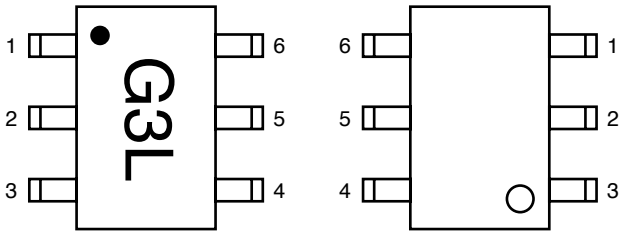
PIN CONNECTIONS

(Top View) (Bottom View)



PIN NO.	PIN NAME
1	OUTPUT2
2	GND
3	OUTPUT1
4	V_{cont1}
5	INPUT
6	V_{cont2}

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

PARAMETER	SYMBOL	RATINGS	UNIT
Switch Control Voltage	$V_{cont1, 2}$	–6.0 to +6.0 Note1	V
Input Power	P_{in}	+36	dBm
Total Power Dissipation	P_{tot}	0.15 Note2	W
Operating Ambient Temperature	T_A	–45 to +85	°C
Storage Temperature	T_{stg}	–65 to +150	°C

Notes 1. $|V_{cont1} - V_{cont2}| \leq 6.0$ V

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

RECOMMENDED OPERATING RANGE (T_A =+25ºC, unless otherwise specified)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Switch Control Voltage (H)	$V_{cont\ (H)}$	2.7	2.8	3.3	V
Switch Control Voltage (L)	$V_{cont\ (L)}$	–0.2	0	0.2	V
Operating Frequency	f	4.8		5.85	GHz
Operating Ambient Temperature	T_A	–40	+25	+85	°C

ELECTRICAL CHARACTERISTICS (T_A = +25°C, V_{cont} = 2.8 V/0 V, Z_O = 50 Ω, DC blocking capacitors = 3 pF, Each port, unless otherwise specified)

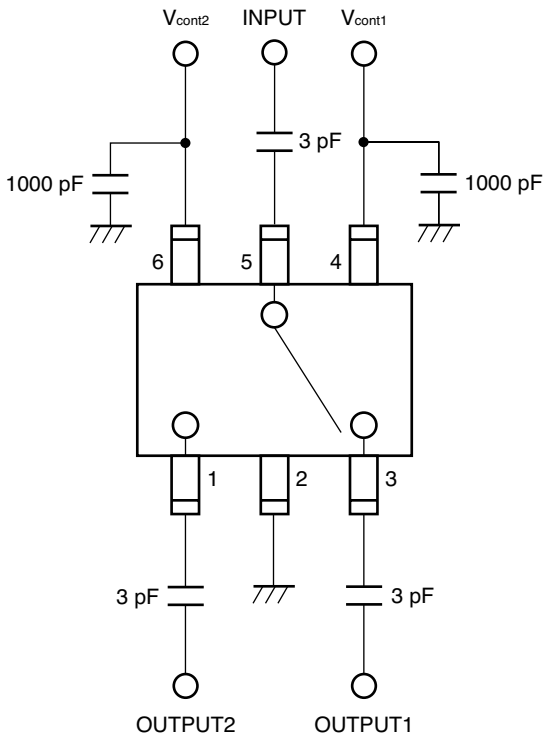
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Insertion Loss	L_{INS}	f = 4.9 GHz	–	0.8	1.1	dB
		f = 5.2 GHz	–	0.8	1.1	dB
		f = 5.8 GHz	–	0.9	1.1	dB
Isolation 1 (between OUTPUT1 and OUTPUT2)	ISL1	f = 4.9 GHz	12	15	–	dB
		f = 5.2 GHz	13	16	–	dB
		f = 5.8 GHz	15	18	–	dB
Input Return Loss	RL_{in}	f = 4.9 GHz	10	17	–	dB
		f = 5.2 GHz	10	18	–	dB
		f = 5.8 GHz	10	15	–	dB
Output Return Loss	RL_{out}	f = 4.9 GHz	10	19	–	dB
		f = 5.2 GHz	10	21	–	dB
		f = 5.8 GHz	10	19	–	dB
0.1 dB Gain Compression Input Power	$P_{in\ (0.1\ dB)}$	f = 4.9 to 5.2 GHz	28	30	–	dBm
		f = 5.2 to 5.85 GHz	30	31	–	
Switching Control Speed	t_{SW}	t_{RISE}/t_{FALL} (10/90% RF)	–	20	–	ns
Switching Control Current	I_{cont}		–	0.5	1	μA

STANDARD CHARACTERISTICS FOR REFERENCE

(T_A = +25°C, V_{cont} = 2.8 V/0 V, Z_O = 50 Ω, DC blocking capacitors = 3 pF, Each port, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Isolation 2 (between INPUT and OUTPUT)	ISL2	f = 4.9 GHz	–	17	–	dB
		f = 5.2 GHz	–	20	–	dB
		f = 5.8 GHz	–	29	–	dB

EVALUATION CIRCUIT



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

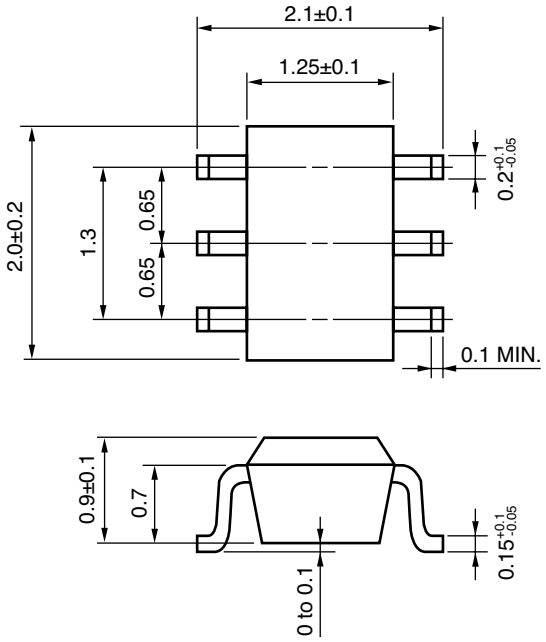
TRUTH TABLE OF SWITCHING BY CONDITION OF CONTROL VOLTAGE

		V_{CONT1}	
		$V_{CONT\ (H)}$	$V_{CONT\ (L)}$
V_{CONT2}	$V_{CONT\ (H)}$	**Note** INPUT — OUTPUT1, OUTPUT2	INPUT — OUTPUT2
	$V_{CONT\ (L)}$	INPUT — OUTPUT1	**Note** INPUT — OUTPUT1, OUTPUT2

Note In case of V_{CONT1} = V_{CONT2} = High or V_{CONT1} = V_{CONT2} = Low, (that is same control voltage for both pins), input signal of INPUT (Pin 5) is output from OUTPUT1 (Pin 3) and OUTPUT2 (Pin 1).

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	IR260
	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	
VPS	Peak temperature (package surface temperature)	: 215°C or below	VP215
	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	
Wave Soldering	Peak temperature (molten solder temperature)	: 260°C or below	WS260
	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	
Partial Heating	Peak temperature (pin temperature)	: 350°C or below	HS350
	Soldering time (per side of device)	: 3 seconds or less	
	Maximum chlorine content of rosin flux (% mass)	: 0.2%(Wt.) or below	

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

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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.

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UPG2022TB-EVAL UPG2022TB-A UPG2005TB