

6-Bit Digital Phase Shifter

Step: 5.625°/0-360°/2.2-2.3GHz

Model: TLDP A2.2G2.3G-360-6

TLDP A2.2G2.3G-360-6 is a 6-bit digital phase shifter operating at 2.2–2.3 GHz, step size is 5.625°, providing phase shift from 0° to 360°, simultaneously features 10dB gain. This product is designed to deliver precise, rapid, and reliable phase control solutions for modern phased array radar, 5G communication system, and cutting-edge test equipment.

Features:

- Frequency range: 2-7GHz
- High Phase Shift Accuracy
- High Phase Shift Range
- Low Phase Error

Applications:

- Communications antennas
- Phased array radars

Electrical Characteristics:

| Parameter | Min | Typ | Max | Units |
|----------------------------|-----|-------|-----|-------|
| Frequency range | 2.2 | | 2.3 | GHz |
| Gain | | 10 | | dB |
| Gain Flatness | | ±0.25 | | dB |
| Gain Variation with Phase | | ±1.5 | | dB |
| Phase Shift Range | 0 | | 360 | ° |
| Least Significant Bit(LSB) | | 5.625 | | ° |
| Phase accuracy | | 3 | | ° |
| Return Loss | | -12 | | dB |
| Input Power | -70 | | -30 | dBm |
| DC Voltage | | +5/-5 | | V DC |
| Number of Bits | | 6 | | Bit |
| Impedance | | 50 | | Ohms |

Environmental And Physical Characteristics:

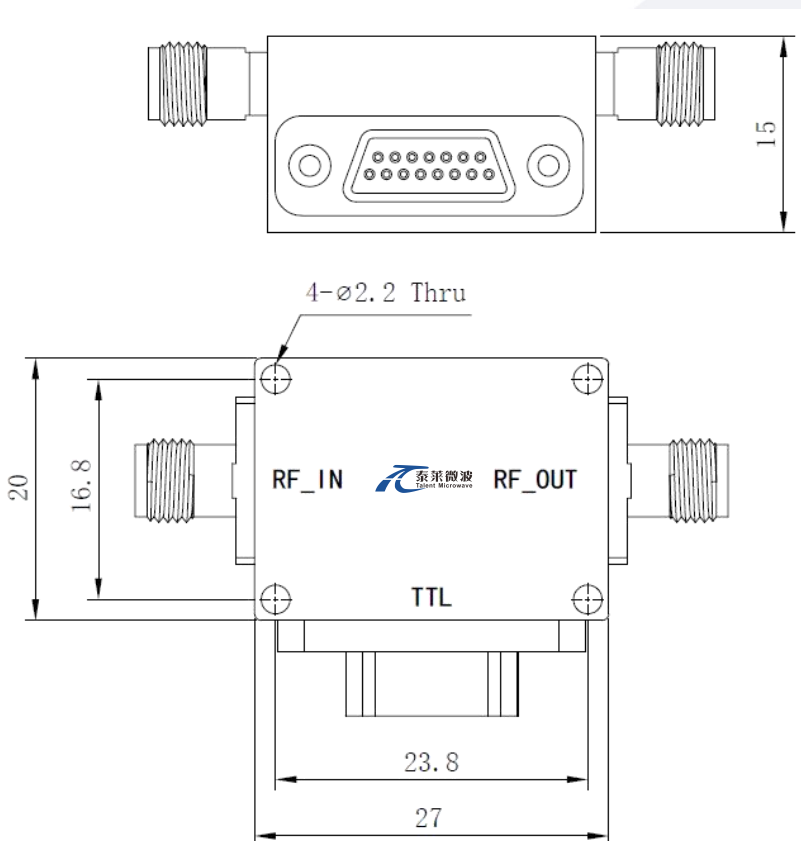
| Description | Parameter | Units |
|--------------------------|-----------------------|-------|
| Input /Output Connector | SMA Female/SMA Female | |
| DC and control interface | J30J-15ZKP | |
| Size | 27*20*15 | mm |

Absolute Maximum Ratings :

| Description | Parameter | Units |
|-----------------------|----------------------|-------|
| Supply Bias Voltage | +5.5 | V |
| TTL Control Voltage | 0~+0.2V/+3.3~+5V | dBm |
| ESD sensitivity (HBm) | Class 0, passed 150V | |

Outline Drawing:

Unit:mm



| Truth Table | | | | | | |
|-------------------|------|------|------|------|------|-------------------|
| TTL Control Input | | | | | | Signal Path State |
| Bit1 | Bit2 | Bit3 | Bit4 | Bit5 | Bit6 | |
| 0 | 0 | 0 | 0 | 0 | 0 | Reference |
| 1 | 0 | 0 | 0 | 0 | 0 | 5.625 |
| 0 | 1 | 0 | 0 | 0 | 0 | 11.25 |
| 0 | 0 | 1 | 0 | 0 | 0 | 22.5 |
| 0 | 0 | 0 | 1 | 0 | 0 | 45 |
| 0 | 0 | 0 | 0 | 1 | 0 | 90 |
| 0 | 0 | 0 | 0 | 0 | 1 | 180 |
| 1 | 1 | 1 | 1 | 1 | 1 | 354.375 |

Note: +5V is "1"; 0V is "0"



ESD Protection: Strictly adhere to ESD precautions to prevent electrostatic damage.

Note: The outline drawing provided is a preliminary version, and the specific dimensions may be subject to change.

TTL Control Connector(J30J-15ZKP):

| Pin | Function |
|-------|----------|
| 1~2 | +5V |
| 3~4 | -5V |
| 5 | Bit 1 |
| 6 | Bit 2 |
| 7 | Bit 3 |
| 8 | Bit 4 |
| 9 | Bit 5 |
| 10 | Bit 6 |
| 11~13 | GND |
| 14~15 | NC |

Environmental Conditions:

| Parameter | Min | Typ | Max | Units |
|---------------------------------|---|-----|------|-------|
| Operating Temperature | -45 | | +85 | °C |
| Non-operating Temperature | -55 | | +125 | °C |
| Relative humidity | | 95 | | % |
| Altitude | 10,000 | | | feet |
| Shock / Vibration(MIL-STD-810F) | 25g rms (15 degree 2KHz) endurance, 1 hour per axis | | | |
| Shock(non operating) | 20G for 11msc half sin wave,3 axis both directions | | | |

Ordering Information:

| Base Number | Description | Revision |
|---------------------|---|----------|
| TLDPA2.2G2.3G-360-6 | 6-Bit Digital Phase Shifter, 2.2-2.3GHz,SMA | Rev.1.0 |