

GaAs MMIC SPDT SWITCH FOR 2.4 GHz AND 5 GHz DUALBAND WIRELESS LAN
DESCRIPTION

The uPG2163T5N is a GaAs MMIC SPDT switch for 2.4 GHz and 5 GHz dualband wireless LAN. Low insertion loss and dual band operations suit to dualband wireless LAN system.

FEATURES

- Operating frequency : $f = 2.4$ to 2.5 GHz and 4.9 to 6.0 GHz
- Low insertion loss : $L_{INS} = 0.4$ dB TYP. @ $f = 2.4$ to 2.5 GHz
: $L_{INS} = 0.5$ dB TYP. @ $f = 4.9$ to 6.0 GHz
- Handling power : $P_{in} (1 \text{ dB}) = +31$ dBm TYP. @ $f = 2.5$ GHz
+29 dBm TYP. @ $f = 6.0$ GHz
- High isolation : $ISL = 35$ dB TYP. @ $f = 2.4$ to 2.5 GHz
: $ISL = 30$ dB TYP. @ $f = 4.9$ to 6.0 GHz
- Input/output return loss : $RL_{in}/RL_{out} = 15$ dB TYP. @ $f = 2.4$ to 2.5 GHz
: $RL_{in}/RL_{out} = 15$ dB TYP. @ $f = 4.9$ to 6.0 GHz
- 6-pin plastic TSON package ($1.5 \times 1.5 \times 0.4$ mm)

APPLICATION

- 2.4 GHz and 5 GHz dualband wireless LAN : IEEE802.11a+b/g

ORDERING INFORMATION

Part Number	Package	Marking	Supplying Form
uPG2163T5N-E2	6pinTSON	TBD	• Embossed tape 8 mm wide • Pin 1.6 face to tape perforation side • Qty TBD kpcs/reel

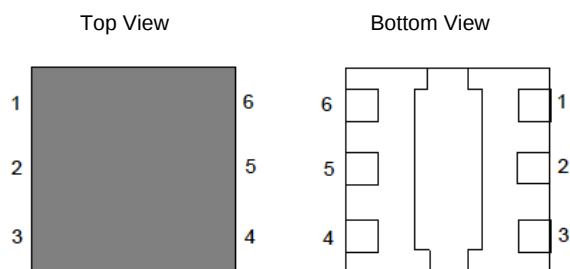
Remark To order evaluation samples, contact your nearby sales office.

Part number for sample order: uPG2163T5N

Caution Observe precautions when handling because these devices are sensitive to electrostatic discharge.

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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 AND INTERNAL BLOCK DIAGRAM



Pin No.	Pin Name
1	NC (GND)
2	V _{cont2}
3	RX
4	TX
5	V _{cont1}
6	ANT
EXPOSED PAD	GND

Remark NC is functionally non-connection pin but actually grounding is recommended.

TRUTH TABLE

V _{cont1}	V _{cont2}	ANT-RX	ANT-TX
High	Low	ON	OFF
Low	High	OFF	ON

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

Parameter	Symbol	Ratings	Unit
Switch Control Voltage	V _{cont}	-6.0 to +6.0 ^{Note 1}	V
Input Power	P _{in}	TBD	dBm
Operating Ambient Temperature	T _A	-45 to +85	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Notes 1. | V_{cont1} - V_{cont2} | ≤ 6.0 V

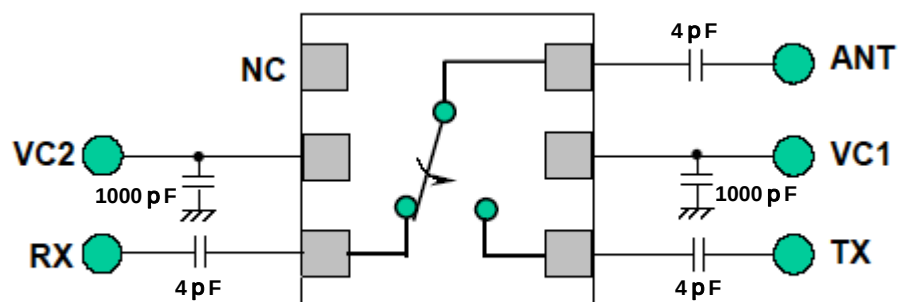
RECOMMENDED OPERATING RANGE ($T_A = +25^\circ\text{C}$)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Operating Frequency 1	f1	2.4	–	2.5	GHz
Operating Frequency 2	f2	4.9	–	6.0	GHz
Switch Control Voltage (H)	V _{cont (H)}	2.7	3.0	5.0	V
Switch Control Voltage (L)	V _{cont (L)}	–0.2	0	0.2	V

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, V_{cont} = 3.0 V/0 V, Z_o = 50 Ω , DC blocking capacitors value: 4 pF, Each port, unless otherwise specified)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Insertion Loss	Lins	f = 2.4 to 2.5 GHz	–	0.4	TBD	dB
		f = 4.9 to 6.0 GHz	–	0.5	TBD	dB
Isolation	ISL	f = 2.4 to 2.5 GHz	TBD	35	–	dB
		f = 4.9 to 6.0 GHz	TBD	30	–	dB
Input Return Loss	RLin	f = 2.4 to 2.5 GHz	–	15	–	dB
		f = 4.9 to 6.0 GHz	–	15	–	dB
Output Return Loss	RLout	f = 2.4 to 2.5 GHz	–	15	–	dB
		f = 4.9 to 6.0 GHz	–	15	–	dB
1 dB Gain Compression Input Power	P _{in (1 dB)}	f = 2.5 GHz	–	31	–	dBm
		f = 6.0 GHz	–	29	–	dBm
Switch Control Speed	t _{sw}		–	50	–	ns
Control Current	I _{cont}	RF Non	–	0.7	1.5	μA

EVALUATION CIRCUIT

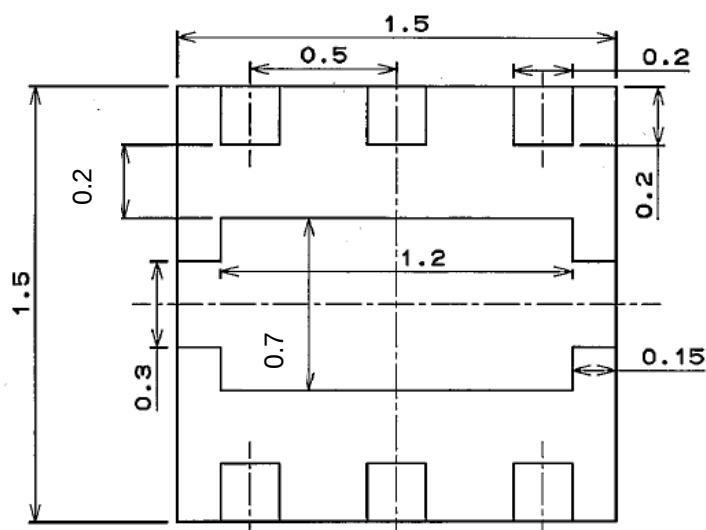


The application circuits and their parameters are for reference only and are not intended for use in actual design-ins.

PACKAGE DIMENSIONS

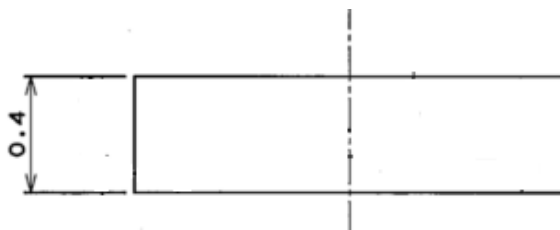
6-PIN PLASTIC TSON (UNIT: mm)

(Bottom View)



Preliminary

(Side View)



- **The information in this document is current as of March, 2004. The information is subject to change without notice. For actual design-in, refer to the latest publications of NEC's data sheets or data books, etc., for the most up-to-date specifications of NEC semiconductor products. Not all products and/or types are available in every country. Please check with an NEC sales representative for availability and additional information.**
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M8E 00.4-0110

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