

**Matched GaAs SPDT Switch,
5 - 2000 MHz**

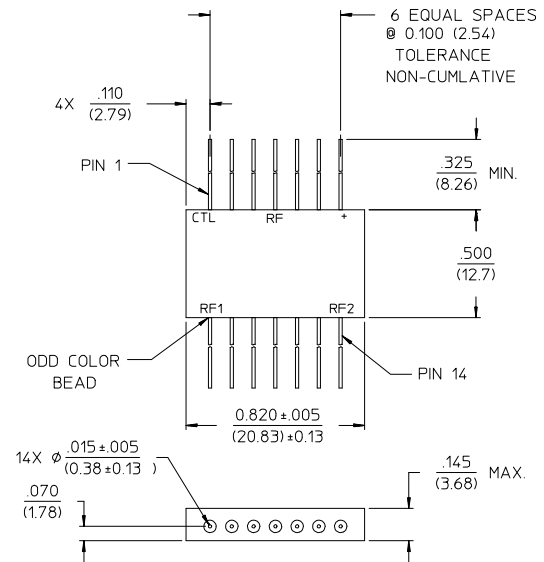
**SW-233-PIN/SW-236-PIN
V3**

Features

- Low Insertion Loss, 1.0 dB Typical
- Fast Switching Speed, 20 nS Typical
- Ultra Low DC Power Consumption, 0.12 mA Typical
- Integral TTL (SW-233) or CMOS (SW-236) Driver
- 50 Ohm Nominal Impedance
- MIL-STD-883 screening available

Description

Functional Block Diagram



Dimensions in () are in mm
Unless Otherwise Noted: .XXX = ±0.010 (XX = ±0.25)
.XX = ±0.02 (X = ±0.5)
WEIGHT (APPROX): 0.14 OUNCES 4 GRAMS

Ordering Information

| Part Number | Package |
|-------------|---------|
| SW-233-PIN | FP-16 |
| SW-236-PIN | FP-16 |

Note: Reference Application Note M513 for reel size information.
Note: Die quantity varies.

Truth Table

| Control Input | | | | Condition of Switch | | | |
|---|-------|-------|-------|------------------------------|-----|-----|-----|
| "1" = Logic High TTL (SW-233) CMOS (SW-236) | | | | RF Common to Each RF Port | | | |
| CTL 1 | CTL 2 | CTL 3 | CTL 4 | RF1 | RF2 | RF3 | RF4 |
| 1 | 0 | 0 | 0 | ON | OFF | OFF | OFF |
| 0 | 1 | 0 | 0 | OFF | ON | OFF | OFF |
| 0 | 0 | 1 | 0 | OFF | OFF | ON | OFF |
| 0 | 0 | 0 | 1 | OFF | 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 $+85^{\circ}\text{C}$ ¹

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
|-----------------|--|----------------|-------|-----|-----|-------|
| Insertion Loss | — | 5 - 2000 MHz | dB | 1.5 | — | — |
| | | 5 - 1000 MHz | dB | 1.2 | — | — |
| | | 5 - 500 MHz | dB | 1.1 | — | — |
| VSWR | — | 5 - 2000 MHz | Ratio | — | — | 1.9:1 |
| | | 5 - 1000 MHz | Ratio | — | — | 1.5:1 |
| | | 5 - 500 MHz | Ratio | — | — | 1.4:1 |
| Isolation | — | 5 - 2000 MHz | dB | 40 | — | — |
| | | 5 - 1000 MHz | dB | 45 | — | — |
| | | 5 - 500 MHz | dB | 53 | — | — |
| IP ₂ | For two tone input power up to +13 dBm | 500 - 2000 MHz | dBm | — | +68 | — |
| | | 50 MHz | dBm | — | +60 | — |
| IP ₃ | For two tone input power up to +13 dBm | 500 - 2000 MHz | dBm | — | +46 | — |
| | | 50 MHz | dBm | — | +40 | — |

1. All specifications apply when operated with bias voltages of +5 VDC (SW-205) or +8 VDC (SW-206) and 50 ohm impedance at all RF ports.

SW-233

| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
|---|---------------------------------|----------------|-------|-----|-----|-----|
| Trise, Tfall Ton, Toff Transients | 50% CTL to 90/10% RF In-band | — | nS | — | 7 | — |
| | | — | nS | — | 20 | — |
| | | — | mV | — | 100 | — |
| 1 dB Compression | Input Power | 500 - 2000 MHz | dBm | — | +27 | — |
| | | 50 MHz | dBm | — | +21 | — |
| Bias Power | +5 VDC @ 0.12 mA Typ | — | mA | — | — | 1 |

SW-236

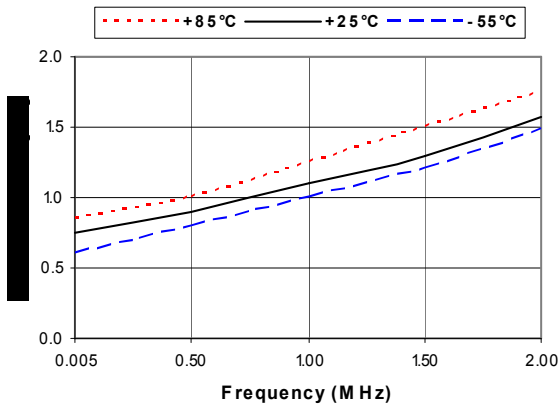
| Parameter | Test Conditions | Frequency | Units | Min | Typ | Max |
|---|------------------------------------|----------------|-------|-----|-----|-----|
| Trise, Tfall Ton, Toff Transients | 50% CTL to 90/10% RF In-band | — | nS | — | 20 | — |
| | | — | nS | — | 40 | — |
| | | — | mV | — | 70 | — |
| 1 dB Compression | Input Power | 500 - 2000 MHz | dBm | — | +33 | — |
| | | 50 MHz | dBm | — | +26 | — |
| Bias Power | +5 to +8 VDC @ 0.12 to 0.40 mA Typ | — | mA | — | — | 1 |

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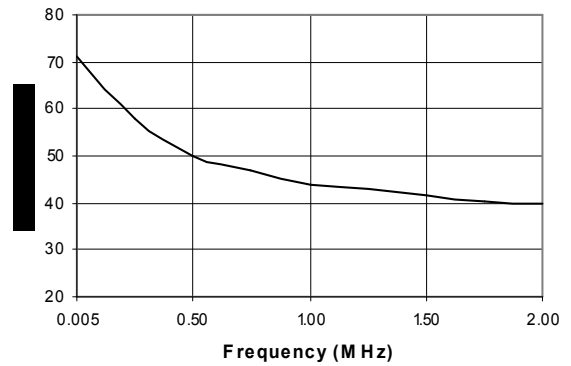
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Typical Performance Curves

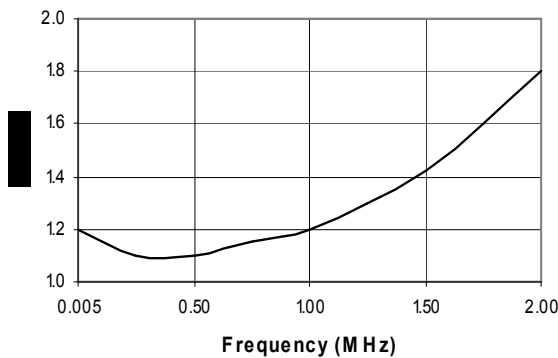
Insertion Loss



Isolation



VSWR



Schematic

