

## 压控振荡器 Voltage Controlled Crystal Oscillator: KV508D KV708D

### Feature 特征

- VCXO allow for precise frequency tuning over typical range  $\pm 50 \sim 200$ ppm by adjusting the voltage on the control (Vc) pin 压控晶振可以通过调节控制引脚上的电压进行微调，频率微调范围为 $\pm 50 \sim \pm 200$ ppm
- LVDS differential output for high-speed, low-noise transmission LVDS 差分输出，适用于高速，低噪声信号传输
- Low phase jitter for clean signal integrity 低相位抖动，确保质量信号和系统稳定性
- Ideal for clock synchronization in networking, industrial, and A/V systems 适用于网络通信，工业控制，音频系统中的时钟同步应用



### General Specifications 规格参考

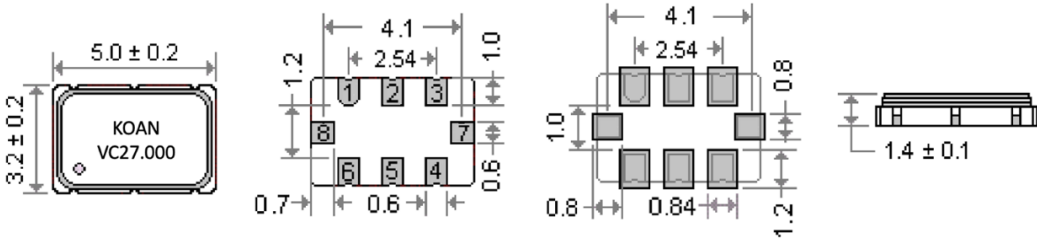
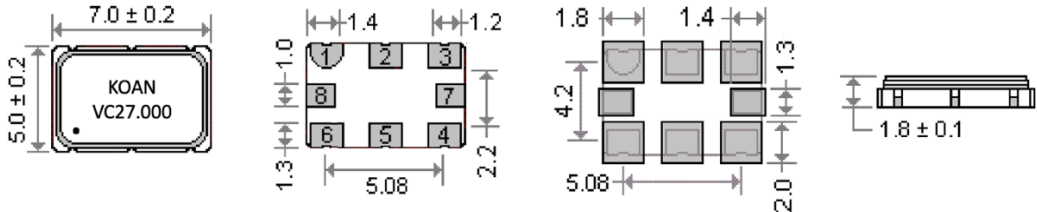
| PARAMETER                   | 性能参数    | KV508D KV708D                                      |                      |
|-----------------------------|---------|----------------------------------------------------|----------------------|
| Frequency Range             | 频率范围    | 15.0MHz ~ 2.1GHz                                   |                      |
| Supply Voltage              | 供给电压    | +2.5V ( $\pm 10\%$ )                               | +3.3V ( $\pm 10\%$ ) |
| Center Control Voltage      | 中心控制电压  | 1.25Vdc (0.25V~2.25V)                              | 1.65Vdc (0.3V~3.0V)  |
| Output Logic                | 输出波形    | LVDS                                               |                      |
| Output Load                 | 输出负载    | 100 $\Omega$ between OUT and OUTN                  |                      |
| Frequency Tolerance         | 调整频差    | $\pm 20$ ppm                                       |                      |
| Current Consumption         | 工作电流    | 75mA typ. 90mA max.                                |                      |
| Output Logic High "1"       | 输出电平 高  | 1.4V typ. 1.6V max                                 |                      |
| Output Logic Low "0"        | 输出电平 低  | 1.1V typ. 0.9V min                                 |                      |
| Frequency Pulling Range     | 压控范围    | $\pm 50 \sim \pm 200$ ppm                          |                      |
| Integrated Phase Jitter     | 抖动      | 163fs RMS Phase Jitter typ. @2000MHz (12KHz~20MHz) |                      |
| Input Impedance             | 输入电阻    | 5M $\Omega$ typical                                |                      |
| Rise & Fall Time            | 上升下降时间  | 0.8ns max                                          |                      |
| Start-up Time               | 起振时间    | 5ms typ.; 10ms max                                 |                      |
| Output Enable/Disable Time  | 启动/禁用时间 | Enable: 2.5ms max<br>Disable: 10 $\mu$ s max       |                      |
| Linearity                   | 非线性误差   | 1% typ.; 10% max                                   |                      |
| Duty Cycle                  | 占空比     | 45~55%                                             |                      |
| Modulation Bandwidth (-3dB) | 调制宽带    | 10KHz min.                                         |                      |
| Aging Per Year              | 年老化率    | $\pm 3$ ppm ~ $\pm 5$ ppm/year                     |                      |
| Storage Temperature Range   | 储存温度范围  | $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$    |                      |

#### Frequency Stability 温度频差 VS Operating Temperature Range 温度范围

| Temp. Code | Temp.\ppm                  | $\pm 20$ | $\pm 25$ | $\pm 30$ | $\pm 50$ | $\pm 100$ |
|------------|----------------------------|----------|----------|----------|----------|-----------|
| B          | -20~70 $^{\circ}\text{C}$  | o        | o        | o        | o        | o         |
| C          | -40~85 $^{\circ}\text{C}$  |          | o        | o        | o        | o         |
| E          | -40~105 $^{\circ}\text{C}$ |          |          |          | o        | o         |
| F          | -40~125 $^{\circ}\text{C}$ |          |          |          |          | o         |

NOTE: Please consult for other specifications 若有其它规格需求请告知

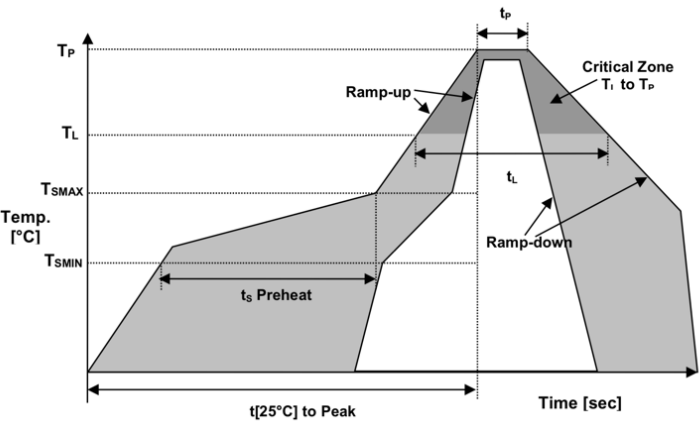
■ Outline Dimensions (Unit: mm) 外形尺寸

| KV508D |                                                                                                                                                                                                                                                                                                                                                                      |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------|----|-----------------|----|-----------|----|--------|----|------------------------------------------|----|-----------------------------------------|----|----------------|----|----------------|----|----------------|
| KV708D |                                                                                                                                                                                                                                                                                                                                                                      |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
|        | <table><tr><th>Pin</th><th>Connection</th></tr><tr><td>#1</td><td>Control Voltage</td></tr><tr><td>#2</td><td>Tri-State</td></tr><tr><td>#3</td><td>Ground</td></tr><tr><td>#4</td><td>CMOS: Output; PECL or LVDS: Differential</td></tr><tr><td>#5</td><td>CMOS: N.C.; PECL or LVDS: Complementary</td></tr><tr><td>#6</td><td>Supply Voltage</td></tr><tr><td>#7</td><td>Do not Connect</td></tr><tr><td>#8</td><td>Do not Connect</td></tr></table> | Pin | Connection | #1 | Control Voltage | #2 | Tri-State | #3 | Ground | #4 | CMOS: Output; PECL or LVDS: Differential | #5 | CMOS: N.C.; PECL or LVDS: Complementary | #6 | Supply Voltage | #7 | Do not Connect | #8 | Do not Connect |
| Pin    | Connection                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #1     | Control Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #2     | Tri-State                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #3     | Ground                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #4     | CMOS: Output; PECL or LVDS: Differential                                                                                                                                                                                                                                                                                                                                                                                                               |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #5     | CMOS: N.C.; PECL or LVDS: Complementary                                                                                                                                                                                                                                                                                                                                                                                                                |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #6     | Supply Voltage                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #7     | Do not Connect                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |
| #8     | Do not Connect                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |            |    |                 |    |           |    |        |    |                                          |    |                                         |    |                |    |                |    |                |

■ Part Number Guide 产品编号

|                 |   |               |   |             |   |           |   |               |   |               |   |           |
|-----------------|---|---------------|---|-------------|---|-----------|---|---------------|---|---------------|---|-----------|
| <u>KV508D</u>   | - | <u>27.000</u> | - | <u>100</u>  | - | <u>33</u> | - | <u>C</u>      | - | <u>30</u>     | - | <u>NS</u> |
| ↓               |   | ↓             |   | ↓           |   | ↓         |   | ↓             |   | ↓             |   | ↓         |
| 型号              | - | 标称频率          | - | 压控范围        | - | 工作电压      | - | 工作温度          | - | 温度频差          | - | 特殊要求      |
| ‘KV’: 压控系列      |   |               |   | 50=±50ppm   |   |           |   | B: -20~+70°C  |   | 10 = ±10ppm   |   |           |
| ‘508’: 封装尺寸     |   |               |   | 80=±80ppm   |   | 25=2.5V   |   | C: -40~+85°C  |   | 20 = ±20ppm   |   |           |
| 5.0x3.2mm 8-pad |   | (In MHz)      |   | 100=±100ppm |   | 33=3.3V   |   | E: -40~+105°C |   | 30 = ±30ppm   |   | ‘NS’:特殊要求 |
| ‘D’: 输出波形       |   |               |   | 150=±150ppm |   |           |   | F: -40~+125°C |   | 50 = ±50ppm   |   |           |
| LVDS            |   |               |   | 200=±200ppm |   |           |   |               |   | 100 = ±100ppm |   |           |

■ Reflow Profile 回流焊



|                                     |            |                 |             |
|-------------------------------------|------------|-----------------|-------------|
| Temperature Min Preheat             | 最低预热温度     | $T_{smin}$      | 150°C       |
| Temperature Max preheat             | 最高预热温度     | $T_{smax}$      | 200°C       |
| Time ( $T_{smin}$ to $T_{smax}$ )   | 时间差        | $T_s$           | 60~120 sec  |
| Temperature                         | 温度         | $T_L$           | 217°C       |
| Peak Temperature                    | 最高温        | $T_p$           | 260 °C      |
| Ramp-up Rate                        | 升温速度       | $R_{up}$        | 3°C/sec max |
| Ramp-down Rate                      | 降温速度       | $R_{down}$      | 6°C/sec max |
| Time within 5°C of Peak Temperature | 最高温度停留时间   | $t_p$           | 30 sec      |
| Time t[25°C] to peak temperature    | 25度到最高温度时间 | t[25°C] to peak | 480 sec     |
| Time                                | 时间         | $t_L$           | 60~150 sec  |