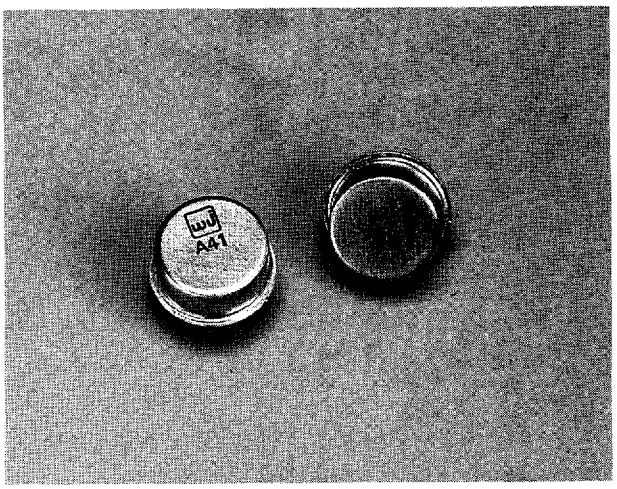
WJ-A41 / SMA41



1 to 4 GHz
TO-8 CASCADABLE AMPLIFIER

- ◆ AVAILABLE IN SURFACE MOUNT
- ◆ WIDE BANDWIDTH: 1-4 GHz
- ◆ MEDIUM OUTPUT LEVEL: +12 dBm (TYP.)
- ◆ LOW NOISE: 4.0 dB (TYP.)
- ◆ GaAs FET DESIGN

Specifications*

Characteristics	Typical	Guaranteed 0° to +50°C	Guaranteed -54° to +85° C
Frequency (Min.)	.9-4.2 GHz	1-4 GHz	1-4 GHz
Small Signal Gain (Min.)	8.5 dB	7.0 dB	6.5 dB
Gain Flatness (Max.)	±.4 dB	±.7 dB	±.9 dB
Noise Figure (Max.)	4.0 dB	5.0 dB	5.5 dB
Power Output			
at 1 dBCompression (Min.)	+12.0 dBm	+11.0 dBm	+10.5 dBm
VSWR (Max.)			
Input	1.6:1	2.1:1	2.2:1
output	1.4:1	2.1:1	2.2:1
DC Current (Max.) at + 5 Volts	35 mA	40 mA	42 mA

*Measured in a 50-ohm system at +5 Vdc Nominal.
Notes:
1. WJ-CA41 is a standard WJ-A41 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.....+45 dBm (Typ.)
Second Order Two Tone Intercept Point.....+35 dBm (Typ.)
Third Order Two Tone Intercept Point.....+25 dBm (Typ.)

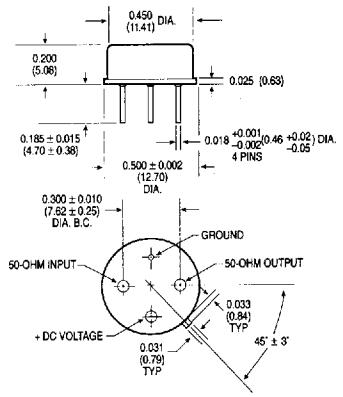
Absolute Maximum Ratings

Storage Temperature .....-62°C to +125°C
Maximum Case Temperature .....125°C
Maximum DC Voltage.....+ 6 Volts
Maximum Continuous RF Input Power .....+12 dBm
Maximum Short Term RF Input Power (1 Minute Max.).....50 Milliwatts
Maximum Peak Power .....0.25 Watts (3 µsec Max.)
"S" Series Burn-In Temperature (Case) .....125°C

Weight approximately 2.0 grams (0.07 oz.)

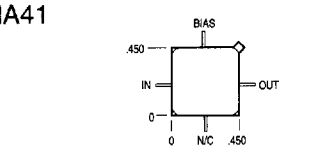
Outline Drawings

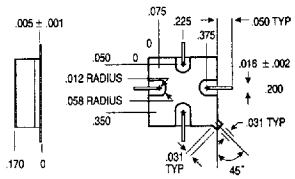
A41



DIMENSIONS ARE IN INCHES (MILLIMETERS)
± .005 (.13) UNLESS OTHERWISE SPECIFIED

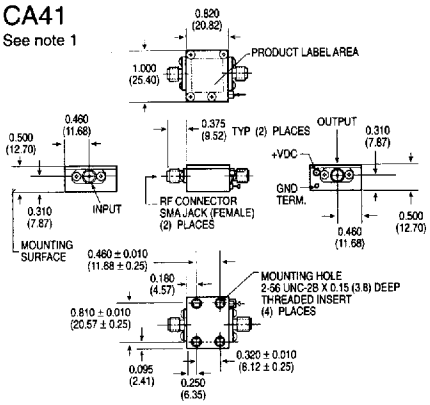
SMA41





DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

CA41
See note 1



DIMENSIONS ARE IN INCHES (MILLIMETERS)
±.010 (.25) UNLESS OTHERWISE SPECIFIED

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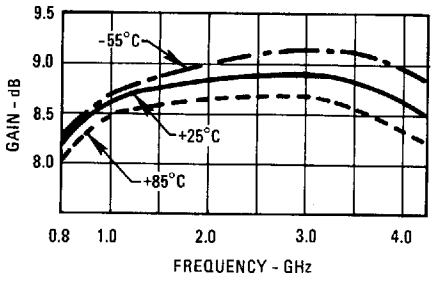
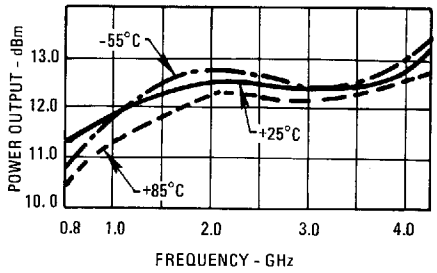
Typical Performance at 25°C

Gain

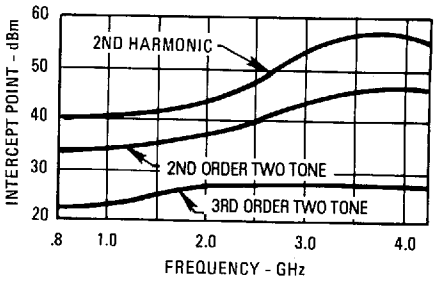


Power Output*

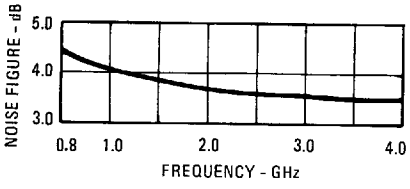


*at 1 dB Gain Compression

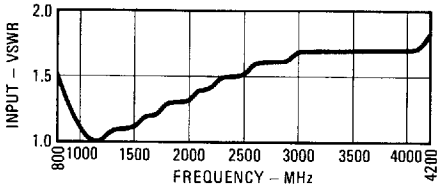
Intercept Point

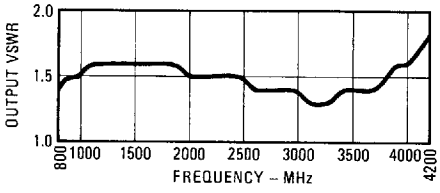


Noise Figure



VSWR





Typical Automatic Test Data

V_{CC} = 5.0 V

Frequency MHz	VSWR IN	VSWR OUT	GAIN DB
800.0	1.2	1.5	8.1
900.0	1.0	1.6	8.3
1000.0	1.1	1.7	8.4
1100.0	1.2	1.7	8.4
1200.0	1.3	1.7	8.5
1300.0	1.3	1.7	8.5
1400.0	1.3	1.7	8.5
1500.0	1.4	1.6	8.5
1600.0	1.4	1.6	8.6
1700.0	1.4	1.6	8.6
1800.0	1.4	1.6	8.5
1900.0	1.4	1.6	8.6
2000.0	1.4	1.6	8.5
2100.0	1.4	1.6	8.5
2200.0	1.4	1.6	8.6
2300.0	1.5	1.7	8.5
2400.0	1.5	1.7	8.5
2500.0	1.5	1.7	8.5
2600.0	1.4	1.7	8.4
2700.0	1.4	1.7	8.3
2800.0	1.4	1.7	8.3
2900.0	1.5	1.7	8.2
3000.0	1.5	1.7	8.2
3100.0	1.5	1.6	8.2
3200.0	1.5	1.5	8.2
3300.0	1.6	1.5	8.1
3400.0	1.6	1.4	8.2
3500.0	1.7	1.3	8.2
3600.0	1.7	1.3	8.1
3700.0	1.8	1.2	8.1
3800.0	1.9	1.1	8.1
3900.0	1.9	1.1	7.9
4000.0	2.0	1.1	8.0
4100.0	2.0	1.1	7.7
4200.0	2.1	1.2	7.7

Linear S-Parameters

Frequency	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800.0	.074	60	2.529	79	.150	–92	.204	56
900.0	.015	139	2.594	41	.150	–126	.236	15
1000.0	.058	167	2.618	8	.148	–157	.250	–18
1100.0	.096	145	2.641	–23	.146	175	.258	–47
1200.0	.117	124	2.654	–53	.144	148	.257	–74
1300.0	.128	101	2.676	–82	.145	122	.251	–101
1400.0	.140	81	2.669	–110	.144	95	.246	–128
1500.0	.159	58	2.671	–138	.143	71	.236	–155
1600.0	.162	32	2.677	–165	.142	47	.226	178
1700.0	.164	13	2.680	168	.142	22	.222	152
1800.0	.166	–13	2.674	141	.141	–2	.217	124
1900.0	.170	–35	2.687	114	.140	–26	.222	95
2000.0	.177	–63	2.675	88	.139	–49	.230	68
2100.0	.178	–86	2.664	62	.139	–73	.237	41
2200.0	.181	–111	2.680	36	.139	–96	.245	15
2300.0	.187	–131	2.663	10	.136	–119	.255	–11
2400.0	.184	–154	2.655	–16	.136	–142	.265	–35
2500.0	.190	–179	2.660	–42	.134	–166	.269	–58
2600.0	.182	160	2.626	–67	.134	171	.271	–80
2700.0	.173	138	2.606	–93	.135	150	.272	–102
2800.0	.172	112	2.594	–118	.133	126	.266	–122
2900.0	.187	91	2.584	–143	.133	103	.257	–142
3000.0	.189	66	2.571	–169	.133	81	.246	–162
3100.0	.196	45	2.566	166	.133	58	.232	178
3200.0	.193	20	2.557	140	.133	36	.213	157
3300.0	.223	–0	2.550	115	.134	13	.191	136
3400.0	.233	–23	2.563	90	.134	–10	.165	115
3500.0	.254	–46	2.558	64	.136	–33	.140	93
3600.0	.269	–71	2.547	38	.137	–56	.112	69
3700.0	.284	–95	2.543	12	.136	–79	.086	40
3800.0	.301	–120	2.527	–13	.137	–102	.068	3
3900.0	.319	–144	2.495	–39	.136	–125	.056	–42
4000.0	.339	–170	2.500	–65	.136	–149	.057	–90
4100.0	.339	164	2.440	–91	.135	–172	.067	–130
4200.0	.357	136	2.420	–117	.136	165	.079	–162

Thermal Data: V_{CC} = 5 Vdc

Thermal Resistance θ_{jc} ..... 97.8°C/W
Transistor Power Dissipation P_d ..... 0.171 W
Junction Temperature Rise Above Case T_{jc} ... 17°C

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