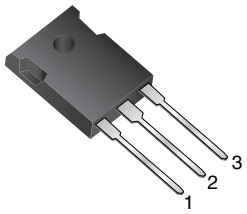
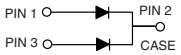
# Dual Common Cathode Ultrafast Rectifier




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




## FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low thermal resistance
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** TO-247AD (TO-3P)
Epoxy meets UL 94 V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 30 A |
| $V_{RRM}$ | 50 V to 600 V |
| $I_{FSM}$ | 300 A |
| $t_{rr}$ | 35 ns, 50 ns |
| $V_F$ | 0.95 V, 1.3 V, 1.5 V |
| $T_J$ max. | 150 °C |

**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 |


For technical questions within your region, please contact one of the following:
DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °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 | $V_F$ | 0.95 | | | | 1.3 | | 1.5 | | V |
| Maximum DC reverse current at rated DC blocking voltage per diode | $T_C$ = 25 °C | $I_R$ | 10 | | | | | | | | μA |
| | $T_C$ = 100 °C | | 500 | | | | | | | | |
| Maximum reverse recovery time per diode | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | $t_{rr}$ | 35 | | | | 50 | | | | ns |
| Typical junction capacitance per diode | 4.0 V, 1 MHz | $C_J$ | 175 | | | | | | 145 | | pF |

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| PARAMETER | SYMBOL | FEP 30AP | FEP 30BP | FEP 30CP | FEP 30DP | FEP 30FP | FEP 30GP | FEP 30HP | FEP 30JP | UNIT |
| Typical thermal resistance per diode | $R_{\theta JC}$ (1) | 1.0 | | | | | | | | °C/W |

**Note**

(1) 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 °C unless otherwise noted)

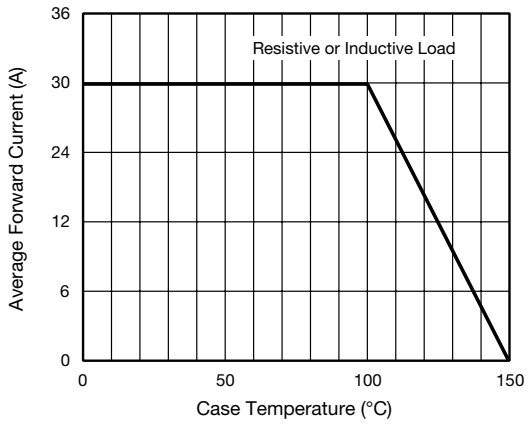



Fig. 1 - Forward Current Derating Curve

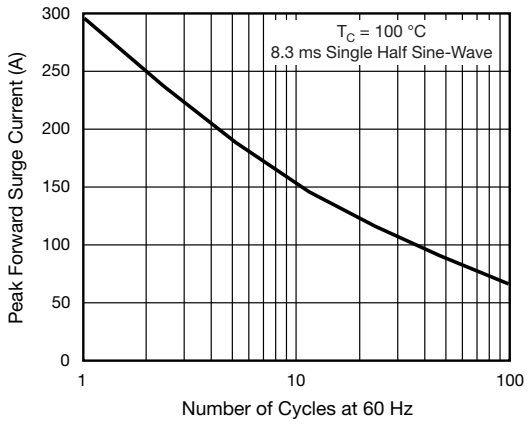



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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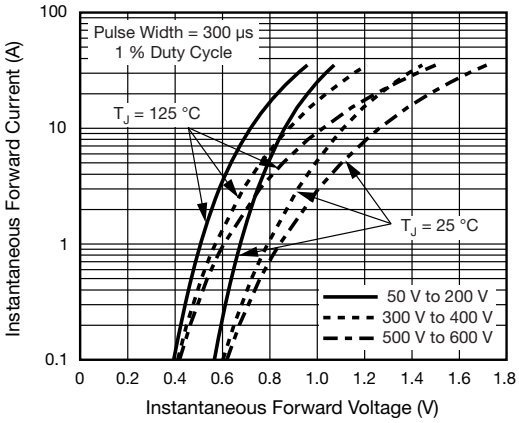



Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

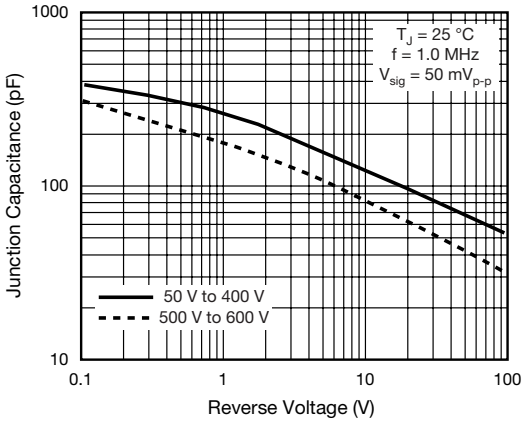



Fig. 5 - Typical Junction Capacitance Per Diode

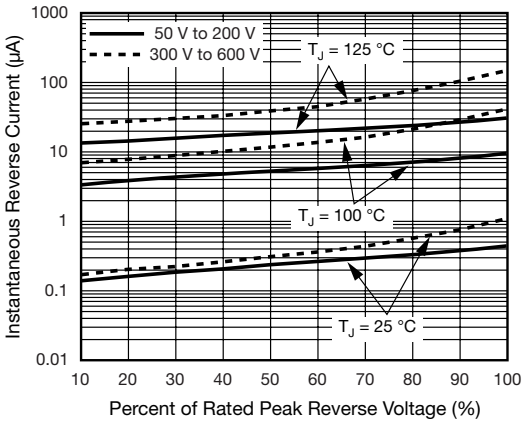
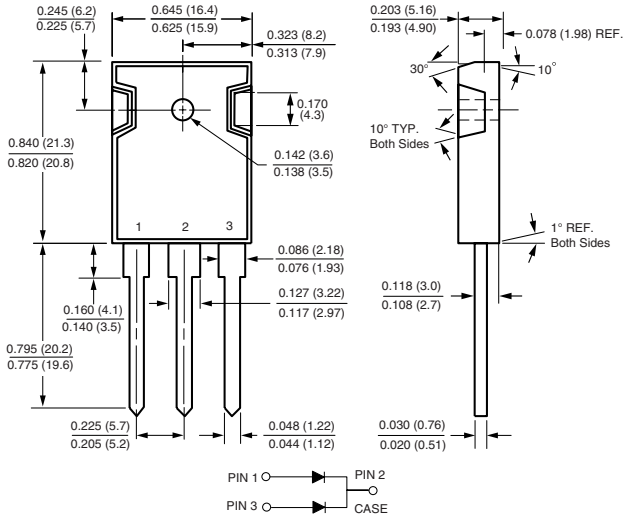



Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

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

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



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