

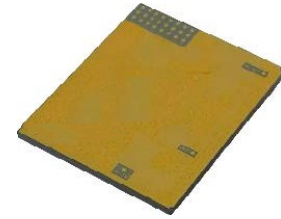
Switch filter multifunctional 3D integrated device, 6~18GHz

Product Name: Si-based switch filter multifunctional

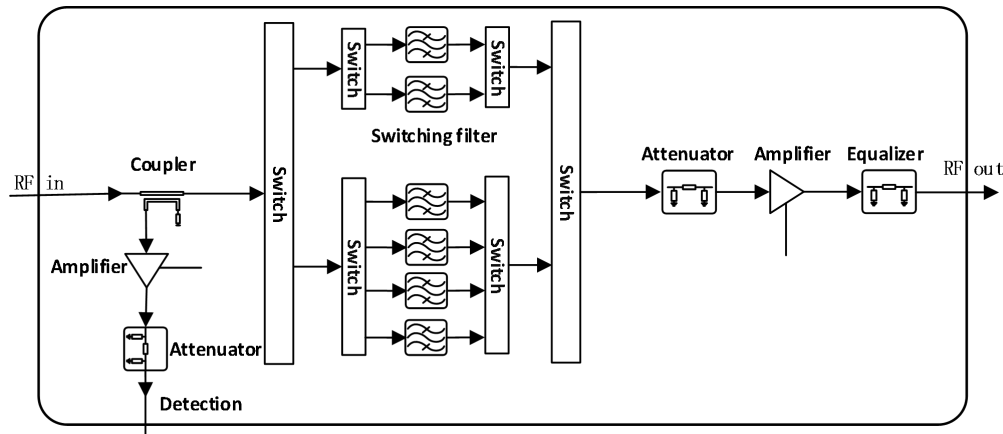
3D integrated device

Model Number: GF352102ME-618

Outline Dimensions: 20x18x1.25mm



Principle diagram



Product Introduction

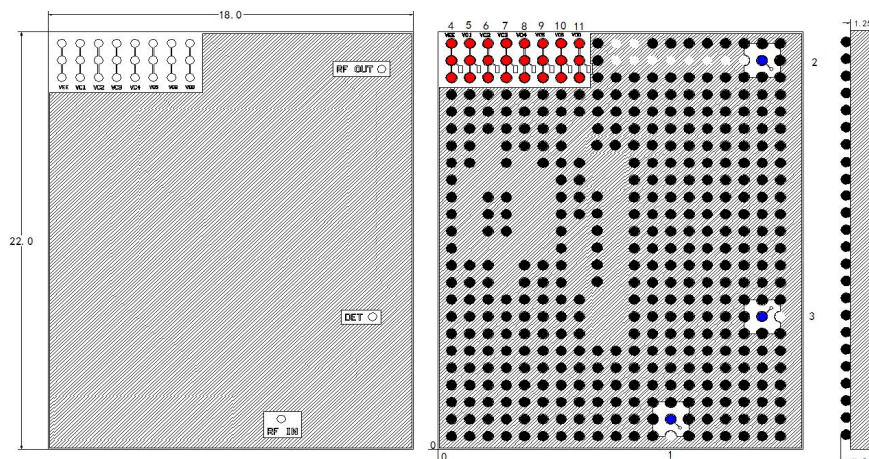
GF352102ME-618 is a Si-based switch filter multifunctional 3D integrated device with a working frequency range of 6GHz~18GHz. It selects the filter channel through switch switching, amplifies the output through LNA amplifier, and integrates a coupler into the input port for signal amplification. It has microwave signal online detection function. This device is manufactured using si-based MEMS 3D integration technology, with multi-layer stacking achieved through wafer bonding and embedded GaAs MMIC chips, enabling external microwave signal transmission, power control, and microwave grounding. This device can be controlled using TLL level, with DC coupling between input and output terminals and matched to 50Ω. It has the characteristics of low insertion loss, good flatness, and high out of band suppression within the operating frequency range. The product is mainly used in broadband microwave signal processing systems, and it is housed in a Si-based BGA package, suitable for SMT.

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Electrical parameters(TA = +25°C, 50Ω system)

Channel	Passband frequency (GHz)	Central gain IL0 (dB)	Gain flatness ΔIL (dB)	Out-of-band rejection IL_Z (dBc)	VSWRi/VSWRo
1	6~8	≥5.0	<1.5	≥35@9.6GHz~11.6GHz	<1.8
2	8~10	≥5.0	<1.5	≥35@11.6GHz~13.6GHz	<1.8
3	10~12	≥5.0	<1.5	≥35@13.6GHz~15.6GHz	<1.8
4	12~14	≥5.0	<1.5	≥35@15.6GHz~17.6GHz	<2.7
5	14~16	≥5.0	<1.5	≥35@17.6GHz~19.6GHz	<2.2
6	16~18	≥5.0	<1.5	≥35@19.6GHz~21.6GHz	<2.5
7	Input coupling amplification end: coupling degree 17.5-20.5dB@6-18GHz After amplification, the gain is 1.5-4.5dB@6-18GHz				

External structure



Pin	Function	Description
1	RF input port	RF signal input
2	RF output port	RF signal output
3	Coupling detection port	Coupling amplification output
4	Power port VEE	-5V power port, current<25mA
5	Control port VC1	Microwave switch control port, 0/-5V TTL level.
6	Control port VC2	Microwave switch control port, 0/-5V TTL level.
7	Control port VC3	Microwave switch control port, 0/-5V TTL level.
8	Control port VC4	Microwave switch control port, 0/-5V TTL level.
9	Control port VC5	Microwave switch control port, 0/-5V TTL level.
10	Control port VC6	Microwave switch control port, 0/-5V TTL level.
11	Power port VDD	+5V power port, current<100mA
Note: Other BGA solder pads should be grounded		

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Truth table

No.	Control signal voltage						Channel and passband frequency (GHz)
	VC1	VC2	VC3	VC4	VC5	VC6	
1	0	0	0	-5V	-5V	0V	Channel: 10~12GHz
2	0	-5V	0	-5V	-5V	0V	Channel: 6~8GHz
3	-5V	0V	0	-5V	-5V	0V	Channel: 12~14GHz
4	-5V	-5V	0	-5V	-5V	0V	Channel: 8~10GHz
5	×	×	0	-5V	0	-5V	Channel: 14~16GHz
6	×	×	-5V	0V	0	-5V	Channel: 16~18GHz

Notice

- Anti static measures are taken during the use and assembly process of product;
- The product needs to be assembled and used in a purified environment, and it is prohibited to use liquid cleaning agents to clean the module;
- Long term stable operation of the product requires airtight conditions;
- The module must be placed in a container with electrostatic protection function and stored in a nitrogen environment;
- Please use a vacuum chuck or precision pointed tweezers to retrieve the module. During the operation, avoid touching the surface of the module with tools or fingers;
- The chip should be installed on a substrate with a thermal expansion coefficient equivalent to that of silicon (2.9ppm/°C), and the thermal expansion coefficient of the substrate should be ≤ ppm/°C.