# GSW-0020DT-N-PD

## GaAs MMIC Reflective SPDT Switch Chip, DC-20GHz

### Performance characteristics

- Frequency range: DC -20GHz
- Insertion loss : 1.2 dB @ 20 GHz
- Isolation: 46dB
- On-state VSWR: 1.2
- Integrated control logic
- 50Ohm input / output
- 100% on-wafer testing
- Chip size: 1.25 x 1.1 x 0.1mm

### Product Introduction

GSW-0020DT-N-PD is a GaAs MMIC reflective single-pole double-throw switch chip with 50Ω matching at the input/output end and a frequency range covering DC ~20GHz , the chip adopts -5V power supply, 0V / +5V positive level control , switching speed 30ns , P - 1dB input power + 23dBm .

| Use restriction parameter [1] | |
|---|---|
| Control voltage range | -0.5V ～ + 6V |
| Supply voltage range | - 6V |
| Maximum input power | +30dBm |
| Operating temperature | -55 ~ +85°C |
| storage temperature | -65 ~ +150°C |

【1】 Exceeding any of these maximum limits may cause permanent damage.

| Electrical performance parameters ( TA = +25°C , VEE = -5V , VC = 0V/+5V ) | | | | |
|---|---|---|---|---|
| index | Minimum | Typical Value | Maximum | unit |
| Frequency Range | | DC-20 | | GHz |
| Insertion loss @21GHz | - | 1.2 | - | dB |
| Isolation | - | 46 | - | dB |
| On-state input return loss | - | 19 | - | dB |
| On-state output return loss | - | 20 | - | dB |
| P-1dB | - | 23 | - | dBm |
| Switching speed | - | 30 | - | ns |
| Control voltage | - | 0/+5 | - | V |
| Control current | | 500 | | uA |
| voltage | - | -5 | - | V |
| Quiescent Current | - | 3 | - | mA |

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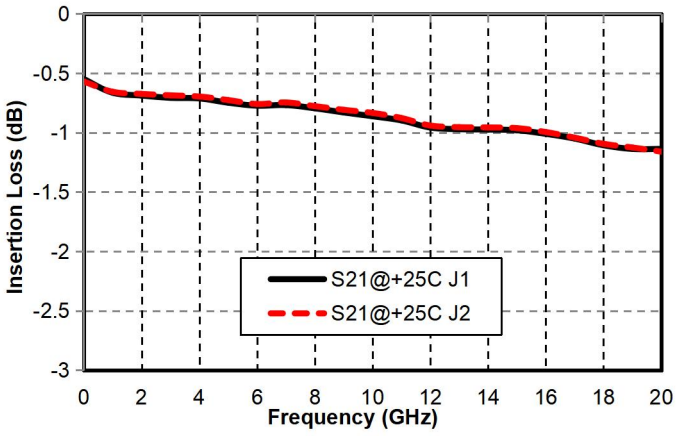
# GSW-0020DT-N-PD

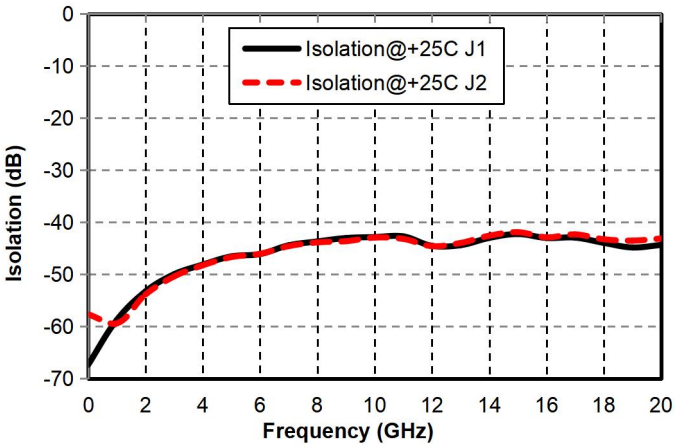
## GaAs MMIC Absorptive SPDT Switch Chip, DC- 200 GHz

### Main index test curve

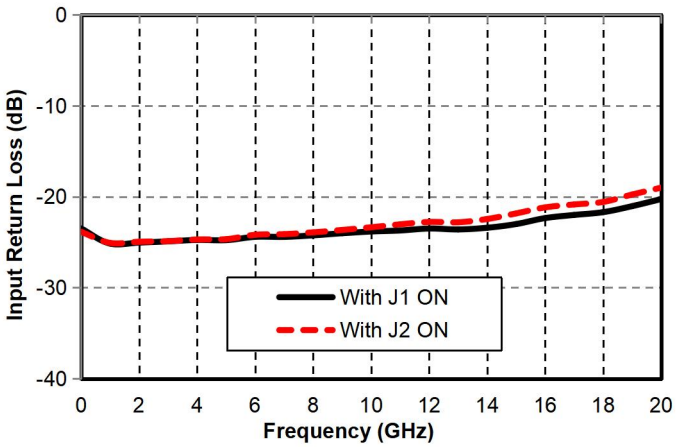
Insertion Loss vs. Operating Frequency



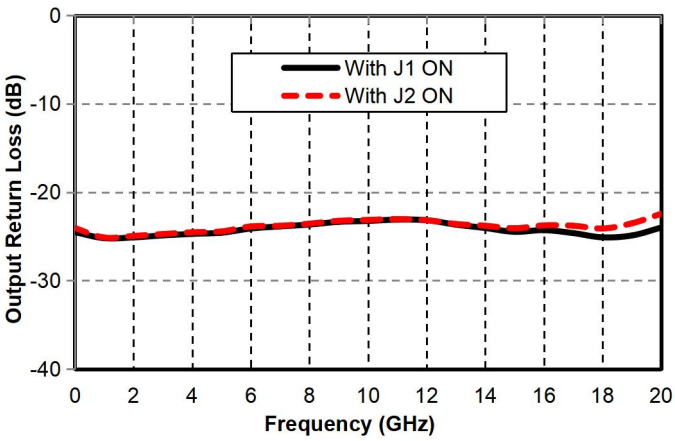

Isolation vs. Operating Frequency



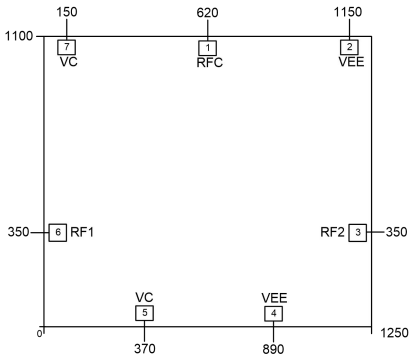

Input Return Loss vs. Operating Frequency ( On State )




Output Return Loss vs. Operating Frequency ( On State )




### Appearance structure [2]




【 2 】All units in the figure are micrometers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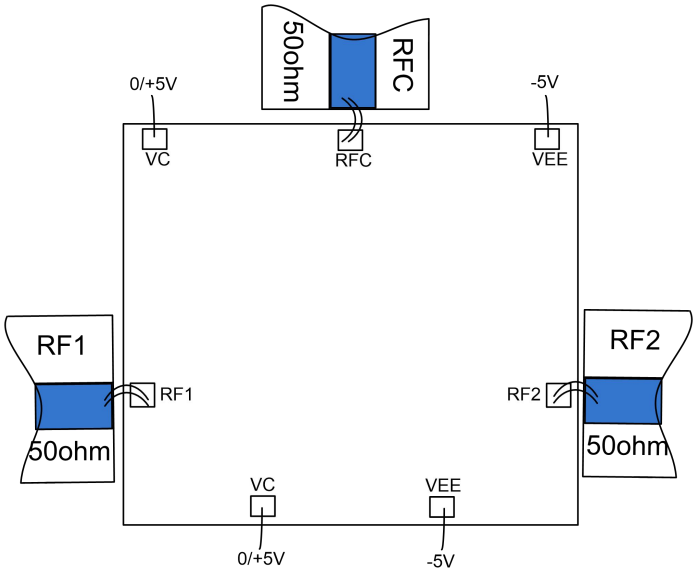
## GaAs MMIC Absorptive SPDT Switch Chip, DC-20GHz

| Bonding point definition | | |
|---|---|---|
| Bonding point number | Function Symbol | Functional Description |
| 1 | RF COMM | RF signal input terminal , no internal DC blocking capacitor |
| 2.3 | RF OUTPUT | RF signal output terminal , no internal DC blocking capacitor |
| 4 | VC | Positive level control port |
| 5 | VEE | Power supply voltage (used for positive level control) |
| Chip bottom | GND | The bottom of the chip needs to be well grounded to RF and DC |

### Truth table

| VEE | VC | path |
|---|---|---|
| -5V | 5V | RFC-RF1 |
| -5V | 0V | RFC-RF2 |

### Recommended assembly drawing




connect VEE and VC on either side .

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