

UA2712E

Broadband Amplifier MMICs

Data Sheet

DS-2712-02

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UA2712E**Broadband Amplifier MMICs**

1. Product Description

The UA2712E general purpose wideband amplifier IC with internal input/output matching and ESD diodes inside is packaged in a 6-pin SOT363 plastic package.

2. Features

- Single 5V power supply
- Internally matched to 50Ω
- Very wide frequency over DC to 4.6 GHz
- Over 24 dB linear gain at 2.2 GHz
- High frequency gain peaking for cable loss compensation
- Unconditionally stable
- P1dB over 2 dBm at 2.2 GHz
- No external choke is required.

3. Typical Applications

- DBS
- LNB IF Amplifier
- DVB
- Cable
- ISM
- General Purpose

4. Pin Configuration

Table 1 Pin Descriptions

Pin #	Description
1	Vcc
2, 5	GND1
3	RF out
4	GND2
6	RF in

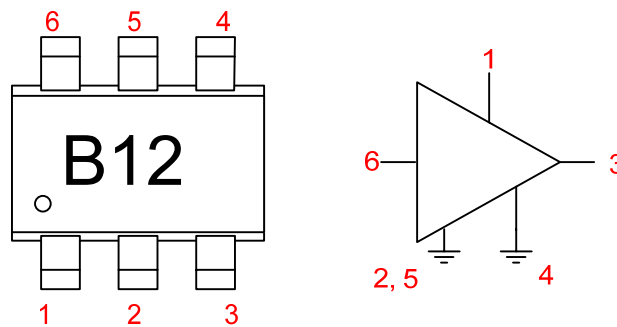
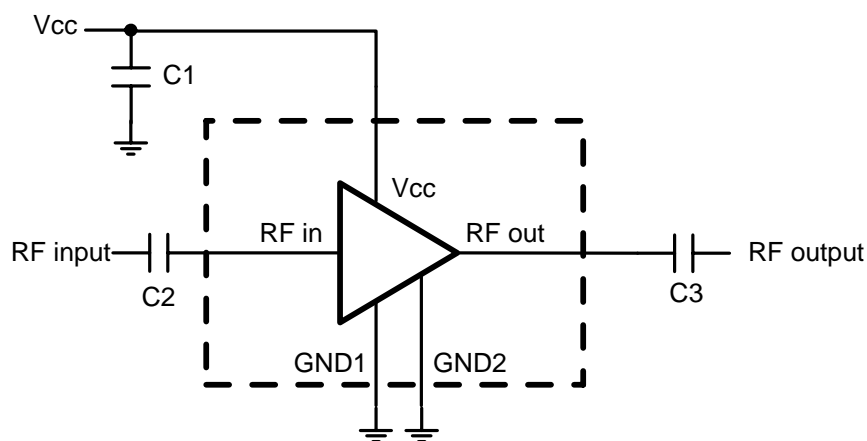


Figure 1. Simplified Outline (SOT363) and Symbol.

5. Application Circuit



C1=1nF, C2=100pF, C3=100pF

Figure 2. Application Circuit

6. Operating Condition

Table 2. Absolute Maximum Ratings

Symbol	Parameters	Conditions	Min.	Max.	Unit
V _{cc}	DC Supply Voltage	RF input AC coupled	-	8	V
I _{cc}	Supply Current		-	25	mA
P _{tot}	Total Power Dissipation	T _a ≤ 90 °C	-	200	mW
T _{st}	Storage Temperature		-65	150	°C
T _j	Operating Junction Temperature		-40	150	°C
P _D	Maximum Drive Power		-	-20	dBm

Table 3. Thermal Characteristics

Symbol	Parameters	Conditions	Value	Unit
R _{th}	Thermal Resistance from Junction to Solder Point	P _{tot} = 60mW; T _a ≤ 90 °C	300	K/W

7. Electrical Characteristics

Table 4. Electrical Characteristics

V_{cc} = 5 V; I_{cc} = 12 mA; T_a = 25 °C; unless otherwise specified.

Symbol	Parameters	Conditions	Min.	Typ.	Max.	Unit
I _{cc}	Supply Current		-	12	-	mA
S ₂₁ ²	Insertion Power Gain	f = 100 MHz	-	31	-	dB
		f = 0.9 GHz	-	31.5	-	dB
		f = 1.8 GHz	-	33	-	dB
		f = 2.2 GHz	-	33.5	-	dB
		f = 2.5 GHz	-	32	-	dB
S ₁₁ ²	Input Return Loss	f = 0.9 GHz	10	-	-	dB
		f = 2.2 GHz	10	-	-	dB
S ₂₂ ²	Output Return Loss	f = 0.9 GHz	10	-	-	dB
		f = 2.2 GHz	10	-	-	dB
S ₁₂ ²	Isolation	f = 0.9 GHz	-	41	-	dB
		f = 2.2 GHz	-	41	-	dB
NF	Noise Figure	f = 0.9 GHz	-	2.1	-	dB
		f = 2.2 GHz	-	2.3	-	dB
		f = 2.45 GHz	-	2.3	-	dB
BW	Bandwidth	at S ₂₁ ² -3 dB below flat gain at 1 GHz	-	2.6	-	GHz
K	Stability Factor	f = 0.9 GHz	-	1.2	-	-
		f = 2.2 GHz	-	1.2	-	-
P _{L(sat)}	Saturated Load Power	f = 0.9 GHz	-	5	-	dBm
		f = 2.2 GHz	-	5	-	dBm
P _{L,1 dB}	Load Power	at 1 dB gain compression; f = 0.9 GHz	-	4	-	dBm
		at 1 dB gain compression; f = 2.2 GHz	-	2	-	dBm



Caution: ESD sensitive.

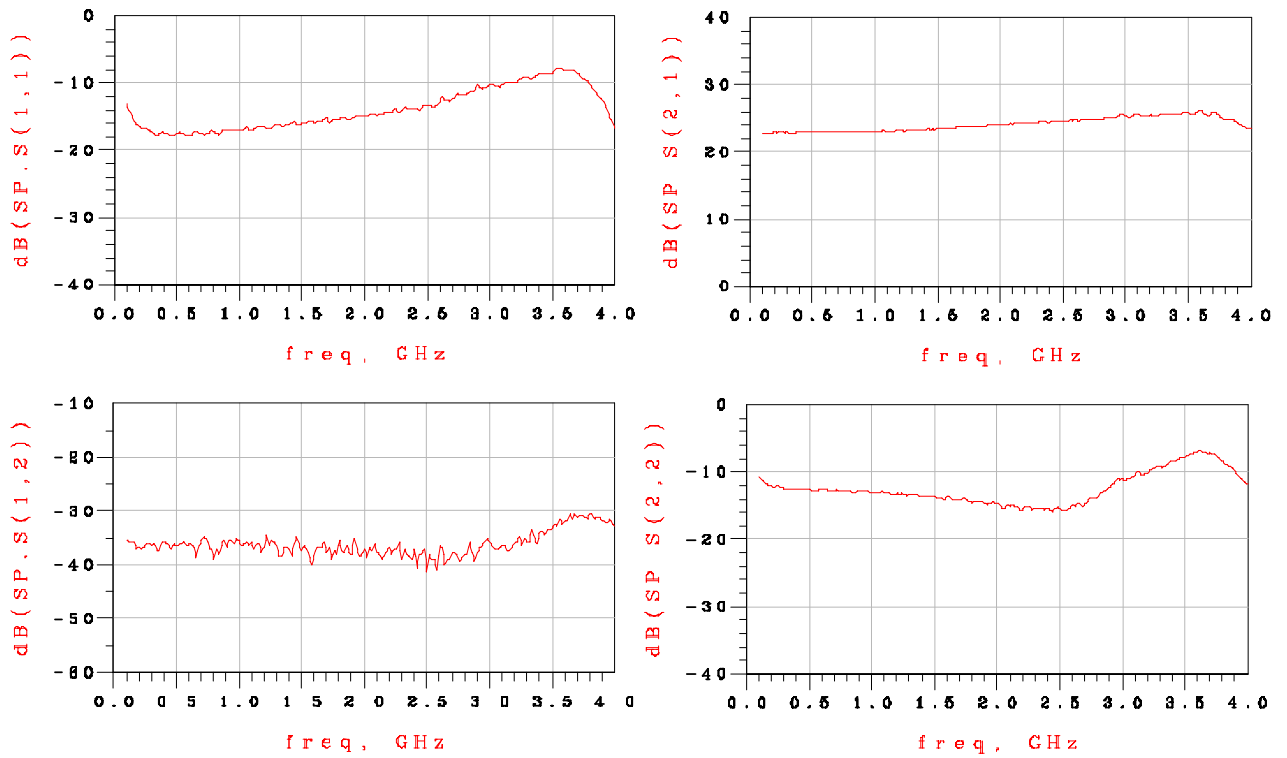


Figure 3. S-parameter ($V_{cc} = 5\text{ V}$, $I_{cc} = 12\text{ mA}$, $P_{in} = -40\text{ dBm}$, $Z_o = 50\ \Omega$)

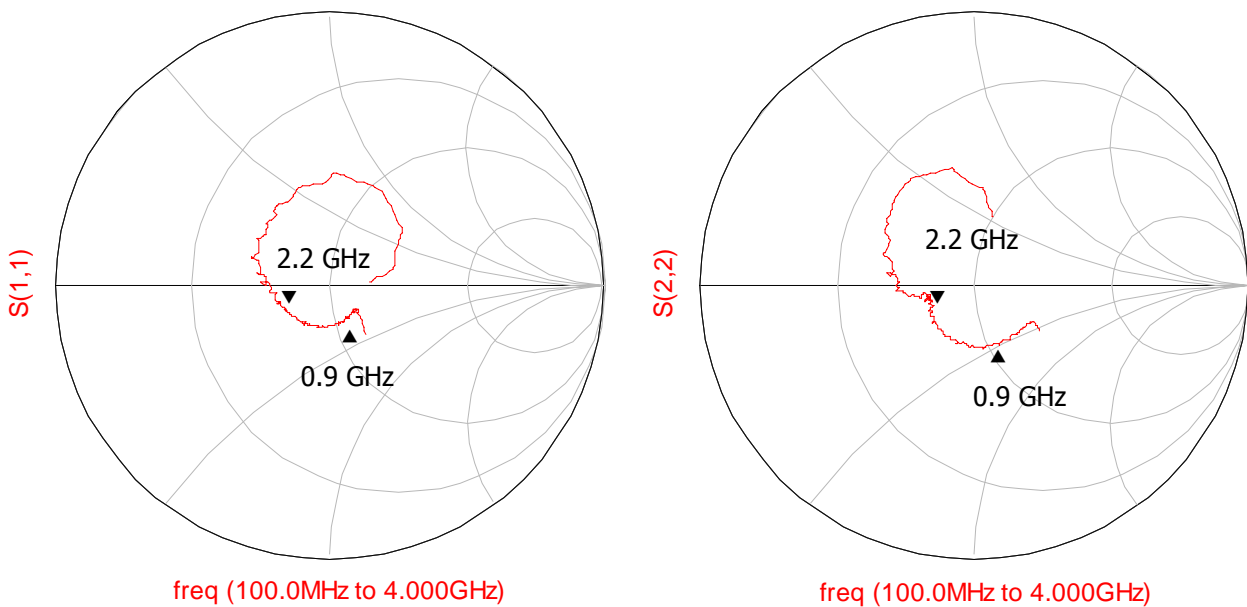


Figure 4. S_{11} & S_{22} ($V_{cc} = 5\text{ V}$, $I_{cc} = 12\text{ mA}$, $P_{in} = -40\text{ dBm}$, $Z_o = 50\ \Omega$)

8. Package Drawing

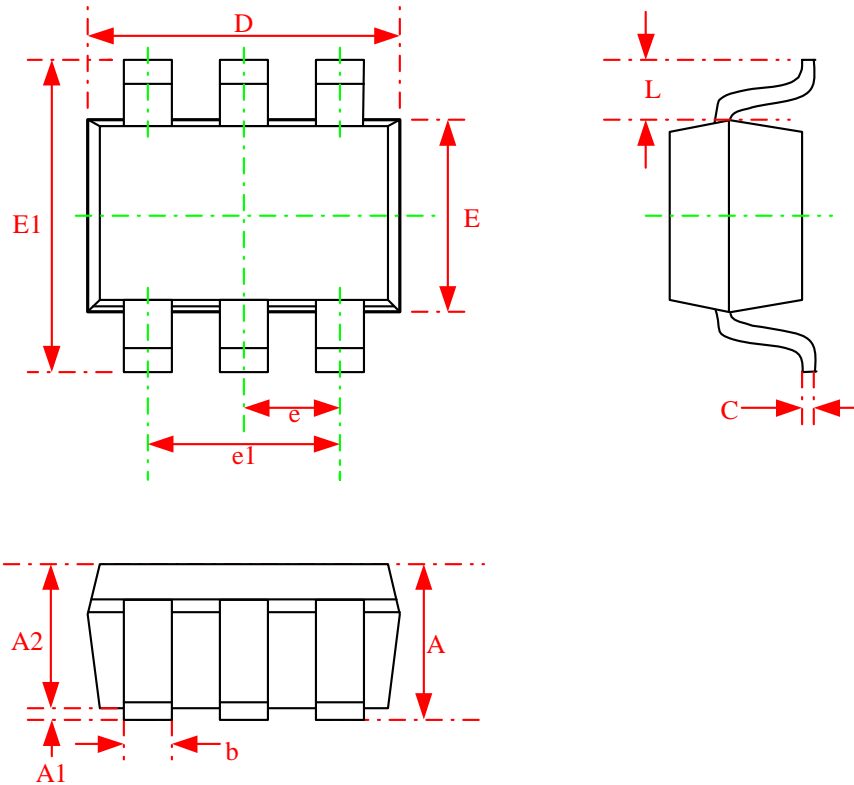


Figure 5. Package Outline

Table 5. Dimension Description

Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.10	.038	.044
A1	0.025	0.10	.001	.004
A2	0.875	1.00	.035	.040
b	0.20	0.40	.008	.016
C	0.10	0.15	.004	.006
D	1.90	2.10	.076	.084
E	1.15	1.35	.046	.054
E1	2.00	2.20	.080	.088
e	0.65 BSC.		.026 BSC.	
e1	1.30 BSC.		.052 BSC.	
L	0.425 REF.		.017 BSC.	

Revision History

Revision	Date	Description of Change
1.0	2007/01/05	Original.

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