CEL

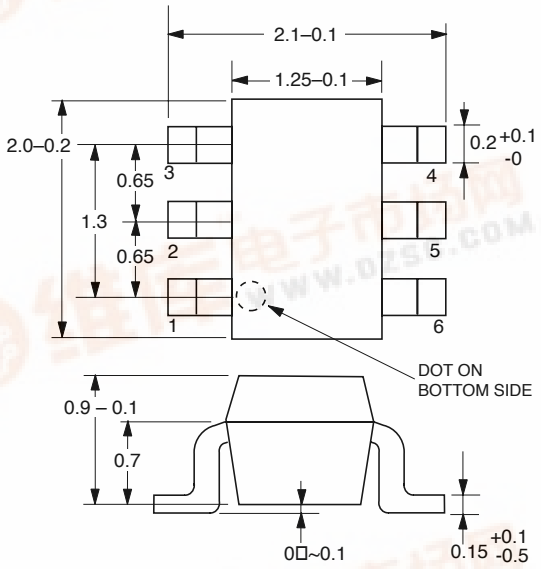
L-BAND PA DRIVER AMPLIFIER | UPG2106TB

FEATURES

- **LOW VOLTAGE OPERATION:** V_{DD1} = V_{DD2} = 3.0 V, f_{RF} = 889 to 960 MHz @ P_{OUT} = +8 dBm
- **LOW DISTORTION:** P_{ADJ1} = 60 dBc TYP @ V_{DD} = 3.0 V, P_{OUT} = +8 dBm, V_{AGC} = 2.5 V
- **LOW CURRENT OPERATION :** I_{DD} = 25 mA TYP @ V_{DD} = 3.0 V, P_{OUT} = +8 dBm, V_{AGC} = 2.5 V
- **EXTERNAL INPUT AND OUTPUT MATCHING**
- **VARIABLE GAIN CONTROL FUNCTION :** G = 40 dB TYP @ V_{AGC} = 0.5 to 2.5 V
- **6 PIN SUPER MINI-MOLD PACKAGE**

OUTLINE DIMENSIONS (Units in mm)

PACKAGE OUTLINE S06



DESCRIPTION

NEC's UPG2106TB is a GaAs MMIC for PA driver amplifiers with variable gain functions which was developed for L-band applications. The device can operate with 3.0 V, having high gain and low distortion.

APPLICATION

- **CELLULAR HANDSETS AND OTHER PORTABLE DEVICES**

ELECTRICAL CHARACTERISTICS (T_A = 25 °C, V_{DD1} = V_{DD2} = +3.0 V, π/4DQPSK modulated input signal, external input and output matching, unless otherwise specified)

PART NUMBER PACKAGE OUTLINE				UPG2106TB S06		
SYMBOLS	PARAMETERS AND CONDITIONS		UNITS	MIN	TYP	MAX
f	Operating Frequency		MHz	889		960
I_{DD}	Total Current	P_{OUT} = +8 dBm, V_{AGC} = 2.5 V	mA		25	35
I_{AGC}	AGC Control Current	V_{AGC} = 0.5 to 2.5 V	μA		200	500
G_P	Power Gain	P_{IN} = -18 dBm, V_{AGC} = 2.5 V	dB	26	30	
G	Variable Gain Range	P_{IN} = -18 dBm, V_{AGC} = 0.5 to 2.5 V	dB	35	40	
P_{ADJ1}	Adjacent Channel Power Leakage 1	P_{OUT}= +8 dBm, V_{AGC} = 2.5 V, Δf = ± 50 KHz, 21 kHz Bandwidth	dBc		-60	-55
P_{ADJ2}	Adjacent Channel Power Leakage 2	P_{OUT}= +8 dBm, V_{AGC} = 2.5 V, Δf = ± 100 KHz, 21 kHz Bandwidth	dBc		-70	-65

ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°C)

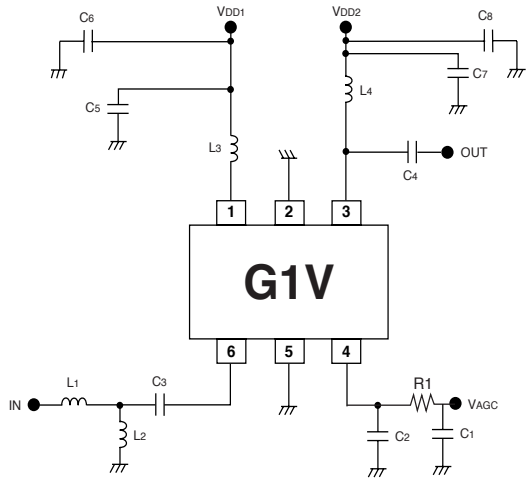
SYMBOLS	PARAMETERS	UNITS	RATINGS
V_{DD}	Supply Voltage	V	6.0
V_{AGC}	AGC Control Voltage	V	6.0
P_{IN}	Input Power	dBm	-8
P_T	Total Power Dissipation[2]	mW	140
T_{OP}	Operating Temperature	°C	-30 to +90
T_{STG}	Storage Temperature	°C	-35 to +150

Notes:
1. Operation excess of any one of these parameters may result in permanent damage.
2. Mounted on a 50 x 50 x 1.6mm double copper clad epoxy glass PWB, T_A = +85 °C

RECOMMENDED OPERATING CONDITIONS (T_A = 25°C)

SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V_{DD}	Supply Voltage	V	+2.7	+3.0	+3.3
P_{IN}	Input Power	dBm		-18	-10
V_{AGC}	AGC Control Voltage	V	0		2.5

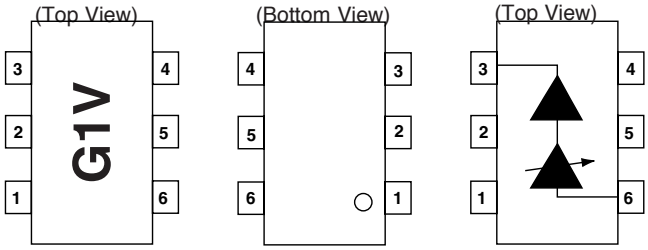
TEST CIRCUIT[1]



Note:
1. V_{DD1} = V_{DD2} = +3.0 V, f = 925 MHz.

PIN NO.	CONNECTION
C_1, C_6, C_7, C_8	1000 pF
C_2	27 pF
C_3	8.2 pF
C_4, C_5	100 pF
L_1, L_4	18 nH
L_2	22 nH
L_3	10 nH
R_1	1 kΩ

PIN CONNECTIONS AND INTERNAL BLOCK DIAGRAM



1. V_{DD1}
2. GND
3. V_{DD2} & Output
4. V_{AGC}
5. GND
6. Input

ORDERING INFORMATION

PART NUMBER	QTY
UPG2106TB-E3-A	3 kpcs Per Reel

Note:
1. Embossed tape, 8 mm wide.

Life Support Applications
These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.

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Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL's understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
Lead (Pb)	< 1000 PPM	-A	-AZ
		Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.