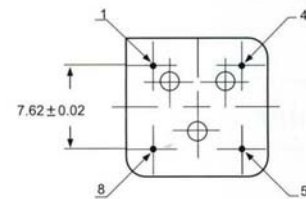
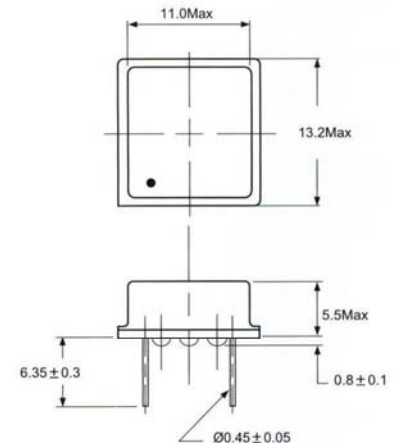




Quartz Crystal Oscillators ---Type: ZPB-5H

**SPECIFICATIONS:**

|                                |                          |           |         |
|--------------------------------|--------------------------|-----------|---------|
| Frequency Range                | 400.000KHZ~160.000MHZ    |           |         |
| Frequency Tolerance@25°C       | ±100ppm (Standard)       |           |         |
| Frequency Stability Over Temp. | ±100ppm (Standard)       |           |         |
| Operating Temperature          | -10°C~+60°C (Standard)   |           |         |
| Storage Temperature            | -55°C~+125°C             |           |         |
| Supply Voltage                 | 5.0±10% VDC, 3.3±10% VDC |           |         |
| Output Load                    | TTL                      | TTL, CMOS |         |
| Supply Current (max):          |                          |           |         |
| 400.000KHZ≤F<24.999MHZ         | 20mA                     | 20mA      |         |
| 25.000MHZ≤F<100.000MHZ         | 40mA                     | 40mA      |         |
| 100.000MHZ≤F≤160.000MHZ        | 80mA                     | 80mA      |         |
| Rise/Fall Time (max):          |                          |           |         |
| 400.000KHZ≤F<24.999MHZ         | 10 ns                    | 10 ns     |         |
| 25.000MHZ≤F<100.000MHZ         | 5 ns                     | 10ns      |         |
| 100.000MHZ≤F≤160.000MHZ        | 4 ns                     | 5ns       |         |
| Output Level                   | Logic "1" :              | 2.4 min   | 4.5 min |
|                                | Logic "0" :              | 0.4 max   | 0.5 max |
| Start-up Time(Max)             | 10~35 ms                 | 10ms      |         |



| PIN | FUNCTION            |
|-----|---------------------|
| # 1 | NC or Tri-state E/D |
| # 4 | GROUND              |
| # 5 | OUTPUT              |
| # 8 | VDD                 |

**Output Load and Symmetry**

|        | 5TTL | 10TTL | TTL/ CMOS | CMOS 15pF | CMOS 50pF |
|--------|------|-------|-----------|-----------|-----------|
| 50±5%  | *A   | *D    | H         | J         | F         |
| 50±10% | B    | L     | R         | K         | G         |

\*Not available, if frequency>70MHz and V<sub>DD</sub>=5.0V

**Temperature Range and Stability**

|             | ±15ppm | ±20ppm | ±25ppm | ±30ppm | ±50ppm | ±100ppm |
|-------------|--------|--------|--------|--------|--------|---------|
| A0= 0~+50   | ○      | ○      | ○      | ○      | ○      | ○       |
| A1= -10~+60 | ○      | ○      | ○      | ○      | ○      | ○       |
| A2=-20~+70  | ○      | ○      | ○      | ○      | ○      | ○       |
| A3= -30~+75 | —      | —      | ○      | ○      | ○      | ○       |
| A4=-40~+85  | —      | —      | ○      | ○      | ○      | ○       |
| A5=-55~+85  | —      | —      | —      | —      | ○      | ○       |
| A6=-55~+105 | —      | —      | —      | —      | —      | ○       |

**ORDRE OPTION:**

| Type   | Frequency     | Supply Voltage (V)                   | Freq. Tolerance (ppm)     | Freq. Stability (ppm) | Operating Temp.(°C) | Output Load & Symmetry         | Tri-state Function |
|--------|---------------|--------------------------------------|---------------------------|-----------------------|---------------------|--------------------------------|--------------------|
| ZPB-5H | 400KHz~100MHz | V5 = 5.0±10% VDC<br>V3 = 3.3±10% VDC | ±15                       | ±15                   | A0= 0~+50           | A, D, H, J, F<br>B, L, R, K, G | E =<br>Tri-state   |
|        |               |                                      | ±20                       | ±20                   | A1=-10~+60          |                                |                    |
|        |               |                                      | ±25                       | ±25                   | A2=-20~+70          |                                |                    |
|        | ±30           | ±30                                  | A3= -30~+75               |                       |                     |                                |                    |
|        | ±50           | ±50                                  | A4= -40~+85               |                       |                     |                                |                    |
|        | ±100          | ±100                                 | A5=-55~+85<br>A6=-55~+105 |                       |                     |                                |                    |

i.e. : ZPB-5H- 400.000K- V5 -30/50-A1 -A-E