

**Ultra High Speed Rectifiers**  
**RUR-D810 RUR-D815 RUR-D820**

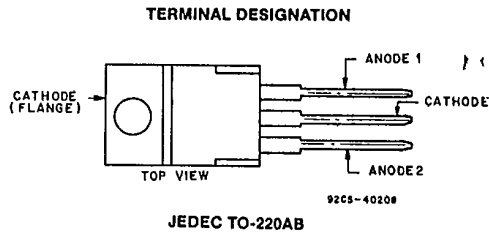
**Dual 8-A, High-Speed, High Efficiency Epitaxial Silicon Rectifiers**

**Features:**

- Ultra fast recovery time [ $<35\text{ ns}$ ]
- Low forward voltage
- Low thermal resistance
- Planar design
- Wire-bonded construction

**Applications:**

- General Purpose
- Power switching circuits to 100 kHz
- Full-wave rectification



The RCA RUR-D810, RUR-D815, and RUR-D820\* are low forward voltage drop ultra fast-recovery rectifiers ( $t_{rr} < 35\text{ ns}$ ). They use a glass passivated ion-implanted epitaxial construction.

These devices are intended for use as output rectifiers and fly wheel diodes in a variety of high-frequency pulse-width modulated and switching regulators. Their low stored

charge and attendant fast reverse recovery behavior minimize electrical noise generation and in many circuits markedly reduce the turn-on dissipation of the associated power switching transistors.

All are supplied in TO-220AB plastic packages.

\*Formerly RCA Dev. No. TA9224A, TA9224B, and TA9224C, respectively.

**MAXIMUM RATINGS, Absolute-Maximum Values, per Junction:**

	RUR-D810	RUR-D815	RUR-D820	
VRM .....	100	150	200	V
IF (Average)				
$T_A = 25^\circ\text{C}$ (No Heat Sink) .....	3	3	3	A
$T_A = 25^\circ\text{C}$ (With Heat Sink)* .....	8	8	8	A
$T_c = 125^\circ\text{C}$ .....	8	8	8	A
IFSM (surge)				
8.3ms, 1/2 cycle, non-repetitive .....	100	100	100	A
Tstg, $T_j$ .....	-55 to 150	-55 to 150	-55 to 150	$^\circ\text{C}$
$T_L$ (Lead temperature during soldering)				
At distance $> 1/8\text{in.}$ (3.17mm) from case for 10 S max. ....	260	260	260	$^\circ\text{C}$

(a) Wakefield type 295 heat sink with convection cooling

RUR-D810, RUR-D815, RUR-D820

ELECTRICAL CHARACTERISTICS, per junction

CHARACTERISTICS	TEST CONDITIONS			LIMITS						UNITS
	T <sub>J</sub> °C	Voltage V <sub>R</sub> V	Current I <sub>F</sub> A	RUR-D810		RUR-D815		RUR-D820		
				Min.	Max.	Min.	Max.	Min.	Max.	
I <sub>R</sub>	25	100		—	5	—	—	—	—	μA
		150		—	—	—	5	—	—	
		200		—	—	—	—	—	5	
	100	100		—	400	—	—	—	—	
		150		—	—	—	400	—	—	
		200		—	—	—	—	—	400	
V <sub>F</sub>	25		8	—	0.95	—	0.95	—	1	V
	100		8	—	0.89	—	0.89	—	0.94	
t <sub>rr</sub>	25		8(a)	—	35	—	35	—	35	ns
R <sub>θJC</sub>				—	2.25	—	2.25	—	2.25	°C/W
R <sub>θJA</sub>				—	60	—	60	—	60	°C/W
C <sub>J</sub>	25	10	0	40 Typ.		40 Typ.		40 Typ.		pF

(a) di<sub>F</sub>/dt > 40A/μs, I<sub>RM</sub> (rec) < 1A, I<sub>RR</sub> = 0.25A

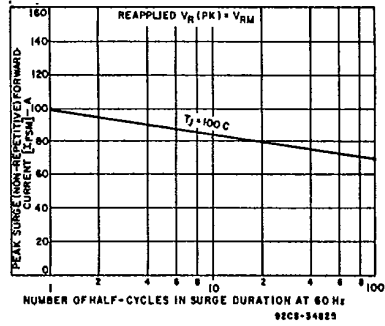


Fig. 1 — Peak surge forward current vs. surge duration.

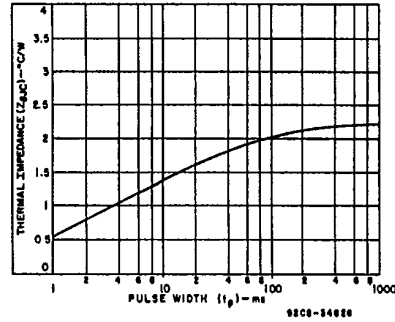


Fig. 2 — Thermal impedance vs. pulse width (per junction).

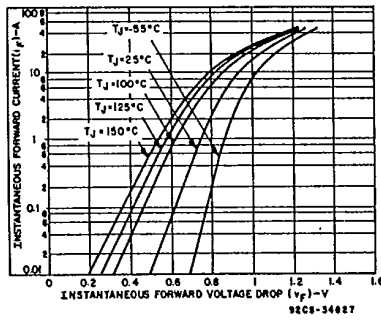


Fig. 3 — Typical forward current vs. forward-voltage drop.

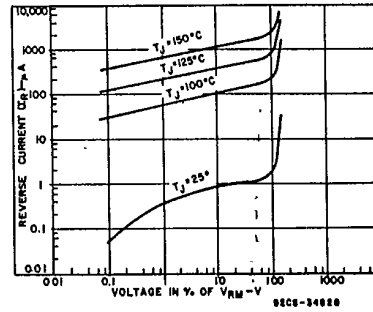


Fig. 4 — Typical reverse current vs. voltage.