

MUR1620CT, RURP820CC

Data Sheet January 2000 File Number 1885.5

8A, 200V Ultrafast Dual Diodes

The MUR1620CT and RURP820CC are ultrafast dual diodes with soft recovery characteristics (t_{rr} < 25ns). They have low forward voltage drop and are silicon nitride passivated ionimplanted epitaxial planar construction.

These devices are intended for use as freewheeling/ clamping diodes and rectifiers in a variety of switching power supplies and other power switching applications. Their low stored charge and ultrafast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

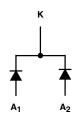
Formerly developmental type TA09224.

Ordering Information

PART NUMBER	PACKAGE	BRAND	
MUR1620CT	TO-220AB	MUR1620C	
RURP820CC	TO-220AB	RURP820C	

NOTE: When ordering, use the entire part number.

Symbol



Features

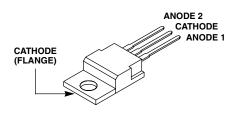
- · Avalanche Energy Rated
- Planar Construction

Applications

- Switching Power Supplies
- · Power Switching Circuits
- General Purpose

Packaging

JEDEC TO-220AB



Absolute Maximum Ratings (Per Leg) T_C = 25°C, Unless Otherwise Specified

	MUR1620CT, RURP820CC	UNITS
Peak Repetitive Reverse Voltage	200	V
Working Peak Reverse Voltage	200	V
DC Blocking Voltage	200	V
Average Rectified Forward Current	8	Α
Repetitive Peak Surge Current	16	Α
Nonrepetitive Peak Surge Current	100	Α
Maximum Power Dissipation	50	W
Avalanche Energy (See Figures 10 and 11)	20	mJ
Operating and Storage Temperature	-65 to 175	°C

MUR1620CT, RURP820CC

Electrical Specifications (Per Leg) T_C = 25°C, Unless Otherwise Specified

SYMBOL	TEST CONDITION	MIN	ТҮР	MAX	UNITS
V _F	I _F = 8A	-	-	0.975	V
	$I_F = 8A, T_C = 150^{\circ}C$	-	-	0.895	V
I _R	V _R = 200V	-	-	100	μА
	V _R = 200V, T _C = 150°C	-	-	500	μА
t _{rr}	I _F = 1A, dI _F /dt = 200A/μs	-	-	25	ns
	$I_F = 8A$, $dI_F/dt = 200A/\mu s$	-	-	30	ns
ta	I _F = 8A, dI _F /dt = 200A/μs	-	13	-	ns
t _b	I _F = 8A, dI _F /dt = 200A/μs	-	5	-	ns
Q _{RR}	I _F = 8A, dI _F /dt = 200A/μs	-	25	-	nC
CJ	V _R = 10V, I _F = 0A	-	60	-	pF
$R_{ heta JC}$		-	-	3	°C/W

DEFINITIONS

 V_F = Instantaneous forward voltage (pw = 300 μ s, D = 2%).

 I_R = Instantaneous reverse current.

 t_{rr} = Reverse recovery time (See Figure 9), summation of t_a + t_b .

t_a = Time to reach peak reverse current (See Figure 9).

t_b = Time from peak I_{RM} to projected zero crossing of I_{RM} based on a straight line from peak I_{RM} through 25% of I_{RM} (See Figure 9).

Q_{RR} = Reverse recovery charge.

 C_J = Junction Capacitance.

 $R_{\theta,JC}$ = Thermal resistance junction to case.

pw = Pulse width.

D = Duty cycle.

Typical Performance Curves

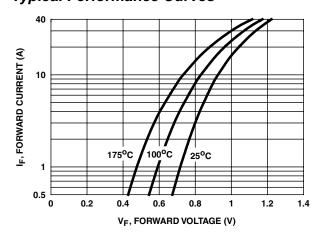


FIGURE 1. FORWARD CURRENT vs FORWARD VOLTAGE

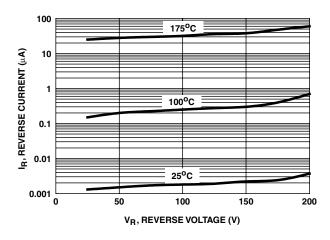


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

Typical Performance Curves (Continued)

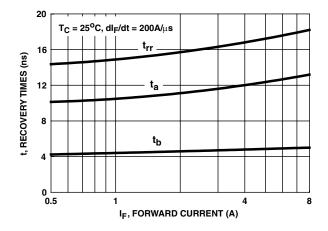


FIGURE 3. t_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

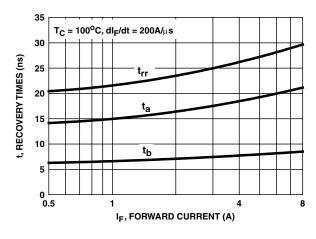


FIGURE 4. t_{rr}, t_a AND t_b CURVES vs FORWARD CURRENT

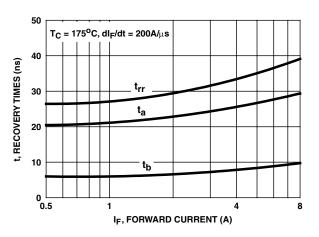


FIGURE 5. t_{rr} , t_a AND t_b CURVES vs FORWARD CURRENT

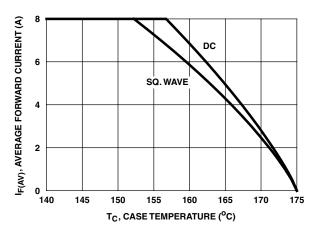


FIGURE 6. CURRENT DERATING CURVE

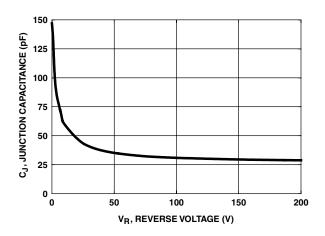


FIGURE 7. JUNCTION CAPACITANCE vs REVERSE VOLTAGE

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Test Circuits and Waveforms

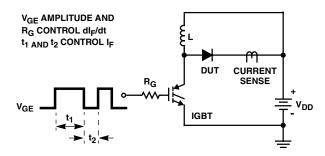


FIGURE 8. t_{rr} TEST CIRCUIT

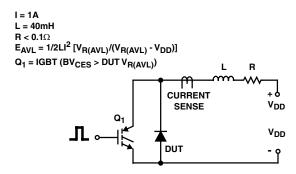


FIGURE 10. AVALANCHE ENERGY TEST CIRCUIT

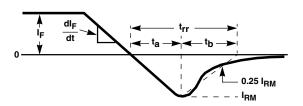


FIGURE 9. t_{rr} WAVEFORMS AND DEFINITIONS

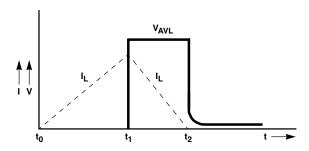


FIGURE 11. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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