THINKI SEMICONDUCTOR ®

Pb Free Plating Product

U30D20C/U30D30C/U30D40C/U30D50C/U30D60C

RoHS Pb

30.0Ampere Heat Sink Dual Common Cathode Ultra Fast Recovery Half Bridge Rectifiers

**Features**

- ✶ Fast switching for high efficiency
- ✶ Low forward voltage drop
- ✶ High current capability
- ✶ Low reverse leakage current
- ✶ High surge current capability

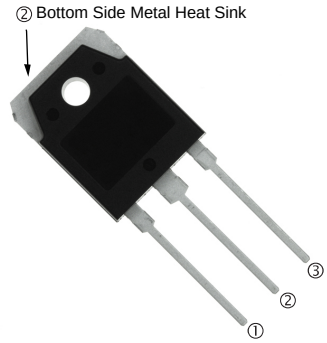
Application

- ✶ Automotive Inverters and Solar Inverters
- ✶ Plating Power Supply,Motor Control,SMPS and UPS
- ✶ Car Audio Amplifiers and Sound Device Systems

**Mechanical Data**

- ✶ Case: Heatsink TO-3PN open metal package
- ✶ Epoxy: UL 94V-0 rate flame retardant
- ✶ Terminals: Solderable per MIL-STD-202 method 208
- ✶ Polarity: As marked on diode body
- ✶ Mounting position: Any
- ✶ Weight: 0.65 gram approximately

TO-3PN







Positive Common Cathode Suffix "C" | Negative Common Anode Suffix "A" | Doubler Tandem Polarity Suffix "D" | Series Tandem Polarity Suffix "S"

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| | SYMBOL | U30D20C | U30D30C U30D40C | U30D50C U30D60C | UNIT |
|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 200 | 400 | 600 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 140 | 280 | 420 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 200 | 400 | 600 | V |
| Maximum Average Forward Rectified Current $T_C$=125°C (Total Device 2x15A=30A) | $I_{F(AV)}$ | 30.0 | | | A |
| Peak Forward Surge Current, 8.3ms single Half sine-wave superimposed on rated load (JEDEC method) | $I_{FSM}$ | 300 | | | A |
| Maximum Instantaneous Forward Voltage @ 15.0 A (Per Diode/Per Leg) | $V_F$ | 0.98 | 1.3 | 1.7 | V |
| Maximum DC Reverse Current @$T_J$=25°C<br>At Rated DC Blocking Voltage @$T_J$=125°C | $I_R$ | 10<br>500 | | | uA<br>uA |
| Maximum Reverse Recovery Time (Note 1) | Trr | 35-50 | | | nS |
| Typical junction Capacitance (Note 2) | $C_J$ | 150 | | | pF |
| Operating Junction and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +150 | | | °C |

NOTES : (1) Reverse recovery test conditions $I_F$ = 0.5A $I_R$ = 1.0A Irr = 0.25A.
(2) Thermal Resistance junction to terminal.
(3) Measured at 1.0 MHz and applied reverse voltage of 4.0 Volts DC.



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FIG.1 - FORWARD CURRENT DERATING CURVE

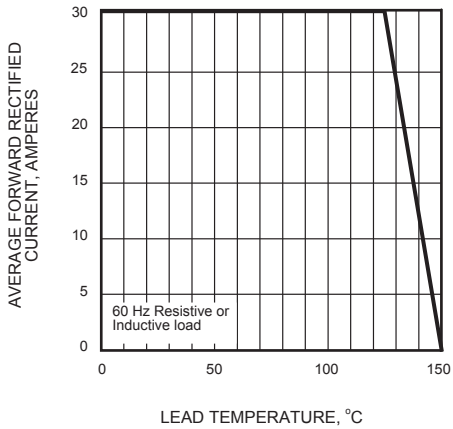



FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

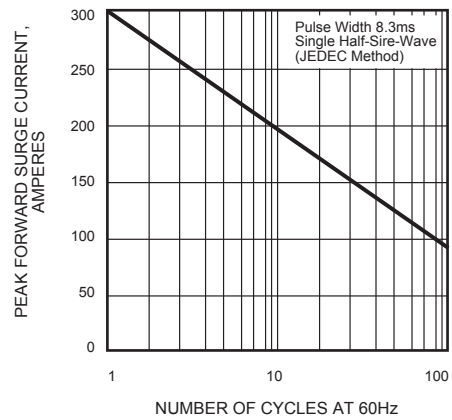



FIG.3 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

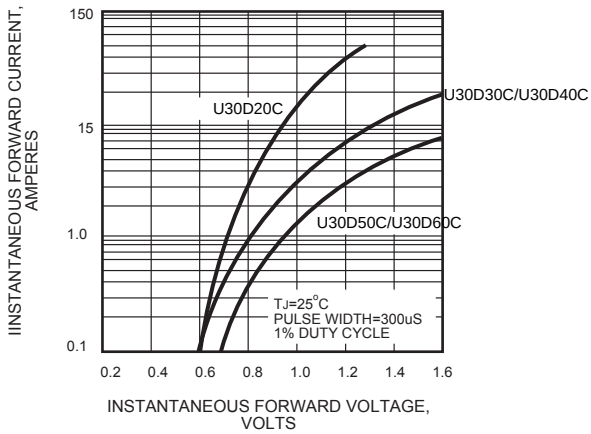



FIG.4 - TYPICAL REVERSE CHARACTERISTICS

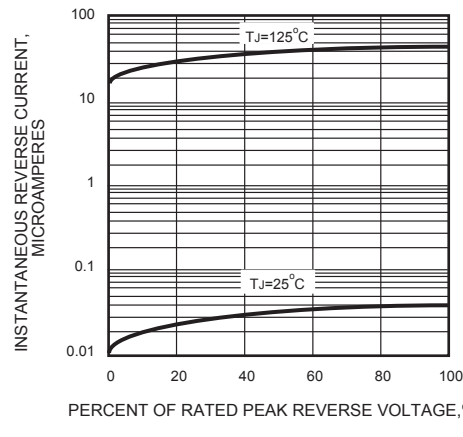
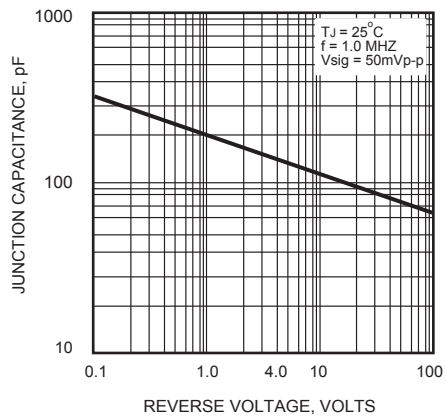



FIG.5 - TYPICAL JUNCTION CAPACITANCE





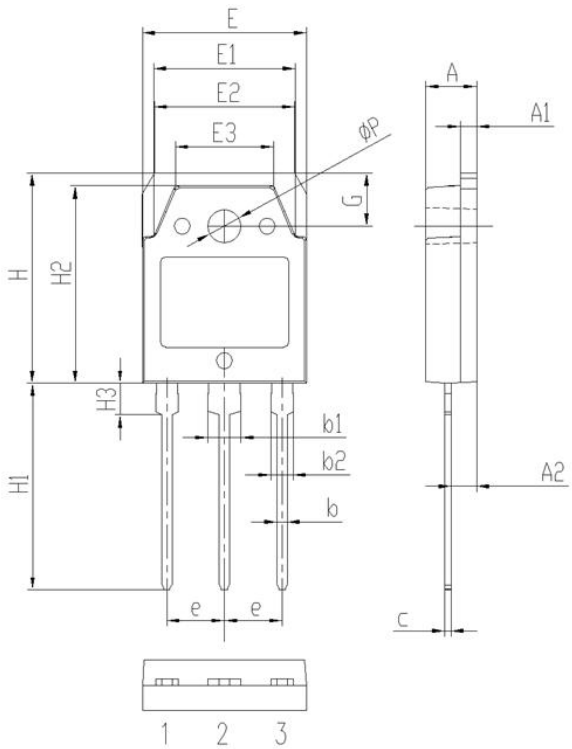

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## Package Information

TO-3PN Package Outline




| Symbol | Dimensions(millimeters) | |
|---|---|---|
| | Min. | Max. |
| A | 4.60 | 5.00 |
| A1 | 1.50 | 2.00 |
| A2 | 2.20 | 2.60 |
| b | 0.80 | 1.20 |
| b1 | 2.90 | 3.30 |
| b2 | 1.90 | 2.30 |
| c | 0.40 | 0.80 |
| e | 5.25 | 5.65 |
| E | 15.3 | 15.7 |
| E1 | 13.2 | 13.6 |
| E2 | 13.1 | 13.5 |
| E3 | 9.10 | 9.50 |
| H | 19.7 | 20.1 |
| H1 | 19.1 | 20.1 |
| H2 | 18.3 | 18.7 |
| H3 | 2.80 | 3.20 |
| G | 4.80 | 5.20 |
| ΦP | 3.00 | 3.40 |



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