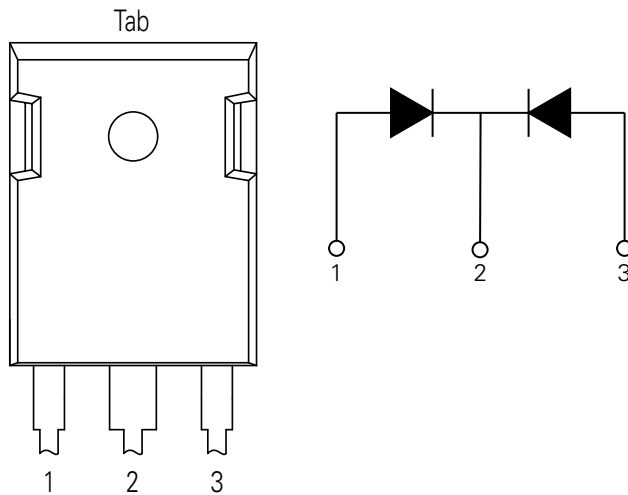
**DSSK30-018A**

180 V, 2 x 15 A Schottky Diode

RoHS

**Features:**

- Very low  $V_F$
- Extremely low switching losses
- Low  $I_{RM}$  values
- Improved thermal behavior
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching
- RoHS compliant
- Epoxy meets UL 94 V-0

**Pinout Diagram** (TO-247)**1:** Anode; **2:** Cathode; **3:** Anode; **tab:** Cathode**Applications:**

- Rectifiers in Switch Mode Power Supplies (SMPS)
- Free wheeling diode in low voltage converters

**Product Summary**

| Characteristic | Value  | Unit |
|----------------|--------|------|
| $V_{RRM}$      | 180    | V    |
| $I_{FAV}$      | 2 x 15 | A    |
| $V_F$          | 0.72   | V    |

## Maximum Ratings

| Symbol         | Characteristics                                  | Condition                                                        | Max.        | Units              |
|----------------|--------------------------------------------------|------------------------------------------------------------------|-------------|--------------------|
| $V_{RSM}$      | Maximum Non-repetitive Reverse Blocking Voltage  | $T_{VJ} = 25^{\circ}\text{C}$                                    | 180         | V                  |
| $V_{RRM}$      | Maximum Repetitive Reverse Blocking Voltage      | $T_{VJ} = 25^{\circ}\text{C}$                                    | 180         | V                  |
| $I_{RMS}$      | RMS Current                                      | per terminal                                                     | 50          | A                  |
| $I_{R(max)}$   | Reverse Current                                  | $V_R = 180\text{ V}, T_{VJM} = 25^{\circ}\text{C}$               | 0.5         | mA                 |
|                |                                                  | $V_R = 180\text{ V}, T_{VJM} = 125^{\circ}\text{C}$              | 2.5         |                    |
| $I_{FAV(max)}$ | Average Forward Current<br>Rectangular $d = 0.5$ | $T_C = 165^{\circ}\text{C}, T_{VJM} = 175^{\circ}\text{C}$       | 15          | A                  |
| $I_{FSM(max)}$ | Maximum Forward Surge Current (Half Sine)        | $t = 10\text{ ms}, (50\text{ Hz}), T_{VJM} = 45^{\circ}\text{C}$ | 300         | A                  |
| $P_{tot(max)}$ | Total Power Dissipation                          | $T_C = 25^{\circ}\text{C}$                                       | 165         | W                  |
| $T_{VJ}$       | Virtual Junction Temperature                     | –                                                                | -55 to +175 | $^{\circ}\text{C}$ |
| $T_{op}$       | Operating Temperature                            | –                                                                | -55 to +150 | $^{\circ}\text{C}$ |

## Electrical Characteristics

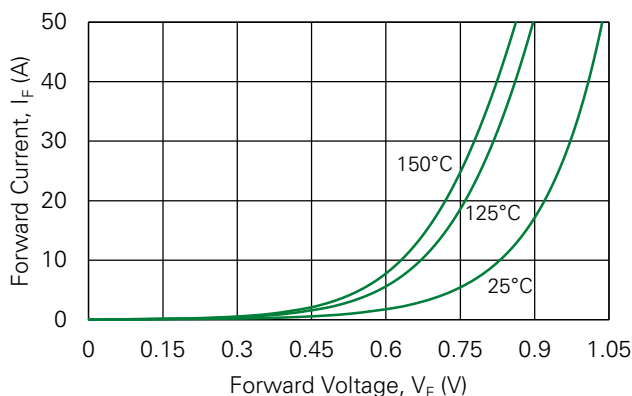
| Symbol        | Characteristics      | Conditions                                                         | Specification | Units            |
|---------------|----------------------|--------------------------------------------------------------------|---------------|------------------|
| $V_F$         | Forward Voltage Drop | $I_F = 15\text{ A}; T_{VJM} = 25^{\circ}\text{C}$                  | 0.88          | V                |
|               |                      | $I_F = 30\text{ A}; T_{VJM} = 25^{\circ}\text{C}$                  | 0.97          |                  |
|               |                      | $I_F = 15\text{ A}; T_{VJM} = 125^{\circ}\text{C}$                 | 0.72          |                  |
|               |                      | $I_F = 30\text{ A}; T_{VJM} = 125^{\circ}\text{C}$                 | 0.82          |                  |
| $V_{F0(max)}$ | Threshold Voltage    | $T_{VJM} = 175^{\circ}\text{C}$                                    | 0.56          | V                |
| $r_{F(max)}$  | Slope Resistance     |                                                                    | 5.5           | $\text{m}\Omega$ |
| $C_{J(typ)}$  | Junction Capacitance | $V_R = 5\text{ V}, T_{VJM} = 25^{\circ}\text{C}, f = 1\text{ MHz}$ | 380           | pF               |

## Thermal Specifications

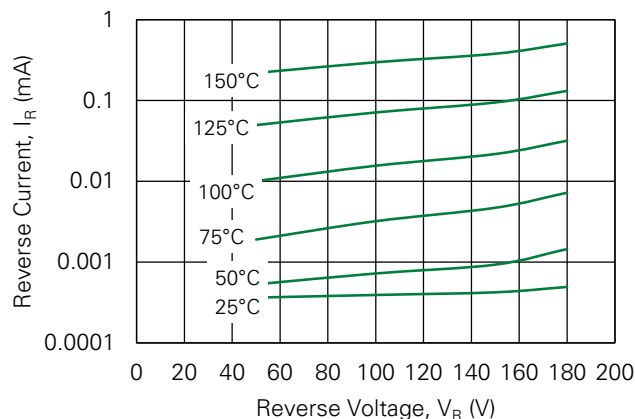
| Symbol          | Characteristics                      | Condition | Specification | Units |
|-----------------|--------------------------------------|-----------|---------------|-------|
| $R_{thJC(max)}$ | Thermal Resistance Junction to Case  | –         | 0.9           | K/W   |
| $R_{thCH(typ)}$ | Thermal Resistance Case to Heat Sink | –         | 0.3           | K/W   |

## Characteristic Curves

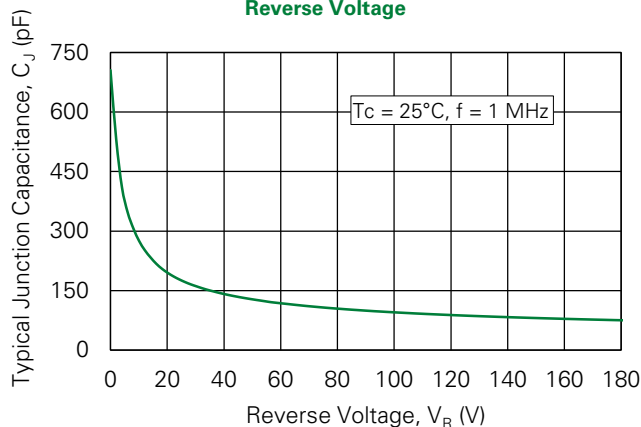
**Figure 1. Maximum Forward Voltage Drop Characteristics**



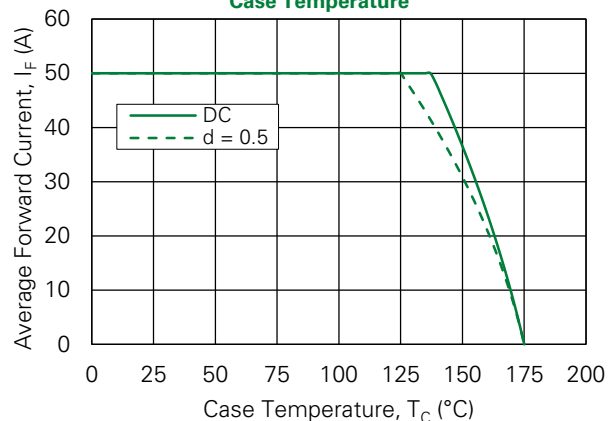
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



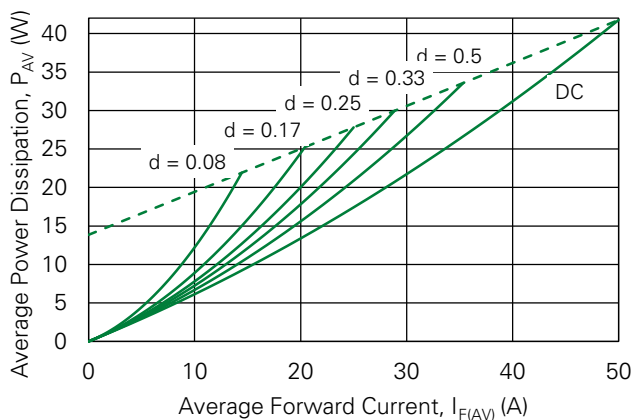
**Figure 3. Typical Junction Capacitance vs. Reverse Voltage**



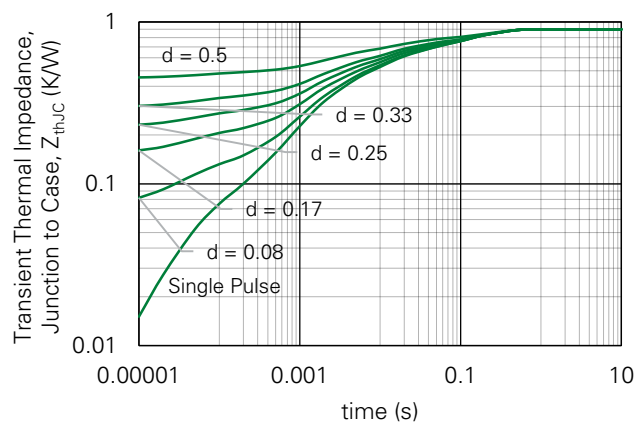
**Figure 4. Average Forward Current vs. Case Temperature**



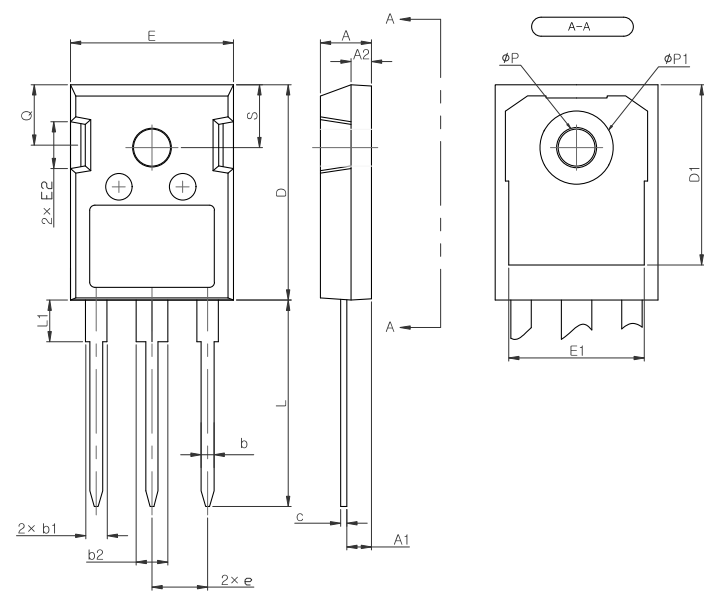
**Figure 5. Forward Power Loss Characteristics**



**Figure 6. Transient Thermal Impedance**

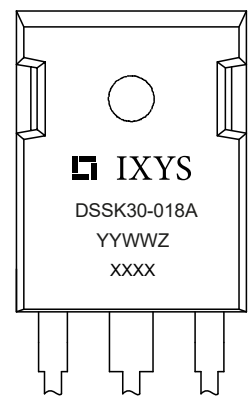


Part Outline Drawing (TO-247)



| Symbol | Inches    |       | Millimeters |       |
|--------|-----------|-------|-------------|-------|
|        | Min.      | Max.  | Min.        | Max.  |
| A      | 0.189     | 0.205 | 4.80        | 5.20  |
| A1     | 0.090     | 0.10  | 2.29        | 2.54  |
| A2     | 0.075     | 0.083 | 1.90        | 2.10  |
| b      | 0.043     | 0.051 | 1.10        | 1.30  |
| b1     | 0.075     | 0.087 | 1.91        | 2.20  |
| b2     | 0.115     | 0.126 | 2.92        | 3.20  |
| c      | 0.020     | 0.027 | 0.50        | 0.70  |
| D      | 0.819     | 0.840 | 20.80       | 21.34 |
| D1     | 0.686     | 0.702 | 17.43       | 17.83 |
| E      | 0.620     | 0.635 | 15.75       | 16.13 |
| E1     | 0.514     | 0.530 | 13.06       | 13.46 |
| E2     | 0.170     | 0.190 | 4.32        | 4.83  |
| e      | 0.215 BSC |       | 5.45 BSC    |       |
| L      | 0.781     | 0.797 | 19.85       | 20.25 |
| L1     | –         | 0.177 | –           | 4.49  |
| Ø P    | 0.140     | 0.144 | 3.55        | 3.65  |
| Ø P1   | 0.281-    | 0.285 | 7.14        | 7.24  |
| Q      | 0.220     | 0.244 | 5.59        | 6.19  |
| S      | 0.242 BSC |       | 6.15 BSC    |       |

Part Number and Marking



- D = Diode
- S = Schottky Diode
- SK = Product Generation
- 30 = Current Rate
- 018 = Voltage Rating
- A = Package Code
- YY = Year
- WW = Work Week
- Z = Plant Location Code
- xxxx = Lot Number

Ordering Information

| Part Number | Marking     | Packing Mode | Quantity     |
|-------------|-------------|--------------|--------------|
| DSSK30-018A | DSSK30-018A | Tube         | 30 pcs/ tube |

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Part of:

