# 14000–18000 MHz 6-Bit GaAs MMIC Digital Phase Shifter Die

RMS phase error: 1.2 ° (typical); Insertion loss: 7 dB (typical); Phase shift range: 5.625 ° (minimum) / 354.375 ° (maximum). Die dimensions: 2.5 × 1.3 × 0.1 mm.

## RF characteristics · TA = +25 °C

| Parameter | Symbol | Minimum | Typical | Maximum | Value | Unit |
|---|---|---|---|---|---|---|
| Operating frequency | - | 14000 | - | 18000 | 14000–18000 | MHz |
| Insertion loss | - | - | 7 | - | - | dB |
| Phase shift range | - | 5.625 | - | 354.375 | - | ° |
| RMS phase error | - | - | 1.2 | - | - | ° |
| Phase-induced amplitude variation | - | - | ±0.3 | - | - | dB |
| Input VSWR | - | - | 1.5 | - | - | - |
| Output VSWR | - | - | 1.3 | - | - | - |

## DC bias and current

| Parameter | Symbol | Minimum | Typical | Maximum | Value | Unit |
|---|---|---|---|---|---|---|
| Negative-supply quiescent current | - | - | 0.003 | - | - | A |
| Negative supply voltage | - | - | - | - | -5 | V |
| Control voltage | - | - | - | - | 0 / +5 | V |
| Phase step | - | - | - | - | 5.625 | ° |

## Absolute limits

| Parameter | Symbol | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|---|
| Minimum negative supply voltage | - | -6 | - | - | V |
| Maximum control voltage | - | - | - | 6 | V |
| Input drive current | - | - | - | 0.3 | mA |
| Maximum input power | - | - | - | 25 | dBm |

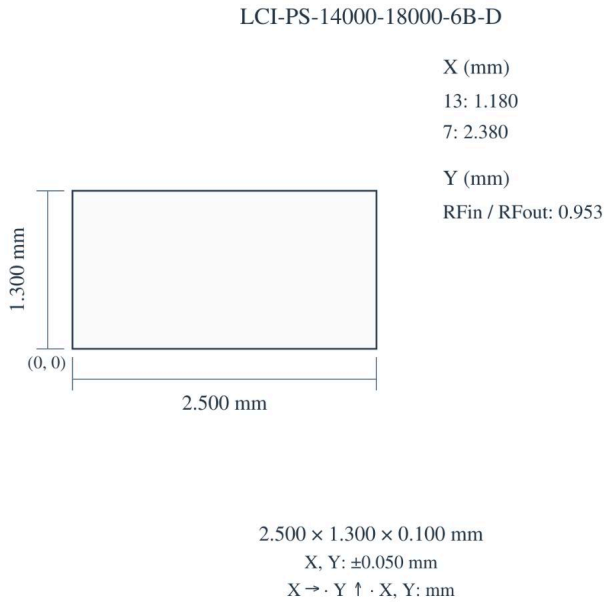
## Environmental specifications

| Parameter | Symbol | Minimum | Typical | Maximum | Unit |
|---|---|---|---|---|---|
| Storage temperature | - | -65 | - | 150 | °C |
| Operating temperature | - | -55 | - | 85 | °C |

## Die dimensions

| Parameter | Value | Unit |
|---|---|---|
| Die dimensions | 2.5 × 1.3 × 0.1 | mm |

## Mechanical Outline




All dimensions are in mm [in].

## Bond-pad assignments

| Pins | Symbol | Function | Notes |
|---|---|---|---|
| 1, 3, 4, 6 | GND | Ground; no wire bond required | - |
| 2 | RF_1 | RF port | 1 |
| 5 | RF_2 | RF port | 2 |
| 7 | P6 | Phase control | 180°; 0 / +5 V |
| 8 | P5 | Phase control | 90°; 0 / +5 V |
| 9 | P4 | Phase control | 45°; 0 / +5 V |
| 10 | P3 | Phase control | 22.5°; 0 / +5 V |
| 11 | P2 | Phase control | 11.25°; 0 / +5 V |
| 12 | P1 | Phase control | 5.625°; 0 / +5 V |

## Bond-pad assignments

| Pins | Symbol | Function | Notes |
|---|---|---|---|
| 13 | VE | DC bias | −5 V |

## Control truth table

| State | P1 | P2 | P3 | P4 | P5 | P6 |
|---|---|---|---|---|---|---|
| Reference state | 0 V | 0 V | 0 V | 0 V | 0 V | 0 V |
| 5.625° | 5 V | 0 V | 0 V | 0 V | 0 V | 0 V |
| 11.25° | 0 V | 5 V | 0 V | 0 V | 0 V | 0 V |
| 22.5° | 0 V | 0 V | 5 V | 0 V | 0 V | 0 V |
| 45° | 0 V | 0 V | 0 V | 5 V | 0 V | 0 V |
| 90° | 0 V | 0 V | 0 V | 0 V | 5 V | 0 V |
| 180° | 0 V | 0 V | 0 V | 0 V | 0 V | 5 V |

**Current publication record** · 1.3 · 2026-10-27. Product description or editorial content updated. Replaces revision 1.2.

### Die integration and bias sequencing

Control interface: Parallel TTL control.

### Mechanical reference scope

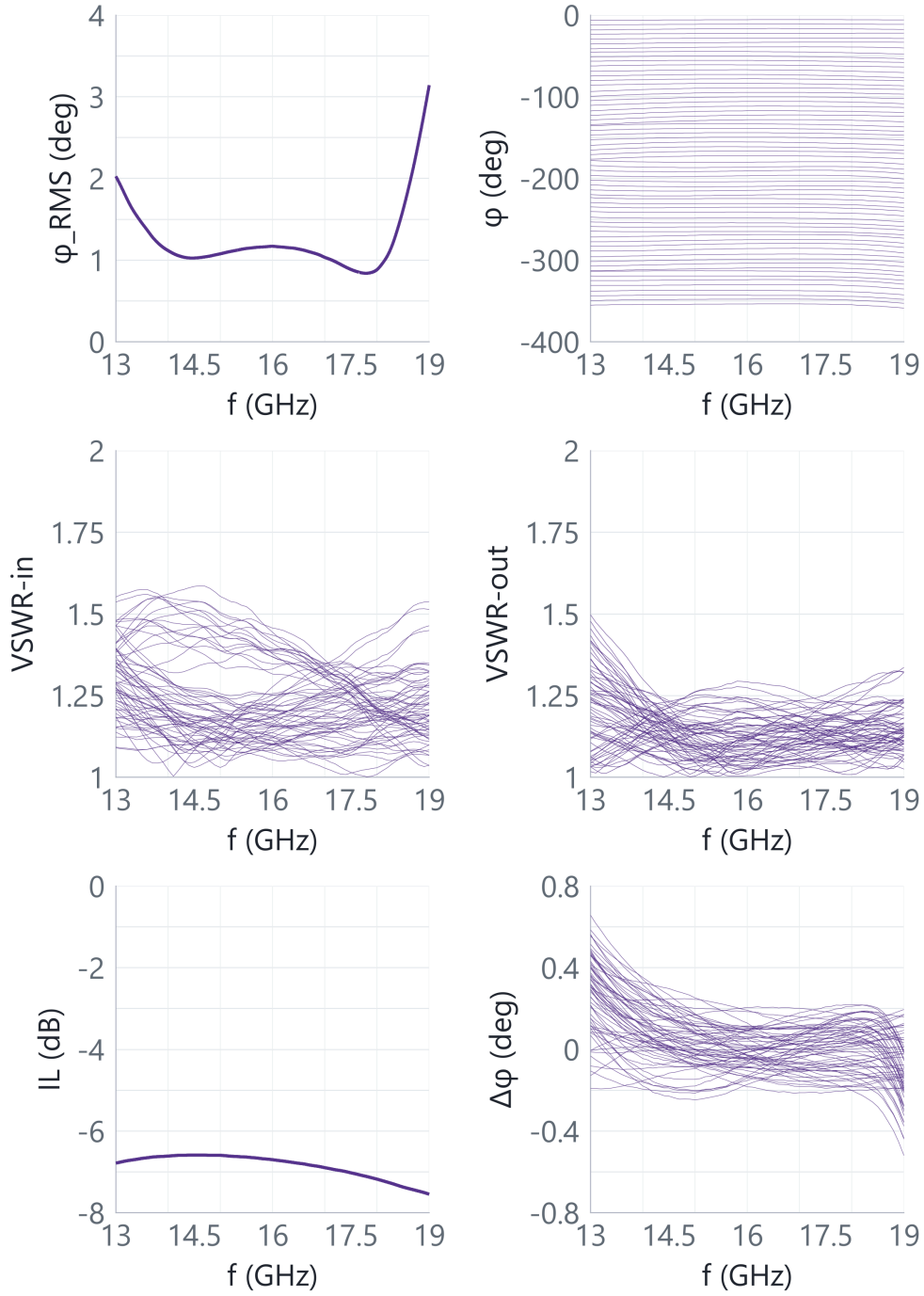
Source-based dimensional guide in mm. Partial information; not a complete fabrication or wire-bonding drawing.

## Performance curves

Plots from the source datasheet. Read each figure with its stated operating conditions.

**Insertion loss; Input matching; Output matching; Phase shift; RMS phase error; ΔPHS.**

Redrawn from the source figure; readings are approximate. Source label mismatch: the final plot heading describes amplitude variation, but its ordinate is delta_PHS (deg). The degree axis is retained.




Source

### Document notice

Specifications are subject to revision. Before design release, confirm the current document revision and product-specific requirements with LCRF. The approved quotation and order documentation define the supplied configuration.