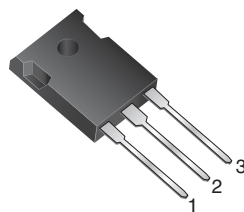


## Dual Common Cathode Ultrafast Rectifier


**TO-247AD (TO-3P)**


### FEATURES

- Power pack
- Glass passivated pallet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low thermal resistance
- High forward surge capability
- Solder dip 260 °C, 40 s
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/DC converters, and other power switching application.

### MECHANICAL DATA

**Case:** TO-247AD (TO-3P)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs max.

| PRIMARY CHARACTERISTICS |                                                       |
|-------------------------|-------------------------------------------------------|
| $I_{F(AV)}$             | 30 A                                                  |
| $V_{RRM}$               | 50 V, 100 V, 150 V, 200 V, 300 V, 400 V, 500 V, 600 V |
| $I_{FSM}$               | 300 A                                                 |
| $t_{rr}$                | 35 ns, 50 ns                                          |
| $V_F$ at $I_F = 15$ A   | 0.95 V, 1.3 V, 1.5 V                                  |
| $T_J$ max.              | 150 °C                                                |
| Package                 | TO-247AD (TO-3P)                                      |
| Diode variations        | Dual common cathode                                   |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                                      |                |             |          |          |          |          |          |          |          |      |
|----------------------------------------------------------------------------------------------|----------------|-------------|----------|----------|----------|----------|----------|----------|----------|------|
| PARAMETER                                                                                    | SYMBOL         | FEP 30AP    | FEP 30BP | FEP 30CP | FEP 30DP | FEP 30FP | FEP 30GP | FEP 30HP | FEP 30JP | UNIT |
| Maximum repetitive peak reverse voltage                                                      | $V_{RRM}$      | 50          | 100      | 150      | 200      | 300      | 400      | 500      | 600      | V    |
| Maximum RMS voltage                                                                          | $V_{RMS}$      | 35          | 70       | 105      | 140      | 210      | 280      | 350      | 420      | V    |
| Maximum DC blocking voltage                                                                  | $V_{DC}$       | 50          | 100      | 150      | 200      | 300      | 400      | 500      | 600      | V    |
| Maximum average forward rectified current at $T_C = 100$ °C                                  | $I_{F(AV)}$    | 30          |          |          |          |          |          |          |          | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 300         |          |          |          |          |          |          |          | A    |
| Operating storage and temperature range                                                      | $T_J, T_{STG}$ | -55 to +150 |          |          |          |          |          |          |          | °C/W |

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                         | TEST CONDITIONS                                                                | SYMBOL          | FEP 30AP | FEP 30BP | FEP 30CP | FEP 30DP | FEP 30FP | FEP 30GP | FEP 30HP | FEP 30JP | UNIT |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|------|
| Maximum instantaneous forward voltage per diode                   | 15.0 A                                                                         | V <sub>F</sub>  | 0.95     |          |          |          | 1.3      |          | 1.5      |          | V    |
| Maximum DC reverse current at rated DC blocking voltage per diode | T <sub>C</sub> = 25 °C                                                         | I <sub>R</sub>  | 10       |          |          |          |          |          |          |          | μA   |
|                                                                   | T <sub>C</sub> = 100 °C                                                        |                 | 500      |          |          |          |          |          |          |          |      |
| Maximum reverse recovery time per diode                           | I <sub>F</sub> = 0.5 A,<br>I <sub>R</sub> = 1.0 A,<br>I <sub>rr</sub> = 0.25 A | t <sub>rr</sub> | 35       |          |          |          | 50       |          |          |          | ns   |
| Typical junction capacitance per diode                            | 4.0 V, 1 MHz                                                                   | C <sub>J</sub>  | 175      |          |          |          |          |          | 145      |          | pF   |

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                            | SYMBOL                | FEP 30AP | FEP 30BP | FEP 30CP | FEP 30DP | FEP 30FP | FEP 30GP | FEP 30HP | FEP 30JP | UNIT                 |
|--------------------------------------|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------------------|
| Typical thermal resistance per diode | $R_{\theta JC}^{(1)}$ | 1.0      |          |          |          |          |          |          |          | $^{\circ}\text{C/W}$ |

**Note**

<sup>(1)</sup> Thermal resistance from junction to case per diode mounted on heatsink

**ORDERING INFORMATION** (Example)

| PACKAGE  | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|---------------|-----------------|--------------|---------------|---------------|
| TO-247AD | FEP30JP-E3/45 | 6.15            | 30           | 30/tube       | Tube          |

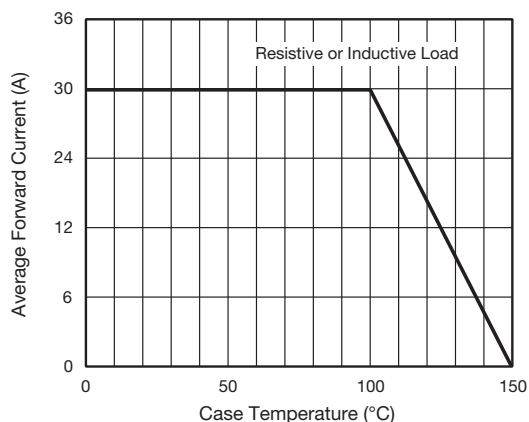
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

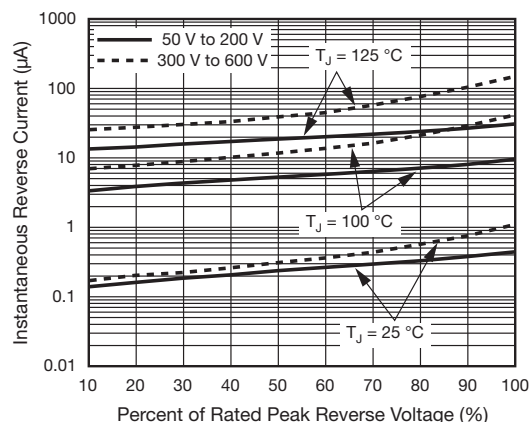


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

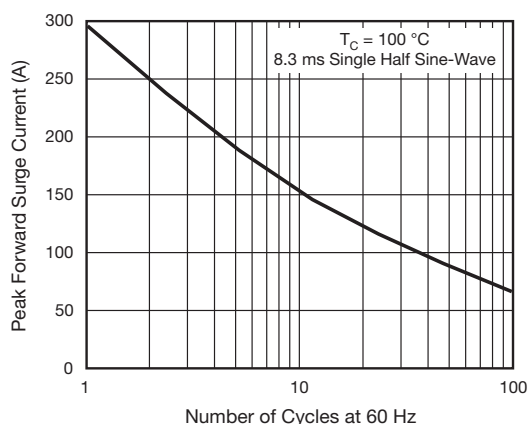


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

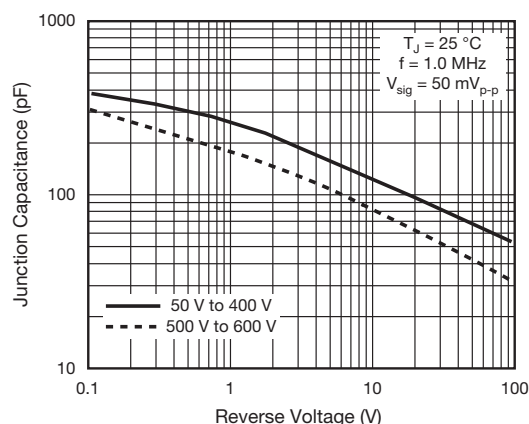


Fig. 5 - Typical Junction Capacitance Per Diode

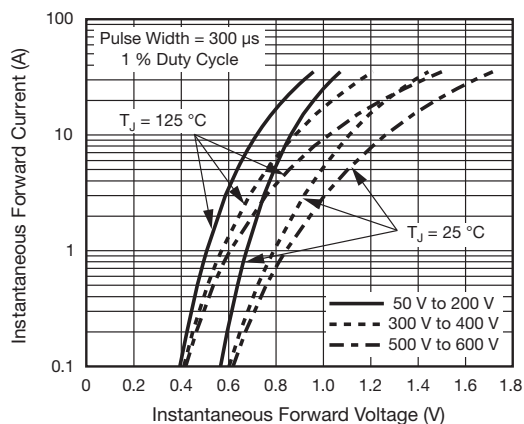
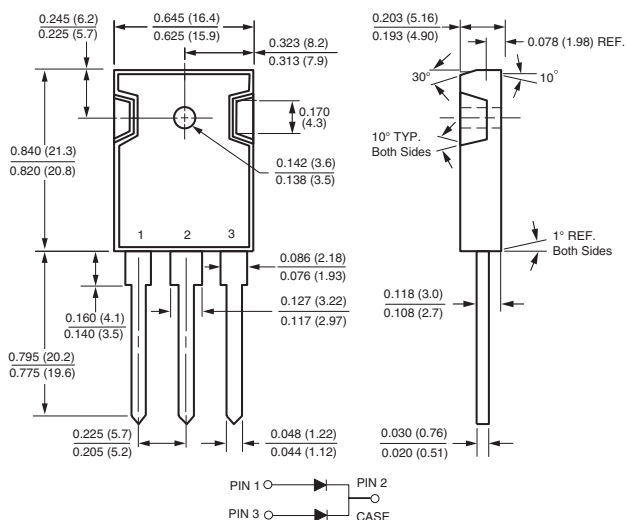


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode



**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-247AD (TO-3P)**





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