泰莱微波
Talent Microwave

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W-Band X6 MMIC Multiplier

X6/69-114GHz/12.6dBm Output Power

Model: TLRDX-2504

TLRDX-2504 is a W-band broadband sextupler chip which operates from 69GHz to 114 GHz.When the input power is -2dBm to +2dBm, the typical value of the in-band output power is 12.6dBm, and the typical value of the adjacent sub-harmonic suppression is 25dBc.

Features:

- Output Frequency Range: 69-114GHz
- Input Power: -2~+2dBm
- Output Power: 12.6dBm Typ
- Harmonics: -25dBc
- Chip area: 3.5mmx1.3mm

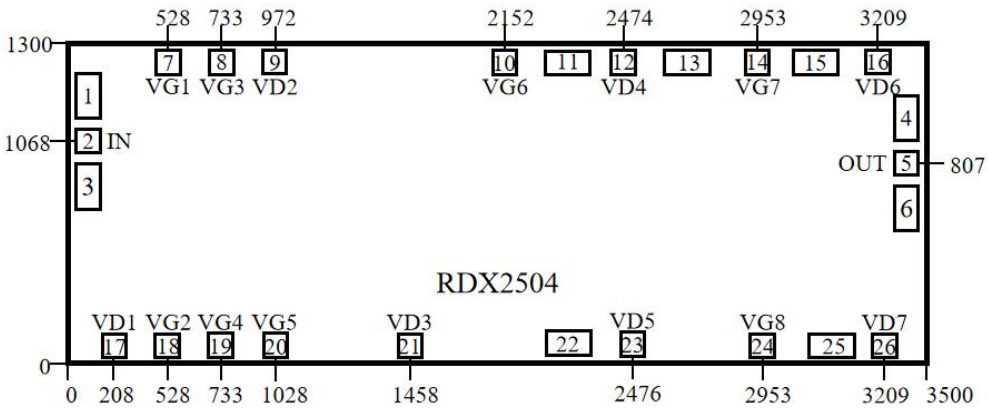
Electrical Characteristics:

Parameter		Min	Typ	Max	Units
Output Frequency		69		114	GHz
Output Power	@Pin=-2dBm	11.5	12.6	13.7	dBm
	@Pin=0dBm	11.5	12.6	13.7	
	@Pin=+2dBm	11.5	12.6	13.7	
Power Flatness			2.2		dB
Input Frequency		11.5		19	GHz
Input Power		-2	0	2	dBm
Multiply Factor			6		
Harmonics Suppression@Pin=0dBm	75-110GHz	25			dBc
	60-120GHz	15			
Input Return Loss				-11.4	dB
输出Output Return Loss				-12.8	dB
DC Power Consumption			1033.2		mW

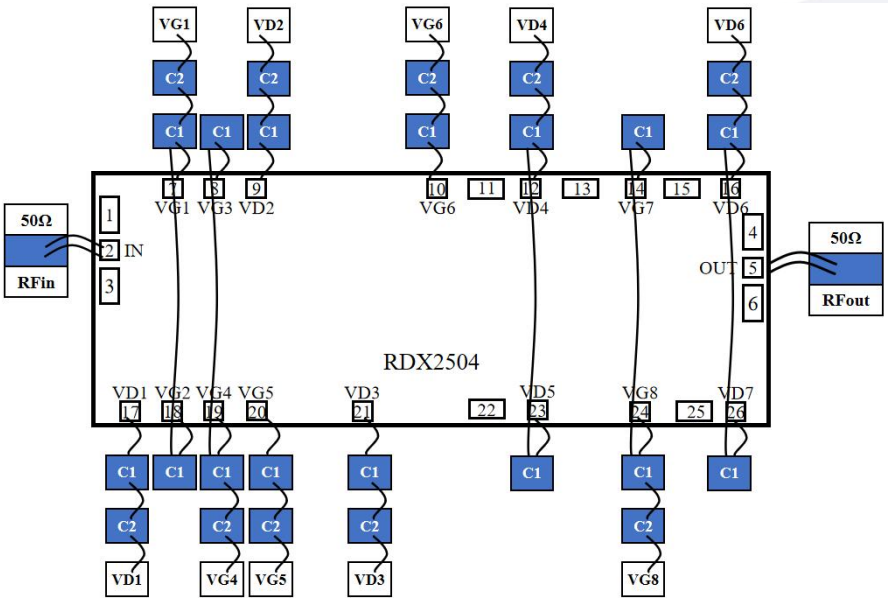
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Outline and Port size:

Unit: μm



Suggested Assembly Drawing:



Notes:
The capacitance value of peripheral capacitance C1 is 100 PF. C2 is 0.1 uF. C1 it is recommended to use a single-layer capacitor and try to be close to the bonding point of the chip.

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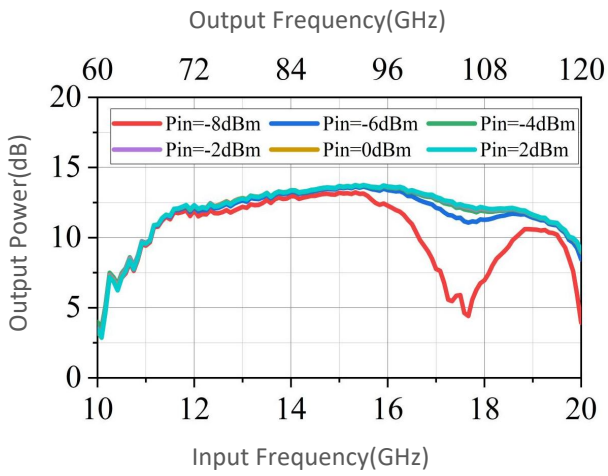
Definition of Bonding Point:

PAD	Symbol	Function	Dimension(μm²)
RFin Bonding Point			
1	GND	Ground	100x50
2	RFin	50 Ohm, open circuit for DC	50x50
3	GND	Ground	100x50
RFout Bonding Point			
4	GND	Ground	100x50
5	RFout	50 Ohm, open circuit for DC	50x50
6	GND	Ground	100x50
DC Bias Bonding Point			
7	VG1	-0.2V	50x50
8	VG3	-0.8V	50x50
9	VD2	3.3V; 32.1mA	50x50
10	VG6	-0.2V	50x50
11	GND	Ground	100x50
12	VD4	3.3V; 49.6mA	50x50
13	GND	Ground	100x50
14	VG7	-0.2V	50x50
15	GND	Ground	100x50
16	VD6	3.3V; 31.2mA	50x50
17	VD1	3.3V; 62.2mA	50x50
18	VG2	-0.2V	50x50
19	VG4	-0.8V	50x50
20	VG5	-0.2V	50x50
21	VD3	3.3V; 91.4mA	50x50
22	GND	Ground	100x50
23	VD5	3.3V; 33mA	50x50
24	VG8	-0.2V	50x50
25	GND	Ground	100x50
26	VD7	3.3V; 31.2mA	50x50

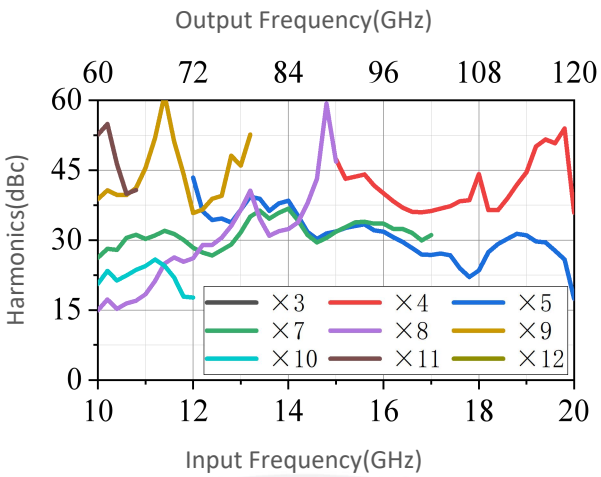
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Typical Performance Data:

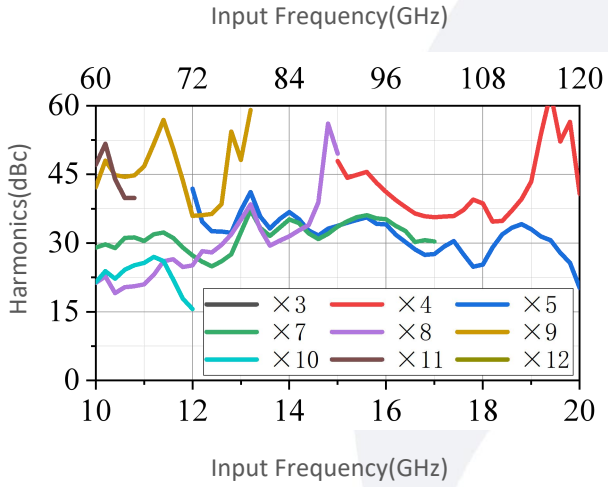
Pout vs vs Frequency



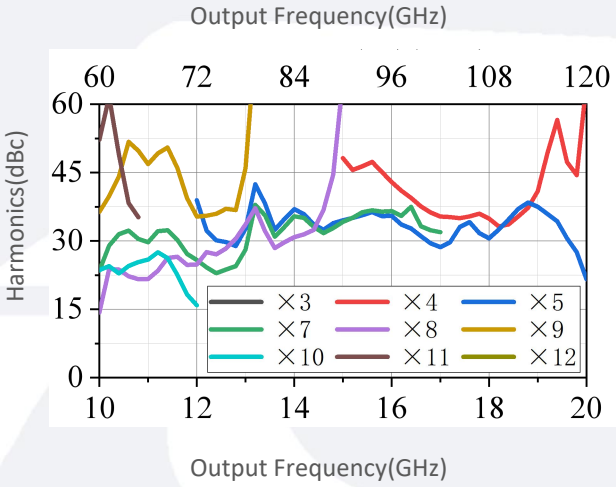
Harmonics@Pin=-2dBm vs Frequency



Harmonics@Pin=0dBm vs Frequency



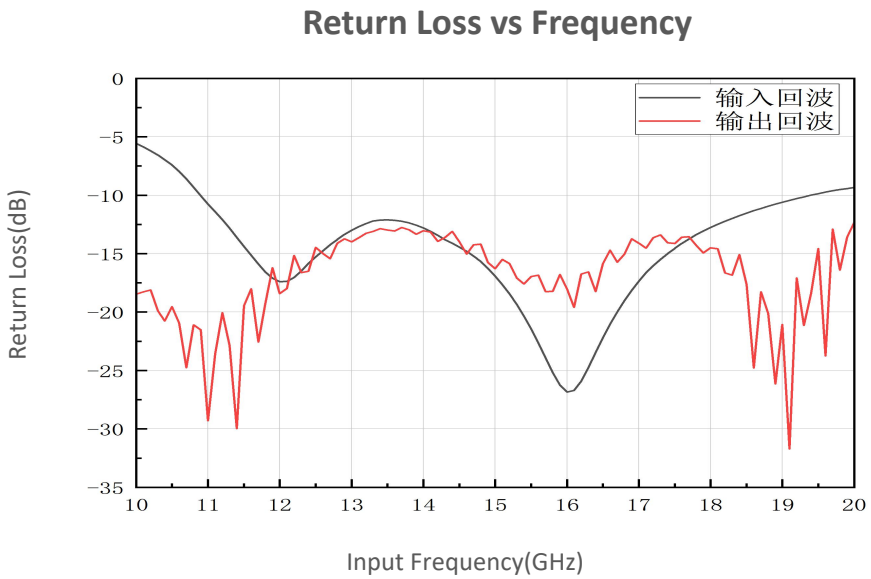
Harmonics@Pin=+2dBm vs Frequency



Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

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仿真曲线 Simulation Data:



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应用信息 Application Information:

1、 Storage: The chip must be placed in a container with electrostatic protection function and stored in nitrogen environment.
2、Cleaning: The bare chip must be operated and used in a purified environment. It is forbidden to use liquid detergent to clean the chip.
3、 Electrostatic protection: Please strictly comply with ESD protection requirements to avoid electrostatic damage.
4、 Routine operation: Please use vacuum chuck or precision pointed tweezers to take the chip. Avoid touching the chip surface with tools or fingers during operation.
5、 Power on sequence: when power on, apply gate voltage first and then Drain voltage; When de energizing, remove the Drain voltage first and then the gate voltage.
6、 Mounting operation: The chip can be installed by AuSn solder eutectic sintering or conductive adhesive bonding process. The installation surface must be clean and flat, and the gap between the chip and the input / output RF connecting line substrate shall be as small as possible.
Sintering process: 80 / 20 AuSn shall be used for sintering. The sintering temperature shall not exceed 300 ℃, the sintering time shall be as short as possible, not more than 20 seconds, and the friction time shall not exceed 3 seconds.
Bonding process: The dispensing amount of conductive adhesive shall be minimized during bonding, and the curing conditions shall refer to the data provided by the conductive adhesive manufacturer.
7、 Bonding operation:
Unless otherwise specified, two bonding wires (diameter 25um gold wire) are used for RF input and output, and the bonding wire shall be as short as possible.
The thermal ultrasonic bonding temperature is 150 ℃, and the ultrasonic energy is as small as possible. The pressure of spherical bonding cleaver is 40 ~ 50gf, and the pressure of wedge bonding cleaver is 18 ~ 22gf.
8、 If you have any questions, please contact the supplier.