

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

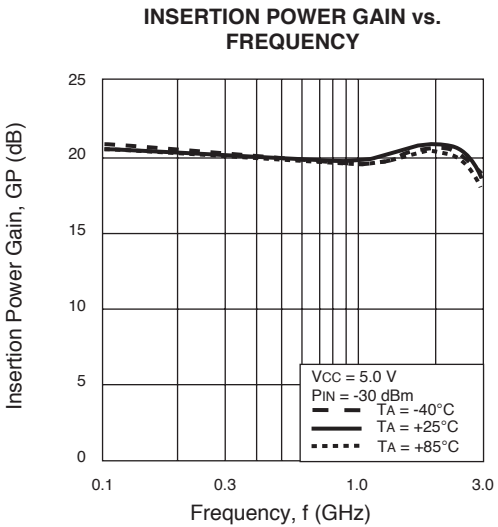
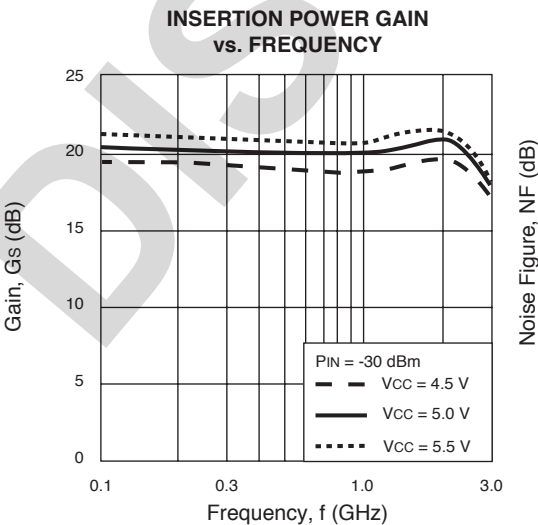
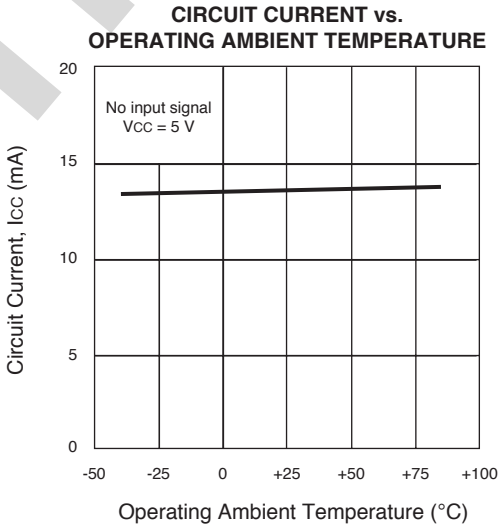
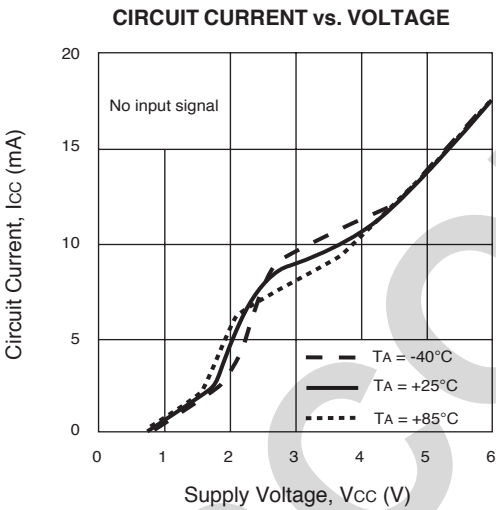
SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	Supply Voltage	V	6.0
I _{CC}	Total Supply Current	mA	30
P _{IN}	Input Power	dBm	+10
P _T	Total Power Dissipation ²	mW	270
T _{OP}	Operating Temperature	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-55 to +150

- Notes:
1. Operation in excess of any one of these parameters may result in permanent damage.
 2. Mounted on a 50 X 50 X 1.6 mm epoxy glass PWB, with copper patterning on both sides. (T_A = 85°C).

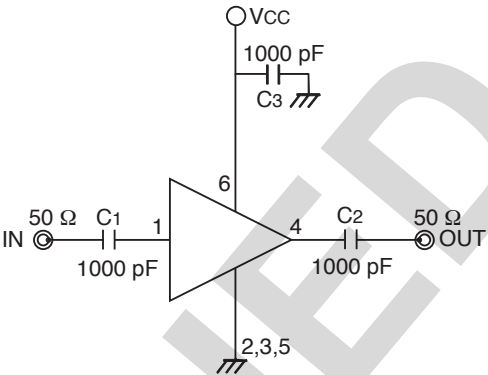
RECOMMENDED
OPERATING CONDITIONS

SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V _{CC}	Supply Voltage	V	4.5	5.0	5.5
T _A	Operating Ambient Temperature	°C	-40	+25	+85
P _{IN}	Input Power	dBm			0
f _{IN}	Input Frequency	GHz			2.9

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

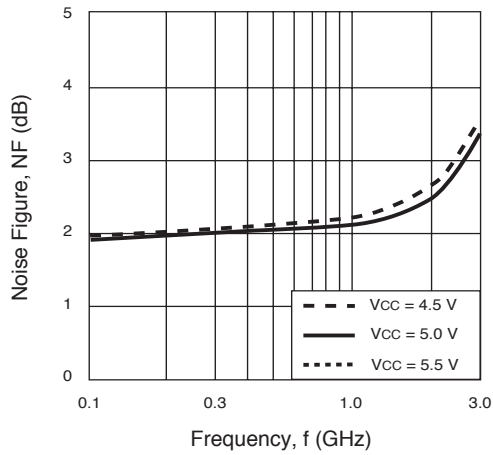


TEST CIRCUIT

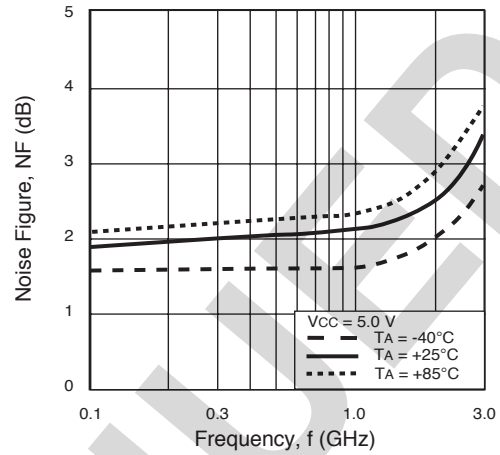


TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ$)

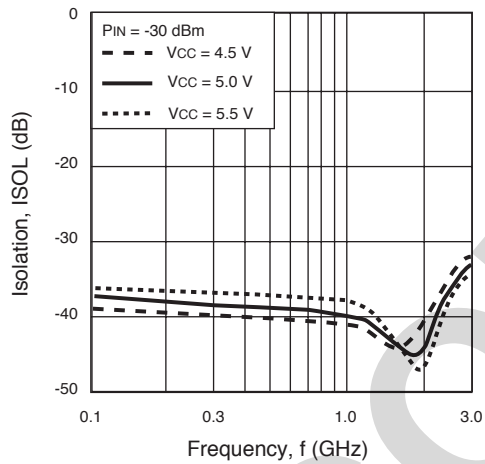
NOISE FIGURE vs. FREQUENCY



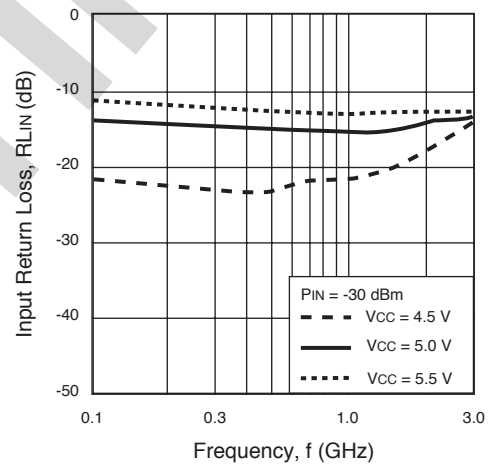
NOISE FIGURE vs. FREQUENCY



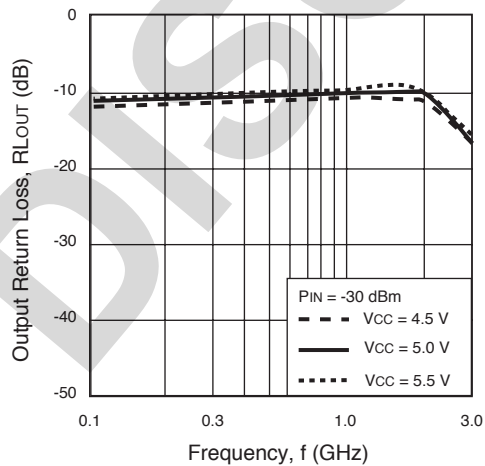
ISOLATION vs. FREQUENCY



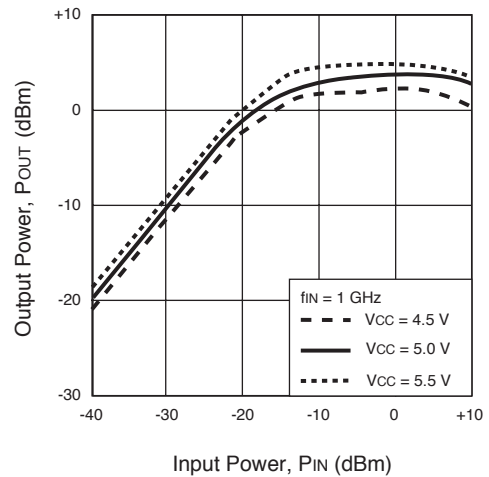
INPUT RETURN LOSS vs. FREQUENCY

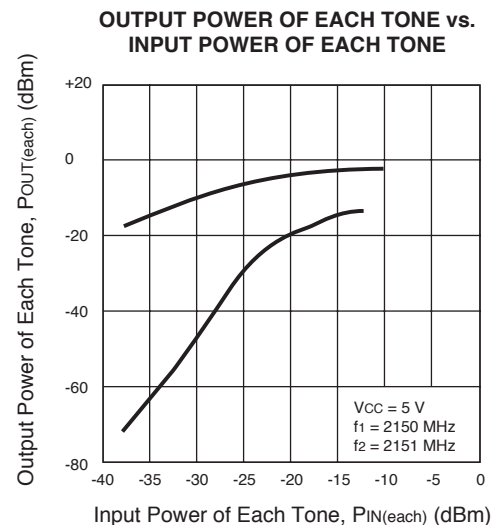
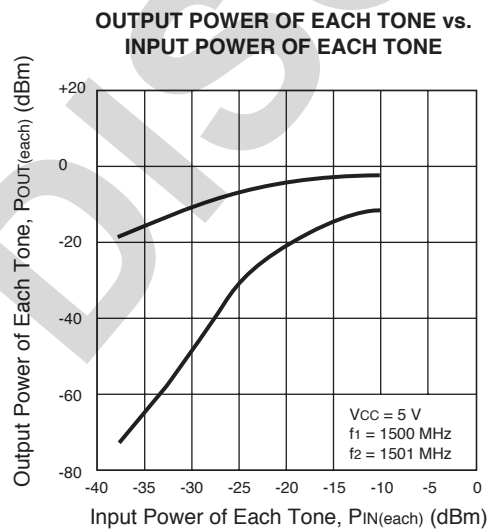
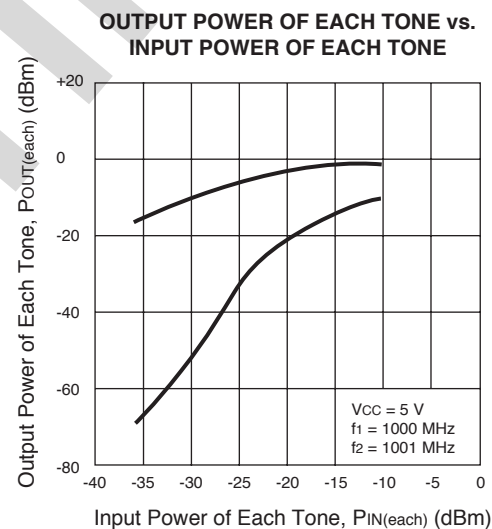
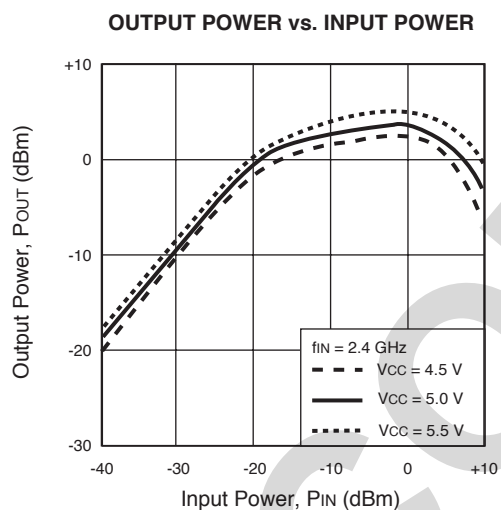
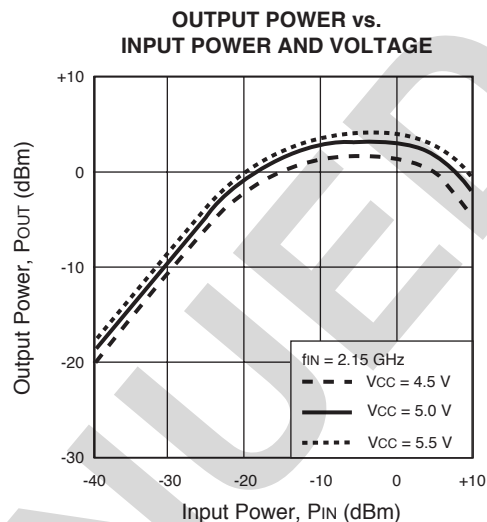
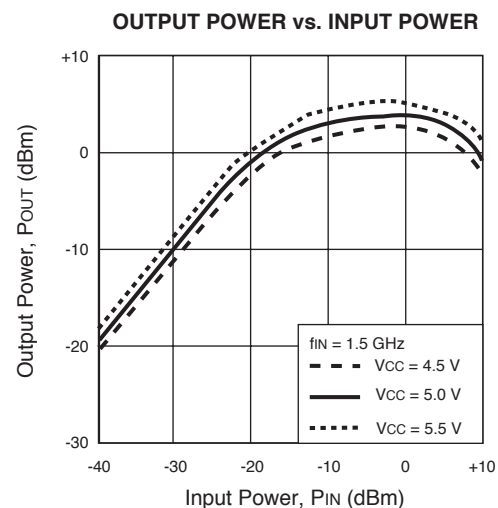


OUTPUT RETURN LOSS vs. FREQUENCY

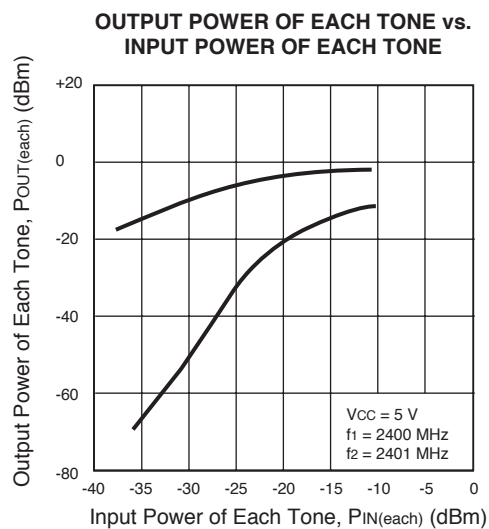


OUTPUT POWER vs. INPUT POWER

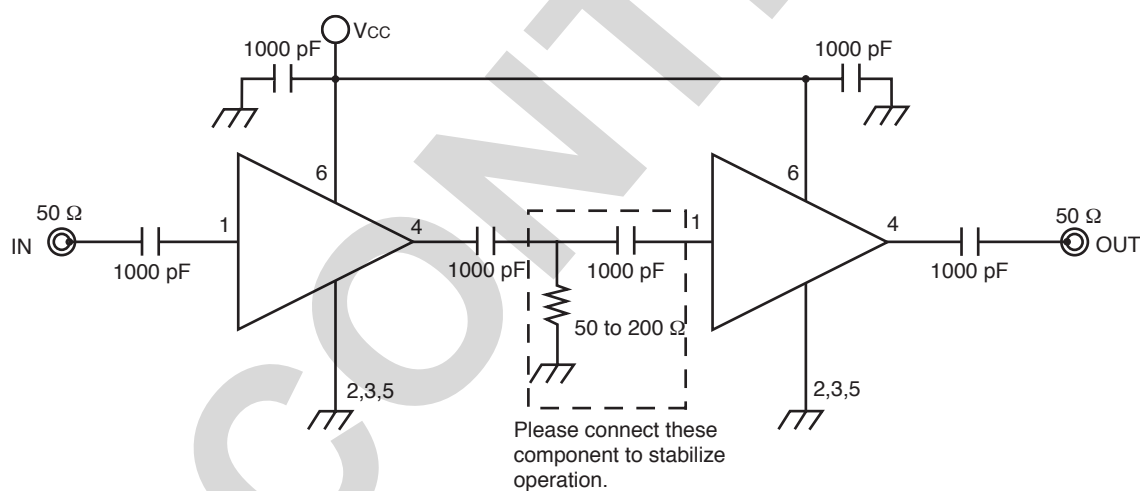


TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ$)

TYPICAL PERFORMANCE CURVES $(T_A = 25^\circ)$

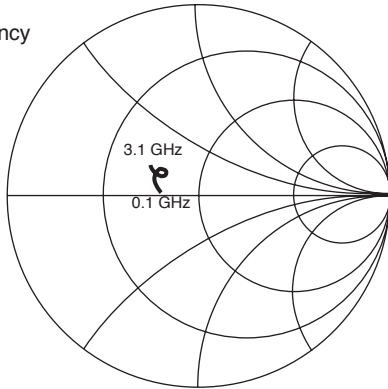


EXAMPLE OF APPLICATION CIRCUIT



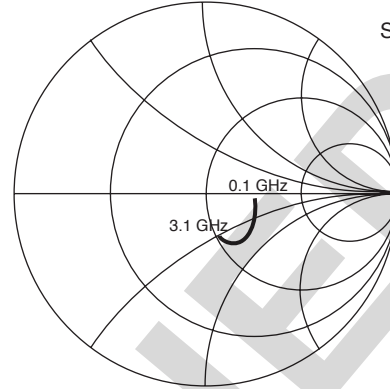
TYPICAL SCATTERING PARAMETERS ($T_A = 25^\circ\text{C}$)

S11 Frequency



Start: 0.1 GHz
Stop: 3.1 GHz

S22 Frequency



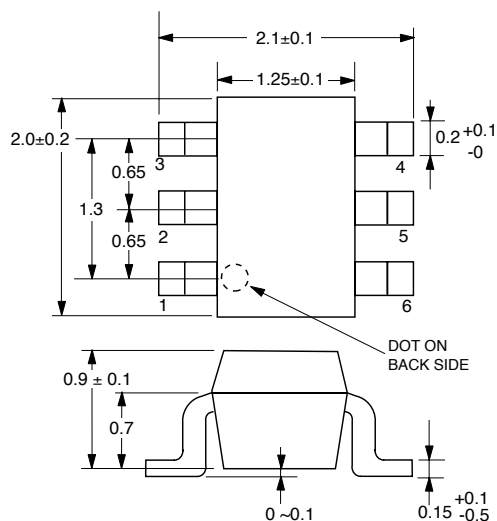
Start: 0.1 GHz
Stop: 3.1 GHz

$V_{CC} = V_{OUT} = 5.0\text{ V}$, $I_{CC} = 16\text{ mA}$

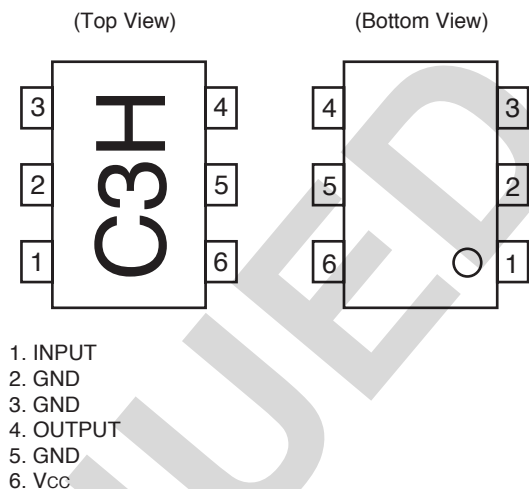
FREQUENCY GHz	S11		S21		S12		S22		K
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
0.1	0.207	174.1	10.788	-4.6	0.013	6.3	0.285	-3.3	3.38
0.2	0.190	173.1	10.714	-9.8	0.013	-0.5	0.282	-3.7	3.39
0.3	0.186	174.3	10.565	-14.3	0.013	2.7	0.283	-4.6	3.37
0.4	0.192	173.8	10.359	-18.3	0.014	4.7	0.285	-6.2	3.92
0.5	0.200	174.5	10.225	-21.7	0.013	5.3	0.286	-7.6	3.96
0.6	0.201	173.0	10.116	-24.9	0.013	2.1	0.286	-8.8	3.69
0.7	0.204	173.0	10.116	-28.0	0.011	1.6	0.288	-10.4	3.91
0.8	0.206	172.4	10.122	-31.1	0.011	12.9	0.289	-11.7	4.17
0.9	0.210	172.7	10.186	-34.5	0.011	5.1	0.290	-13.5	3.99
1.0	0.212	171.4	10.182	-37.7	0.009	4.1	0.285	-14.9	4.28
1.1	0.218	169.4	10.208	-14.6	0.011	4.9	0.299	-16.8	4.19
1.2	0.217	168.4	10.296	-45.6	0.009	11.0	0.300	-18.0	4.65
1.3	0.221	165.9	10.248	-49.7	0.006	20.5	0.299	-20.2	5.78
1.4	0.228	164.7	10.438	-53.9	0.008	1.6	0.307	-23.1	6.97
1.5	0.233	162.3	10.369	-58.0	0.006	20.5	0.299	-16.8	4.19
1.6	0.238	159.5	10.554	-62.7	0.005	31.6	0.316	-27.5	11.54
1.7	0.244	157.2	10.492	-67.2	0.004	48.5	0.317	-30.5	11.75
1.8	0.246	153.9	10.483	-72.2	0.003	87.2	0.318	-33.3	13.52
1.9	0.248	150.6	10.408	-76.9	0.004	93.4	0.323	-36.9	8.46
2.0	0.246	147.4	10.405	-82.2	0.007	114.5	0.323	-40.6	7.46
2.1	0.241	144.9	10.267	-87.2	0.008	115.4	0.319	-44.9	6.20
2.2	0.236	142.2	10.039	-92.7	0.011	124.0	0.312	-48.9	4.50
2.3	0.229	142.2	9.896	-97.7	0.012	121.6	0.306	-52.6	4.12
2.4	0.219	143.5	9.684	-102.4	0.014	124.9	0.292	-56.3	3.40
2.5	0.215	145.7	9.348	-107.5	0.015	117.8	0.279	-59.3	3.42
2.6	0.213	149.3	9.068	-112.0	0.018	117.3	0.270	-61.7	3.02
2.7	0.221	150.1	8.673	-116.6	0.017	114.4	0.256	-63.7	3.17
2.8	0.234	151.3	8.437	-121.1	0.020	114.0	0.248	-65.1	2.85
2.9	0.253	152.1	8.080	-124.9	0.021	111.6	0.237	-67.3	2.98
3.0	0.264	150.7	7.791	-129.4	0.020	112.5	0.232	-68.0	2.90
3.1	0.283	148.7	7.458	-132.7	0.022	113.7	0.229	-70.2	3.02

OUTLINE DIMENSIONS (Units in mm)

UPC3215TB
PACKAGE OUTLINE S06



LEAD CONNECTIONS



PIN DESCRIPTION

Pin No.	Pin Name (V)	Applied Voltage	Pin Voltage	Description Circuit	Internal Equivalent
1	Input	—	0.82	Signal input pin. An internal matching circuit, configured with resistors, enables 50 Ω connection over a wide band. A multi-feedback circuit is designed to cancel the deviations of h_{FE} and resistance. This pin must be coupled to the signal source with capacitor for DC cut.	
2 3 5	GND	0	—	Ground pins. These pins should be connected to system ground with minimum inductance. Ground pattern on the board should be formed as wide as possible. All the ground pins must be connected together with wide ground pattern to decrease impedance difference.	
4	Output	—	3.8	Signal output pin. An internal matching circuit, configured with resistors, enables 50 Ω connection over a wide band. This pin must be coupled to next stage with capacitor for DC cut.	
6	VCC	4.5 to 5.5	—	Power supply pin. This pin should be externally equipped with a bypass capacitor to minimize ground impedance.	

ORDERING INFORMATION

PART NUMBER	QTY
UPC3215TB-E3-A	3K/Reel

Note: Embossed Tape, 8 mm wide. Pins 1, 2 and 3 face perforated side of tape.

EXCLUSIVE NORTH AMERICAN AGENT FOR RF, MICROWAVE & OPTOELECTRONIC SEMICONDUCTORS

CEL CALIFORNIA EASTERN LABORATORIES • Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • Telex 34-6393 • FAX (408) 988-0279
DATA SUBJECT TO CHANGE WITHOUT NOTICE

Internet: <http://WWW.CEL.COM>

09/04/2001