## Data sheet

## GaAs MMIC SPDT Terminated Switch, DC-2GHz

The P35-0702T is a high performance Gallium Arsenide monolithic single pole double throw RF switch suitable for use in broadband communications and instrumentation applications. The isolated port of the switch is terminated with a $50 \Omega$ load. Control is effected by the application of complimentary 0 V and -5 V levels to the control lines in accordance with the truth table below.

The die is fabricated using Bookham Technology's $0.5 \mu \mathrm{~m}$ gate length MESFET process (S20) and is fully protected using Silicon Nitride passivation for excellent performance and reliability.


## Electrical Performance

Ambient temperature $=22 \pm 3^{\circ} \mathrm{C}, \mathrm{Zo}=5 \mathrm{o}$ ohms, Control voltages $=0 \mathrm{~V} /-5 \mathrm{~V}$ unless otherwise stated

| Parameter | Conditions | Min | Typ | Max | Units |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Insertion Loss | DC - 0.5GHz | - | 0.4 | 0.6 | dB |
|  | $0.5 \mathrm{GHz}-2 \mathrm{GHz}$ | - | 0.9 | 1.0 | dB |
| Isolation | DC - 0.5 GHz | 30 | 33 | - | dB |
|  | $0.5 \mathrm{GHz}-2 \mathrm{GHz}$ | 20 | 22 | - | dB |
| Input Return Loss ${ }^{1}$ | DC - 0.5GHz | 25 | 30 | - | dB |
|  | $0.5 \mathrm{GHz}-2 \mathrm{GHz}$ | 20 | 25 | - | dB |
| Output Return Loss ${ }^{1}$ | DC - 0.5GHz | 25 | 30 | - | dB |
|  | $0.5 \mathrm{GHz}-2 \mathrm{GHz}$ | 20 | 25 | - | dB |
| 1 dB power compression point ${ }^{2}$ | 0/-5V Control; 50 MHz | 19 | 21.5 | - | dBm |
|  | 0/-5V Control; 2GHz | 21 | 23 | - | dBm |
|  | 0/-8V Control; 50 MHz | 21 | 23 | - | dBm |
|  | 0/-8V Control; 2GHz | 29 | 31 | - | dBm |
| Switching Speed | 50\% Control to 10\%90\%RF | - | 3 | - | ns |
| Third Order Intercept ${ }^{3}$ | 500 MHz | - | 46 | - | dBm |

## Notes

1. Return Loss measured in low loss switch state
2. Input power at which insertion loss compresses by 1 dB
3. Input power $10 \mathrm{dBm} /$ tone

Typical Performance at $22^{\circ} \mathrm{C}$


## Package Outline



Electrical Schematic


Absolute Maximum Ratings

Max control voltage
Max I/P power
Operating temperature Storage temperature
-8V
+33 dBm
$-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$
$-65^{\circ} \mathrm{C}$ to $+150^{\circ} \mathrm{C}$

## Pin Details

| Pin | Function |
| :---: | :---: |
| 1 | RF Input |
| 2 | Ground |
| 3 | RF1 |
| 4 | Control B |
| 5 | Control A |
| 6 | RF2 |
| 7 | Ground |
| 8 | Ground |

## Switching Truth Table

| A | B | RF IN-RF1 | RF IN-RF2 |
| :---: | :---: | :---: | :---: |
| 0 V | -5 V | Low Loss | Isolated |
| -5 V | 0 V | Isolated | Low Loss |

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Important Notice
Bookham Technology has a policy of continuous improvement. As a result certain parameters detailed on this flyer may be subject to change without notice. If you are interested in a particular product please request the product specification sheet, available from any RF sales representative.

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## Ordering Information

P35-0702T

