

Switch-mode Power Rectifier

DPAK Surface Mount Package

MURD330T4G, SURD8330T4G, SURD8330T4G-VF01

These state-of-the-art devices are designed for use in switching power supplies, inverters and as free wheeling diodes.

Features

- Low Forward Voltage Drop
- Low Leakage
- Ultra-Fast Recovery Time
- SURD8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 0.4 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|--|----------------|-------------|------|
| Rated Reverse Voltage | V_R | 300 | V |
| Average Rectified Forward Current ($T_C = 170^\circ\text{C}$) | I_F | 3.0 | A |
| Non-Repetitive Peak Surge Current | I_{FSM} | 75 | A |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +175 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

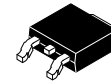


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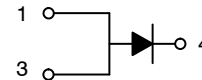
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ULTRAFAST RECTIFIER

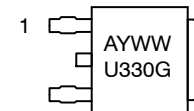
3 A, 300 V



DPAK
CASE 369C



MARKING DIAGRAM



U330 = Specific Device Code
A = Assembly Location*
Y = Year
WW = Work Week
G = Pb-Free Package

* The Assembly Location Code (A) is front side optional. In cases where the Assembly Location is stamped in the package bottom (molding ejecter pin), the front side assembly code may be blank.

ORDERING INFORMATION

| Device | Package | Shipping† |
|------------------|-------------------|-------------------|
| MURD330T4G | DPAK (Pb-Free) | 2,500/Tape & Reel |
| SURD8330T4G | DPAK (Pb-Free) | 2,500/Tape & Reel |
| SURD8330T4G-VF01 | DPAK (Pb-Free) | 2,500/Tape & Reel |

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MURD330T4G, SURD8330T4G, SURD8330T4G-VF01

THERMAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|---|-----------------|-------|-----------------------------|
| Thermal Resistance – Junction-to-Case | $R_{\theta JC}$ | 2 | $^{\circ}\text{C}/\text{W}$ |
| Thermal Resistance – Junction-to-Ambient (Note 1) | $R_{\theta JA}$ | 49 | $^{\circ}\text{C}/\text{W}$ |

1. Rating applies when surface mounted on a 700 mm², 1 oz Cu heat spreader.

ELECTRICAL CHARACTERISTICS

| Characteristics | Symbol | Value | Unit |
|---|----------|-----------------|---------------|
| Maximum Instantaneous Forward Voltage Drop ($I_F = 3\text{ A}$, $T_J = 25^{\circ}\text{C}$) ($I_F = 3\text{ A}$, $T_J = 150^{\circ}\text{C}$) | V_F | 1.15 0.92 | V |
| Maximum Instantaneous Reverse Current ($T_J = 25^{\circ}\text{C}$, 300 V) ($T_J = 150^{\circ}\text{C}$, 300 V) | I_R | 5 500 | μA |
| Maximum Reverse Recovery Time ($I_F = 1\text{ A}$, $di/dt = 50\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $T_J = 25^{\circ}\text{C}$) | t_{rr} | 50 | ns |
| ESD Ratings: Machine Model = C Human Body Model = 3B | | > 400 > 8000 | V |
| Typical Peak Reverse Recovery Current ($I_F = 1.0\text{ A}$, $di/dt = 50\text{ A}/\mu\text{s}$) | I_{RM} | 1.5 | A |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL CHARACTERISTICS

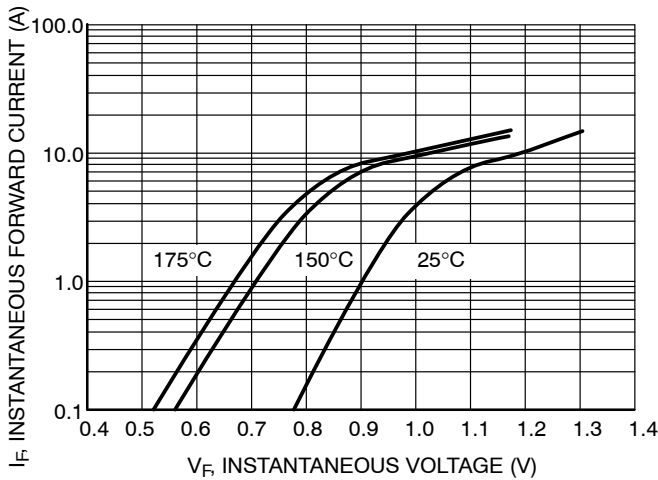


Figure 1. Typical Forward Voltage

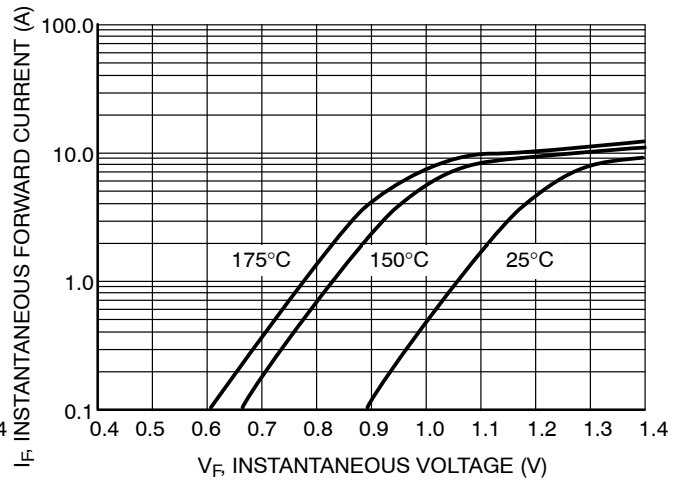


Figure 2. Maximum Forward Voltage

TYPICAL CHARACTERISTICS

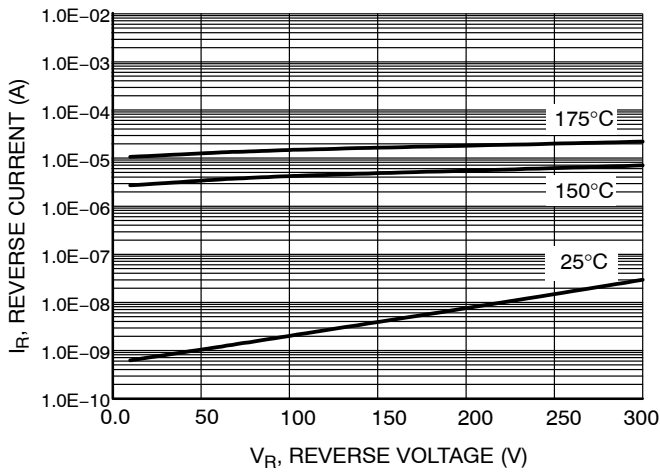


Figure 3. Typical Reverse Voltage

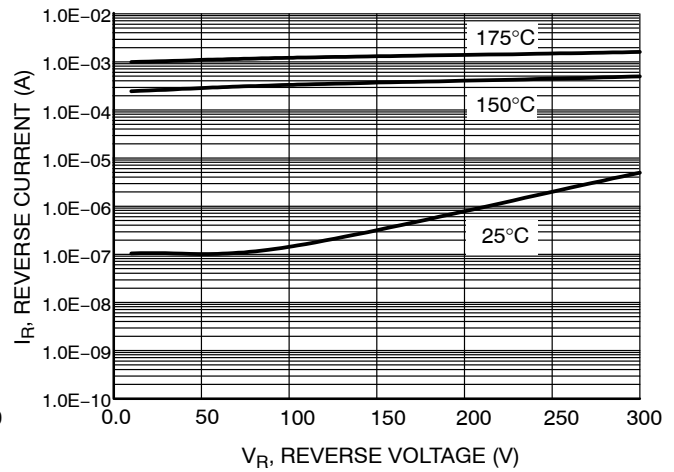


Figure 4. Maximum Reverse Voltage

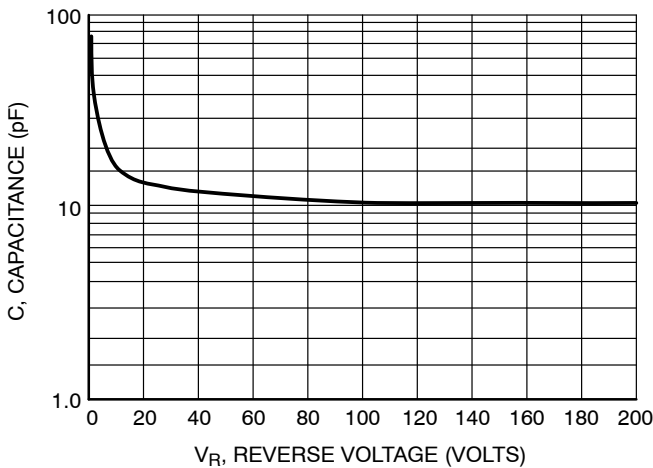


Figure 5. Typical Capacitance

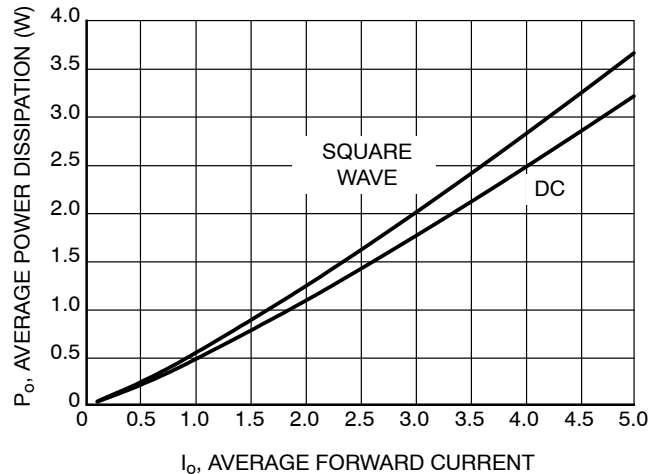


Figure 6. Power Dissipation

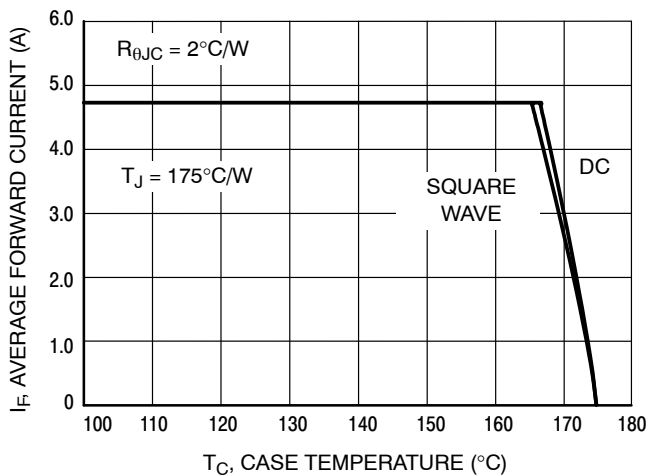


Figure 7. Current Derating, Case

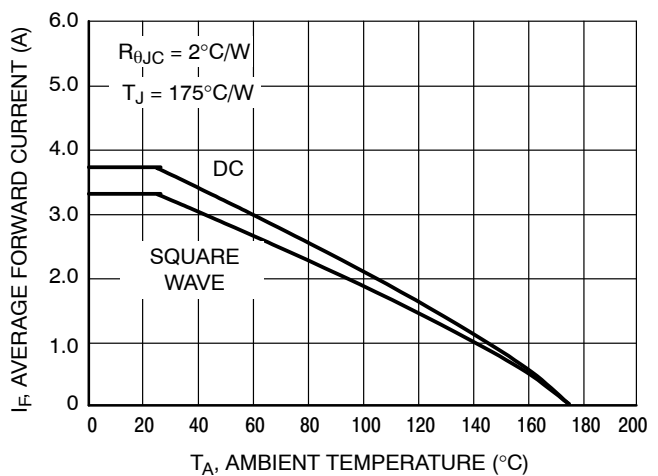
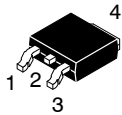


Figure 8. Current Derating, Ambient

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



DPAK (SINGLE GAUGE) CASE 369C ISSUE F

DATE 21 JUL 2015

SCALE 1:1



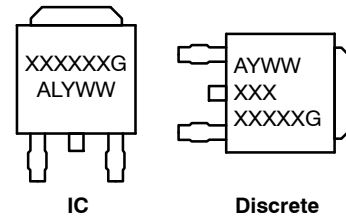
NOTES:

- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
- CONTROLLING DIMENSION: INCHES.
- THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3 and Z.
- DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.006 INCHES PER SIDE.
- DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
- DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.
- OPTIONAL MOLD FEATURE.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.086 | 0.094 | 2.18 | 2.38 |
| A1 | 0.000 | 0.005 | 0.00 | 0.13 |
| b | 0.025 | 0.035 | 0.63 | 0.89 |
| b2 | 0.028 | 0.045 | 0.72 | 1.14 |
| b3 | 0.180 | 0.215 | 4.57 | 5.46 |
| c | 0.018 | 0.024 | 0.46 | 0.61 |
| c2 | 0.018 | 0.024 | 0.46 | 0.61 |
| D | 0.235 | 0.245 | 5.97 | 6.22 |
| E | 0.250 | 0.265 | 6.35 | 6.73 |
| e | 0.090 | BSC | 2.29 | BSC |
| H | 0.370 | 0.410 | 9.40 | 10.41 |
| L | 0.055 | 0.070 | 1.40 | 1.78 |
| L1 | 0.114 | REF | 2.90 | REF |
| L2 | 0.020 | BSC | 0.51 | BSC |
| L3 | 0.035 | 0.050 | 0.89 | 1.27 |
| L4 | --- | 0.040 | --- | 1.01 |
| Z | 0.155 | --- | 3.93 | --- |

GENERIC MARKING DIAGRAM*

- | | | | | |
|--|--|---|---|--|
| STYLE 1: PIN 1. BASE 2. COLLECTOR 3. EMITTER 4. COLLECTOR | STYLE 2: PIN 1. GATE 2. DRAIN 3. SOURCE 4. DRAIN | STYLE 3: PIN 1. ANODE 2. CATHODE 3. ANODE 4. CATHODE | STYLE 4: PIN 1. CATHODE 2. ANODE 3. GATE 4. ANODE | STYLE 5: PIN 1. GATE 2. ANODE 3. CATHODE 4. ANODE |
| STYLE 6: PIN 1. MT1 2. MT2 3. GATE 4. MT2 | STYLE 7: PIN 1. GATE 2. COLLECTOR 3. EMITTER 4. COLLECTOR | STYLE 8: PIN 1. N/C 2. CATHODE 3. ANODE 4. CATHODE | STYLE 9: PIN 1. ANODE 2. CATHODE 3. RESISTOR ADJUST 4. CATHODE | STYLE 10: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. ANODE |



- XXXXXX = Device Code
- A = Assembly Location
- L = Wafer Lot
- Y = Year
- WW = Work Week
- G = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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| DESCRIPTION: | DPAK (SINGLE GAUGE) | PAGE 1 OF 1 |

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