RUR-D1610, RUR-D1615, RUR-D1620

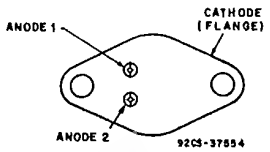
File Number **1383**

Dual 16-A, High-Speed, High Efficiency Epitaxial Silicon Rectifiers

Features:
- *Ultra fast recovery time (< 35 ns)*
- *Low forward voltage*
- *Low thermal resistance*
- *Planar design*
- *Wire-bonded construction*

Applications:
- *General purpose*
- *Power switching circuits to 100 kHz*
- *Full-wave rectification*

TERMINAL DESIGNATIONS



JEDEC TO-204AA

The RCA RUR-D1610, RUR-D1615 and RUR-D1620• are low forward voltage drop, ultra fast-recovery rectifiers (trr< 35 ns). They use an ion-implanted planar epitaxial construction.

These devices are intended for use as output rectifiers and fly wheel diodes in a variety of high-frequency pulse-width modulated power supplies, amplifiers 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 steel JEDEC TO-204AA hermetic packages.

•Formerly RCA Developmental Nos. TA9226A, B and C respectively.

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

	RUR-D1610	RUR-D1615	RUR-D1620	
V_{RM}	100	150	200	V
I_F (Average)				
T_A = 25°C (No Heat Sink)		6		A
T_A = 25°C (With Heat Sink)■		16		A
T_C = 125°C		16		A
I_{FSM} (surge)				
8.3 ms, 1/2 cycle, non-repetitive		275		A
Thermal Resistance (J-C)		1.5		°C/W
Thermal Resistance (J-C) Total		1.2		°C/W
Thermal Resistance (J-A)		30		°C/W
T_{stg}, T_J		-55 to 150		°C
T_L (Lead temperature during soldering)				
At distance > 1/8 in. (3.17 mm) from case for 10 s max.		260		°C

■ Wakefield type 621 heat sink with convection cooling

RUR-D1610, RUR-D1615, RUR-D1620

ELECTRICAL CHARACTERISTICS, per junction

CHARACTERISTICS	TEST CONDITIONS			LIMITS						UNITS
	T_J °C	Voltage V_H V	Current I_I A	RUR-D1610		RUR-D1615		RUR-D1620		
				Min.	Max.	Min.	Max.	Min.	Max.	
I_R	25	100		—	15	—	—	—	—	μA
		150		—	—	—	15	—	—	
		200		—	—	—	—	—	15	
	100	100		—	1.5	—	—	—	—	mA
		150		—	—	—	1.5	—	—	
		200		—	—	—	—	—	1.5	
V_F	25		16	—	0.95	—	0.95	—	1	V
	125		16	—	0.83	—	0.83	—	0.88	
t_{rr}	25		4(a)	—	35	—	35	—	35	ns
RθJC				—	1.5	—	1.5	—	1.5	°C/W
RθJA				—	30	—	30	—	30	
C_J	25	10	0	80 Typ.		80 Typ.		80 Typ.		pF

(a) $di_F/dt > 40A/\mu s$, $I_{RM(rec)} < 1A$, $I_{RR} = 0.25A$

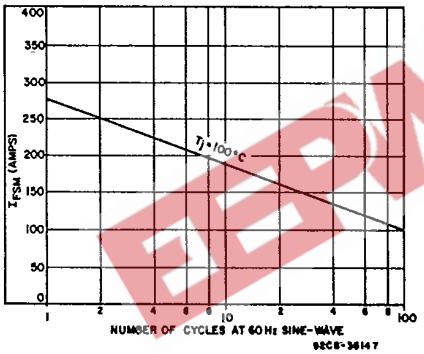


Fig. 1 – Peak surge forward current vs. surge duration.

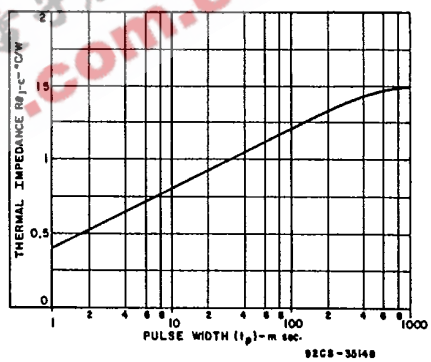


Fig. 2 – Thermal impedance vs. pulse width (per junction).

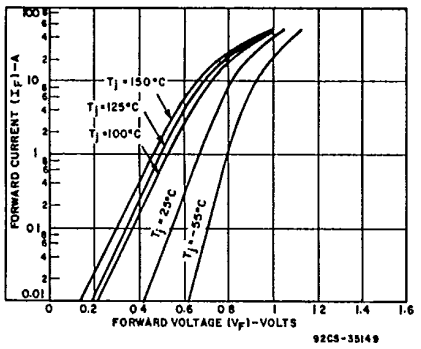


Fig. 3 – Typical forward current vs. forward-voltage drop.

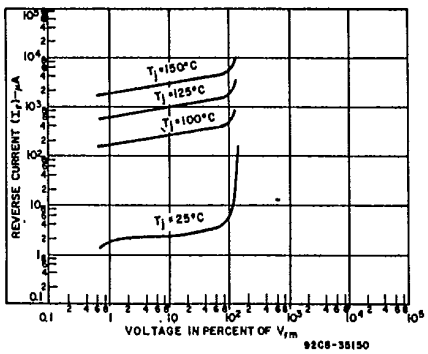


Fig. 4 – Typical reverse current vs. voltage.