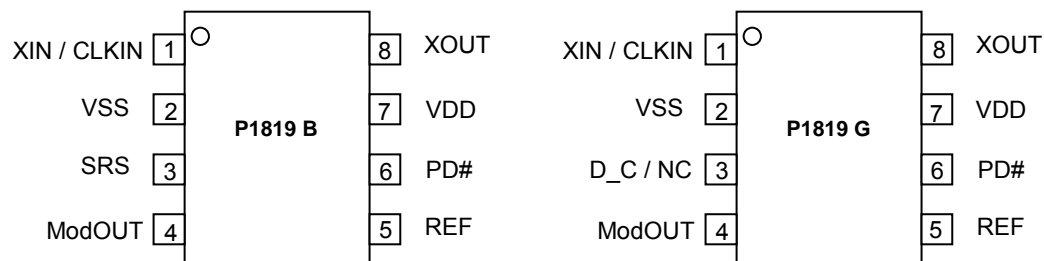


Pin Configuration



Pin Description

| Pin# | | Pin Name | Type | Description |
|--------|--------|-------------|------|---|
| P1819B | P1819G | | | |
| 1 | 1 | XIN / CLKIN | I | Crystal Connection or external frequency input. This pin has dual functions. It can be connected to either an external crystal or an external reference clock. |
| 2 | 2 | VSS | P | Ground Connection. Connect to system ground. |
| 3 | | SRS | I | Spread range select. Digital logic input used to select frequency deviation (Refer to <i>Spread Deviation Selection Table</i>). This pin has an internal pull-up resistor. |
| 3 | 3 | D_C / NC | I | Digital logic input used to select Down (LOW) or Center (HIGH) spread options (Refer to <i>Spread Deviation Selection Table</i>). This pin has an internal pull-up resistor. |
| 4 | 4 | ModOUT | O | Spread spectrum clock output. (Refer to <i>Input Frequency and Modulation Rate Table and Spread Deviation Selection Table</i>). |
| 5 | 5 | REF | O | Non-modulated Reference clock output of the input frequency. |
| 6 | 6 | PD# | I | Power down control pin. Pull XIN/CLKIN and PD# LOW to enable Power-Down mode. This pin has an internal pull-up resistor. |
| 7 | 7 | VDD | P | Power Supply for the entire chip. |
| 8 | 8 | XOUT | O | Crystal Connection. Input connection for an external crystal. If using an external reference, this pin must be left unconnected. |

Note: Pin 3 is NC in P1819Q.

Input Frequency and Modulation Rate

| Part Number | Input Frequency Range | Output Frequency range | Modulation rate |
|-------------|-----------------------|------------------------|-----------------------|
| P1819 | 20MHz to 40MHz | 20MHz to 40MHz | Input Frequency / 896 |

Spread Deviation Selection

| Part Number | SRS | D_C | Spread Deviation |
|-------------|-----|-----|------------------|
| P1819B | 0 | NA | -1.25% (DOWN) |
| | 1 | | -1.75% (DOWN) |
| P1819G | NA | 0 | -1.75% (DOWN) |
| | | 1 | ±0.875% (CENTER) |

Absolute Maximum Ratings

| Symbol | Parameter | Rating | Unit |
|------------------|--|--------------|------|
| V_{DD}, V_{IN} | Voltage on any pin with respect to Ground | -0.5 to +4.6 | V |
| T_{STG} | Storage temperature | -65 to +125 | °C |
| T_s | Max. Soldering Temperature (10 sec) | 260 | °C |
| T_J | Junction Temperature | 150 | °C |
| T_{DV} | Static Discharge Voltage (As per JEDEC STD22- A114-B) | 2 | KV |

Note: These are stress ratings only and are not implied for functional use. Exposure to absolute maximum ratings for prolonged periods of time may affect device reliability.

Operating Conditions

| Symbol | Parameter | Min | Max | Unit |
|----------|-----------------------|-----|-----|------|
| VDD | Supply Voltage | 3.0 | 3.6 | V |
| T_A | Operating temperature | -40 | +85 | °C |
| C_L | Load Capacitance | | 15 | pF |
| C_{IN} | Input Capacitance | | 7 | pF |

DC Electrical Characteristics

| Symbol | Parameter | Min | Typ | Max | Unit |
|-----------|---|-----------------------|------|------------------------|----------|
| V_{IL} | Input Low voltage | $V_{SS}-0.3$ | | 0.8 | V |
| V_{IH} | Input High voltage | 2.0 | | $V_{DD}+0.3$ | V |
| I_{IL} | Input Low current (inputs D_C, PD#, SRS) | -60.0 | | -20.0 | μA |
| I_{IH} | Input High current | | | 1.0 | μA |
| I_{XOL} | X_{OUT} Output low current @ 0.4V, $V_{DD} = 3.3V$ | 2.0 | | 12.0 | mA |
| I_{XOH} | X_{OUT} Output high current @ 2.5V, $V_{DD} = 3.3V$ | | | 12.0 | mA |
| V_{OL} | Output Low voltage $V_{DD} = 3.3V$, $I_{OL} = 20mA$ | | | 0.4 | V |
| V_{OH} | Output High voltage $V_{DD} = 3.3V$, $I_{OH} = 20mA$ | 2.5 | | - | V |
| I_{CC} | Dynamic supply current normal mode 3.3V and 25pF probe loading | 7.1 $f_{IN} - min$ | | 26.9 $f_{IN} - max$ | mA |
| I_{DD} | Static supply current standby mode | | 4.5 | | mA |
| V_{DD} | Operating Voltage | 3.0 | 3.3 | 3.6 | V |
| t_{ON} | Power up time (first locked clock cycle after power up) | | 0.18 | | mS |
| Z_{OUT} | Clock Output impedance | | 50 | | Ω |

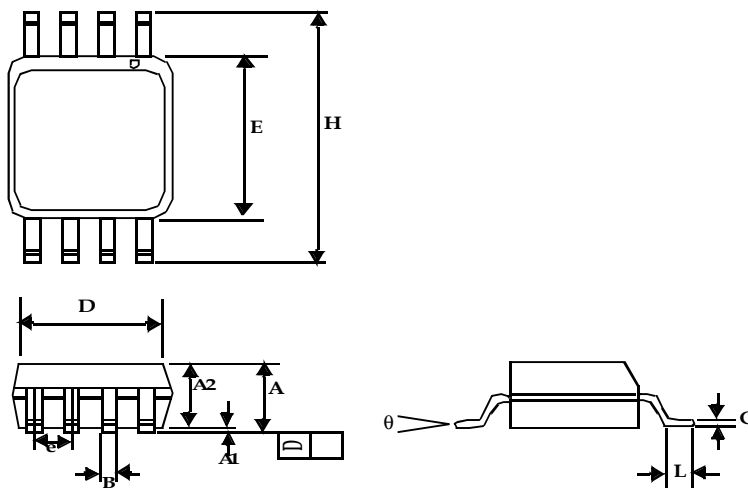
AC Electrical Characteristics

| Symbol | Parameter | Min | Typ | Max | Unit |
|------------|---|------|------|-----|------|
| f_{IN} | Input Frequency | 20 | | 40 | MHz |
| f_{OUT} | Output Frequency | 20 | | 40 | MHz |
| t_{LH}^1 | Output Rise time(Measured from 0.8V to 2.0V) | | 0.66 | | nS |
| t_{HL}^1 | Output Fall time (Measured from 2.0V to 0.8V) | | 0.65 | | nS |
| t_{JC} | Jitter (cycle-to-cycle) | -200 | | 200 | pS |
| t_{LTJ} | Long Term Jitter,(1000 cycle) on Refout @ 27MHz | | 475 | | pS |
| t_D | Output Duty cycle | 45 | 50 | 55 | % |

Note: 1. t_{LH} and t_{HL} are measured into a capacitive load of 15pF.

Package Information

8-Pin SOIC Package




| Symbol | Dimensions | | | |
|--------|------------|-------|-------------|------|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| A1 | 0.004 | 0.010 | 0.10 | 0.25 |
| A | 0.053 | 0.069 | 1.35 | 1.75 |
| A2 | 0.049 | 0.059 | 1.25 | 1.50 |
| B | 0.012 | 0.020 | 0.31 | 0.51 |
| C | 0.007 | 0.010 | 0.18 | 0.25 |
| D | 0.193 BSC | | 4.90 BSC | |
| E | 0.154 BSC | | 3.91 BSC | |
| e | 0.050 BSC | | 1.27 BSC | |
| H | 0.236 BSC | | 6.00 BSC | |
| L | 0.016 | 0.050 | 0.41 | 1.27 |
| θ | 0° | 8° | 0° | 8° |

Note: Controlling dimensions are millimeters
SOIC – 0.074 grams unit weight

Ordering Code

| Part Number | Marking | Package Type | Temperature |
|--------------|---------|----------------------------------|--------------|
| P1819BF-08SR | ABY | 8-pin SOIC, tape & reel, Pb Free | 0°C to +70°C |
| P1819GF-08SR | ACA | 8-pin SOIC, tape & reel, Pb Free | 0°C to +70°C |

A "microdot" placed at the end of last row of marking or just below the last row toward the center of package indicates Pb-free

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