

RCA

TRAVELING-WAVE TUBE CLASSIFICATION CHARTS



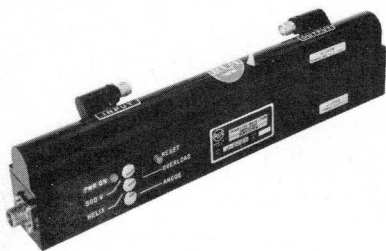
RADIO CORPORATION OF AMERICA

ELECTRONIC COMPONENTS AND DEVICES, HARRISON, N.J.

RCA TRAVELING-WAVE TUBES

RCA Traveling-Wave Tube capability represents experience acquired during 15 years of TWT tube development and manufacture. Whether providing a standard product or one customized for your application, the RCA trademark assures high quality and reliability. Our application and system engineering groups are available to help define requirements for your system. In addition, the RCA approach includes engineering follow-up that continues beyond the test set until customer satisfaction is assured thru in-system tube performance. Major application areas for RCA TWT's are:

Military Systems: Low- and medium-power TWT's for military system applications such as radar receivers, electronic countermeasures and guidance systems • Specialized tubes for use as limiters, switches, memory storage, and for applications requiring matched-gain characteristics also available • Heavily ruggedized designs for most critical service environments • Noise figures in ppm-focused tubes below 10 db • Ultra-low noise figures (3-5 db) in solenoid-focused tubes • Tubes covering more than an octave frequency band • Integral all-solid-state power supplies are available (TWT's are replaceable) — and most important of all, years of field experience in customizing our TWT's to fit your system requirements.



Space Communication Systems: Ten years of experience in high reliability, long-life tubes • Participation in many satellite systems including achievement of longest TWT operating life in orbit of any space qualified tube • MTBF's of 10 years with 95% confidence • Efficiencies, including heater, of over 40%, power from 5 to 40 watts CW • Complete transponder units including TWT, solid-state signal source, varactor multipliers, power supplies, etc., also available.



Ground Communication Systems: Years of experience in providing long life, up to 10,000 hours warranted life • TWT's for applications in point-to-point MW relay as well as for troposcatter communication systems • Excellent hot match • CW powers at all levels up to 25 watts • Tubes available with all solid-state power supplies, protective circuitry, and metering circuits if desired.

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CLASSIFICATION CHARTS

Low-Noise Types — With Solenoid Focusing													
RCA Type ^a	Frequency Range ^b Gc	Min. Power Output mw	Min. Small-Signal Gain db	Max. Noise Figure db	Heater		Typical Operating Conditions		Control Grid	Maximum Dimensions Approx. Inches		Weight Approx. lb	Environment ^c
					Volts	Amp	Collector Voltage Volts	Collector Current Ma		Length	Diameter		
A1056	1.1-1.4	0.25	20	9	5	0.65	200	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground
A1217	1.1-1.4	0.5	20	5	5	0.65	600	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground
A1056V2	1.25-1.35	0.25	20	4.5	5	0.70	600	0.27	Yes	19-5/8	1.39	1-1/2	Ground
A1217V4	1.7-1.94	0.5	25	5	5	0.65	600	0.15	Yes	19-3/8	1.38	1-1/2	Ground
A1119 ^d	2-4	1	20	17	6.3	0.75	700	1.00	Yes	17-5/8	2-5/8	7-1/2	Ground
A1078V10	2.09-2.41	0.25	20	8	5	0.65	400	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground
A1207V26	2.19-2.31	1.0	20	5	5	0.65	800	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground
8379	2.32-2.68	1.0	28	5	5	0.65	600	0.15	Yes	19.50	1.390	1-1/2	Ground
A1078V1	2.5-4	0.25	20	8	5	0.65	400	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground
A1145	2.65-3.5	0.25	20	7	5	0.65	400	0.15	Yes	18-3/8	1.39	1-1/2	Ground
A1078V14	2.7-2.9	0.25	20	7	5	0.65	400	0.15	Yes	19-5/8	1.390	1-1/2	Ground
6861	2.7-3.5	0.25	20	7	5	0.65	400	0.15	Yes	19-3/8	1.390	1-1/2	Ground
A1207V17	2.7-3.5	1.0	20	5	5	0.65	800	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground
A1207V29	3.5-4	1.0	25	5	5	0.65	800	0.15	Yes	19-3/8	1-3/8	1-1/2	Ground

Low-Noise Types — With Periodic-Permanent-Magnet Focusing													
RCA Type ^a	Frequency Range ^b Gc	Min. Power Output mw	Min. Small-Signal Gain db	Max. Noise Figure db	Heater		Typical Operating Conditions		Control Grid	Maximum Dimensions Approx. Inches		Weight Approx. lb	Environment ^c
					Volts	Amp	Collector Voltage Volts	Collector Current Ma		Length	Diameter		
A1210	0.825-1.4	10	25	17	6.3	0.6	320	1.2	Yes	17-3/8	1-1/2	5	Airborne
4019V2	1-2	10	28	16	6.3	0.6	400	1.6	Yes	17-3/8	1-1/2	5	Airborne
A1294	1-2	10	33	12	6.3	0.6	400	1.6	Yes	17	2.0	3-1/4	Airborne
A1211	1.31-2.65	10	24	17	6.3	0.6	520	1.2	Yes	16	1-1/2	3	Airborne
4017	2-4	10	30	16	6.3	0.6	500	1.0	Yes	16	1-1/2	3	Airborne
A1200V3	2-4	10	31	16	6.3	3.0	500	1.0	Yes	16	1.43	3.5	Ground
A1295	2-4	10	33	13	6.3	0.6	500	1.0	Yes	15	2.0	3-1/4	Airborne
A1173V11	2.64-2.9	15	20	16	6.3	0.6	500	1.0	Yes	16	1-7/16	3.5	Ground
A1212	3.45-5.61	10	24	17	6.3	0.6	670	0.7	Yes	16	1-1/2	3	Airborne
4020	4-7	10	28	18	6.3	0.6	900	0.8	Yes	16	1-1/2	3	Airborne
A1304 ^e	7-11	10	30	10	6.3	0.22	1300	0.6	Yes	12-11/16	1.98	4	Airborne

Low-Power Types — With Periodic-Permanent-Magnet Focusing													
RCA Type ^a	Frequency Range ^b Gc	Min. Power Output Watts	Min. Small-Signal Gain db	Heater		Typical Operating Conditions		Control Grid	Maximum Dimensions Approx. Inches		Weight Approx. lb	Environment ^c	
				Volts	Amp	Collector Voltage Volts	Collector Current Ma		Length	Diameter			
A1268	1-2	0.1	25	6.3	1.35	600	6	No	14-1/2	1-1/2	2-1/2	Ground	
A1308 ^f	1.5-4.5	0.01	33	6.3	0.7	500	3.5	No	12	1-1/2	1-3/4	Airborne	
A1313 ^g	2-4	{0.005 0.01	15 30	6.3	0.7	500	3.5	No	12	1-9/16	1-3/4	Airborne	
A1297	2.5-3.5	0.005	14	6.3	0.7	500	4	No	6.75	1-1/2	15/16	Airborne	
A1113V8	2.7-3.5	0.1	30	6.3	1.3	700	8	Yes	15-3/8	1-1/2	2-1/2	Airborne	
A1189	4-7	0.1	30	6.3	1.35	1500	12	Yes	14-1/2	1-1/2	2-1/2	Ground	
A1189V1	5-6	0.1	33	6.3	1.4	1025	10	Yes	14-1/2	1-1/2	2-1/2	Ground	
A1140	8-12	0.01	33	6.3	0.85	1500	0.8	Yes	14-3/8	1-1/2	3-3/4	Ground	
A1215	12-18	0.01	30	6.3	0.85	2200	3	Yes	14-3/8	1-1/2	3-3/4	Ground	

Intermediate-Power Types — With Periodic-Permanent-Magnet Focusing												
RCA Type ^a	Frequency Range ^b Gc	Min. Power Output Watts	Min. Small-Signal Gain db	Heater		Typical Operating Conditions		Control Grid	Maximum Dimensions Approx. Inches		Weight Approx. lb	Environment ^c
				Volts	Amp	Collector Voltage Volts	Collector Current Ma		Length	Diameter		
4021	1-2	1	27	6.3	1.85	900	25	Yes	16	1-9/16x1-9/16	4-1/2	Airborne
4053 ^h	1-2	10	25	6.3	1.75	2200	70	Yes	20-1/2	1-5/8	6-1/2	Ground
7642 ^h	1.7-2.3	18	28	6.3	1.75	2000	70	No	20-1/2	1-5/8	6-1/2	Ground
4054 ^h	1.7-2.7	17	28	6.3	1.75	2000	70	Yes	19	1-5/8	6-1/2	Ground
A1309	1.9-4.1	1	35	6.3	1.4	1100	30	No	13	1-3/4	2.5	Airborne
A1311	1.9-4.1	1	35	6.3	1.3	1100	35	Yes	15-1/2	1-3/4	2.5	Airborne
4010	2-4	1	33	6.3	1.3	1150	18	Yes	15-3/8	1-1/2	2-1/2	Airborne
A1201V1	2-4	1	30	6.3	1.3	1145	20	Yes	15.38	1.44	3	Airborne
A1138V1	2-4	2	38	6.3	1.3	1250	20	Yes	15-1/2	1-7/16	3	Airborne
A1243	2-4	2	30	6.3	1.45	1200	30	Yes	16-3/4	1-3/4	4-1/2	Airborne
A1314	2-4	2	35	6.3	1.5	1500	35	No	13	1-3/4	2.5	Airborne
A1312 ^e	2-4	5	30	5.0	0.5	800	30	No	13	1-1/4	1.5	Airborne
A1320 ^e	2-4	20	30	5.0	0.5	1000	38	No	9-1/2	1.8x1-1/4	1.6	Space
4056 ^e	2.2-3	13	35 sat.	5	0.5	1000	38	No	13	1.8x1-1/4	1.6	Space
A1310	2.6-5.2	3	35	6.3	1.35	1600	30	No	15-1/2	2	3-1/4	Airborne
A1318 ^e	3-4.5	5-45 ^j	40 sat.	5.0	0.5	800-1400 ^j	20-70 ^j	No	12	1.8x1-1/4	1.5	Space
A1245	4.05-4.25	11	35	3.75	1.45	1000	45	No	18-1/2	2-3/8	3-1/2	Space
A1205	4.4-5	1	37	6.3	1.35	1600	27	No	15-1/2	2	3-1/4	Airborne
A1203	7.5-11	1	32	6.3	0.85	2950	12	No	15-1/4	1-1/4	6	Airborne
4041	8-12	1	32	6.3	0.85	3000	12	Yes	15	1-3/4	6	Airborne
4015	8-12	1	33	6.3	0.85	3000	13	Yes	15-3/8	1-3/4	6	Ground
A1225	12-18	1	30	6.3	0.85	4100	15	Yes	15-3/8	1-3/4	6	Ground

Pulse Types — With Periodic-Permanent-Magnet Focusing													
RCA Type ^a	Frequency Range ^b Gc	Min. Peak Power Output Watts	Duty Factor	Min. Small-Signal Gain db	Heater		Typical Operating Conditions (Average)		Control Grid	Maximum Dimensions Approx. Inches		Weight Approx. lb	Environment ^c
					Volts	Amp	Collector Voltage Volts	Collector Current Ma		Length	Diameter		
A1179	2-4	80	0.1	23	6.3	2.5	3000	28	Yes	19-3/4	2-1/2	15	Ground
A1316	2-4	100	0.1	28	6.3	2.5	3500	30	Yes	19-3/4	2-1/2	12-1/2	Ground
A1181	7.5-11.2	25	0.05	27	6.3	1.25	6500	5.5	Yes	14-1/32	1-3/4	6	Airborne
A1181V2	8-11	3	0.05	30	6.3	1.3	6500	5	Yes	14-1/32	1-3/4	6	Airborne

FOOTNOTES

^a Type numbers with prefix A and J are developmental types. These developmental-type devices are suitable for engineering evaluation. The type designations and data are subject to change. Unless otherwise arranged, no obligations are assumed for notice of change or future manufacture of these devices.

Type numbers with suffix V are variants of the prototype.

Inquiries are invited about new types or variants of prototypes for specific equipment designs. Application assistance is readily available.

^b When ordering traveling-wave tubes, specify the frequency range in which operation is intended.

^c Details on applicable environmental specifications are available on request. Inquiries are invited on types to meet specific environmental requirements.

^d Integral-Solenoid-Focusing Type.

^e Ceramic-Metal Construction.

^f Available with integral power supply as type J2027. Dimensions — 12" x 3-1/4" x 1-5/8".

^g This tube has two output couplers.

^h Available with integral power supply in instrument-type cabinet such as J2028 series.

^j Power output varies with collector current; efficiency remains constant.