

## 温补振荡器 Temperature Compensated Crystal Oscillator: K(V)T25 K(V)T25CS

### Feature 特征

- Compact 2.5x2.0mm package with CMOS and Clipped Sine wave output available 2520 小尺寸封装，可选 CMOS 和削峰正弦波输出
- Wide frequency range and tight frequency stability  $\pm 1.5$  ppm over  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  频率范围宽，频率稳定性高
- VCTCXO option allows frequency tuning via control voltage 支持通过控制电压进行频率微调
- Ideal for GPS, communication, industrial, and measurement systems 适用于 GPS，通信设备，工业控制和测量系统等



### General Specifications 规格参考

| PARAMETER                     | 性能参数              | K(V)T25                                            |       |      | K(V)T25CS         |        |  |
|-------------------------------|-------------------|----------------------------------------------------|-------|------|-------------------|--------|--|
| Supply Voltage                | 工作电压              | +1.8V; +2.5V; +3.0V; +3.3V                         |       |      |                   |        |  |
| Frequency Range               | 频率范围              | 9.5~60MHz                                          |       |      | 10.0~52.0MHz      |        |  |
| Standard Frequency            | 通用频率              | 16, 20, 25, 26, 30.72, 40MHz                       |       |      |                   |        |  |
| Output Waveform               | 输出波形              | CMOS                                               |       |      | Clipped Sine Wave |        |  |
| Output Load                   | 输出负载              | 15pF                                               |       |      | 10KΩ/10pF         |        |  |
| Output Logic                  | 输出电平              | High: ≥0.9Vdd<br>Low: ≤0.1Vdd                      |       |      | 0.8Vp-p min       |        |  |
| Initial Calibration Tolerance | 调整频差              | ±1.0ppm max                                        |       |      |                   |        |  |
| Current Consumption           | 工作电流              | 10mA max                                           |       |      | 3.5mA max         |        |  |
| Frequency Stability 频率稳定性 VS  |                   |                                                    |       |      |                   |        |  |
| Operating Temperature Range   | 温度范围              | -20~+70℃                                           |       |      | -40~+85℃          |        |  |
| Frequency Stability           | 温度频差              | ±1.0~±3.0ppm                                       |       |      | ±1.5~±3.0ppm      |        |  |
| Load Change                   | 负载变化              | ±0.2ppm (Load±5%)                                  |       |      |                   |        |  |
| Voltage Change                | 电压变化              | ±0.2ppm (Vcc±5%)                                   |       |      |                   |        |  |
| Aging                         | 老化率               | ±1.0ppm/year max                                   |       |      |                   |        |  |
| Reflow                        | 回流焊               | ±1.0ppm max                                        |       |      |                   |        |  |
| Control Voltage Range         | 控制电压范围            | 0.9±0.6V@1.8V; 1.4±1.0V @2.5V; 1.5±1.0V @3.0V/3.3V |       |      |                   |        |  |
| Frequency Tuning Range        | 频率调节范围            | ±5ppm min.                                         |       |      |                   |        |  |
| Phase Noise @10MHz            | 相位噪声 Max (dBc/Hz) | -80                                                | -115  | -130 | -135              | -148   |  |
|                               |                   | 10Hz                                               | 100Hz | 1kHz | 10kHz             | 100kHz |  |
| Input Impedance               | 输入电阻              | 1.0MΩ min.@±0.28ppm Temp Stability                 |       |      |                   |        |  |
| Modulation Bandwidth          | 调制宽带              | 3kHz min                                           |       |      |                   |        |  |
| Linearity                     | 非线性误差             | ±10% max                                           |       |      |                   |        |  |
| Start-up Time                 | 起振时间              | 5.0ms max.                                         |       |      |                   |        |  |
| Storage Temperature Range     | 储存温度范围            | -55℃~+125℃                                         |       |      |                   |        |  |

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

**KT25**  
**KT25CS**

Top view dimensions:  $2.5 \pm 0.1$  mm width,  $2.0 \pm 0.1$  mm height. Part number KOAN3QT 20.000 is printed in the center.

Side view dimension:  $0.9 \pm 0.05$  mm height.

Bottom view showing pin locations #1, #2, #3, and #4. Dimensions:  $0.95$  mm between pins,  $0.1$  mm pin width, and  $0.65$  mm pin spacing.

Example of a Terminal  
Land Pattern

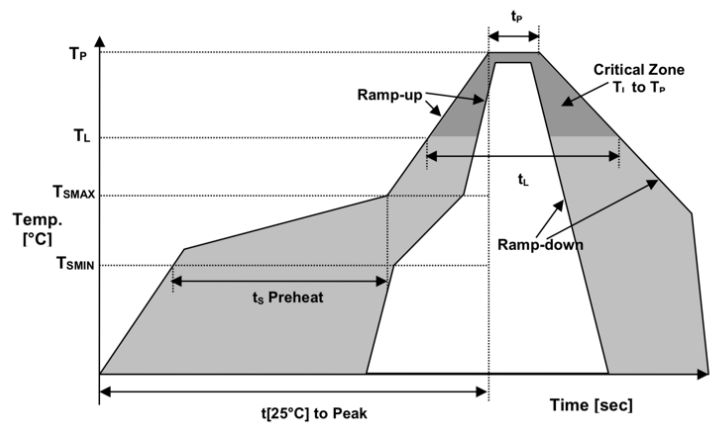
Terminal land pattern dimensions:  $0.95$  mm between pads,  $0.9$  mm pad width, and  $0.65$  mm pad spacing.

| Pin | Connection                                       |
|-----|--------------------------------------------------|
| #1  | GND or NC for TCXO<br>Voltage Control for VCTCXO |
| #2  | Ground                                           |
| #3  | Output                                           |
| #4  | Supply Voltage                                   |

Part Number Guide 产品编号

|                      |   |               |   |           |   |              |   |              |   |           |
|----------------------|---|---------------|---|-----------|---|--------------|---|--------------|---|-----------|
| <u>K(V)T25CS</u>     | - | <u>20.000</u> | - | <u>33</u> | - | <u>C</u>     | - | <u>03</u>    | - | <u>NS</u> |
| ↓                    |   | ↓             |   | ↓         |   | ↓            |   | ↓            |   | ↓         |
| 型号                   | - | 标称频率          | - | 工作电压      | - | 工作温度         | - | 温度频差         | - | 特殊要求      |
| ‘KT’:温补系列            |   |               |   |           |   |              |   |              |   |           |
| KT: TCXO             |   |               |   | 18=1.8V   |   |              |   | 01 = ±1.0ppm |   | ‘NS’:特殊要求 |
| KVT: VCTCXO          |   |               |   | 25=2.5V   |   | B: -20~+70°C |   | 02 = ±2.0ppm |   |           |
| ‘25’: 封装尺寸 2.5x2.0mm |   | (In MHz)      |   | 30=3.0V   |   | C: -40~+85°C |   | 025=±2.5ppm  |   |           |
| ‘CS’: 输出波形           |   |               |   | 33=3.3V   |   |              |   | 03 = ±3.0ppm |   |           |
| Clipped Sine         |   |               |   |           |   |              |   |              |   |           |

Reflow Profile 回流焊



|                                                |            |                   |             |
|------------------------------------------------|------------|-------------------|-------------|
| Temperature Min Preheat                        | 最低预热温度     | T <sub>smin</sub> | 150°C       |
| Temperature Max preheat                        | 最高预热温度     | T <sub>smax</sub> | 200°C       |
| Time (T <sub>smin</sub> to T <sub>smax</sub> ) | 时间差        | T <sub>s</sub>    | 60~120 sec  |
| Temperature                                    | 温度         | T <sub>L</sub>    | 217°C       |
| Peak Temperature                               | 最高温        | T <sub>p</sub>    | 260 °C      |
| Ramp-up Rate                                   | 升温速度       | R <sub>up</sub>   | 3°C/sec max |
| Ramp-down Rate                                 | 降温速度       | R <sub>down</sub> | 6°C/sec max |
| Time within 5°C of Peak Temperature            | 最高温度停留时间   | t <sub>p</sub>    | 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 <sub>L</sub>    | 60~150 sec  |

Revision 版本

|            |                    |                         |            |                |
|------------|--------------------|-------------------------|------------|----------------|
| 版本<br>Rev. | 修改页<br>Revise Page | 修改内容<br>Revise Contents | 日期<br>Date | 修改人<br>Reviser |
| 0          | N/A                | Initial issue           | 2020.09.27 | JZ             |
| 1.1        | 1                  | Specs update            | 2021.11.17 | JH             |
| 1.2        | 2                  | Part number guide       | 2022.06.13 | JZ             |