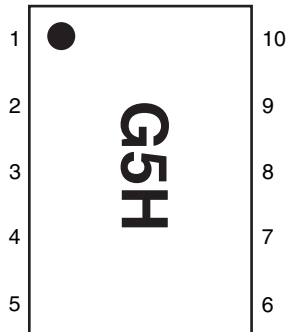


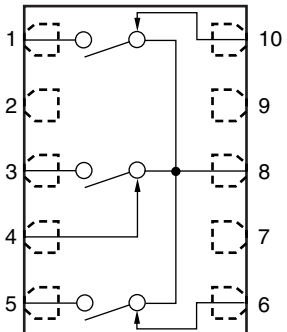


PIN CONNECTIONS AND INTERNAL BLOCK DIAGRAM

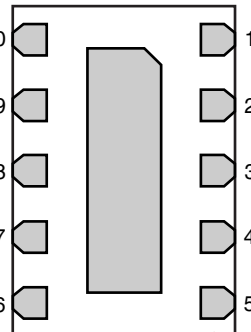
(Top View)



(Top View)



(Bottom View)



Pin No.	Pin Name
1	RF1
2	GND
3	RF2
4	V <sub>cont2</sub>
5	RF3
6	V <sub>cont3</sub>
7	GND
8	ANT
9	GND
10	V <sub>cont1</sub>

Remark Exposed pad : GND

TRUTH TABLE

V <sub>cont1</sub>	V <sub>cont2</sub>	V <sub>cont3</sub>	ANT-RF1	ANT-RF2	ANT-RF3
High	Low	Low	ON	OFF	OFF
Low	High	Low	OFF	ON	OFF
Low	Low	High	OFF	OFF	ON

ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = +25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Switch Control Voltage	V <sub>cont</sub>	+6.0 <sup>Note</sup>	V
Input Power	P <sub>in</sub>	+36	dBm
Operating Ambient Temperature	T <sub>A</sub>	-45 to +85	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C

Note |V<sub>cont (H)</sub> - V<sub>cont (L)</sub>| ≤ 6.0 V

RECOMMENDED OPERATING RANGE (T<sub>A</sub> = +25°C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Switch Control Voltage (H)	V <sub>cont (H)</sub>	2.7	2.8	3.0	V
Switch Control Voltage (L)	V <sub>cont (L)</sub>	-0.2	0	0.2	V

**ELECTRICAL CHARACTERISTICS**

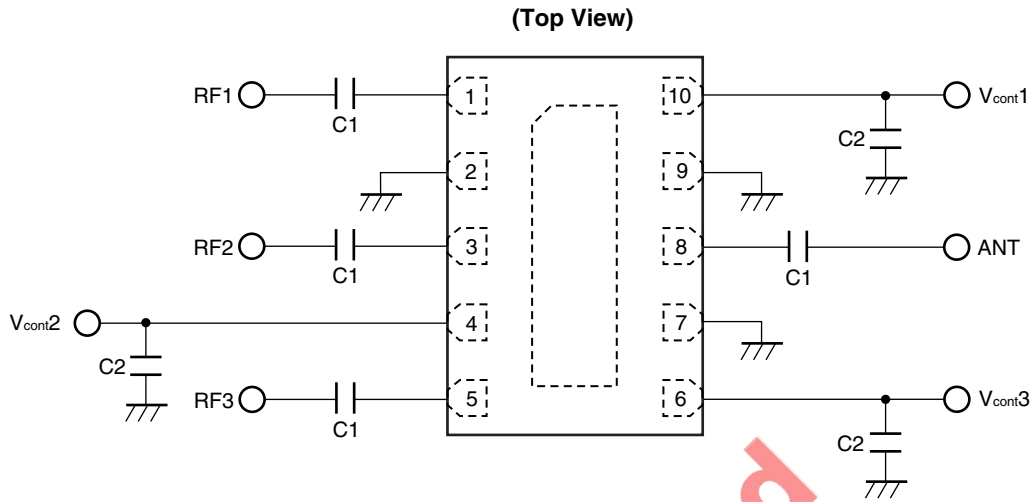
(T<sub>A</sub> = +25°C, V<sub>cont (H)</sub> = 2.8 V, V<sub>cont (L)</sub> = 0 V, Z<sub>o</sub> = 50 Ω, DC blocking capacitors = 56 pF, unless otherwise specified)

Parameter	Symbol	Pass	Test Conditions	MIN.	TYP.	MAX.	Unit
Insertion Loss	L <sub>ins</sub>	ANT to RF1, 2, 3	f = 0.5 to 1.0 GHz	–	0.45	0.65	dB
			f = 1.0 to 2.0 GHz	–	0.55	0.80	dB
Isolation	ISL	ANT to RF1, 2, 3 (OFF)	f = 0.5 to 1.0 GHz	22	26	–	dB
			f = 1.0 to 2.0 GHz	17	21	–	dB
Input Return Loss	RL <sub>in</sub>	ANT to RF1, 2, 3	f = 0.5 to 2.0 GHz	15	20	–	dB
Output Return Loss	RL <sub>out</sub>	ANT to RF1, 2, 3	f = 0.5 to 2.0 GHz	15	20	–	dB
0.1 dB Loss Compression Input Power <sup>Note</sup>	P <sub>in (0.1 dB)</sub>	ANT to RF1, 2, 3	f = 1.0 GHz	+31.0	+33.0	–	dBm
2nd Harmonics	2f <sub>o</sub>	ANT to RF1, 2, 3	f = 1.0 GHz, P <sub>in</sub> = 27 dBm	65	75	–	dBc
3rd Harmonics	3f <sub>o</sub>	ANT to RF1, 2, 3	f = 1.0 GHz, P <sub>in</sub> = 27 dBm	65	75	–	dBc
Switch Control Current	I <sub>cont</sub>		RF None	–	1	50	μA
Switch Control Speed	t <sub>sw</sub>			–	150	–	ns

**Note** P<sub>in (0.1 dB)</sub> is measured the input power level when the insertion loss increases more 0.1 dB than that of linear range.

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for new design

EVALUATION CIRCUIT



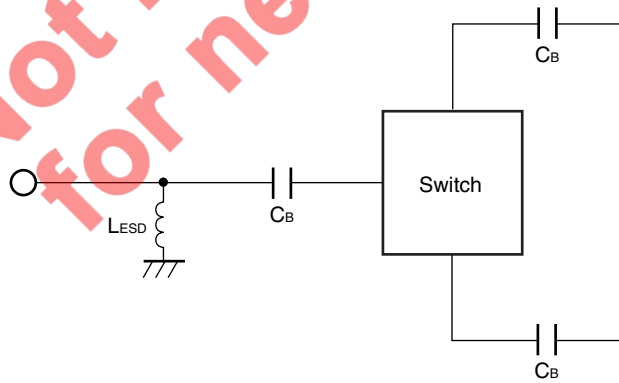
The application circuits and their parameters are for reference only and are not intended for use in actual design-ins.

USING THE NEC EVALUATION BOARD

Symbol	Values
C1	56 pF
C2	1 000 pF

APPLICATION INFORMATION

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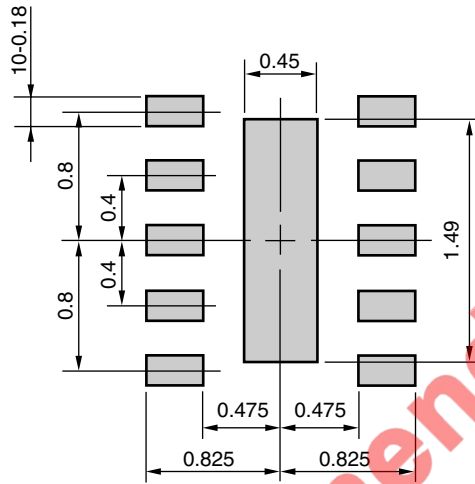


- C<sub>B</sub> are DC blocking capacitors external to the device.  
A value of 56 pF is sufficient for operation from 500 MHz to 2.5 GHz bands.  
The value may be tailored to provide specific electrical responses.
- The RF ground connections should be kept as short as possible and connected to directly to a good RF ground for best performance.
- L<sub>ESD</sub> provides a means to increase the ESD protection on a specific RF port, typically the port attached to the antenna.

MOUNTING PAD LAYOUT DIMENSIONS

10-PIN PLASTIC TSSOP (UNIT: mm)

MOUNTING PAD

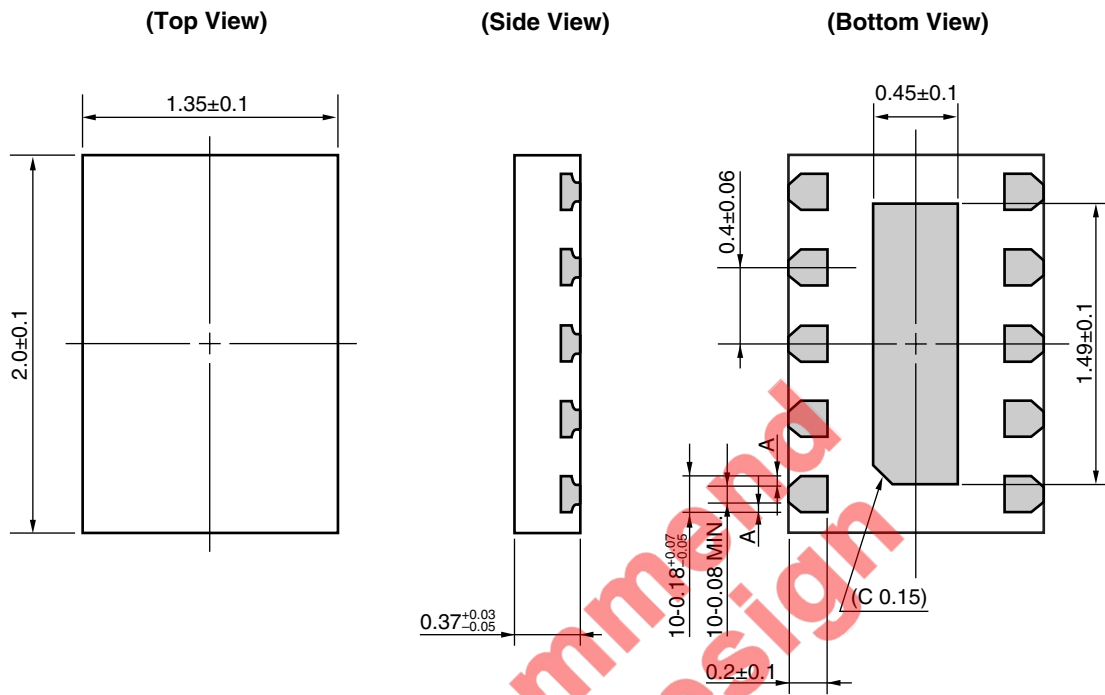


**Remark** The mounting pad layout in this document is for reference only.

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PACKAGE DIMENSIONS

10-PIN PLASTIC TSSOP (UNIT: mm)



**Remark** A>0  
 ( ) : Reference value

Not recommended for new design

**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
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 (terminal 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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FeliCa is a trademark of Sony Corporation.

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To our customers,

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