PIN CONNECTIONS AND INTERNAL BLOCK DIAGRAM

Pin No.	Pin Name
1	OUTPUT1
2	GND
3	OUTPUT2
4	V_{cont}
5	INPUT
6	V_{DD}
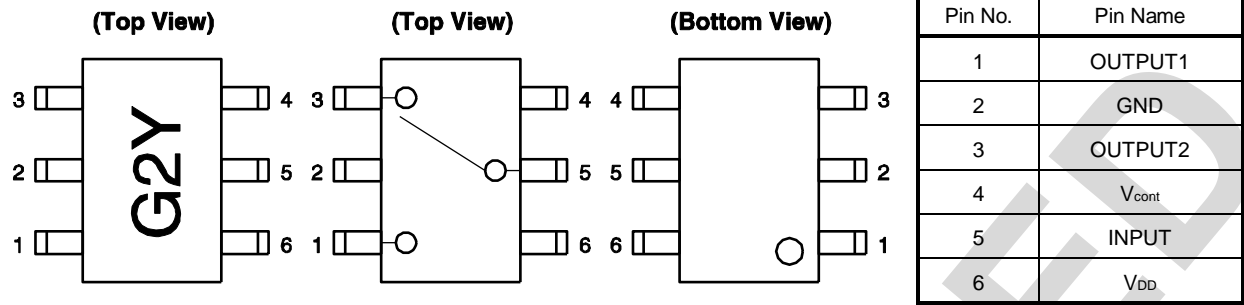
TRUTH TABLE

V_{cont}	INPUT−OUTPUT1	INPUT−OUTPUT2
Low	ON	OFF
High	OFF	ON

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

Parameter	Symbol	Ratings	Unit
Supply Voltage	V_{DD}	6.0	V
Switch Control Voltage	V_{cont}	6.0	V
Input Power	P_{in}	+36	dBm
Power Dissipation	P_D	150 **Note**	mW
Operating Ambient Temperature	T_A	−45 to +85	°C
Storage Temperature	T_{stg}	−55 to +150	°C

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

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

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply Voltage	V_{DD}	2.7	2.8	3.0	V
Switch Control Voltage (H)	$V_{cont\,(H)}$	2.7	2.8	3.0	V
Switch Control Voltage (L)	$V_{cont\,(L)}$	−0.2	0	0.2	V

ELECTRICAL CHARACTERISTICS
(T_A = +25°C, V_{DD} = 2.8 V, V_{cont} = 2.8 V/0 V, DC cut capacitors = 56 pF, unless otherwise specified)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Insertion Loss 1	L_{INS1}	f = 0.5 to 1.0 GHz	–	0.25	0.45	dB
Insertion Loss 2	L_{INS2}	f = 2.0 GHz	–	0.30	0.50	dB
Isolation 1	ISL1	f = 0.5 to 2.0 GHz	24	28	–	dB
Input Return Loss	RL_{in}	f = 0.5 to 2.5 GHz	15	20	–	dB
Output Return Loss	RL_{out}	f = 0.5 to 2.5 GHz	15	20	–	dB
0.1 dB Gain Compression Input Power [Note]	$P_{in\,(0.1\,dB)}$	f = 1.0 GHz	+31.5	+33.0	–	dBm
2nd Harmonics	$2f_0$	f = 1.0 GHz, P_{in} = +30.5 dBm	65	75	–	dBc
3rd Harmonics	$3f_0$	f = 1.0 GHz, P_{in} = +30.5 dBm	65	75	–	dBc
Supply Current	I_{DD}		–	50	100	μA
Switch Control Current	I_{cont}		–	4	20	μA

Note $P_{in\,(0.1\,dB)}$ is measured the input power level when the insertion loss increases more 0.1 dB than that of linear range.
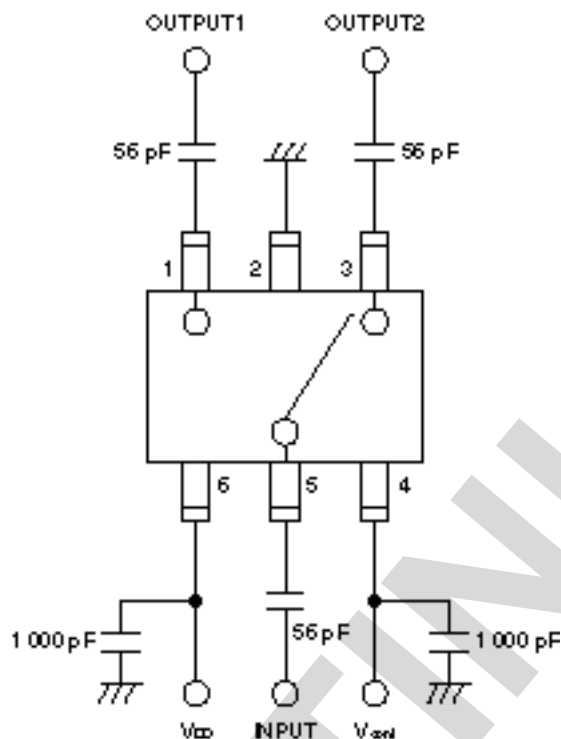
STANDARD CHARACTERISTICS FOR REFERENCE
(T_A = +25°C, V_{DD} = 2.8 V, V_{cont} = 2.8 V/0 V, DC cut capacitors = 56 pF, unless otherwise specified)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Insertion Loss 3	L_{INS3}	f = 2.5 GHz	–	0.35	–	dB
Isolation 2	ISL2	f = 2.5 GHz	–	25	–	dB
Switch Control Speed	t_{SW}		–	1	–	μs

**Caution** **This device is used it is necessary to use DC cut capacitors.**
The value of DC cut capacitors should be chosen to accommodate the frequency of operation, bandwidth, switching speed and the condition with actual board of your system. The range of recommended DC cut capacitor value is less than 100 pF.

EVALUATION CIRCUIT (V$_{DD}$ = 2.8 V, V$_{cont}$ = 2.8 V/0 V, DC cut capacitors = 56 pF)

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

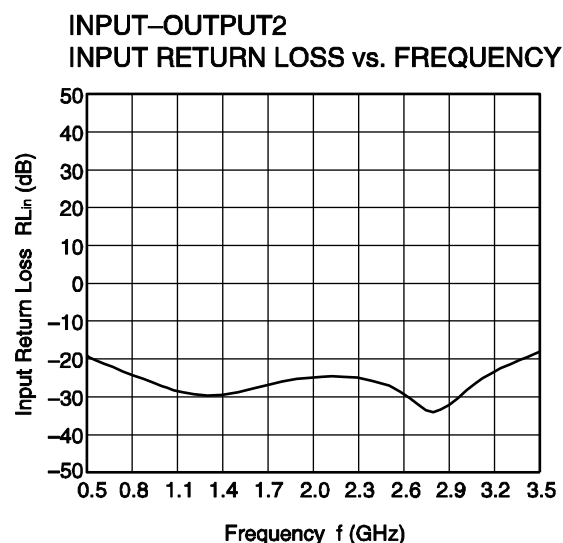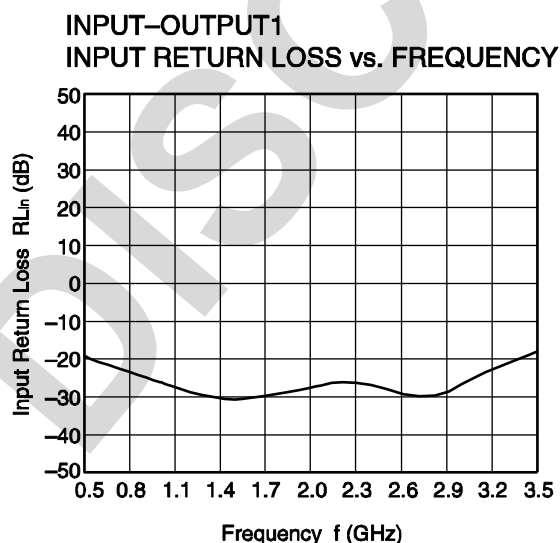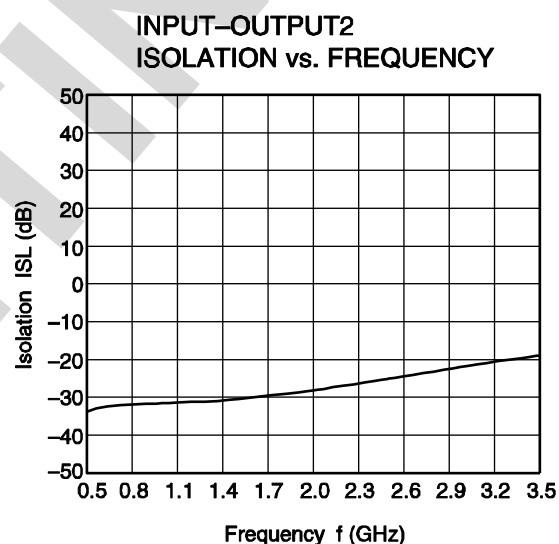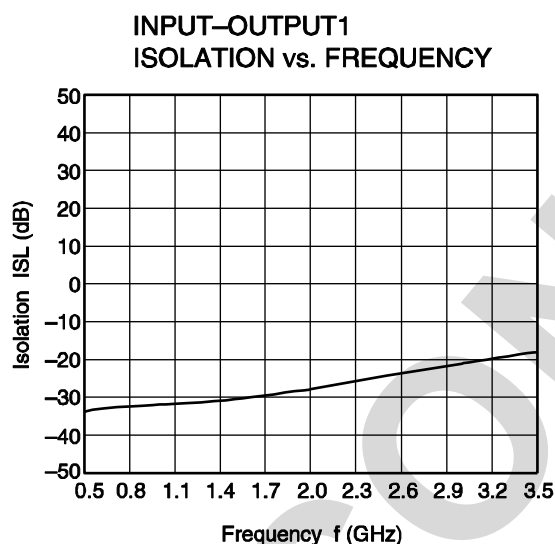## ILLUSTRATION OF THE TEST CIRCUIT ASSEMBLED ON EVALUATION BOARD
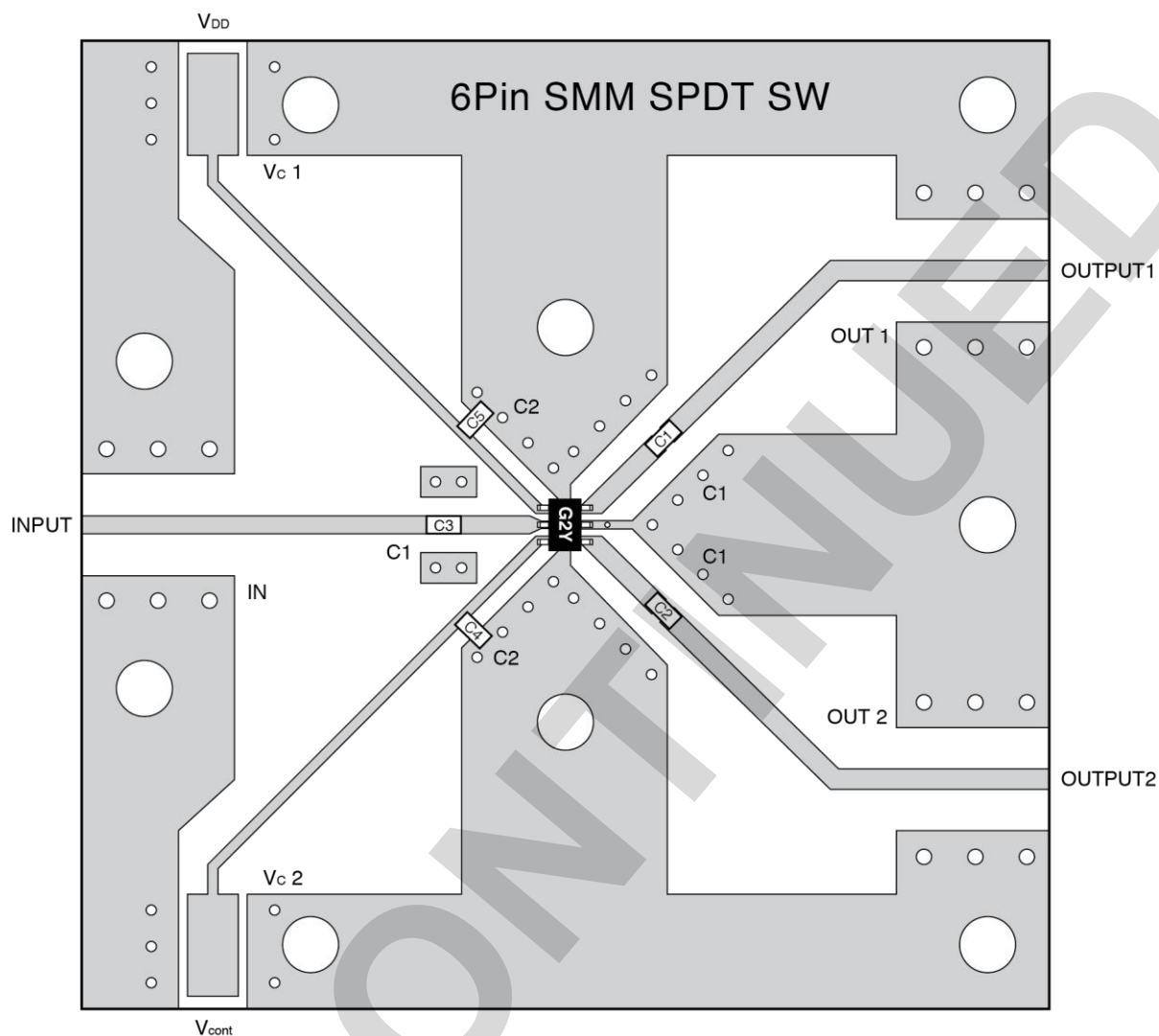
USING THE EVALUATION BOARD

| Symbol	Values
C1, C2, C3	56 pF
C4, C5	1 000 pF

★ **TYPICAL CHARACTERISTICS**
(T_A = +25°C, V_{DD} = 2.8 V, V_{cont} = 2.8 V/0 V, DC cut capacitors = 56 pF, unless otherwise specified)

INPUT–OUTPUT1
INSERTION LOSS vs. FREQUENCY

INPUT–OUTPUT2
INSERTION LOSS vs. FREQUENCY

INPUT–OUTPUT1
ISOLATION vs. FREQUENCY

INPUT–OUTPUT2
ISOLATION vs. FREQUENCY

INPUT–OUTPUT1
INPUT RETURN LOSS vs. FREQUENCY

INPUT–OUTPUT2
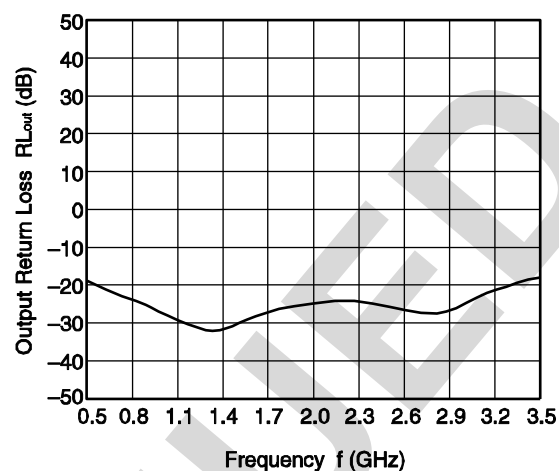INPUT RETURN LOSS vs. FREQUENCY
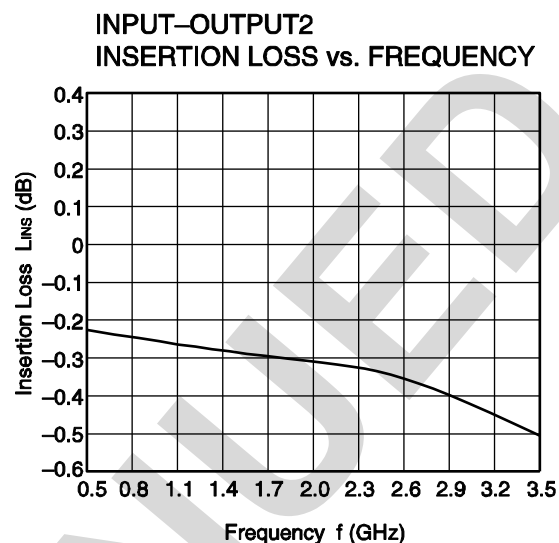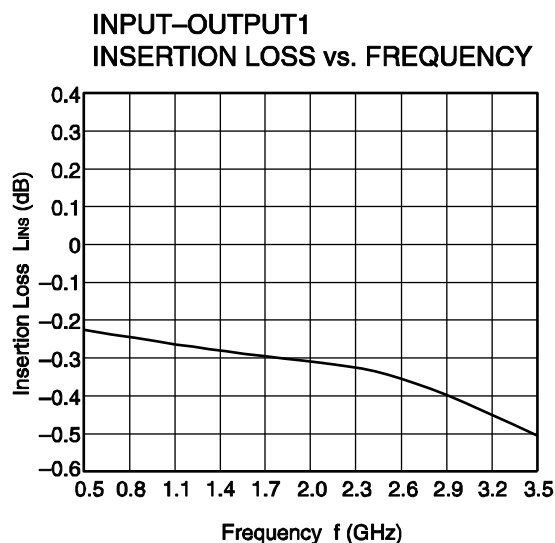
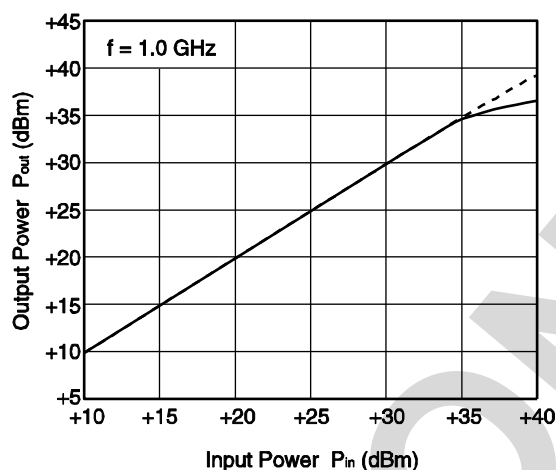**Remark** The graphs indicate nominal characteristics.

INPUT–OUTPUT1
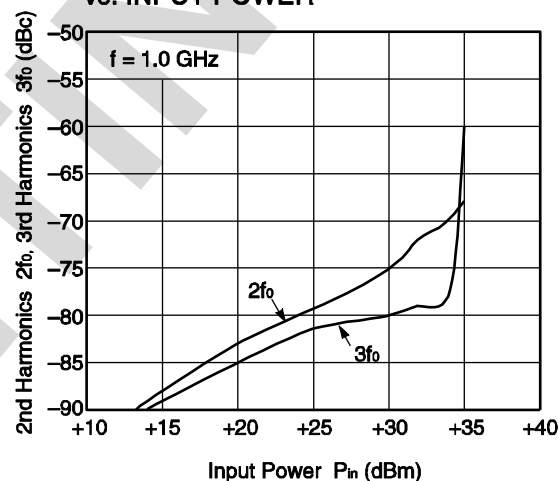OUTPUT RETURN LOSS vs. FREQUENCY
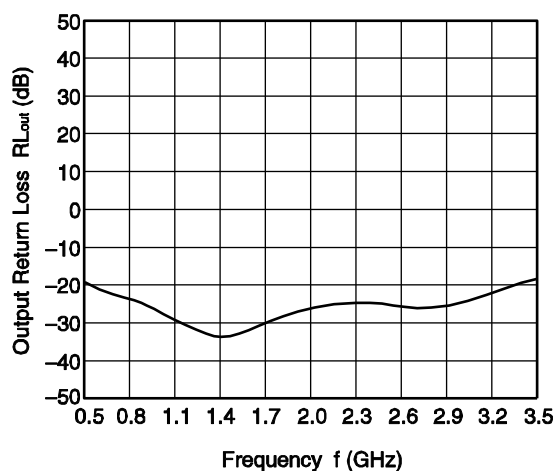
INPUT–OUTPUT2
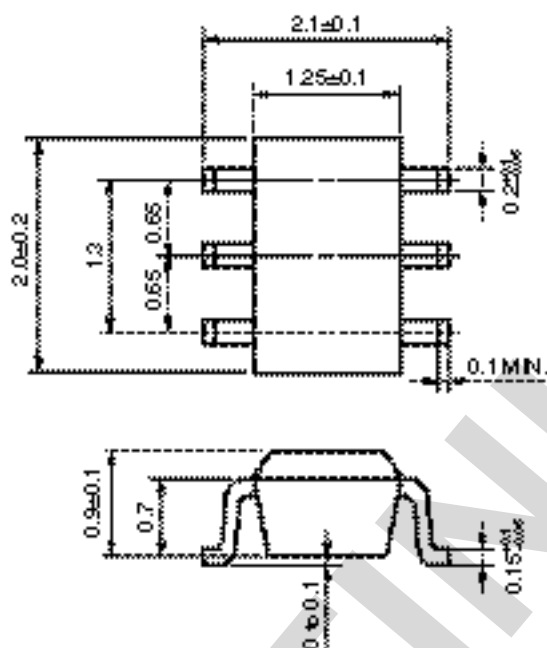OUTPUT RETURN LOSS vs. FREQUENCY

OUTPUT POWER vs. INPUT POWER

2ND HARMONICS, 3RD HARMONICS
vs. INPUT POWER

Remark The graphs indicate nominal characteristics.

PACKAGE DIMENSIONS

6-PIN SUPTER 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).

Caution GaAs Products	This product uses gallium arsenide (GaAs).
	GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.
	
	• Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below.
	
	   1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials.
	
	   2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal.
	
	• Do not burn, destroy, cut, crush, or chemically dissolve the product.
	
	• Do not lick the product or in any way allow it to enter the mouth.

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