# SKD-7531144020-1010-R1

Rev. 1.1

## SPDT PIN Switch with TTL Driver, W Band

### Description:


**Model SKD-7531144020-1010-R1** is a PIN diode based, single pole, double throw (SPDT) switch with a TTL driver that operates across the entire W-band frequency range of 75 and 110 GHz. This model has an insertion loss of 4 dB typical and a nominal isolation of 20 dB at its center frequency. The SPDT switch features WR-10 waveguides with UG-387/U-M anti-cocking flanges at the RF input and outputs and a female SMA connector for TTL control on the driver. The switch can be modified for various operational frequencies under different model numbers.

### Features:

- Full W Band Operation
- Low Insertion Loss
- High Isolation

### Applications:

- Radar Systems
- Communication Systems
- Sensors
- Test Setups

### Electrical Specifications:

| Parameter | Minimum | Typical | Maximum |
|---|---|---|---|
| Frequency | 75 GHz | | 110 GHz |
| Insertion Loss | | 4 dB | |
| Isolation | | 20 dB | |
| Power Handling | | +20 dBm | +23 dBm |
| Bias Voltage | | ±5 $V_{DC}$ | |
| Bias Current | | 10 mA | |
| Control Signal | | TTL | |
| Switching Speed | | 100 ns | |
| Specification Temperature | | +25 ˚C | |
| Operating Temperature | 0 ˚C | | +50 ˚C |

### Mechanical Specifications:

| Item | Specification |
|---|---|
| RF Ports | WR-10 Waveguides with UG-387/U-M Anti-Cocking Flanges |
| Bias Port | Feed Through Pins |
| TTL Control Port | SMA (F) |
| Case Material | Aluminum |
| Finish | Gold Plated |
| Weight | 1.6 Oz |
| Outline | KD-RW-A |


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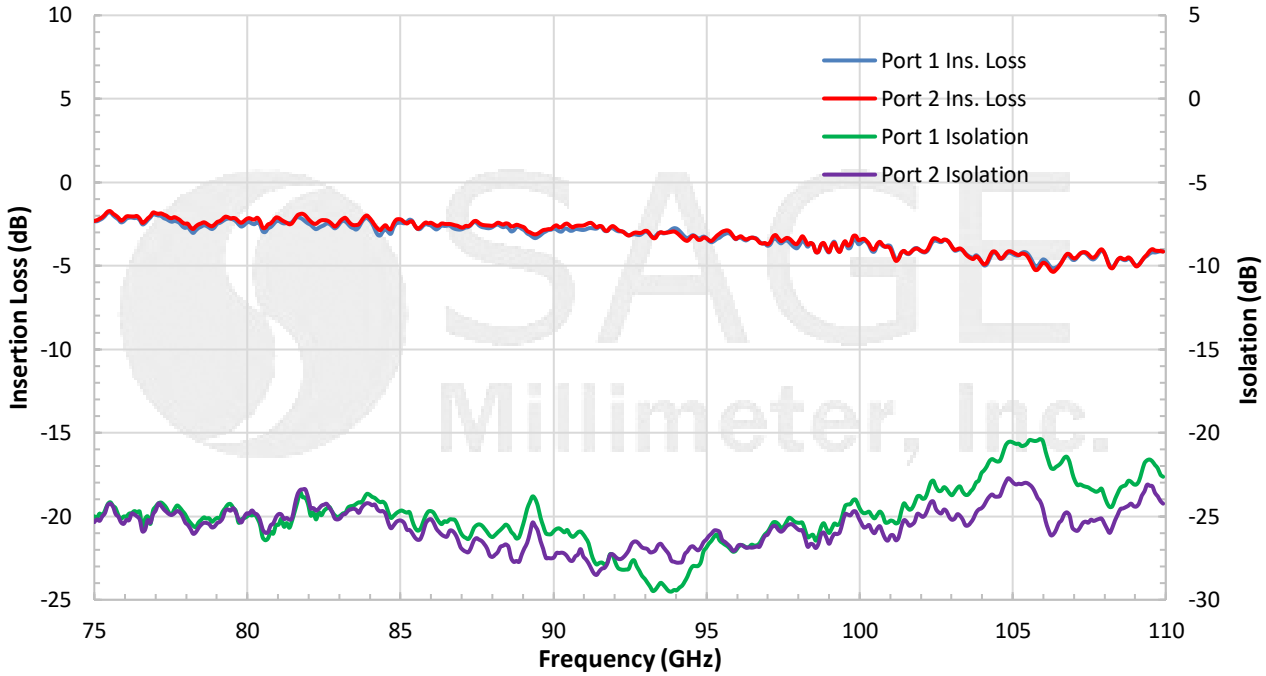
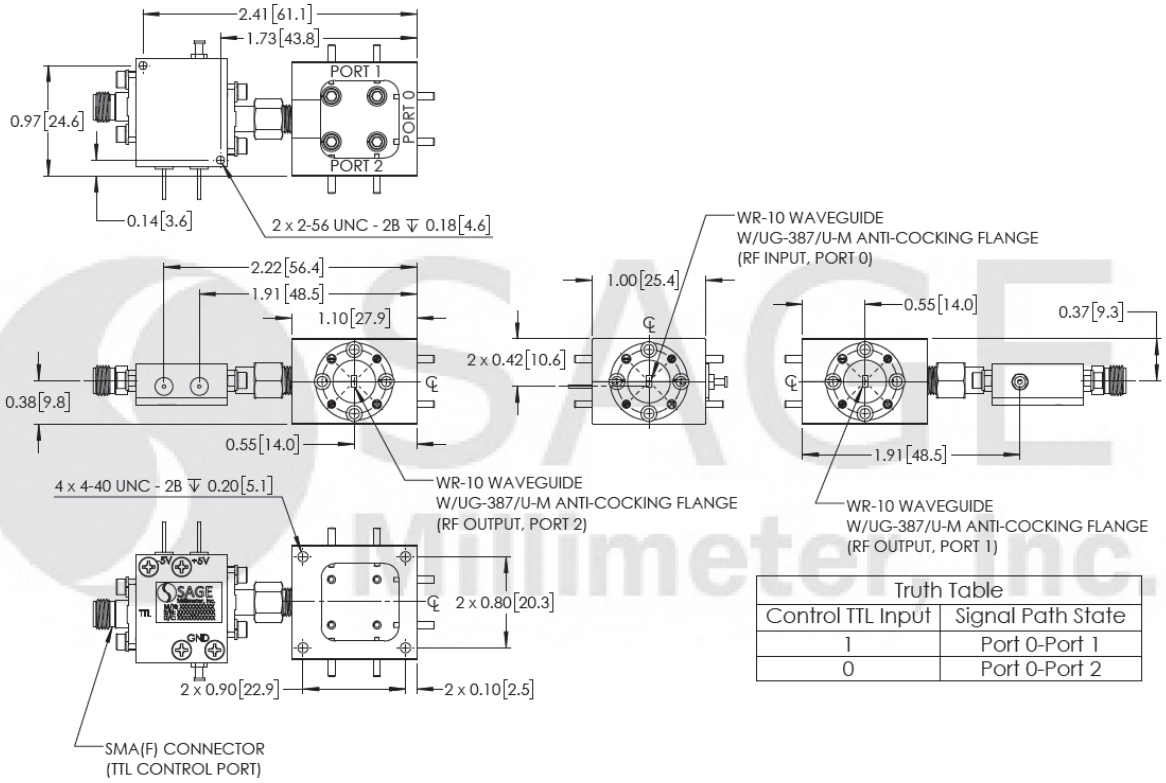
### Typical Insertion Loss and Isolation vs. Frequency




**Mechanical Outline:** (Unless otherwise specified, all dimensions are in inches [millimeters])




| Truth Table | |
|---|---|
| Control TTL Input | Signal Path State |
| 1 | Port 0-Port 1 |
| 0 | Port 0-Port 2 |

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## SPDT PIN Switch with TTL Driver, W Band

**Note:**

- All data presented is collected from a sample lot. Actual data may vary unit to unit slightly.
- All testing was performed under +25˚C case temperature.
- Other mechanical configurations are available under different model numbers.
- SAGE Millimeter, Inc. reserves the right to change the information presented without notice.

**Caution:**

- Exceeding absolute maximum ratings shown will damage the device.
- The switch is a static sensitive device. Always follow ESD rules when working with the switch.
- Any foreign objects in the waveguide will cause performance degradation and possible device damage.
- Proper torque, 8.0 ± 0.15 inch-pounds (0.90 ± 0.02 Nm), should be applied. **SAGE Millimeter torque wrench, model SCH-08008-S1, is highly recommended.**