Ⓡ**RCA**

Solid State Division

1-A, 50-to-800-V
Fast-Recovery Silicon Rectifiers

General-Purpose Types for Medium-Current Applications

Features:

- Fast turn-off: 0.5 μs max. from 3.14-A peak
- Low overshoot current
- Low forward voltage drop

CATHODE

ANODE

JEDEC DO-15

H-1695

Voltage Package	50 V Type	100 V Type	200 V Type	400 V Type	600 V Type	800 V Type
DO-15	D2201F (44933)	D2201A (44934)	D2201B (44935)	D2201D (44936)	D2201M (44937)	D2201N (44938)

Numbers in parentheses are former RCA type numbers.

RCA D2201 Series devices are diffused-junction silicon rectifiers in an axial-lead package. These devices, which differ only in their voltage ratings, feature fast recovery times (0.5 μs max. from 3.14 A peak) without the "snap" type of turn-off which could result in the generation of transients.

The D2201 series are intended for use in high-speed inverters, choppers, high-frequency rectifiers, "free-wheeling" diode circuits, and other high-frequency applications.

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

		D2201F	D2201A	D2201B	D2201D	D2201M	D2201N	
REVERSE VOLTAGE:								
REPETITIVE PEAK	V_{RRM}	50	100	200	400	600	800	V
NON-REPETITIVE PEAK	V_{RSM}	100	150	300	500	700	1000	V
FORWARD CURRENT:*								
RMS	$I_{F(RMS)}$			1.5				A
AVERAGE:								
For 180° conduction angle, half sine wave	I_O			1				A
PEAK SURGE (NON-REPETITIVE):								
At junction temperature (T_J) = 150°C								
For one-half cycle of applied voltage, 60 Hz (8.3 ms) . . .	I_{FSM}			50				A
For other durations				See Fig. 3				
PEAK (REPETITIVE).	I_{FRM}			6				A
STORAGE-TEMPERATURE RANGE				−40 to +165				°C
OPERATING (JUNCTION) TEMPERATURE				150				°C
LEAD TEMPERATURE (During Soldering):								
Measured 1/8 in. (3.17 mm) from case for 10 s max. . . .				255				°C

⊙At lead temperature of 100°C (measured at point on anode lead 1/32 in. (0.8 mm) from the case).

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	LIMITS		UNITS
		All Types		
		Min.	Max.	
Reverse Current:	I_{RM}			
Static:				
For V_{RRM} = max. rated value, I_F = 0,				
T_J = 25°C		–	15	μA
T_J = 100°C		–	250	μA
Instantaneous Forward Voltage Drop:	v_F			
At i_F = 4 A, T_J = 25°C See Fig. 4.		–	1.9	V
Reverse Recovery Time:	t_{rr}			
For circuit shown in Fig. 1:				
At I_{FM} = 3.14 A, $-di_F/dt$ = 10 A/μs,		–	0.5	μs
pulse duration = 0.94 μs, T_C = 25°C				
In Tektronix type "S" plug-in unit:				
At I_F = 20 mA, I_R = 1.0 mA			1.5	μs
(DC values) T_C = 25°C				
Thermal Resistance (Junction-to-Lead)*	$R_{\theta JL}$	–	20	°C/W
See Fig. 14				

* Measured on anode lead 1/8" (3.18 mm) from case.
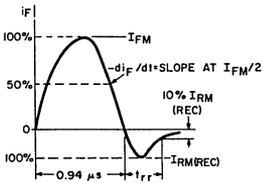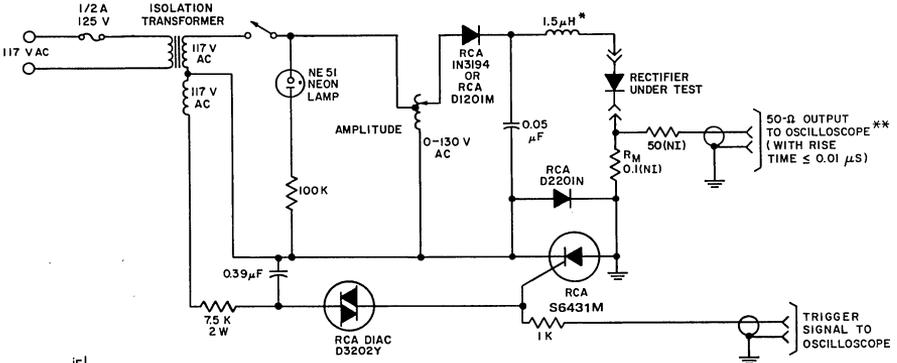
Fig.1 – Oscilloscope display and test circuit for measurement of reverse-recovery time for all types.
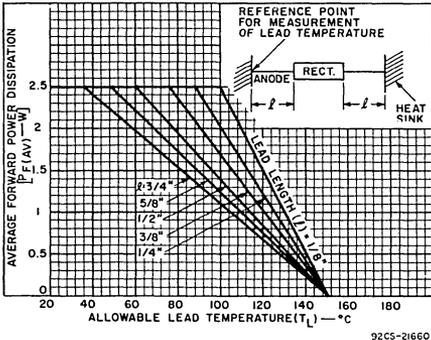
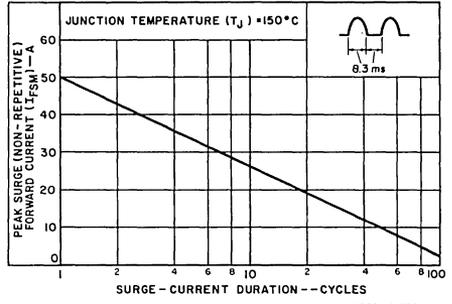Fig.2 — Average forward power dissipation vs. lead temperature for all types.

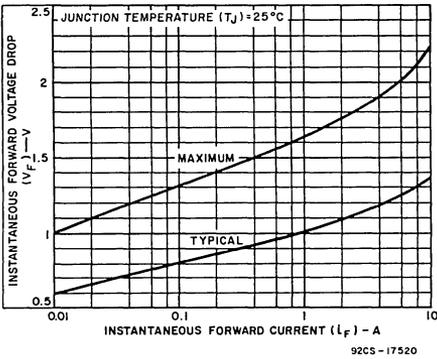Fig.3 — Peak surge (non-repetitive) forward current vs. surge-current duration for all types.

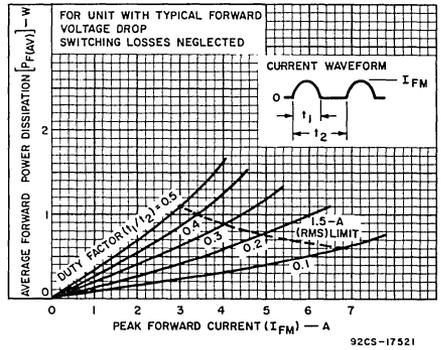Fig.4 — Forward voltage drop vs. forward current for all types.

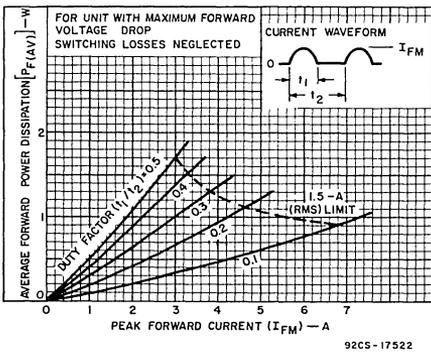Fig.5 — Average forward power dissipation (typical) as a function of duty factor for all types.

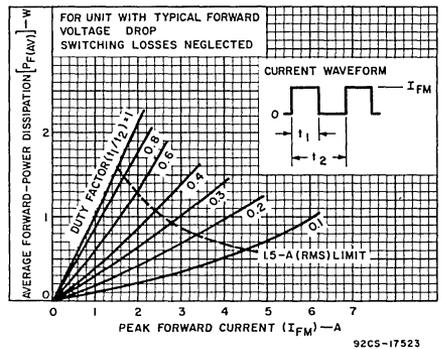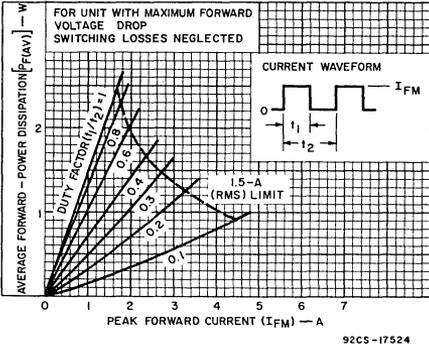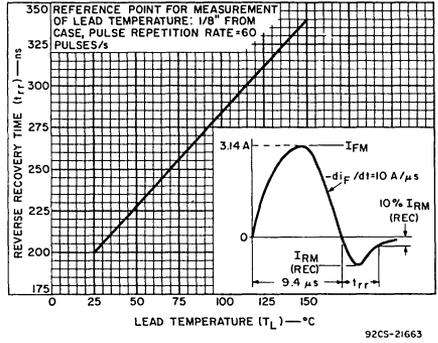Fig.6 — Average forward power dissipation (maximum) as a function of duty factor for all types.

Fig.7 — Average forward power dissipation (typical) as a function of duty factor for all types.

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Fig.8 — Average forward power dissipation (maximum) as a function of duty factor for all types.

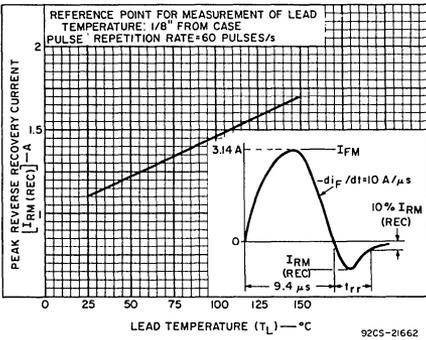Fig.9 — Typical variation of reverse recovery time with lead temperature for all types.

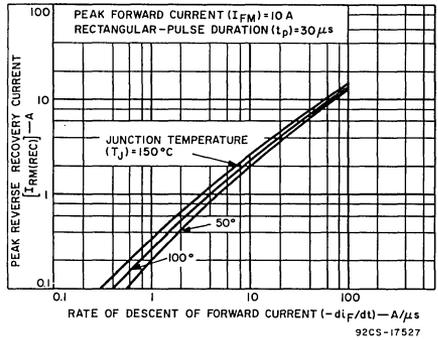Fig.10 — Peak reverse recovery current vs. lead temperature for all types.

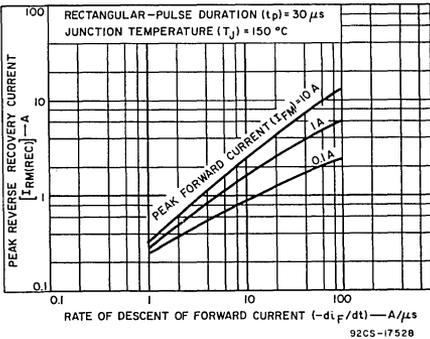Fig.11 — Peak reverse recovery current vs. rate of descent of forward current for all types.

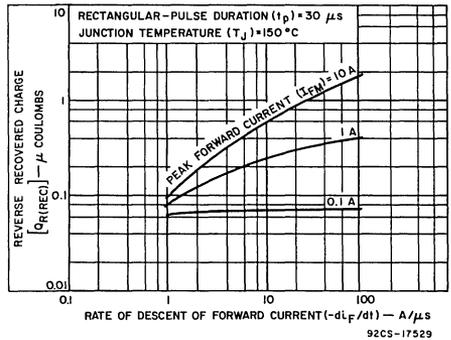Fig.12 — Peak reverse recovery current vs. rate of descent of forward current for all types.

Fig.13 — Reverse recovered charge vs. rate of descent of forward current for all types.