

Typical Applications

Base Stations
 Test Equipment
 Synthesizers
 Digital Switching

Previous Vectron Model Numbers

Frequency range

Standard frequencies

Features

Surface Mount Package Optional
 Reflow Process Compatible Optional
 AT-Cut and SC-Cut Crystal Options
 Low Profile Compact Package



4853, 4853S, 4597, 4597S,
 4859, 4859S, 4877, 4877S

10 MHz – 100 MHz

10; 12.8;13; 16.384;20; 32.768MHz; 100Mhz

Frequency stabilities¹ [AT Cut Crystal – Standard]

| Parameter | Min | Typ | Max. | Units | Operating temp range | Ordering Code |
|--|------|-----|------|---------|--|---------------|
| vs. operating temperature range (Referenced to +25°C) | -50 | | +50 | ppb | 0 ... +70°C | C508 |
| | -100 | | +100 | ppb | -20 ... +70°C | D107 |
| | -150 | | +150 | ppb | -40 ... +70°C | E157 |
| | -200 | | +200 | ppb | -40 ... +85°C | F207 |
| Parameter | Min | Typ | Max. | Units | Condition | |
| Initial tolerance | -300 | | +300 | ppb | at time of shipment, nominal EFC | |
| vs. supply voltage change | -10 | | +10 | ppb | V _S ± 5% | |
| vs. load change | -10 | | +10 | ppb | Load ± 5% | |
| vs. aging /1 day | -2.0 | | +2.0 | ppb | after 72 hours of operation | |
| vs aging /1 Year | -500 | | +500 | ppb | after 72 hours of operation | |
| vs. aging / year (following Years) | -250 | | +250 | ppb | | |
| Warm-up Time | | | 3 | minutes | to ± 100ppb of final frequency (1 hour reading) @ +25°C | |

Frequency stabilities¹ [SC Cut Crystal – Option]

| Parameter | Min | Typ | Max. | Units | Operating temp range | Ordering Code |
|--|------|-----|------|---------|---|---------------|
| vs. operating temperature range (Referenced to +25°C) | -10 | | +10 | ppb | 0 ... +70°C | C108 |
| | -20 | | +20 | ppb | -20 ... +70°C | D208 |
| | -25 | | +25 | ppb | -40 ... +70°C | E258 |
| | -30 | | +30 | ppb | -40 ... +85°C | F308 |
| Parameter | Min | Typ | Max. | Units | Condition | |
| Initial tolerance | -100 | | +100 | ppb | at time of shipment, nominal EFC | |
| vs. supply voltage change | -5.0 | | +5.0 | ppb | V _S ± 5% | |
| vs. load change | -5.0 | | +5.0 | ppb | Load ± 5% | |
| vs. aging /1 day | -1.0 | | +1.0 | ppb | after 72 hours of operation | |
| vs aging /1 Year | -100 | | +100 | ppb | after 72 hours of operation | |
| vs. aging / year (following Years) | -50 | | +50 | ppb | | |
| Warm-up Time | | | 3 | minutes | to ± 10ppb of final frequency (1 hour reading) @ +25°C | |

Supply voltage (Vs)

| Parameter | Min | Typ | Max. | Units | Condition | Ordering Code |
|---------------------------|-------|------|-------|-------|----------------------|---------------|
| Supply voltage [Standard] | 4.75 | 5 | 5.25 | VDC | | SV050 |
| Supply voltage [Option] | 11.4 | 12.0 | 12.6 | VDC | | SV120 |
| Supply voltage [Option] | 3.135 | 3.3 | 3.465 | VDC | | SV033 |
| Power consumption | | | 3.0 | Watts | during warm-up | |
| | | | 1.0 | Watts | steady state @ +25°C | |

RF output

| Parameter | Min | Typ | Max. | Units | Condition | Ordering Code |
|--------------------|----------|------|------|-------|---|---------------|
| Signal [Standard] | HCMOS | | | | | RFH |
| Load | | 15 | | pF | with Vs=12.0V or 5.0V and 15pF load with Vs=3.3V and 15pF load with Vs=12.0V or 5.0V and 15pF load with Vs=3.3V and 15pF load @ (Voh-Vol)/2 | |
| Signal Level (Vol) | | | 0.5 | VDC | | |
| Signal Level (Voh) | 4.5 | | 0.3 | VDC | | |
| Duty cycle | 3.0 | | 55 | % | | |
| Signal [Option] | Sinewave | | | | | RFS |
| Load | | 50 | | | 50 Ohm load 50 Ohm load | |
| Output Power | +3.0 | +5.5 | +8.0 | dBm | | |
| Harmonics | | | -30 | dBc | | |

Frequency Tuning (EFC)

| Parameter | Min | Typ | Max. | Units | Condition |
|-----------------------|----------|-------|------|-------|---------------------|
| Tuning Range | ±0.75 | ±1.25 | ±2.0 | ppm | with SC Cut Crystal |
| | ±6.0 | ±8.0 | ±12 | ppm | with AT Cut Crystal |
| Linearity | | | 20 | % | |
| Tuning Slope | Positive | | | | |
| Control Voltage Range | 0.0 | 2.0 | 4.0 | VDC | with Vs=5.0VDC |
| | 0.0 | 2.5 | 5.0 | VDC | with Vs=12VDC |
| | 0.0 | 1.4 | 2.8 | VDC | with Vs=3.3VDC |

Reference Voltage Output (Vref)

| Parameter | Min | Typ | Max. | Units | Condition |
|-------------------|------|-----|------|-------|----------------|
| Reference Voltage | 3.92 | 4.0 | 4.08 | VDC | with Vs=5.0VDC |
| | 4.9 | 5.0 | 5.1 | VDC | with Vs=12VDC |
| | 2.75 | 2.8 | 2.85 | VDC | with Vs=3.3VDC |

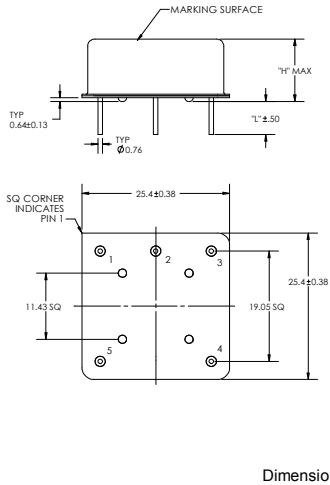
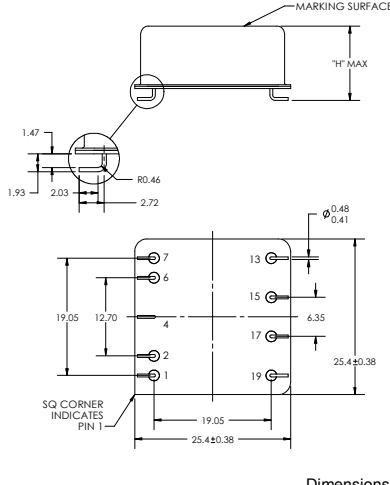
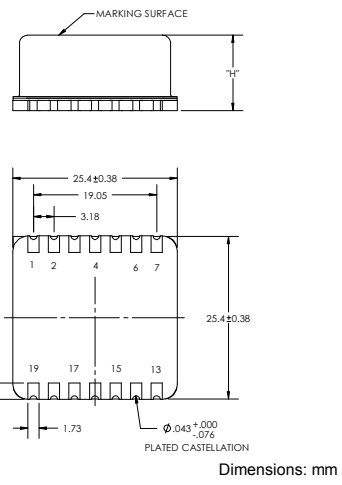
Additional parameters

| Parameter | Min | Typ | Max. | Units | Condition |
|--------------------------|----------------------------|-----|------|--------|--|
| Phase Noise ³ | | | -80 | dBc/Hz | 1 Hz 10 Hz 100 Hz 1 kHz 10 kHz with 10 MHz SC Cut |
| | | | -120 | dBc/Hz | |
| | | | -140 | dBc/Hz | |
| | | | -145 | dBc/Hz | |
| | | | -150 | dBc/Hz | |
| Phase Noise ³ | | | -75 | dBc/Hz | 1 Hz 10 Hz 100 Hz 1 kHz 10 kHz with 10 MHz AT Cut |
| | | | -100 | dBc/Hz | |
| | | | -130 | dBc/Hz | |
| | | | -140 | dBc/Hz | |
| | | | -150 | dBc/Hz | |
| Weight | | | 14 | g | |
| Processing & Packing | Handling & processing note | | | | |

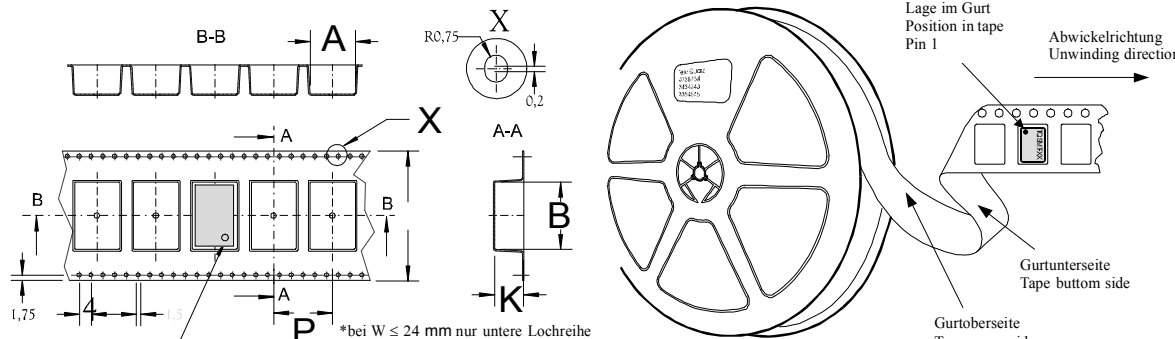
Absolute Maximum Ratings

| Parameter | Min | Typ | Max. | Units | Condition |
|----------------------------|-----|-----|------|-------|----------------------|
| Supply voltage (Vs) | | | 7.0 | V | with Vs=5.0VDC |
| | | | 15.0 | V | with Vs=12VDC |
| | | | 7.0 | V | with Vs=3.3VDC |
| Output Load | | | 50 | pF | with HCMOS signal |
| | | | 25 | Ohms | with Sinewave signal |
| Operable temperature range | -55 | | +85 | °C | |
| Storage temperature range | -55 | | +125 | °C | |

Enclosures

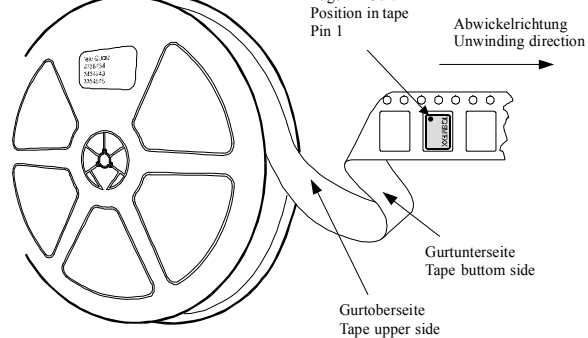
| Type A | | | Type B | | | Type C | | |
|---|------------|----------------|--|------------|----------------|--|------------|----------------|
| Package Codes: | | | | | | | | |
| Code | Height "H" | Pin Length "L" | Code | Height "H" | Pin Length "L" | Code | Height "H" | Pin Length "L" |
| A1 | 11.25 | 6.35 | B1 | 12.70 | NA | C1 | 15.24 | NA |
| A2 | 13.40 | 6.35 | B2 | 15.24 | NA | C2 | 13.00 | NA |
| A3 ⁵ | 10.00 | 6.35 | B3 | 11.30 | NA | C3 | 11.70 | NA |
|  <p>Dimensions: mm</p> | | |  <p>Dimensions: mm</p> | | |  <p>Dimensions: mm</p> | | |
| Pin Connections 1 RF Output 2 Ground (Case) 3 Electronic Frequency Control Input (EFC) 4 Reference Voltage Output 5 Supply Voltage Input (Vs) | | | Pin Connections 1 RF Output 2 N/C* 4 Ground (Case) 6 N/C* 7 Electronic Frequency Control Input (EFC) 13 Reference Voltage Output (Vref) 15 N/C* 17 N/C* 19 Supply Voltage Input (Vs) | | | Pin Connections 1 RF Output 2 N/C* 4 Ground (Case) 6 N/C* 7 Electronic Frequency Control Input (EFC) 13 Reference Voltage Output (Vref) 15 N/C* 17 N/C* 19 Supply Voltage Input (Vs) | | |

Standard Shipping Method (For SMD Type B and C Packages)



Pin 1

*bei W ≤ 24 mm nur untere Lochreihe
 *by W ≤ 24 mm only lower hole line



Lage im Gurt
Position in tape
Pin 1

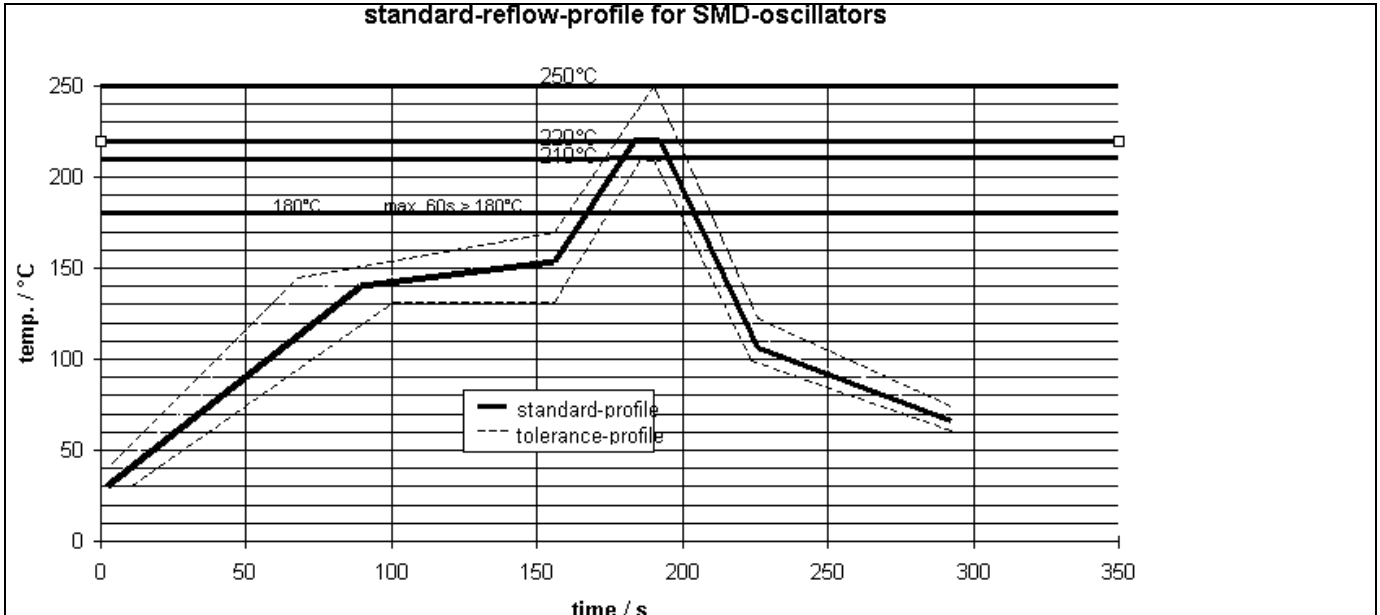
Abwickelrichtung
Unwinding direction

Gurtunterseite
Tape bottom side

Gurtoberseite
Tape upper side

| Enclosure Type | Tape width W [mm] | Quantity per meter | Quantity per reel | Dimension P |
|----------------|-------------------|--------------------|-------------------|-------------|
| Type B | 44 | 33.3 | 250 | 34 |
| Type C | 44 | 33.3 | 250 | 34 |

Recommended Reflow Profile



How to Order this Product:

| | | | | | |
|---------------|---|----------------------------|-----------------------|---------------------|------------------|
| Step 1 | Use this worksheet to forward the following information to your factory representative: | | | | |
| Model | Stability Code | Supply Voltage Code | RF Output Code | Package Code | Frequency |
| C4550 | | | | | |

Example: C4550 D207 SV050 RFH A1 10.000Mhz

| | | | |
|---------------|--|-------------|------------------------------------|
| Step 2 | The factory representative will then respond with a Vectron Model Number in the following configuration: | | |
| Model | Package Code | Dash | Dash Number |
| C4550 | [Customer Specified Package Code] | - | [Factory Generated 4 digit number] |

Typical P/N = C4550A1-0001

Notes:

- 1 Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
- 2 Unless otherwise stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C)
- 3 Phase noise degrades with increasing output frequency.
- 4 Subject to technical modification.
- 5 Contact factory for availability.