

EC1125HS-5.460257M

[Click part number to visit Part Number Details page](#)

REGULATORY COMPLIANCE (Data Sheet downloaded on Apr 29, 2017)



ITEM DESCRIPTION

5.460257MHz ± 25 ppm 0°C to +70°C

ELECTRICAL SPECIFICATIONS

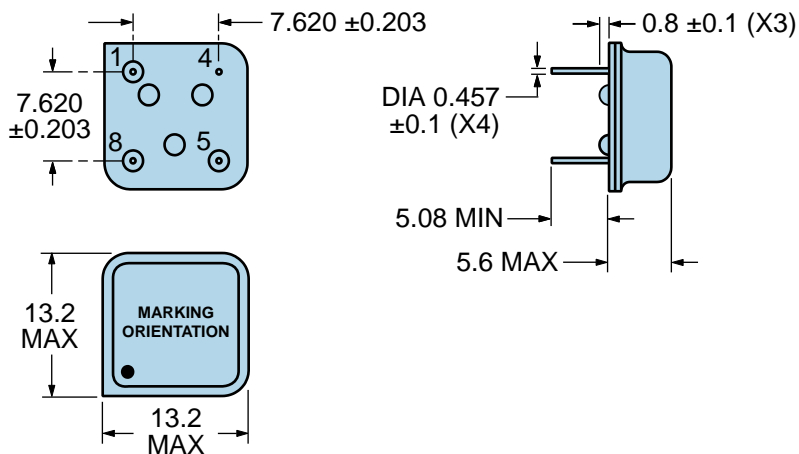
| | |
|---------------------------------------|--|
| Nominal Frequency | 5.460257MHz |
| Frequency Tolerance/Stability | ± 25 ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration) |
| Aging at 25°C | ± 5 ppm/year Maximum |
| Operating Temperature Range | 0°C to +70°C |
| Supply Voltage | 5.0Vdc $\pm 10\%$ |
| Input Current | 45mA Maximum |
| Output Voltage Logic High (Voh) | 2.4Vdc Minimum with TTL Load, Vdd-0.5Vdc Minimum with HCMOS Load |
| Output Voltage Logic Low (Vol) | 0.4Vdc Maximum with TTL Load, 0.5Vdc Maximum with HCMOS Load |
| Rise/Fall Time | 6nSec Maximum (Measured at 0.4Vdc to 2.4Vdc with TTL Load; Measured at 20% to 80% of waveform with HCMOS Load) |
| Duty Cycle | 50 ± 10 (%) (Measured at 1.4Vdc with TTL Load or at 50% of Waveform with HCMOS Load) |
| Load Drive Capability | 10TTL Load or 50pF HCMOS Load Maximum |
| Output Logic Type | CMOS |
| Pin 1 Connection | No Connect |
| Tri-State Input Voltage (Vih and Vil) | +2.2Vdc Minimum to enable output, +0.8Vdc to disable output (High Impedance), No connect to enable output. |
| Absolute Clock Jitter | ± 100 pSec Maximum |
| One Sigma Clock Period Jitter | ± 25 pSec Maximum |
| Start Up Time | 10mSec Maximum |
| Storage Temperature Range | -55°C to +125°C |

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

| | |
|------------------------------|---------------------------------------|
| Fine Leak Test | MIL-STD-883, Method 1014, Condition A |
| Gross Leak Test | MIL-STD-883, Method 1014, Condition C |
| Lead Integrity | MIL-STD-883, Method 2004 |
| Mechanical Shock | MIL-STD-202, Method 213, Condition C |
| Resistance to Soldering Heat | MIL-STD-202, Method 210 |
| Resistance to Solvents | MIL-STD-202, Method 215 |
| Solderability | MIL-STD-883, Method 2003 |
| Temperature Cycling | MIL-STD-883, Method 1010 |
| Vibration | MIL-STD-883, Method 2007, Condition A |

EC1125HS-5.460257M [Click part number to visit Part Number Details page](#)

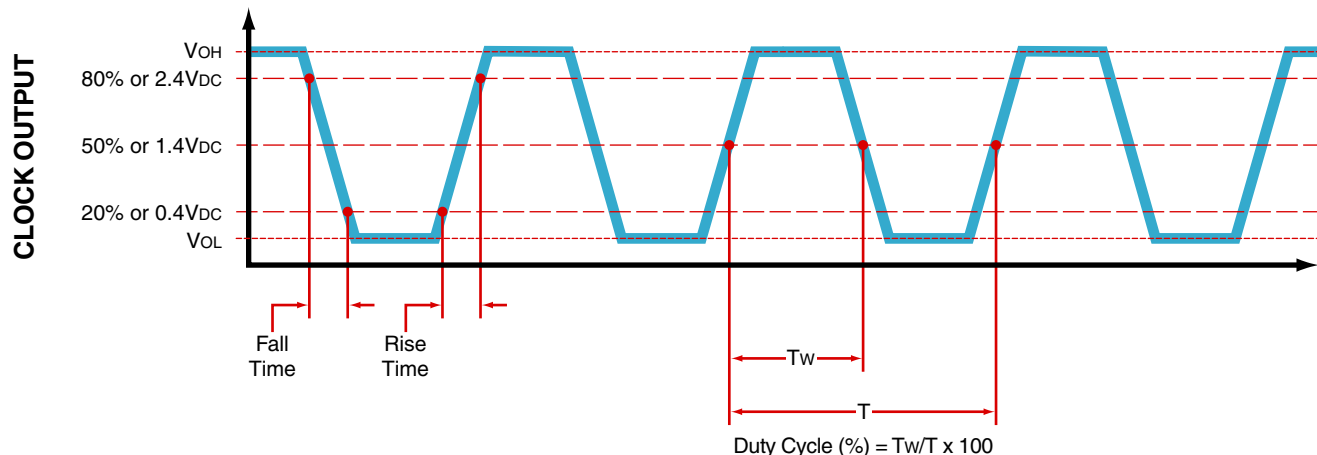
MECHANICAL DIMENSIONS (all dimensions in millimeters)



| PIN | CONNECTION |
|-----|----------------|
| 1 | No Connect |
| 4 | Case Ground |
| 5 | Output |
| 8 | Supply Voltage |

| LINE | MARKING |
|------|--|
| 1 | ECLIPTEK |
| 2 | EC11 EC11=Product Series |
| 3 | 5.4602M |
| 4 | XXYYZ XX=Ecliptek Manufacturing Code Y=Last Digit of Year ZZ=Week of Year |

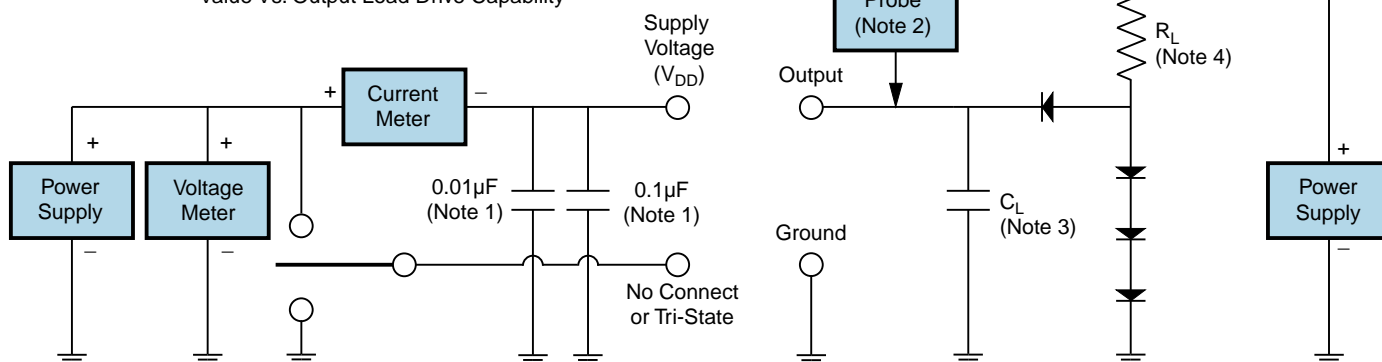
OUTPUT WAVEFORM



Test Circuit for TTL Output

| Output Load Drive Capability | R_L Value (Ohms) | C_L Value (pF) |
|------------------------------|--------------------|------------------|
| 10TTL | 390 | 15 |
| 5TTL | 780 | 15 |
| 2TTL | 1100 | 6 |
| 10LSTTL | 2000 | 15 |
| 1TTL | 2200 | 3 |

Table 1: R_L Resistance Value and C_L Capacitance Value Vs. Output Load Drive Capability



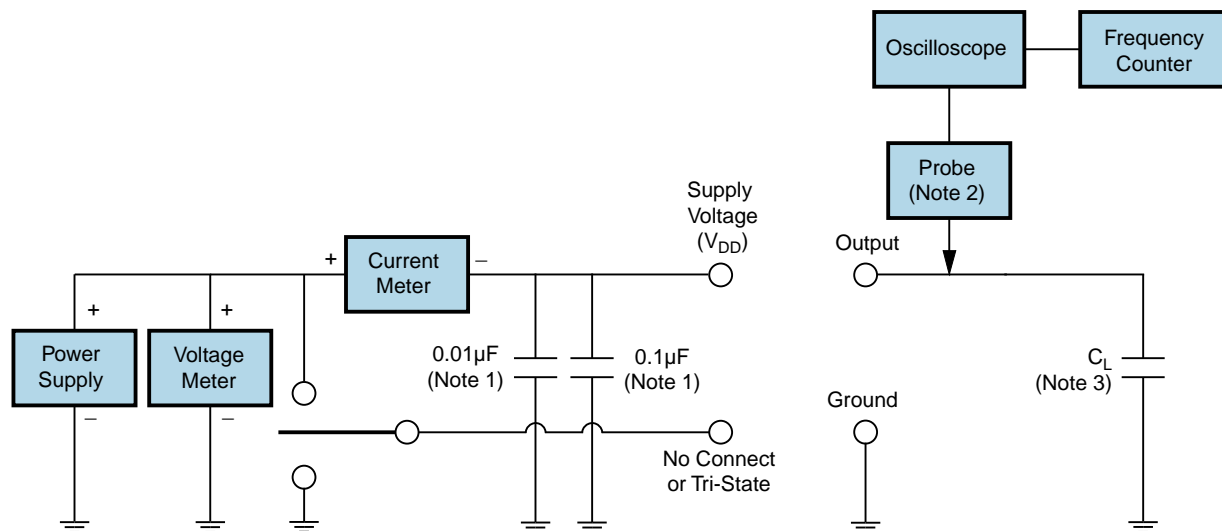
Note 1: An external 0.1µF low frequency tantalum bypass capacitor in parallel with a 0.01µF high frequency ceramic bypass capacitor close to the package ground and V_{DD} pin is required.

Note 2: A low capacitance (<12pF), 10X attenuation factor, high impedance (>10Mohms), and high bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

Note 4: Resistance value R_L is shown in Table 1. See applicable specification sheet for 'Load Drive Capability'.

Note 5: All diodes are MMBD7000, MMBD914, or equivalent.

Test Circuit for CMOS Output

Note 1: An external $0.1\mu\text{F}$ low frequency tantalum bypass capacitor in parallel with a $0.01\mu\text{F}$ high frequency ceramic bypass capacitor close to the package ground and V_{DD} pin is required.

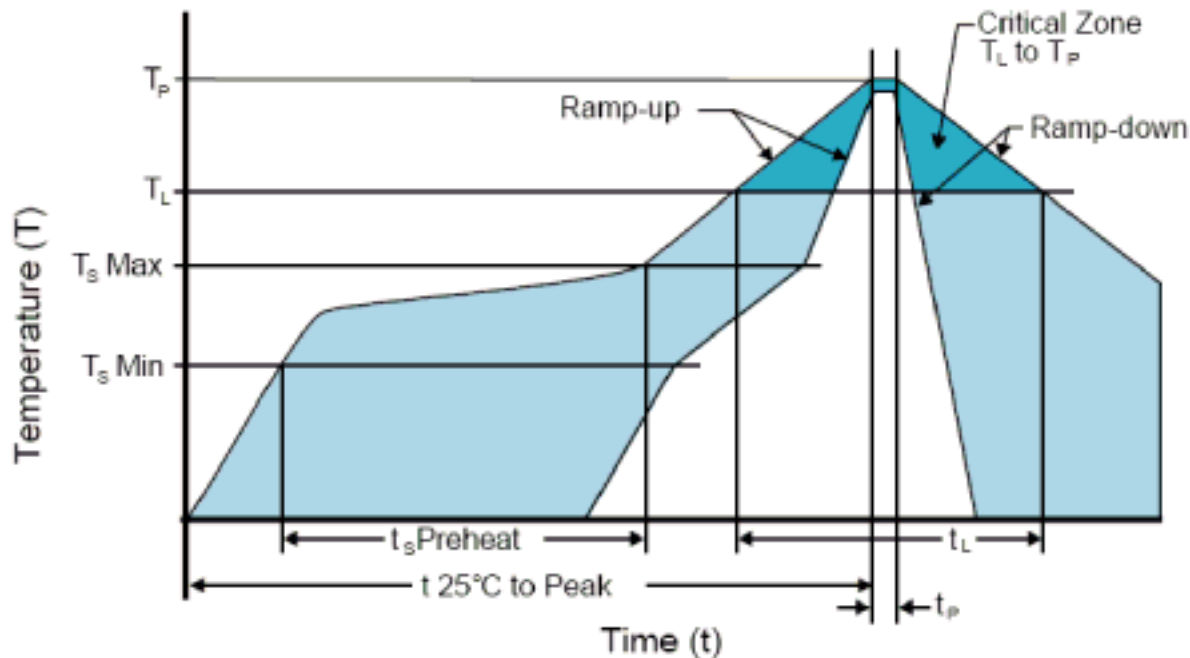
Note 2: A low capacitance ($<12\text{pF}$), 10X attenuation factor, high impedance ($>10\text{Mohms}$), and high bandwidth ($>300\text{MHz}$) passive probe is recommended.

Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

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[Click part number to visit Part Number Details page](#)

Recommended Solder Reflow Methods



High Temperature Solder Bath (Wave Solder)

| | |
|-----------------------------------|--------------------|
| T_S MAX to T_L (Ramp-up Rate) | 3°C/Second Maximum |
|-----------------------------------|--------------------|

Preheat

| | |
|------------------------------------|------------------|
| - Temperature Minimum (T_S MIN) | 150°C |
| - Temperature Typical (T_S TYP) | 175°C |
| - Temperature Maximum (T_S MAX) | 200°C |
| - Time (t_s MIN) | 60 - 180 Seconds |

| | |
|---------------------------------|--------------------|
| Ramp-up Rate (T_L to T_P) | 3°C/Second Maximum |
|---------------------------------|--------------------|

Time Maintained Above:

| | |
|-------------------------|------------------|
| - Temperature (T_L) | 217°C |
| - Time (t_L) | 60 - 150 Seconds |

| | |
|----------------------------|--------------------------------------|
| Peak Temperature (T_P) | 260°C Maximum for 10 Seconds Maximum |
|----------------------------|--------------------------------------|

| | |
|---|---------------|
| Target Peak Temperature (T_P Target) | 250°C +0/-5°C |
|---|---------------|

| | |
|--|-----------------|
| Time within 5°C of actual peak (t_p) | 20 - 40 Seconds |
|--|-----------------|

| | |
|----------------|--------------------|
| Ramp-down Rate | 6°C/Second Maximum |
|----------------|--------------------|

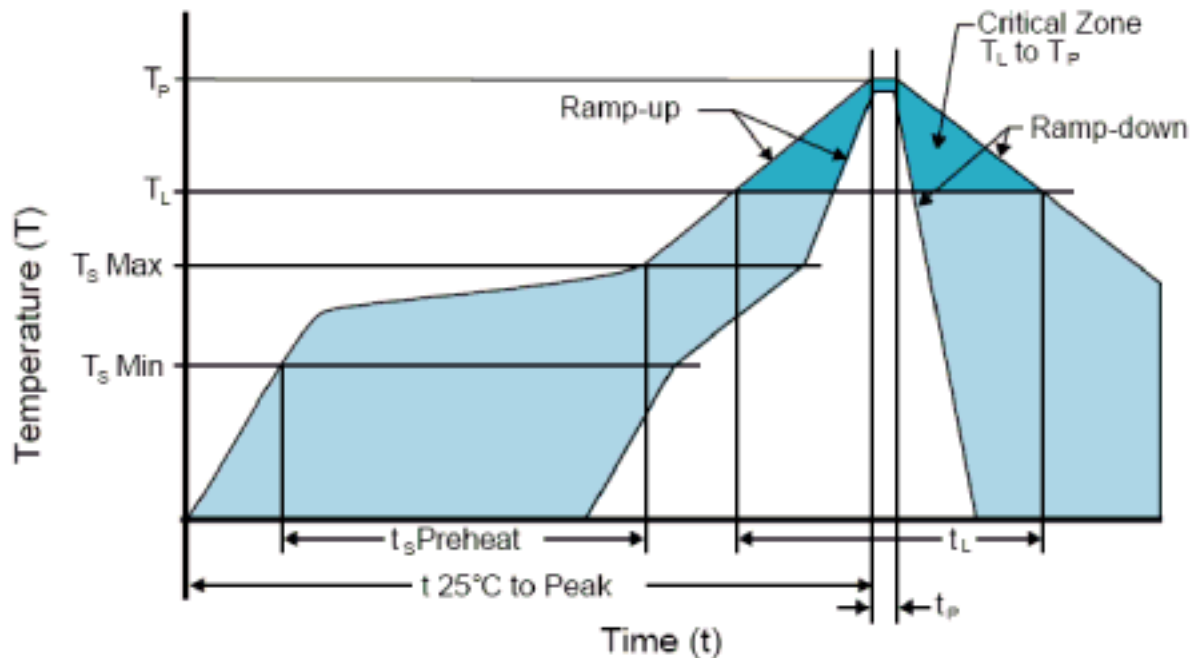
| | |
|-----------------------------------|-------------------|
| Time 25°C to Peak Temperature (t) | 8 Minutes Maximum |
|-----------------------------------|-------------------|

| | |
|----------------------------|---------|
| Moisture Sensitivity Level | Level 1 |
|----------------------------|---------|

EC1125HS-5.460257M

[Click part number to visit Part Number Details page](#)

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 185°C

| | |
|--|--------------------|
| T_s MAX to T_L (Ramp-up Rate) | 5°C/Second Maximum |
|--|--------------------|

Preheat

| | |
|------------------------------------|------------------|
| - Temperature Minimum (T_s MIN) | N/A |
| - Temperature Typical (T_s TYP) | 150°C |
| - Temperature Maximum (T_s MAX) | N/A |
| - Time (t_s MIN) | 60 - 120 Seconds |

| | |
|--|--------------------|
| Ramp-up Rate (T_L to T_P) | 5°C/Second Maximum |
|--|--------------------|

Time Maintained Above:

| | |
|-------------------------|---------------------|
| - Temperature (T_L) | 150°C |
| - Time (t_L) | 200 Seconds Maximum |

| | |
|--|---------------|
| Peak Temperature (T_P) | 185°C Maximum |
|--|---------------|

| | |
|--|-----------------------|
| Target Peak Temperature (T_P Target) | 185°C Maximum 2 Times |
|--|-----------------------|

| | |
|--|----------------------------|
| Time within 5°C of actual peak (t_p) | 10 Seconds Maximum 2 Times |
|--|----------------------------|

| | |
|-----------------------|--------------------|
| Ramp-down Rate | 5°C/Second Maximum |
|-----------------------|--------------------|

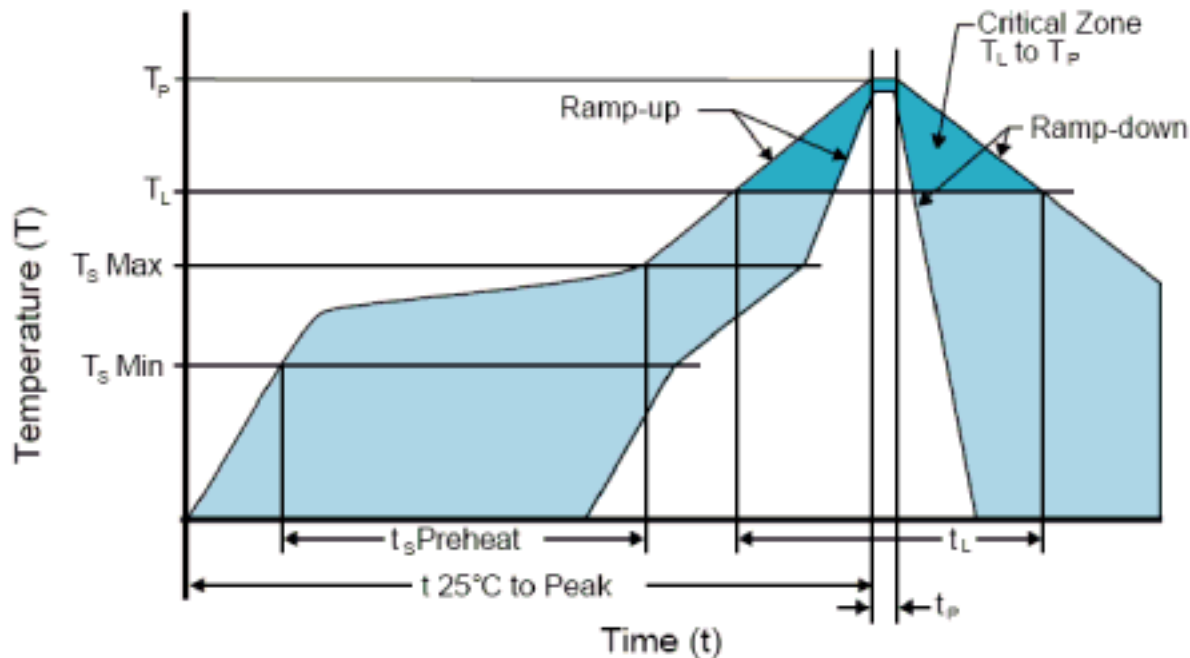
| | |
|--|-----|
| Time 25°C to Peak Temperature (t) | N/A |
|--|-----|

| | |
|-----------------------------------|---------|
| Moisture Sensitivity Level | Level 1 |
|-----------------------------------|---------|

EC1125HS-5.460257M

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Recommended Solder Reflow Methods



Low Temperature Solder Bath (Wave Solder)

| | |
|-------------------------------------|---|
| Ts MAX to TL (Ramp-up Rate) | 5°C/Second Maximum |
| Preheat | |
| - Temperature Minimum (Ts MIN) | N/A |
| - Temperature Typical (Ts TYP) | 150°C |
| - Temperature Maximum (Ts MAX) | N/A |
| - Time (ts MIN) | 30 - 60 Seconds |
| Ramp-up Rate (TL to TP) | 5°C/Second Maximum |
| Time Maintained Above: | |
| - Temperature (TL) | 150°C |
| - Time (tL) | 200 Seconds Maximum |
| Peak Temperature (TP) | 245°C Maximum |
| Target Peak Temperature (TP Target) | 245°C Maximum 1 Time / 235°C Maximum 2 Times |
| Time within 5°C of actual peak (tp) | 5 Seconds Maximum 1 Time / 15 Seconds Maximum 2 Times |
| Ramp-down Rate | 5°C/Second Maximum |
| Time 25°C to Peak Temperature (t) | N/A |
| Moisture Sensitivity Level | Level 1 |

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum.

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum.