

温补振荡器 Temperature Compensated Crystal Oscillator: K(V)T7050

Feature 特征

- kHz frequency range 20kHz to 52.7kHz 频率范围为 kHz 级别, 适合低速高精度定时应用
- Low current consumption 8mA max at 32.768kHz (3.3V) 低功耗设计, 在 32.786kHz 下电流最大消耗仅 8mA
- High frequency stability over wide temperature range 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 RTC, metering systems, portable medical devices, and low power electronics 适用于实时时钟, 智能计量系统, 便携式医疗设备, 低功耗电子产品



General Specifications 规格参考

| PARAMETER | 性能参数 | K(V)T7050 | |
|-------------------------------------|--------|---|----------------------------|
| Supply Voltage | 工作电压 | +3.3V | |
| Frequency Range | 频率范围 | 20.0~52.7kHz | |
| Standard Frequency | 通用频率 | 32.768kHz | |
| Output Waveform | 输出波形 | CMOS | |
| Output Load | 输出负载 | 15pF | |
| Output Logic | 输出电平 | High: $\geq 0.9V_{dd}$ Low: $\leq 0.1V_{dd}$ | |
| Initial Calibration Tolerance | 调整频差 | $\pm 1.0 \sim \pm 2.0$ ppm | |
| Current Consumption | 工作电流 | 8mA max @ 32.768kHz 3.3V; 12mA max @ 50kHz 3.3V | |
| EFC Linearity | 非线性误差 | 正向 $\pm 10\%$ max. | |
| Frequency Stability 频率稳定性 VS | | | |
| Operating Temperature Range | 温度范围 | -20~+70°C | -40~+85°C |
| Frequency Stability | 温度频差 | $\pm 1.0 \sim \pm 2.5$ ppm | $\pm 1.0 \sim \pm 3.0$ ppm |
| Load Change | 负载变化 | ± 0.3 ppm max (Load $\pm 5\%$) | |
| Voltage Change | 电压变化 | ± 0.3 ppm max ($V_{cc} \pm 5\%$) | |
| Aging | 老化率 | ± 1.0 ppm/year max | |
| Reflow | 回流焊 | ± 1.0 ppm max | |
| Control Voltage Range | 控制电压范围 | 1.5 ± 1.0 V | |
| Frequency Tuning Range | 频率调节范围 | $\pm 3.0 \sim \pm 5.0$ ppm | |
| Duty Cycle | 占空比 | 45~55% | |
| Rise & Fall Time | 上升下降时间 | 10ns max. | |
| Input Impedance | 输入电阻 | 1.0M Ω min. | |
| Modulation Bandwidth | 调制宽带 | 3KHz min. | |
| Start-up Time | 起振时间 | 5.0ms typ. 10.0ms max. | |
| Storage Temperature Range | 储存温度范围 | -55°C~+125°C | |

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

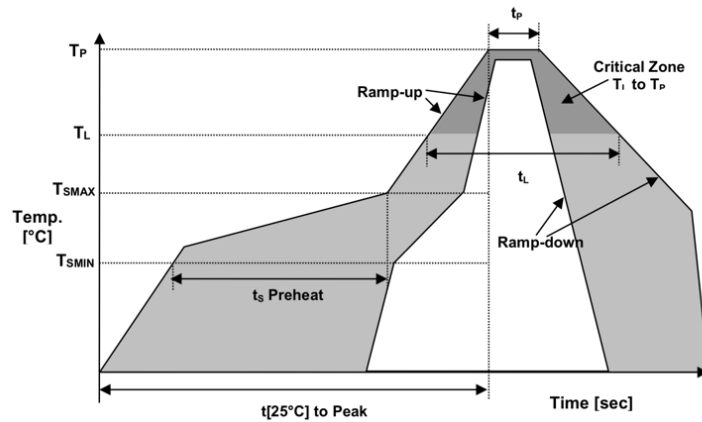
KT7050

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

Part Number Guide 产品编号

| | | | | | | | | | | |
|--|---|---------------|---|-----------|---|---|---|---|---|-----------|
| <u>K(V)T7050</u> | - | <u>32.768</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 KVT: VCTCXO ‘7050’:封装尺寸 7.0x5.0mm | | (In kHz) | | 33=3.3V | | B: -20~+70°C C: -40~+85°C D: -55~+85°C E: -55~+105°C | | 01 = ±1.0ppm 02 = ±2.0ppm 025=±2.5ppm 03 = ±3.0ppm | | ‘NS’:特殊要求 |

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 |

Revision 版本

| 版本 Rev. | 修改页 Revise Page | 修改内容 Revise Contents | 日期 Date | 修改人 Reviser |
|------------|--------------------|-------------------------|------------|----------------|
| 0 | N/A | Initial issue | 2020.09.27 | JZ |
| 1.0 | 2 | Part number guide | 2022.06.13 | JH |