MURD530

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.

ON Semiconductor®

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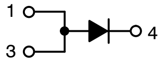
ULTRAFAST RECTIFIER 5.0 AMPERES, 300 VOLTS



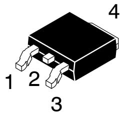
Features

- Ultrafast 50 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Leakage
- Pb−Free Package is Available

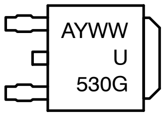
Mechanical Characteristics

- 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
- Available in 16 mm Tape and Reel, 2500 Units Per Reel, by Adding a “T4” Suffix to the Part Number

MARKING DIAGRAM



DPAK
CASE 369C



A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	300	V
Average Rectified Forward Current (Rated V_R, T_C = 165°C)	$I_{F(AV)}$	5.0	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_C = 165°C)	I_{FRM}	10	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, 60 Hz)	I_{FSM}	75	A
Operating Junction and Storage Temperature Range	T_J, T_{stg}	−65 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.

ORDERING INFORMATION

Device	Package	Shipping†
MURD530T4G	DPAK (Pb−Free)	2500/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.

January, 2011 − Rev. 3

THERMAL CHARACTERISTICS

Rating	Symbol	Value	Unit
Thermal Resistance − Junction−to−Case (Note 1)	$R_{\theta JC}$	3	°C/W
Thermal Resistance − Junction−to−Ambient (Note 2)	$R_{\theta JA}$	92	°C/W
Thermal Resistance − Junction−to−Ambient (Note 3)	$R_{\theta JA}$	57	°C/W

ELECTRICAL CHARACTERISTICS

Maximum Instantaneous Forward Voltage Drop (Note 4) (i_F = 3 A, T_J = 25°C) (i_F = 3 A, T_J = 125°C) (i_F = 5 A, T_J = 25°C) (i_F = 5 A, T_J = 125°C)	v_F	 0.95 0.80 1.05 0.90	Volts
Maximum Instantaneous Reverse Current (Note 4) (T_J = 25°C, Rated dc Voltage) (T_J = 125°C, Rated dc Voltage)	i_R	 5.0 150	μA
Maximum Reverse Recovery Time (I_F = 1 Amp, di/dt = 50 A/μs, V_R = 30 V, T_J = 25°C)	t_{rr}	 50	ns

1. Rating applies for one diode leg.
2. Rating applies when for both diode legs when mounted on 130 mm^2 pad size.
3. Rating applies for both diode legs when mounted on 1 in pad size.
4. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

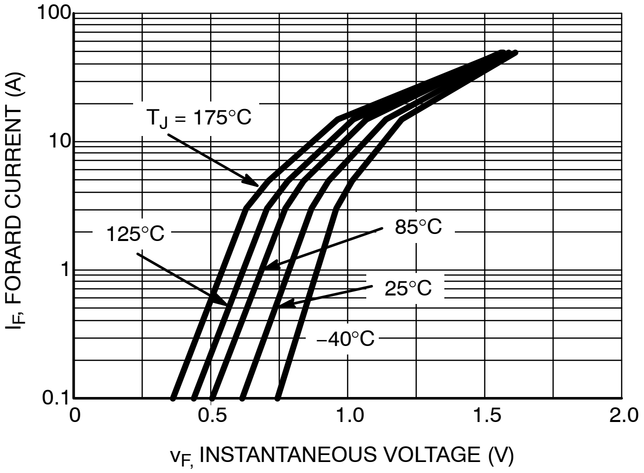


Figure 1. Maximum Forward Voltage

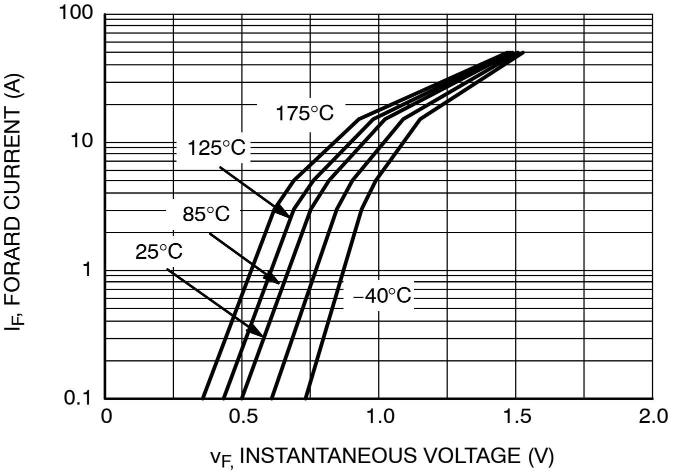


Figure 2. Typical Forward Voltage

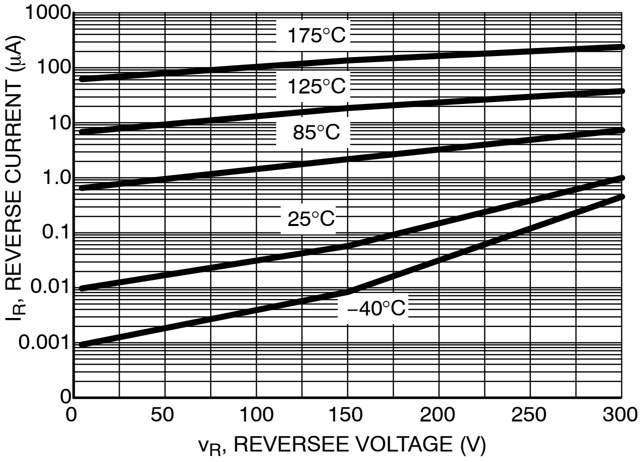


Figure 3. Maximum Reverse Voltage

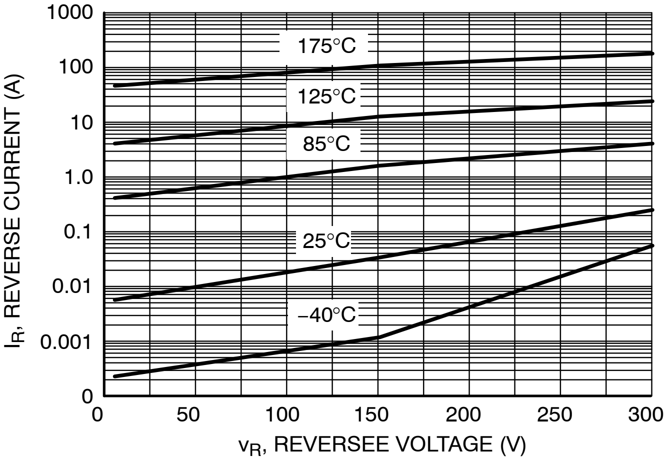


Figure 4. Typical Reverse Voltage

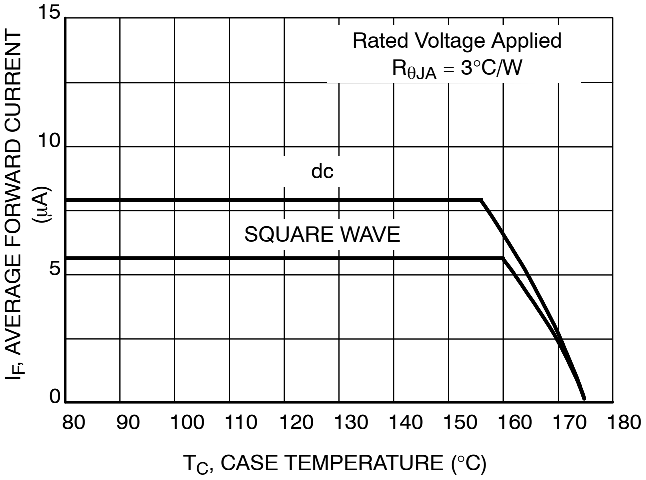


Figure 5. Typical Current Derating, Case

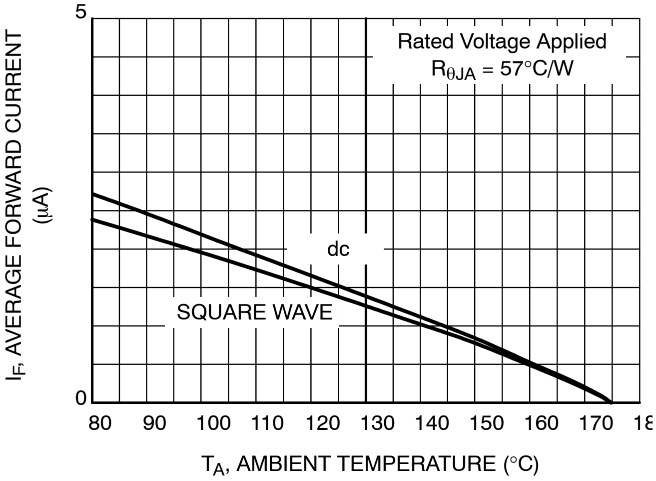


Figure 6. Typical Current Derating, Ambient

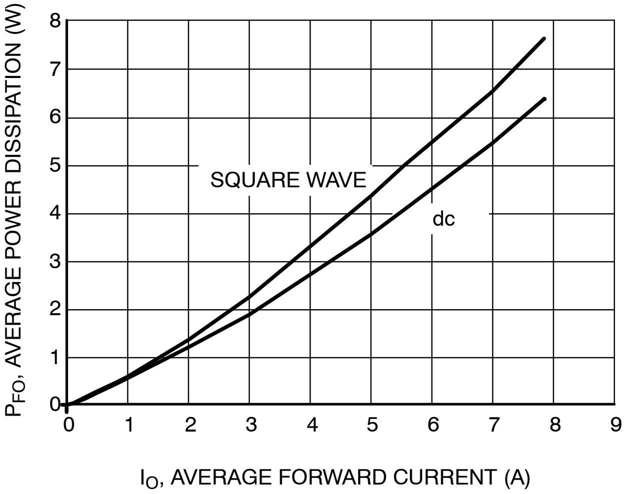


Figure 7. Forward Power Dissipation

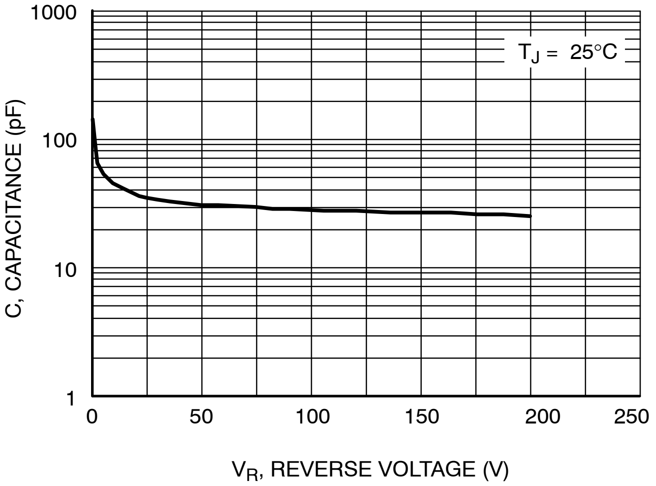


Figure 8. Typical Capacitance

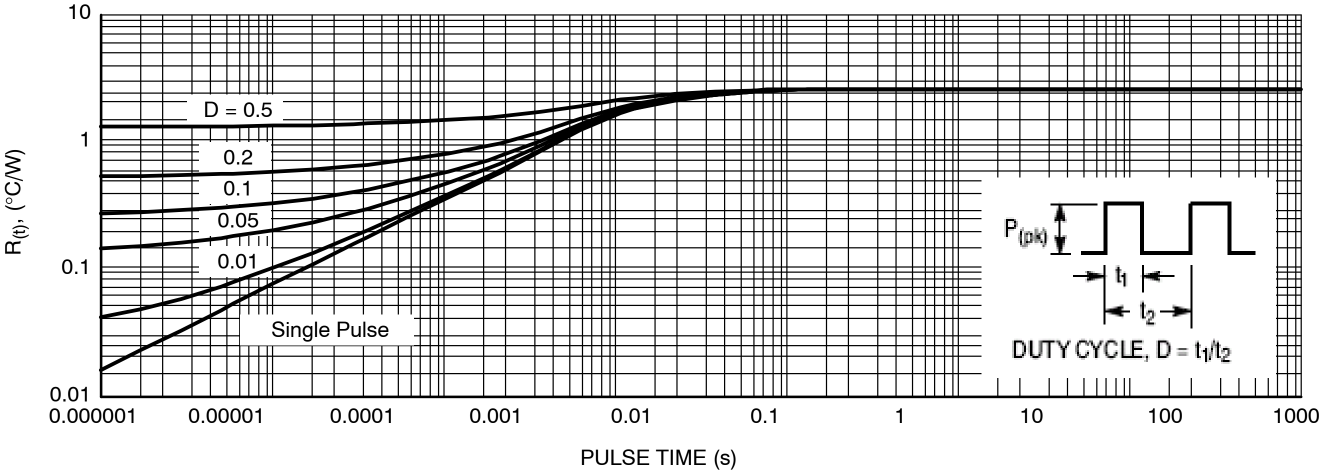


Figure 9. $R_{(t)}$ on an Infinite Heatsink Power (J1) 0.800 W Power (J2) 0.800 W

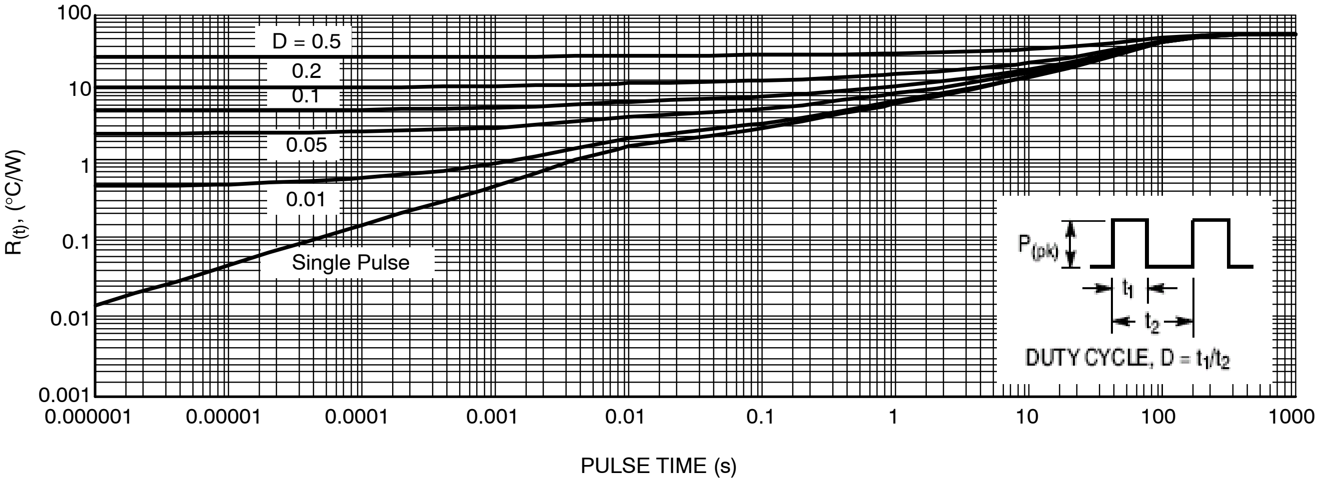


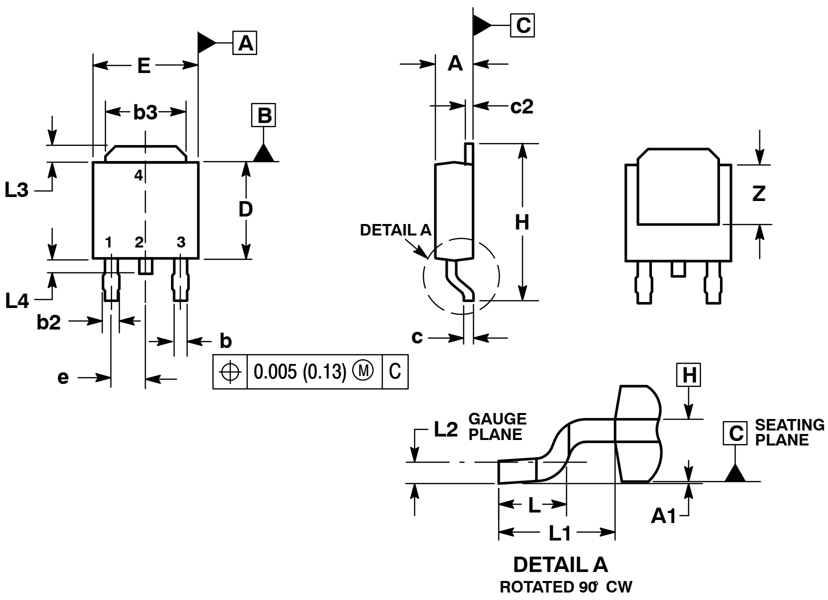
Figure 10. PCB Cu Area 650 mm^2 PCB Cu thk 1 oz Power (J1) 0.800 W Power (J2) 0.800 W

PACKAGE DIMENSIONS

DPAK (SINGLE GAUGE)

CASE 369C−01

ISSUE D

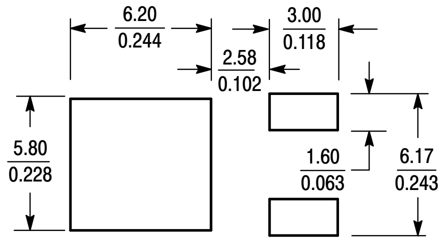


NOTES:

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.

	INCHES		MILLIMETERS	
DIM	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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