

# MURD330T4G, SURD8330T4G

## SWITCHMODE Power Rectifier

### DPAK Surface Mount Package

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
- AEC-Q101 Qualified and PPAP Capable
- SURD8 Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- Pb-Free Package\*

#### 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 (Rated $V_R$ , $T_C = 170^\circ\text{C}$ )	$I_F$	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 Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

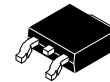
\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



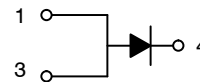
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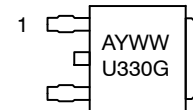
### ULTRAFAST RECTIFIER 3 A, 300 V



**DPAK  
CASE 369C**



#### MARKING DIAGRAM



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

#### ORDERING INFORMATION

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

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## 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 mm<sup>2</sup>, 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	$\mu\text{A}$
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

## TYPICAL CHARACTERISTICS

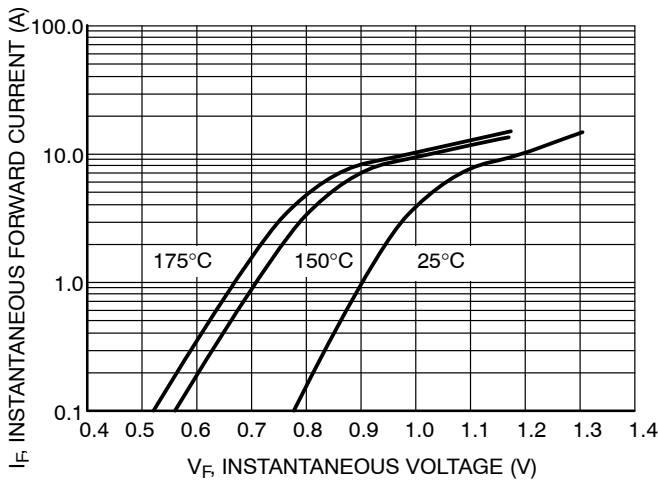


Figure 1. Typical Forward Voltage

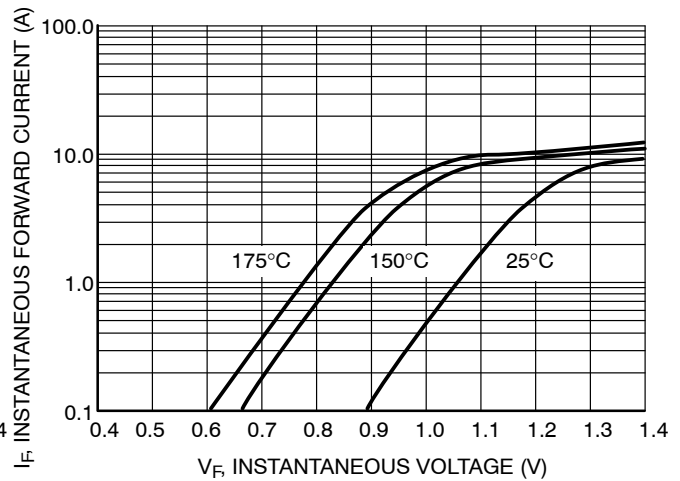


Figure 2. Maximum Forward Voltage

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## TYPICAL CHARACTERISTICS

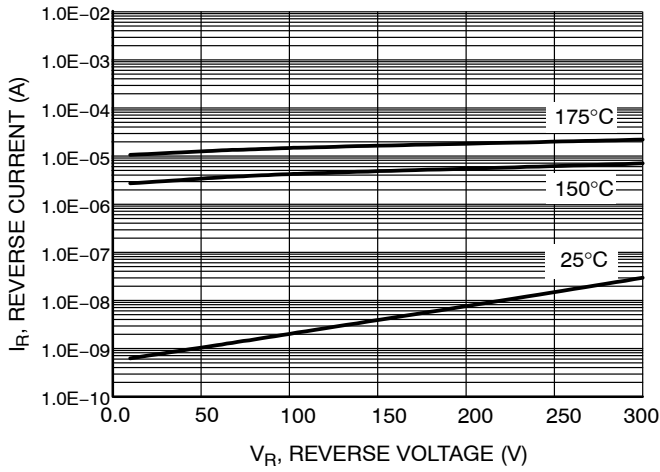


Figure 3. Typical Reverse Voltage

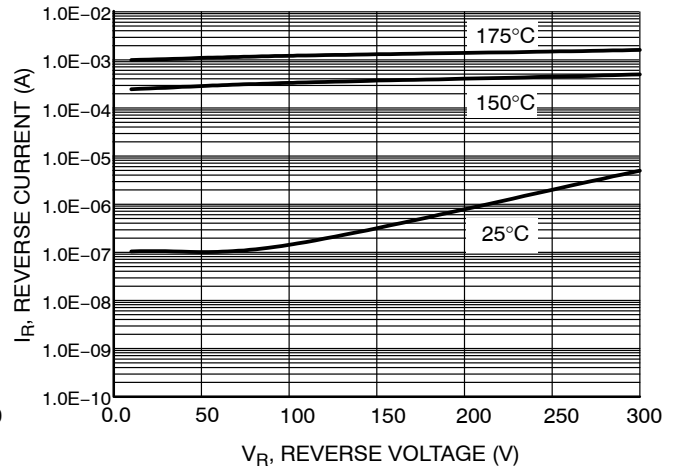


Figure 4. Maximum Reverse Voltage

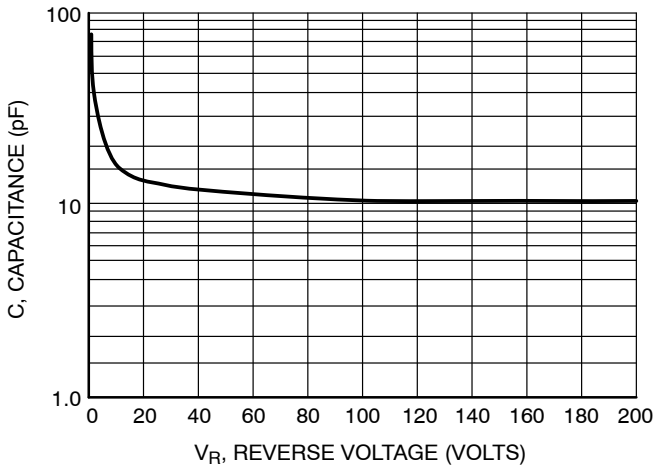


Figure 5. Typical Capacitance

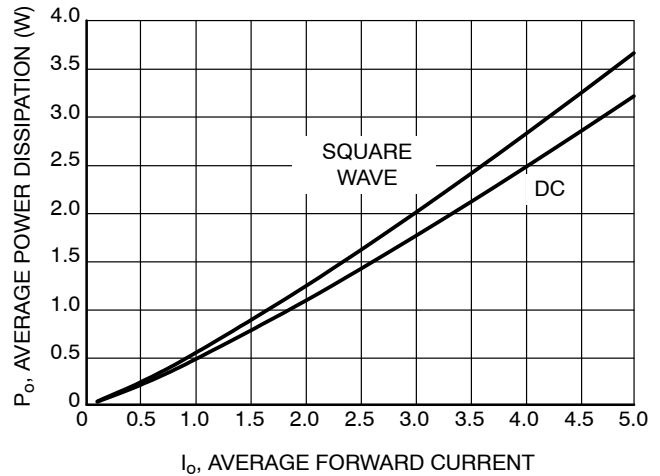


Figure 6. Power Dissipation

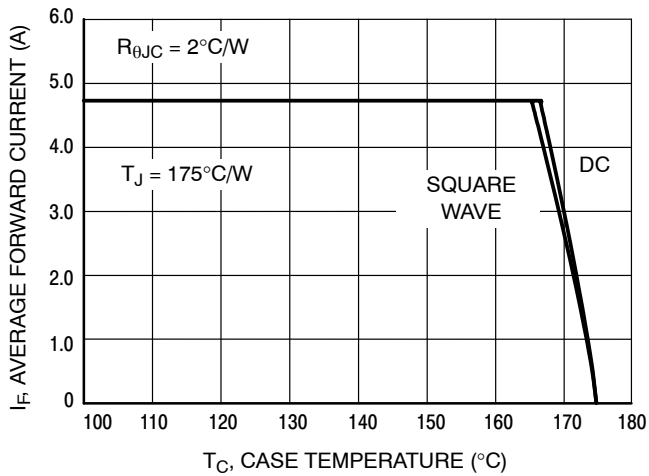


Figure 7. Current Derating, Case

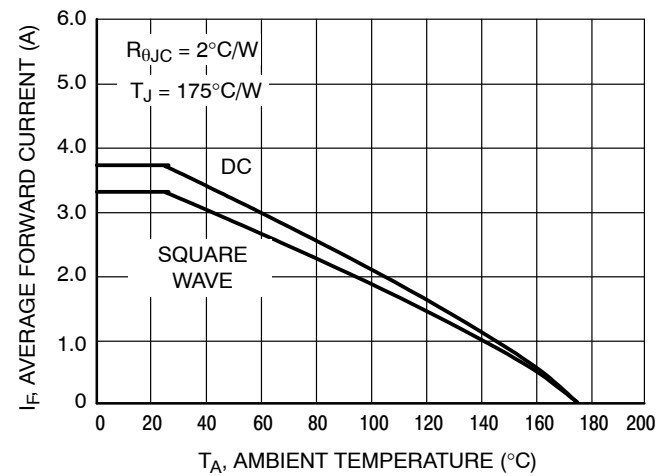
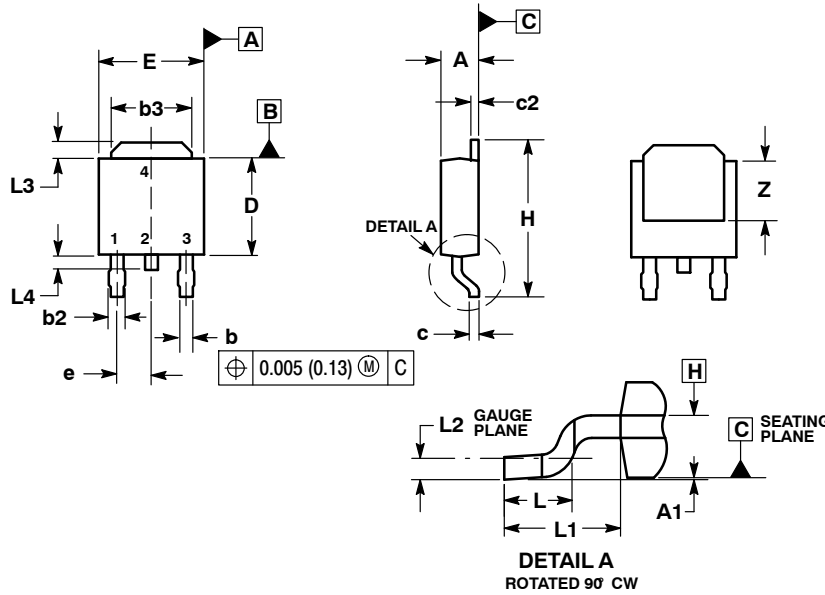


Figure 8. Current Derating, Ambient

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## PACKAGE DIMENSIONS

### DPAK (SINGLE GAUGE) CASE 369C-01 ISSUE D

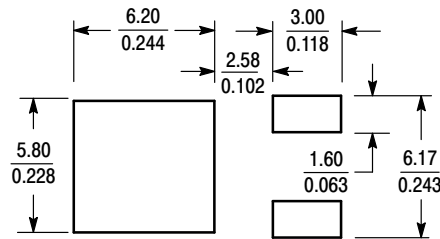


#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. THERMAL PAD CONTOUR OPTIONAL WITHIN DIMENSIONS b3, L3 and Z.
4. 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.
5. DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY.
6. DATUMS A AND B ARE DETERMINED AT DATUM PLANE H.

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	0.030	0.045	0.76	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	0.108 REF		2.74 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	---

### SOLDERING FOOTPRINT\*



SCALE 3:1  $\left(\frac{\text{mm}}{\text{inches}}\right)$

\*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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