

NEC

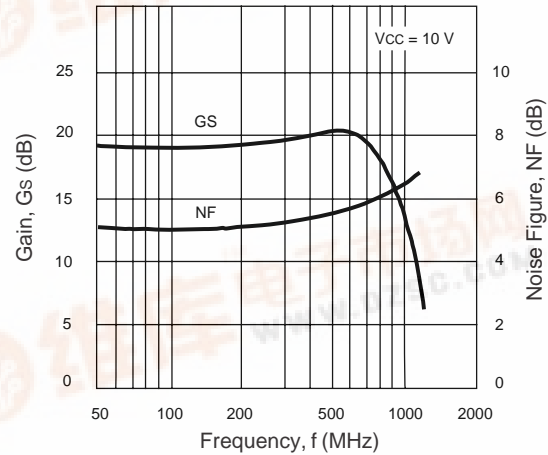
850 MHz WIDE-BAND SILICON MMIC AMPLIFIER

UPC1656C

FEATURES

- 850 MHz FREQUENCY RESPONSE @ 3 dB DOWN
- POWER GAIN OF 19 dB @ f = 500 MHz
- 10.5 dBm OUTPUT POWER
- LOW COST PACKAGE
- 50 Ω GAIN BLOCK

NOISE FIGURE AND VOLTAGE GAIN vs. FREQUENCY



DESCRIPTION

The UPC1656C is a silicon monolithic integrated circuit especially designed as a wide-band amplifier covering the HF band through UHF band.

NEC's stringent quality assurance and test procedures ensure the highest reliability and performance.

ELECTRICAL CHARACTERISTICS (TA = 25°C, Vcc = 10 V, f = 500 MHz)

PART NUMBER PACKAGE OUTLINE			UPC1656C C08		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
Icc	Circuit Current	mA	38	43	48
Gs	Small Signal Gain	dB	17	19	21
BW	Bandwidth (The gain is 3 dB down from the gain at 100 MHz)	MHz	750	850	
PSAT	Saturated Output Power	dBm	9	10.5	
NF	Noise Figure	dB		5.5	6.5
RLIN	Input Return Loss	dB	17	20	
RLOUT	Output Return Loss	dB	4	7	
ISOL	Isolation	dB	24	27	

UPC1656C

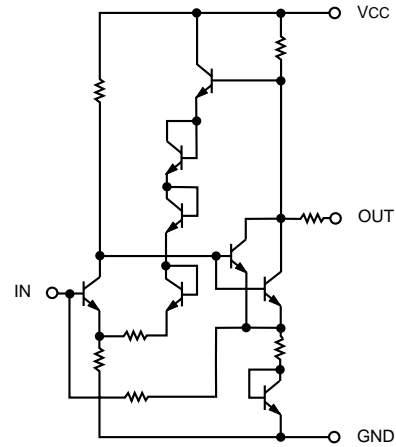
ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Supply Voltage	V	11
P _T	Total Power Dissipation ²	mW	600
T _{OP}	Operating Temperature	°C	-20 to +75
T _{STG}	Storage Temperature	°C	-40 to +125

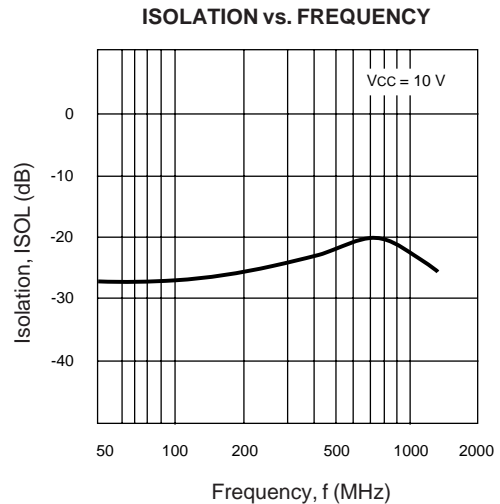
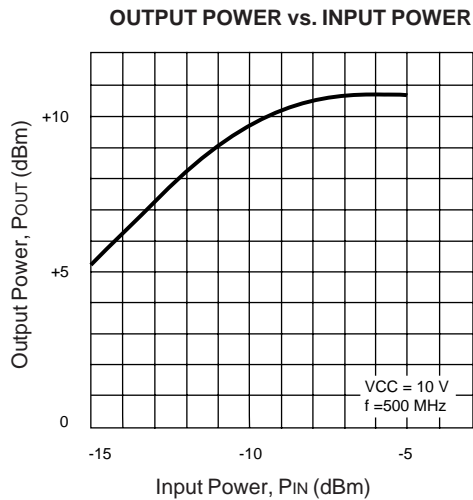
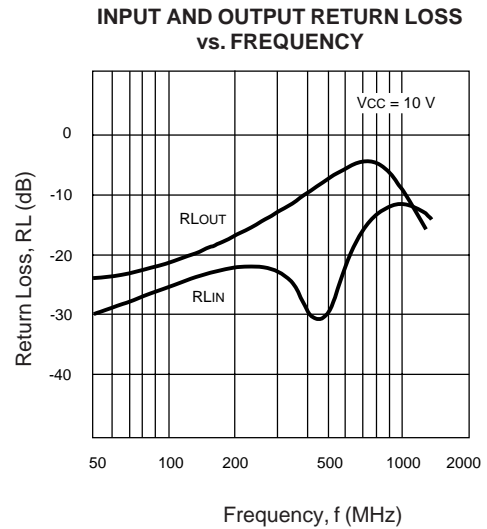
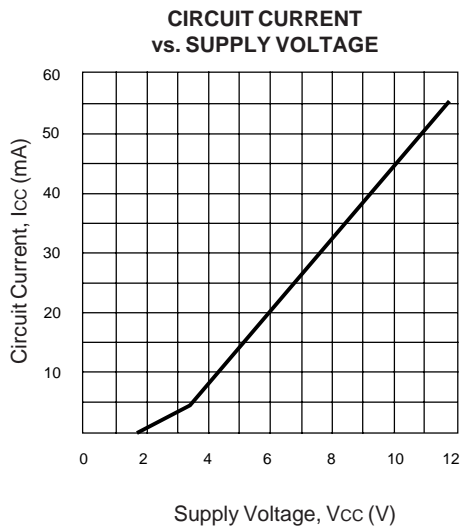
Note:

- Operation in excess of any one of these parameters may result in permanent damage.
- At T_A = +85°C.

EQUIVALENT CIRCUIT



TYPICAL PERFORMANCE CURVES (T_A = 25°C)



UPC1656C

TYPICAL SCATTERING PARAMETERS

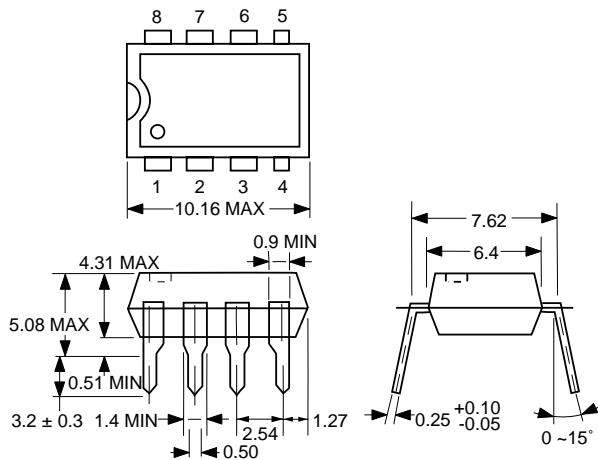
UPC1656C

V_{CC} = 10 V, I_{CC} = 43 mA

FREQUENCY MHz	S ₁₁		S ₂₁		S ₁₂		S ₂₂		K	S ₂₁ dB
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
50	0.110	-7	8.749	-11	0.042	4	0.062	163	1.53	18.8
100	0.120	-2	8.765	-24	0.043	-2	0.078	131	1.50	18.9
150	0.129	-2	8.694	-37	0.046	-2	0.107	109	1.43	18.8
200	0.140	-8	8.723	-50	0.046	-0	0.140	94	1.41	18.8
250	0.143	-12	8.639	-62	0.045	-6	0.174	84	1.44	18.7
300	0.140	-20	8.570	-75	0.048	-4	0.210	72	1.36	18.7
350	0.140	-26	8.468	-88	0.052	-10	0.246	62	1.29	18.6
400	0.130	-33	8.267	-101	0.053	-13	0.296	54	1.27	18.3
450	0.123	-40	8.145	-115	0.054	-13	0.333	44	1.24	18.2
500	0.106	-47	7.942	-128	0.056	-16	0.369	34	1.21	18.0
550	0.088	-50	7.670	-141	0.059	-19	0.402	23	1.17	17.7
600	0.072	-55	7.398	-155	0.063	-25	0.441	13	1.12	17.4
650	0.053	-52	7.015	-169	0.064	-33	0.465	2	1.12	16.9
700	0.040	-35	6.624	178	0.064	-37	0.477	-9	1.14	16.4
750	0.038	-7	6.202	164	0.068	-40	0.484	-20	1.13	15.9
800	0.047	7	5.710	151	0.068	-45	0.483	-30	1.19	15.1
850	0.065	13	5.208	139	0.069	-51	0.465	-40	1.28	14.3
900	0.079	11	4.804	126	0.070	-56	0.442	-50	1.37	13.6
950	0.088	8	4.341	116	0.067	-64	0.419	-60	1.56	12.8
1000	0.096	4	3.960	104	0.065	-67	0.389	-67	1.77	12.0

OUTLINE DIMENSIONS (Units in mm)

UPC1656C
PACKAGE OUTLINE C08



Note:

All dimensions are typical unless otherwise specified.

EXCLUSIVE AGENT FOR NEC Corporation RF & MICROWAVE SEMICONDUCTOR PRODUCTS - U.S. & CANADA

CALIFORNIA EASTERN LABORATORIES, INC. • Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • Telex 34-6393/FAX (408) 988-0279