

MOTOROLA SEMICONDUCTOR TECHNICAL DATA

**Switchmode Power Rectifiers
DPAK Surface Mount Package**

... designed for use in switching power supplies, inverters and as free wheeling diodes, these state-of-the-art devices have the following features:

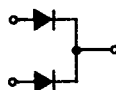
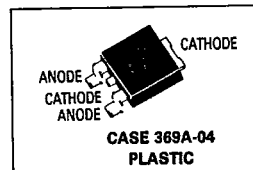
- Ultrafast 35 Nanosecond Recovery Time
- Low Forward Voltage Drop
- Low Leakage

Mechanical Characteristics

- Case: Epoxy, Molded
- Finish: All External Surface Corrosion Resistance and Terminal Leads are Readily Solderable
- Lead Formed for Surface Mount
- Available in 16 mm Tape and Reel or Plastic Rails
- Compact Size
- Dual Rectifier Single Chip Construction
- Lead Temperature for Soldering Purpose: 260°C for 10 Seconds

**MURD605CT
MURD610CT
MURD615CT
MURD620CT**

**ULTRAFAST
RECTIFIERS
6 AMPERES
50 TO 200 VOLTS**



MAXIMUM RATINGS

Rating	Symbol	MURD				Unit
		605CT	610CT	615CT	620CT	
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	150	200	Volts
Average Rectified Forward Voltage ($T_C = 145^\circ\text{C}$, Rated V_R)	$I_F(AV)$	3 6				Amps
Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz, $T_C = 145^\circ\text{C}$)	I_F	6				Amps
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions, halfwave, 60 Hz)	I_{FSM}	63				Amps
Operating Junction and Storage Temperature	T_J, T_{stg}	-65 to +175				$^\circ\text{C}$

THERMAL CHARACTERISTICS PER DIODE

Thermal Resistance, Junction to Case Junction to Ambient (1)	$R_{\theta JC}$ $R_{\theta JA}$	9 80	$^\circ\text{C/W}$
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ELECTRICAL CHARACTERISTICS PER DIODE

Maximum Instantaneous Forward Voltage Drop (2) $I_F = 3$ Amps, $T_C = 25^\circ\text{C}$ $I_F = 3$ Amps, $T_C = 125^\circ\text{C}$ $I_F = 6$ Amps, $T_C = 25^\circ\text{C}$ $I_F = 6$ Amps, $T_C = 125^\circ\text{C}$	V_F	1 0.95 1.2 1.1	Volts
Maximum Instantaneous Reverse Current (2) ($T_J = 25^\circ\text{C}$, Rated dc Voltage) ($T_J = 125^\circ\text{C}$, Rated dc Voltage)	I_R	5 250	μA
Maximum Reverse Recovery Time ($I_F = 1$ Amp, $di/dt = 50$ Amps/ μs , $V_R = 30$ V, $T_J = 25^\circ\text{C}$) ($I_F = 0.5$ Amp, $I_R = 1$ Amp, $I_{REC} = 0.25$ A, $V_R = 30$ V, $T_J = 25^\circ\text{C}$)	t_{rr}	35 25	ns

(1) Rating applies when surface mounted on the minimum pad size recommended.
(2) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$.

MURD605CT, MURD610CT, MURD615CT, MURD620CT

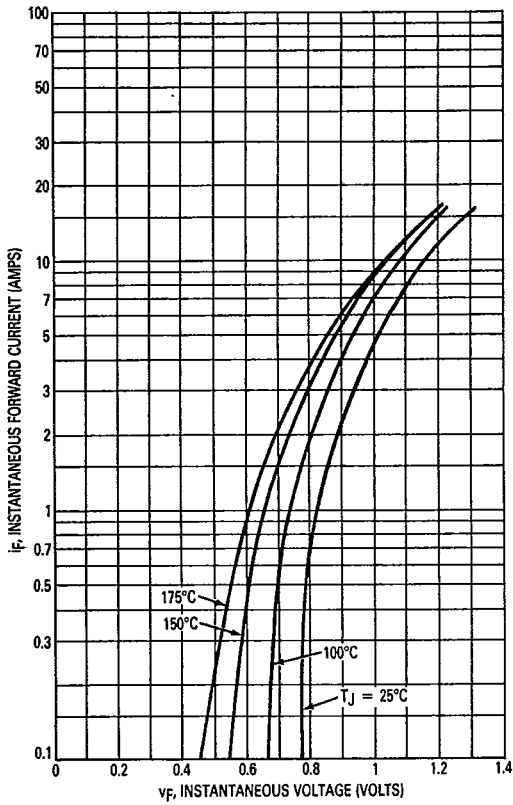
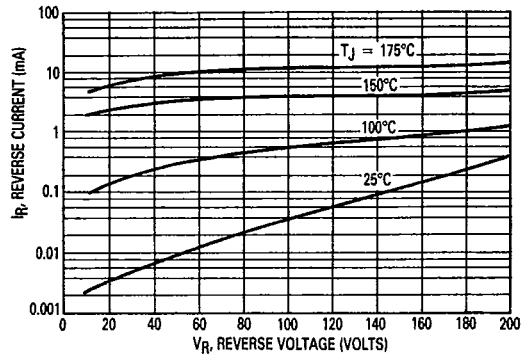


Figure 1. Typical Forward Voltage (Per Leg)



*The curves shown are typical for the highest voltage device in the voltage grouping. Typical reverse current for lower voltage selections can be estimated from these curves if V_R is sufficient below rated V_R .

Figure 2. Typical Leakage Current* (Per Leg)

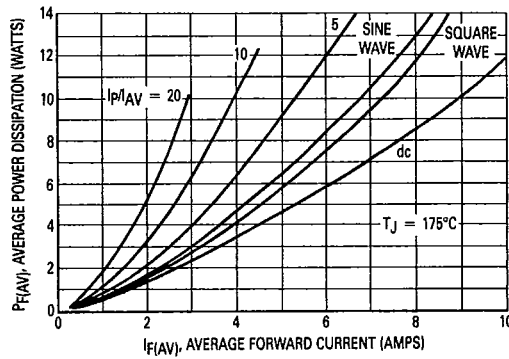


Figure 3. Average Power Dissipation (Per Leg)

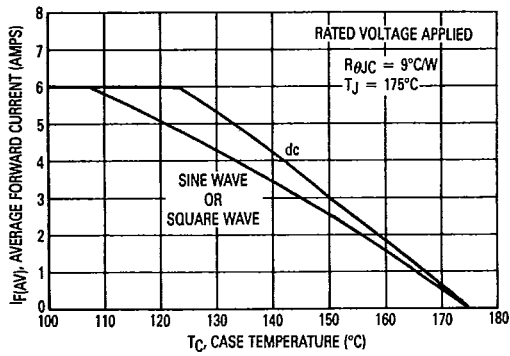


Figure 4. Current Derating, Case (Per Leg)

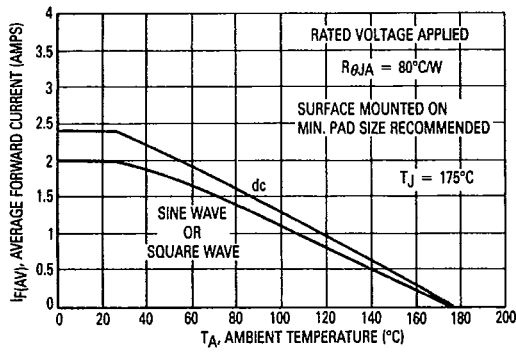


Figure 5. Current Derating, Ambient (Per Leg)

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MURD605CT, MURD610CT, MURD615CT, MURD620CT

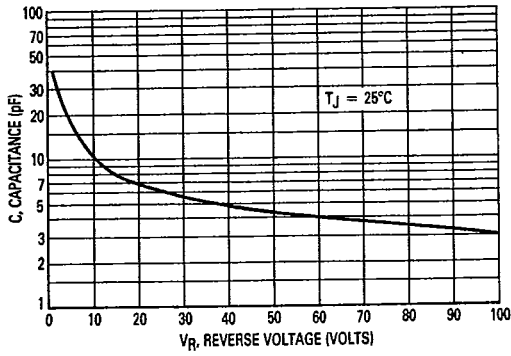
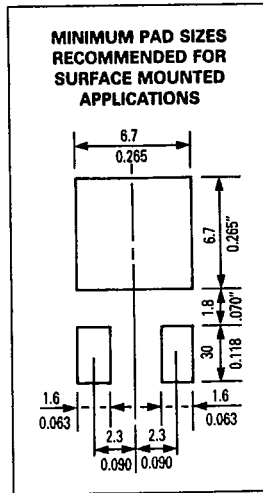


Figure 6. Typical Capacitance (Per Leg)



OUTLINE DIMENSIONS

STYLE 3:
 PIN 1. ANODE
 PIN 2. CATHODE
 PIN 3. ANODE
 PIN 4. CATHODE

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.97	6.22	0.235	0.245
B	6.35	6.73	0.250	0.265
C	2.19	2.38	0.086	0.094
D	0.69	0.88	0.027	0.035
E	0.97	1.06	0.038	0.042
F	0.64	0.89	0.025	0.035
G	4.58 BSC		0.180 BSC	
H	2.29 BSC		0.090 BSC	
J	6.46	0.58	0.016	0.023
K	2.59	2.89	0.102	0.114
L	0.89	1.27	0.035	0.050
S	5.21	5.46	0.205	0.215
U	0.51	—	0.020	—
V	0.77	1.14	0.030	0.045
W	0.84	0.94	0.033	0.037
Y	4.32	—	0.170	—
Z	3.69	—	0.145	—

NOTES:
 1. SURFACE "T" IS BOTH A DATUM AND A MOUNTING SURFACE.
 2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 3. CONTROLLING DIMENSION: INCH.

CASE 369A-04
 PLASTIC