

WJ-A28-2 / SMA28-2

10 to 1500 MHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ LOW NOISE: 3.5 dB (TYP.)
- ◆ HIGH EFFICIENCY: 27 mA (TYP.) @ 5 VDC
- ◆ GOOD DYNAMIC RANGE: 105 dB (TYP.)
IN 1 MHz BW
- ◆ LOW VSWR: < 1.4:1 (TYP.)



Specifications *

Characteristics	Typical	Guaranteed	
		0° to 50°C	-54° to +85°C
Frequency (Min.)	5-1600 MHz	10-1500 MHz	10-1500 MHz
Small Signal Gain (Min.)	14.0 dB	13.0 dB	12.5 dB
Gain Flatness (Max.)	±3 dB	±5 dB	±1.0 dB
Noise Figure (Max.)	3.5 dB	4.5 dB	5.0 dB
Power Output			
at 1 dB Compression (Min.)			
10 - 1500 MHz	+10.0 dBm	+7.5 dBm	+7.0 dBm
10 - 1000 MHz	+10.5 dBm	+9.5 dBm	+8.5 dBm
VSWR (Max.)			
Input	< 1.3:1	1.8:1	1.9:1
output	< 1.5:1	1.9:1	2.0:1
DC Current (Max.) at +5 V	27 mA	30 mA	32 mA

*Measured in a 50-ohm system at +5 Vdc Nominal.

Notes:

1. WJ-CA28-2 is a standard WJ-A28-2 installed in a miniature SMA connector housing and guaranteed over 0°C to 50°C temperature range.

Typical Intermodulation Performance at 25°C

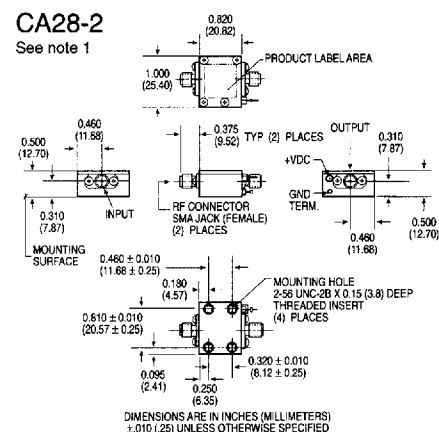
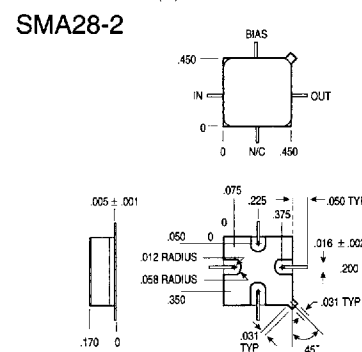
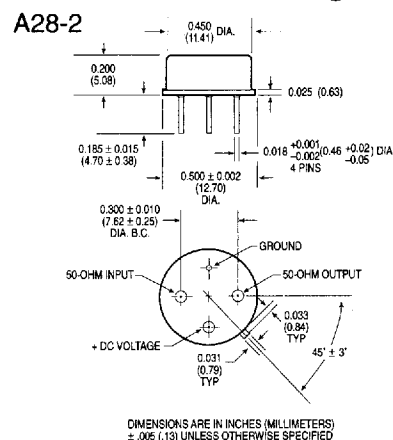
Second Order Harmonic Intercept Point.....	+40 dBm (Typ.)
Second Order Two Tone Intercept Point.....	+34 dBm (Typ.)
Third Order Two Tone Intercept Point.....	+24 dBm (Typ.)

Absolute Maximum Ratings

Storage Temperature	-62°C to +125°C
Maximum Case Temperature	+125°C
Maximum DC Voltage	+8 volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term RF Input Power	50 Milliwatts (1 Minute Max.)
Maximum Peak Power	0.5 Watt (3μsec Max.)
"S" Series Burn-In Temperature (Case)	125°C

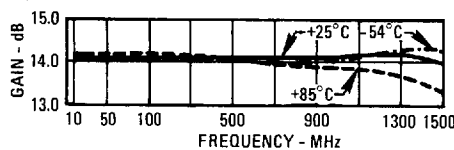
Weight approximately 2.0 grams (0.07 oz.)

Outline Drawings

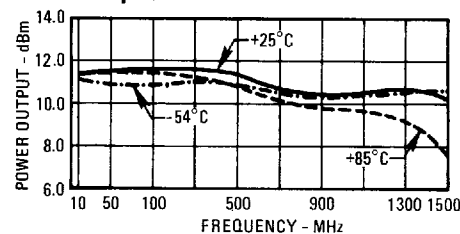


Typical Performance at 25°C

Gain

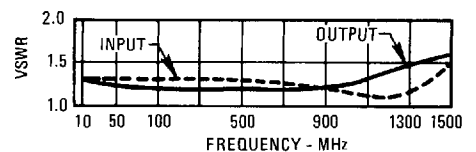


Power Output*

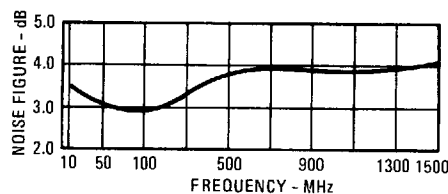


*@ 1 dB Gain Compression

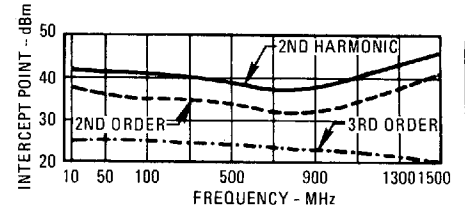
VSWR



Noise Figure



Intercept Point



Typical Automatic Test Data

V_{CC} = 8.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.7	1.7	14.4
5.0	1.4	1.3	14.3
10.0	1.3	1.3	14.3
50.0	1.3	1.2	14.3
100.0	1.3	1.2	14.1
200.0	1.2	1.3	14.0
300.0	1.2	1.3	13.9
400.0	1.3	1.4	14.0
500.0	1.3	1.4	14.2
600.0	1.3	1.5	14.2
700.0	1.3	1.5	14.2
800.0	1.3	1.5	14.2
900.0	1.3	1.4	14.1
1000.0	1.3	1.4	14.2
1100.0	1.3	1.3	14.1
1200.0	1.3	1.2	14.0
1300.0	1.3	1.1	13.9
1400.0	1.2	1.0	13.8
1500.0	1.3	1.1	13.5
1600.0	1.3	1.2	13.2
1700.0	1.6	1.2	12.7

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
2.0	1.7	1.6	14.2
5.0	1.3	1.3	14.0
10.0	1.3	1.2	14.0
50.0	1.2	1.2	14.0
100.0	1.2	1.2	13.9
200.0	1.2	1.2	13.8
300.0	1.2	1.2	13.7
400.0	1.2	1.3	13.9
500.0	1.3	1.3	14.0
600.0	1.3	1.3	14.2
700.0	1.3	1.3	14.2
800.0	1.4	1.3	14.2
900.0	1.4	1.3	14.2
1000.0	1.4	1.2	14.2
1100.0	1.4	1.1	14.2
1200.0	1.4	1.1	14.1
1300.0	1.4	1.2	14.0
1400.0	1.3	1.3	13.9
1500.0	1.4	1.4	13.7
1600.0	1.4	1.5	13.2
1700.0	1.7	1.5	12.7

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.260	-112	5.262	-166	.109	16	.249	133
5.0	.152	-143	5.168	-175	.115	6	.136	145
10.0	.135	-161	5.167	-179	.116	3	.113	154
50.0	.127	177	5.163	173	.117	-2	.099	147
100.0	.120	169	5.097	165	.117	-6	.104	127
200.0	.110	168	5.011	152	.118	-12	.123	92
300.0	.105	170	4.977	139	.120	-18	.143	65
400.0	.115	172	5.031	126	.121	-25	.157	44
500.0	.134	166	5.128	112	.121	-33	.175	24
600.0	.142	154	5.143	98	.120	-40	.193	3
700.0	.133	146	5.132	83	.120	-47	.201	-18
800.0	.136	137	5.127	69	.121	-55	.196	-38
900.0	.140	128	5.094	54	.122	-62	.181	-58
1000.0	.139	119	5.104	39	.122	-70	.152	-78
1100.0	.142	107	5.076	23	.122	-78	.120	-98
1200.0	.133	89	5.001	7	.121	-86	.080	-113
1300.0	.126	69	4.970	-9	.122	-94	.032	-117
1400.0	.109	36	4.876	-26	.123	-102	.019	-10
1500.0	.115	-9	4.757	-44	.125	-111	.061	-7
1600.0	.130	-55	4.551	-64	.128	-122	.093	-21
1700.0	.221	-93	4.323	-84	.131	-133	.097	-35

Linear S-Parameters

Frequency MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2.0	.246	-108	5.111	-165	.113	16	.239	127
5.0	.134	-138	5.018	-175	.118	6	.118	138
10.0	.115	-157	5.003	-179	.119	3	.092	149
50.0	.105	177	5.007	173	.121	-2	.075	144
100.0	.099	171	4.945	166	.122	-5	.079	125
200.0	.093	173	4.894	152	.122	-11	.093	91
300.0	.087	-178	4.842	140	.124	-17	.107	66
400.0	.099	-176	4.936	127	.126	-24	.113	47
500.0	.122	177	5.038	114	.126	-31	.124	31
600.0	.137	167	5.103	99	.127	-38	.136	11
700.0	.138	160	5.106	85	.128	-45	.140	-7
800.0	.155	152	5.133	70	.130	-53	.132	-23
900.0	.158	140	5.126	55	.133	-60	.116	-37
1000.0	.171	129	5.133	40	.134	-68	.090	-46
1100.0	.174	114	5.117	24	.135	-76	.067	-46
1200.0	.176	94	5.085	8	.136	-84	.065	-26
1300.0	.169	73	5.030	-9	.138	-92	.098	-11
1400.0	.147	43	4.929	-26	.141	-101	.139	-17
1500.0	.153	-3	4.825	-45	.145	-111	.183	-32
1600.0	.166	-46	4.568	-65	.149	-122	.209	-50
1700.0	.260	-87	4.323	-85	.154	-135	.203	-72

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{JC} 45°C/W
 Transistor Power Dissipation P_d 0.094 W
 Junction Temperature Rise Above Case T_{JC} ... 4°C