

## Matched GaAs SP3T Switch, 5 - 2000 MHz

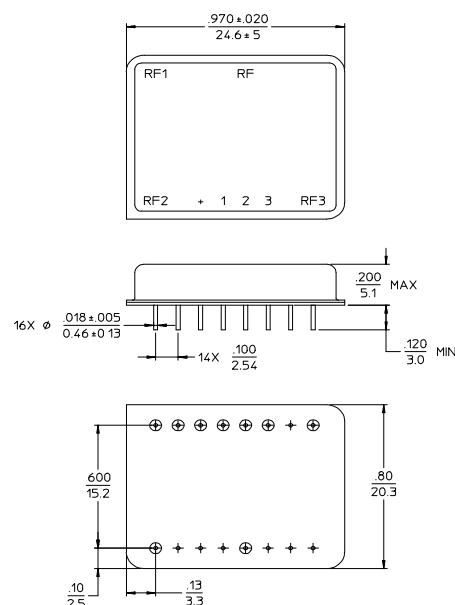
**SW-241-PIN  
V3**

### Features

- Low Insertion Loss, 1.0 dB Typical
- Fast Switching Speed, 20 nS Typical
- Ultra Low DC Power Consumption, 0.22 mA Typical
- Integral TTL Driver
- 50 Ohm Nominal Impedance
- MIL-STD-883 screening available

### Description

### Functional Block Diagram



Dimensions in () or on bottom are in mm.  
 Unless Otherwise Noted: .xxx = ±0.010 (.xx = ±0.25)  
 .xx = ±0.02 (x = ±0.5)  
 WEIGHT (APPROX): 0.26 OUNCES 73 GRAMS

### Ordering Information

| Part Number | Package |
|-------------|---------|
| SW-241-PIN  | DI-5    |

Note: Reference Application Note M513 for reel size information.

Note: Die quantity varies.

### Truth Table

| Control Input          |      |      | Condition of Switch       |     |     |
|------------------------|------|------|---------------------------|-----|-----|
| "1" = Logic High (TTL) |      |      | RF Common to Each RF Port |     |     |
| CTL1                   | CTL2 | CTL3 | RF1                       | RF2 | RF3 |
| 1                      | 0    | 0    | On                        | Off | Off |
| 0                      | 1    | 0    | Off                       | On  | Off |
| 0                      | 0    | 1    | Off                       | Off | On  |

\* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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**Electrical Specifications:  $T_A = -55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  <sup>1</sup>**

| Parameter                               | Test Conditions                        | Frequency                                   | Units                   | Min               | Typ           | Max                     |
|-----------------------------------------|----------------------------------------|---------------------------------------------|-------------------------|-------------------|---------------|-------------------------|
| Insertion Loss                          | —                                      | 5 - 2000 MHz<br>5 - 1000 MHz<br>5 - 500 MHz | dB<br>dB<br>dB          | 2.5<br>1.7<br>1.4 | —<br>—<br>—   | —<br>—<br>—             |
| VSWR                                    | —                                      | 5 - 2000 MHz<br>5 - 1000 MHz<br>5 - 500 MHz | Ratio<br>Ratio<br>Ratio | —<br>—<br>—       | —<br>—<br>—   | 2.0:1<br>1.6:1<br>1.4:1 |
| Isolation                               | —                                      | 5 - 2000 MHz<br>5 - 1000 MHz<br>5 - 500 MHz | dB<br>dB<br>dB          | 35<br>45<br>55    | —<br>—<br>—   | —<br>—<br>—             |
| Trise, Tfall<br>Ton, Toff<br>Transients | 50% CTL to 90/10% RF<br>In-band        | —<br>—<br>—                                 | nS<br>nS<br>mV          | —<br>—<br>—       | 7<br>20<br>80 | —<br>—<br>—             |
| 1 dB Compression                        | Input Power                            | 500 - 2000 MHz<br>50 MHz                    | dBm<br>dBm              | —<br>—            | +27<br>+21    | —<br>—                  |
| IP <sub>2</sub>                         | For two tone input power up to +13 dBm | 500 - 2000 MHz<br>50 MHz                    | dBm<br>dBm              | —<br>—            | +68<br>+60    | —<br>—                  |
| IP <sub>3</sub>                         | For two tone input power up to +13 dBm | 500 - 2000 MHz<br>50 MHz                    | dBm<br>dBm              | —<br>—            | +46<br>+40    | —<br>—                  |
| Bias Power                              | +5 VDC @ 0.22 mA Typ                   | —                                           | mA                      | —                 | —             | 1                       |

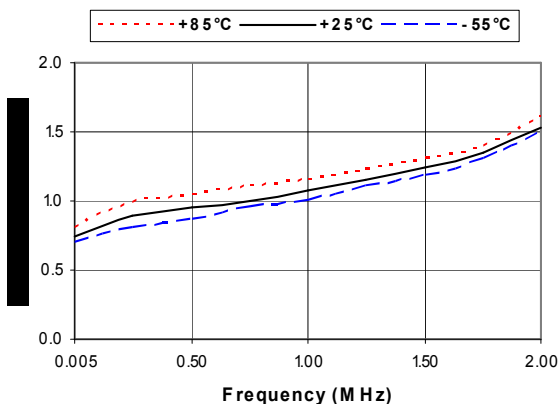
1. All specifications apply when operated with bias voltages of +5 VDC and 50 ohm impedance at all RF Ports.

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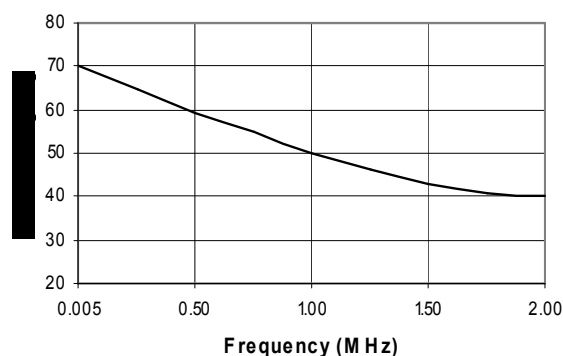
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## Typical Performance Curves

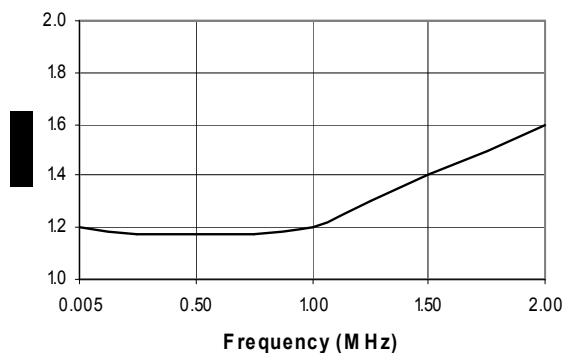
**Insertion Loss**



**Isolation**



**VSWR**



**Schematic**

