

L-BAND PA DRIVER AMPLIFIER

DESCRIPTION

The μ PG2126TB is a GaAs MMIC for PA driver amplifier which were developed for dual band mobile phone and another L-band application. The device can operate with 3.6 V TYP., having the high gain and low distortion.

FEATURES

- Supply voltage : $V_{DD1,2,3} = 3.1$ to 4.4 V (3.6 V TYP.)
- ★ • Low operation current : $I_{DD1} = 16$ mA TYP. @ $V_{DD1} = 3.6$ V, $f = 925$ MHz, $P_{out} = +8$ dBm
- ★ : $I_{DD2} = 28$ mA TYP. @ $V_{DD2,3} = 3.6$ V, $f = 1\ 441$ MHz, $P_{out} = +8$ dBm
- ★ • High power gain : $G_{P1} = 16$ dB TYP. @ $V_{DD1} = 3.6$ V, $f = 925$ MHz, $P_{in} = -10$ dBm
- ★ : $G_{P2} = 26$ dB TYP. @ $V_{DD2,3} = 3.6$ V, $f = 1\ 441$ MHz, $P_{in} = -22$ dBm
- Low distortion : $P_{adj1} = -60$ dBc TYP. @ $V_{DD1,2,3} = 3.6$ V, $f = 925$ MHz, $1\ 441$ MHz, $P_{out} = +8$ dBm, $\Delta f = \pm 50$ kHz, 21 kHz Bandwidth.
- High-density surface mounting : 6-pin super minimold package ($2.0 \times 1.25 \times 0.9$ mm)

APPLICATION

- Digital Cellular: dual band mobile phone etc.

ORDERING INFORMATION

Part Number	Package	Marking	Supplying Form
μ PG2126TB-E3	6-pin super minimold	G2K	<ul style="list-style-type: none"> • Embossed tape 8 mm wide • Pin 1, 2, 3 face the perforation side of the tape • Qty 3 kpcs/reel

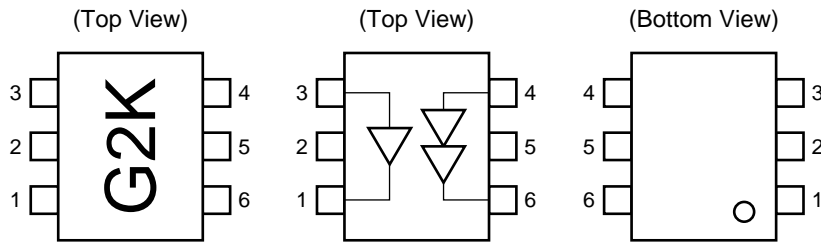
Remark To order evaluation samples, contact your nearby sales office.

Part number for sample order: μ PG2126TB

Caution Electro-static sensitive devices

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Not all devices/types available in every country. Please check with local NEC Compound Semiconductor Devices representative for availability and additional information.

PIN CONNECTIONS, MARKING AND INTERNAL BLOCK DIAGRAM



Pin No.	Pin Name
1	V _{DD1} /OUTPUT1
2	GND
3	INPUT1
4	INPUT2
5	V _{DD2}
6	V _{DD3} /OUTPUT2

ABSOLUTE MAXIMUM RATINGS (Unless otherwise specified, T_A = +25°C)

Parameter	Symbol	Ratings	Unit
Supply Voltage _{1, 2, 3}	V _{DD1, 2, 3}	6.0	V
Input Power 1 (INPUT1)	P _{in1}	+4	dBm
Input Power 2 (INPUT2)	P _{in2}	-4	dBm
★ Power Dissipation	P _D	140 ^{Note}	mW
Operating Ambient Temperature	T _A	-30 to +90	°C
Storage Temperature	T _{stg}	-35 to +150	°C

Note Mounted on double copper-clad 50 × 50 × 1.6 mm epoxy glass PWB, T_A = +85°C

RECOMMENDED OPERATING RANGE (T_A = +25°C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply Voltage _{1, 2, 3}	V _{DD1, 2, 3}	3.1	3.6	4.4	V
Input Power 1 (INPUT1)	P _{in1}	-	-	-10	dBm
Input Power 2 (INPUT2)	P _{in2}	-	-	-20	dBm
★ Operating Frequency 1	f _{opt1}	893	-	960	MHz
★ Operating Frequency 2	f _{opt2}	1 429	-	1 453	MHz

ELECTRICAL CHARACTERISTICS -INPUT1-OUTPUT1-

(Unless otherwise specified, T_A = +25°C, V_{DD1} = 3.6 V, π/4DQPSK modulated signal input, External input and output matching)

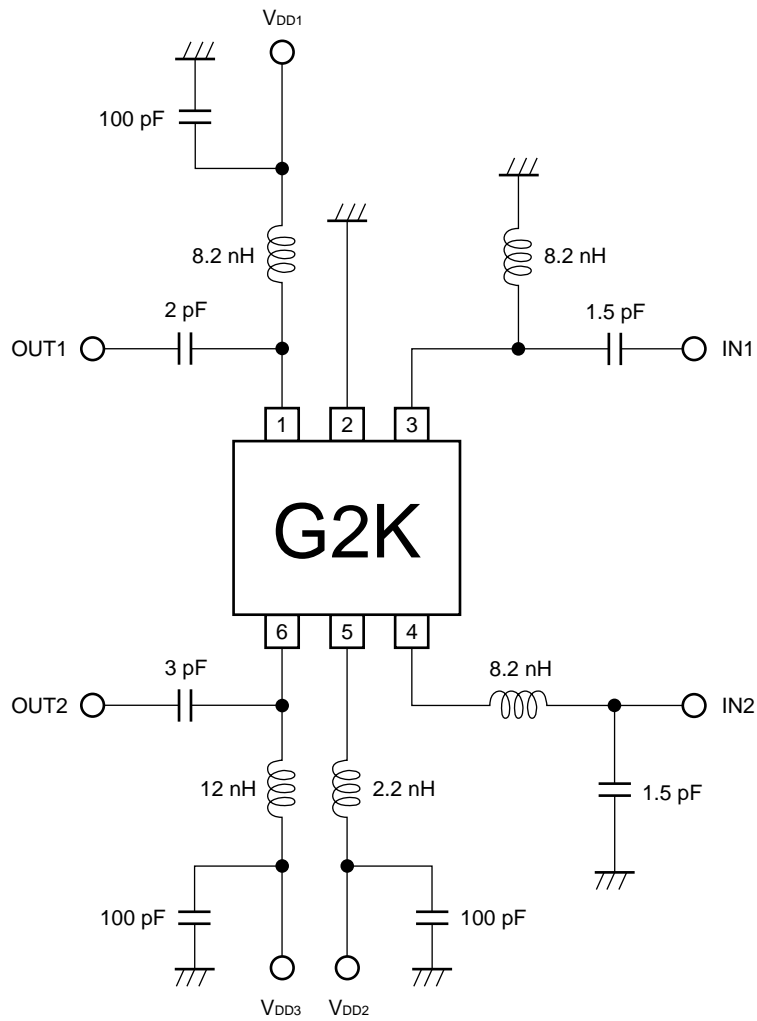
Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Operating Frequency 1	f _{opt1}		893	925	960	MHz
Power Gain 1	G _{P1}	P _{in} = -10 dBm	14	16	18	dB
Circuit Current 1	I _{DD1}	P _{out} = +8 dBm	-	16	20	mA
Adjacent Channel Power Leakage 1	P _{adj1}	P _{out} = +8 dBm, Δf = ±50 kHz, 21 kHz Bandwidth	-	-60	-55	dBc
Adjacent Channel Power Leakage 2	P _{adj2}	P _{out} = +8 dBm, Δf = ±100 kHz, 21 kHz Bandwidth	-	-70	-65	dBc

ELECTRICAL CHARACTERISTICS -INPUT2-OUTPUT2-

(Unless otherwise specified, T_A = +25°C, V_{DD2} = V_{DD3} = 3.6 V, π/4DQPSK modulated signal input, External input and output matching)

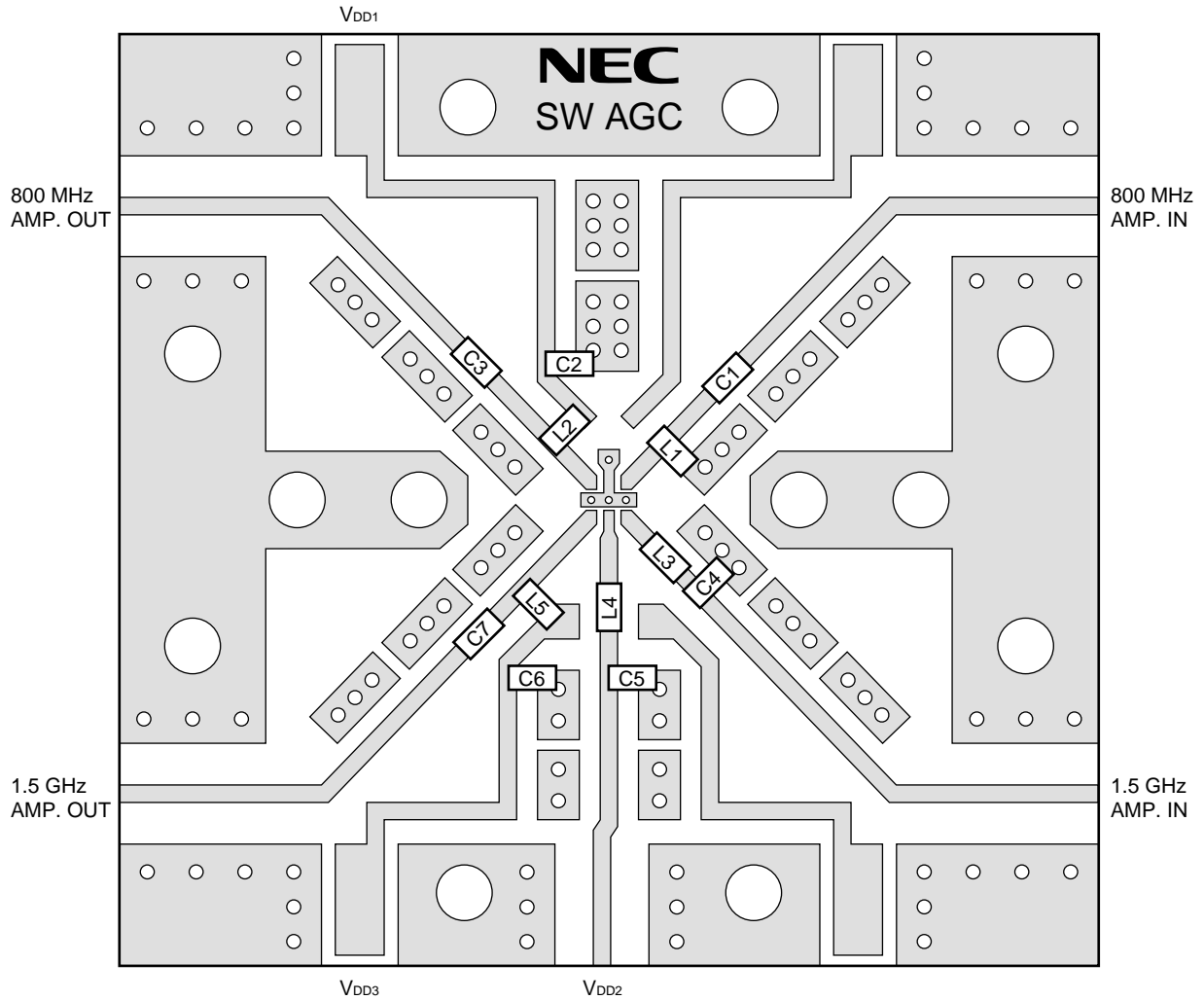
Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Operating Frequency 2	f _{opt2}		1 429	1 441	1 453	MHz
★ Power Gain 2	G _{P2}	P _{in} = -22 dBm	24	26	28	dB
Circuit Current 2	I _{DD2}	P _{out} = +8 dBm	-	28	32	mA
Adjacent Channel Power Leakage 3	P _{adj3}	P _{out} = +8 dBm, Δf = ±50 kHz, 21 kHz Bandwidth	-	-60	-55	dBc
Adjacent Channel Power Leakage 4	P _{adj4}	P _{out} = +8 dBm, Δf = ±100 kHz, 21 kHz Bandwidth	-	-70	-65	dBc

EVALUATION CIRCUIT ($V_{DD1, 2, 3} = 3.6 \text{ V}$, $f = 925 \text{ MHz}$ (INPUT1-OUTPUT1), $f = 1\,441 \text{ MHz}$ (INPUT2-OUTPUT2))



The application circuits and their parameters are for reference only and are not intended for use in actual design-ins.

ILLUSTRATION OF THE TEST CIRCUIT ASSEMBLED ON EVALUATION BOARD

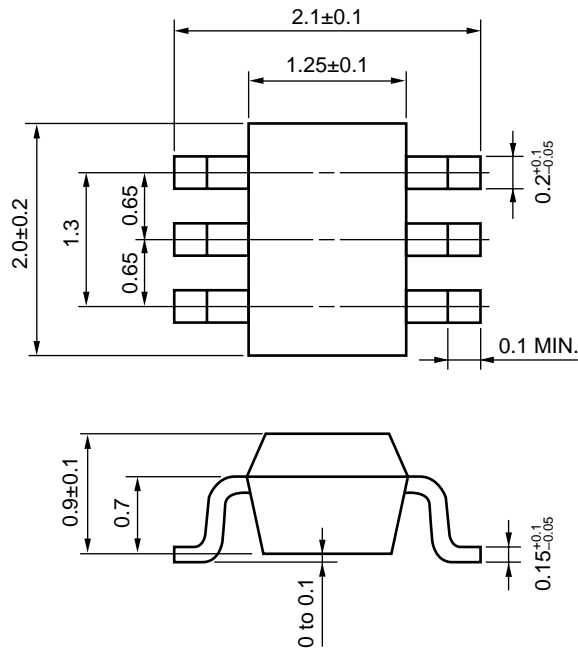


COMPONENT LIST

Symbol	Rating	Part Number	Manufacturer
L1, L2, L3	8.2 nH	TFL0816-8N2	Susumu
L4	2.2 nH	TFL0816-2N2	Susumu
L5	12 nH	TFL0816-12N	Susumu
C1, C4	1.5 pF	GRM39CK1R5C50	muRata
C2, C5, C6	100 pF	GRM39CH101J50	muRata
C3	2 pF	GRM39CK020C50	muRata
C7	3 pF	GRM39CJ030C50	muRata

PACKAGE DIMENSIONS

6-PIN SUPER MINIMOLD (UNIT: mm)



RECOMMENDED SOLDERING CONDITIONS

This product should be soldered and mounted under the following recommended conditions. For soldering methods and conditions other than those recommended below, contact your nearby sales office.

Soldering Method	Soldering Conditions	Condition Symbol
Infrared Reflow	Peak temperature (package surface temperature) : 260°C or below Time at peak temperature : 10 seconds or less Time at temperature of 220°C or higher : 60 seconds or less Preheating time at 120 to 180°C : 120±30 seconds Maximum number of reflow processes : 3 times Maximum chlorine content of rosin flux (% mass) : 0.2%(Wt.) or below	IR260
VPS	Peak temperature (package surface temperature) : 215°C or below Time at temperature of 200°C or higher : 25 to 40 seconds Preheating time at 120 to 150°C : 30 to 60 seconds Maximum number of reflow processes : 3 times Maximum chlorine content of rosin flux (% mass) : 0.2%(Wt.) or below	VP215
Wave Soldering	Peak temperature (molten solder temperature) : 260°C or below Time at peak temperature : 10 seconds or less Preheating temperature (package surface temperature) : 120°C or below Maximum number of flow processes : 1 time Maximum chlorine content of rosin flux (% mass) : 0.2%(Wt.) or below	WS260
Partial Heating	Peak temperature (pin temperature) : 350°C or below Soldering time (per side of device) : 3 seconds or less Maximum chlorine content of rosin flux (% mass) : 0.2%(Wt.) or below	HS350

Caution Do not use different soldering methods together (except for partial heating).

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SAFETY INFORMATION ON THIS PRODUCT

<p>Caution</p>	<p>GaAs Products</p>	<p>The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled or ingested.</p> <ul style="list-style-type: none"> • Do not destroy or burn the product. • Do not cut or cleave off any part of the product. • Do not crush or chemically dissolve the product. • Do not put the product in the mouth. <p>Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.</p>
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► **Business issue**

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► **Technical issue**

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