

S11



10 to 500 MHz THIN FILM SPST SWITCH

- LOW INSERTION LOSS: < 2.5 dB (TYP.)
- HIGH ON/OFF RATIO: 60 dB (TYP.)
- LOW VSWR: 1.6:1 (TYP.)
- TTL COMPATIBLE

Specifications (Rev. Date: 3/02)*

| Characteristics | Typical | Guaranteed | |
|--------------------------------------|----------|------------|---------------|
| | | 0° to 50°C | -54° to +85°C |
| Insertion Loss (max.) | | | |
| 10-100 MHz | < 1.7 dB | 2.3 dB | 2.7 dB |
| 100-300 MHz | < 2.0 dB | 2.6 dB | 3.0 dB |
| 300-500 MHz | < 2.5 dB | 4.0 dB | 4.5 dB |
| Isolation | | | |
| 10-100 MHz | > 67 dB | 54 dB | 52 dB |
| 100-300 MHz | > 62 dB | 50 dB | 48 dB |
| 300-500 MHz | > 48 dB | 39 dB | 36 dB |
| VSWR Input/Output (max.) in ON state | | | |
| 10-500 MHz | 1.9:1 | 2.4:1 | 2.6:1 |
| Switching Speed (10-90%) | 8 ns | 20ns | 20 ns |
| DC Current (max.) at +5V | 45 mA | 55 mA | 60 mA |

*Measured in a 50-ohm system at +5 Vdc Nominal.

Absolute Maximum Ratings

| | |
|---------------------------------------|-----------------|
| Ambient Operating Temperature | -54° to +125°C |
| Storage Temperature | -62°C to +125°C |
| Max. Case Temperature | 125°C |
| Max. DC Voltage | +6 Volts |
| Max. Continuous RF Input Power | +10 dBm |
| Max. Short Term RF Input Power | 100 mW |
| Max. Peak Power (1 minute max.) | 1 W |
| “S” Series Burn-in Temperature (Case) | 125°C |

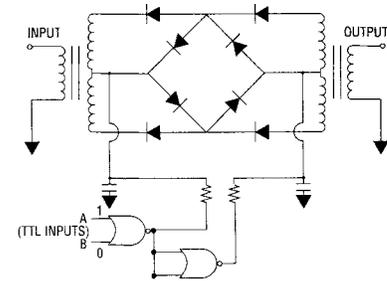
Switching Conditions

| Input Pins | ON State | | Off State | |
|------------|----------|---|-----------|---|
| A | 0 | 1 | 1 | 0 |
| B | 0 | 1 | 0 | 1 |

Outline Drawings

| | |
|---------|------|
| Package | TO-8 |
| Figure | BE |
| Model | S11 |

Schematic Diagram



DC volts: 5 ± 1% nominal; DC current 45 mA
 TTL logic inputs 0^v = 0 volt
 1^v = 5 volts nominal
 2 volts minimum
 6 volts maximum

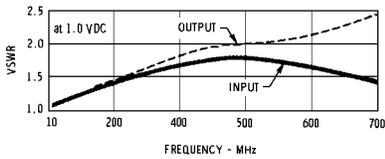
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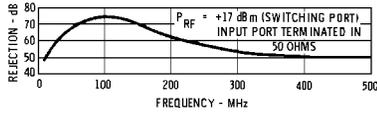
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Typical Performance at 25°C

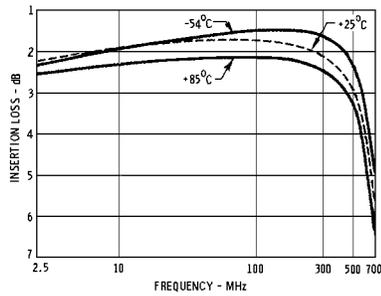
VSWR (ON STATE)



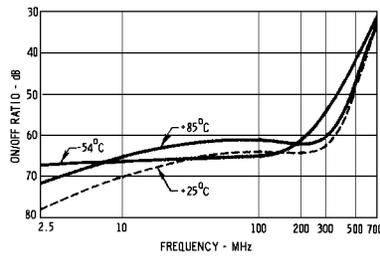
Switching Signal Rejection



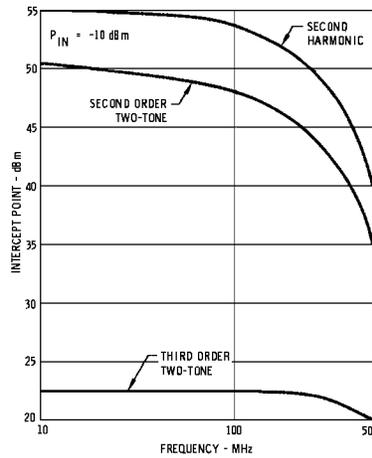
Insertion Loss



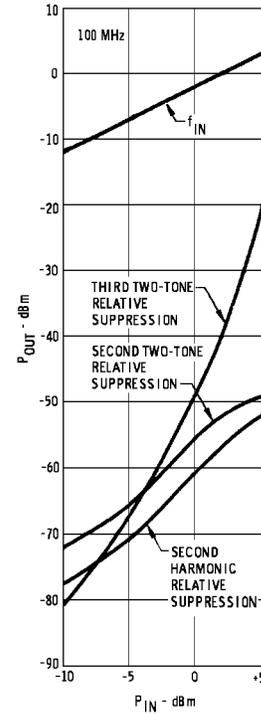
Isolation



Intercept Point



Distortion Products vs. Input Power



Typical Automatic Test Data

Off State: S11

| Frequency MHz | S11 | | S21 | | S12 | | S22 | |
|------------------|-----|--------|-----|--------|-----|--------|-----|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 100 | .82 | -22.2 | .00 | 71.4 | .00 | -118.9 | .83 | -27.3 |
| 200 | .81 | -45.2 | .00 | 137.4 | .00 | 98.4 | .83 | -55.0 |
| 300 | .80 | -70.7 | .00 | -147.9 | .00 | -141.4 | .82 | -85.8 |
| 400 | .78 | -98.9 | .00 | -122.5 | .00 | -119.2 | .80 | -118.8 |
| 500 | .76 | -130.0 | .00 | -120.7 | .00 | -120.8 | .78 | -152.2 |
| 600 | .75 | -166.4 | .01 | -131.5 | .01 | -129.7 | .79 | 170.7 |
| 700 | .74 | 151.6 | .02 | -146.4 | .02 | -145.0 | .79 | 129.8 |

On State: S11

| Frequency MHz | S11 | | S21 | | S12 | | S22 | |
|------------------|-----|--------|-----|------|-----|------|-----|--------|
| | MAG | ANG | MAG | ANG | MAG | ANG | MAG | ANG |
| 100 | .03 | -90.6 | .81 | 2.2 | .81 | 2.3 | .04 | -86.7 |
| 200 | .07 | -124.5 | .80 | 4.6 | .80 | 4.4 | .08 | -120.0 |
| 300 | .13 | -153.1 | .78 | 5.4 | .78 | 5.1 | .15 | -147.9 |
| 400 | .21 | 176.4 | .76 | 5.1 | .75 | 5.1 | .24 | -177.8 |
| 500 | .32 | 145.2 | .73 | 3.4 | .72 | 3.9 | .35 | 150.7 |
| 600 | .44 | 114.4 | .66 | -5 | .66 | 4 | .47 | 118.3 |
| 700 | .56 | 81.8 | .50 | -4.3 | .54 | -3.7 | .58 | 81.8 |