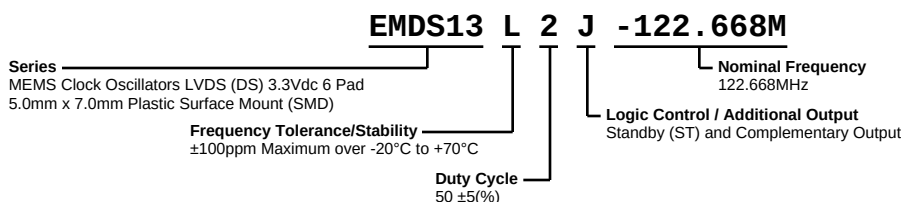


EMDS13L2J-122.668M



ELECTRICAL SPECIFICATIONS

Nominal Frequency	122.668MHz
Frequency Tolerance/Stability	$\pm 100\text{ppm}$ Maximum over -20°C to $+70^{\circ}\text{C}$ (Inclusive of all conditions: Calibration Tolerance at 25°C , Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, 1st Year Aging at 25°C , Reflow, Shock, and Vibration)
Aging at 25°C	$\pm 1\text{ppm}$ First Year Maximum
Supply Voltage	$+3.3\text{Vdc} \pm 0.3\text{Vdc}$
Input Current	80mA Maximum (Excluding Load Termination Current)
Output Voltage Logic High (Voh)	1.425Vdc Typical
Output Voltage Logic Low (Vol)	1.075Vdc Typical
Differential Output Voltage (Vod)	247mVdc Minimum, 350mVdc Typical, 454mVdc Maximum
Offset Voltage (Vos)	1.125V Minimum, 1.250V Typical, 1.375V Maximum
Rise/Fall Time	225pSec Typical, 325pSec Maximum (Measured over 20% to 80% of waveform)
Differential Output Error (dVod)	50mVdc Maximum
Duty Cycle	$50 \pm 5(\%)$ (Measured at 50% of waveform)
Offset Error (dVos)	50mVdc Maximum
Load Drive Capability	100 Ohms Between Output and Complementary Output
Output Logic Type	LVDS
Logic Control / Additional Output	Standby (ST) and Complementary Output
Output Control Input Voltage	Vih of 70% of Vcc Minimum or No Connect to Enable Output and Complementary Output, Vil of 30% of Vcc Maximum to Disable Output and Complementary Output (High Impedance)
Standby Current	30 μA Maximum (ST) Without Load
Period Jitter (Deterministic)	0.2pSec Typical
Period Jitter (Random)	2.0pSec Typical
Period Jitter (RMS)	1.8pSec Typical, 2.5pSec Maximum
Period Jitter (pk-pk)	25pSec Typical, 30pSec Maximum
RMS Phase Jitter (Fj = 637kHz to 10MHz; Random)	1.7pSec Typical
RMS Phase Jitter (Fj = 1MHz to 20MHz; Random)	1.2pSec Typical
RMS Phase Jitter (Fj = 1.875MHz to 20MHz; Random)	0.7pSec Typical
Start Up Time	10mSec Maximum
Storage Temperature Range	-55°C to $+125^{\circ}\text{C}$

ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

ESD Susceptibility	MIL-STD-883, Method 3015, Class 2, HBM 2000V
Flammability	UL94-V0
Mechanical Shock	MIL-STD-883, Method 2002, Condition G, 30,000G
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity Level	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003 (Six I/O Pads on bottom of package only)
Temperature Cycling	MIL-STD-883, Method 1010, Condition B

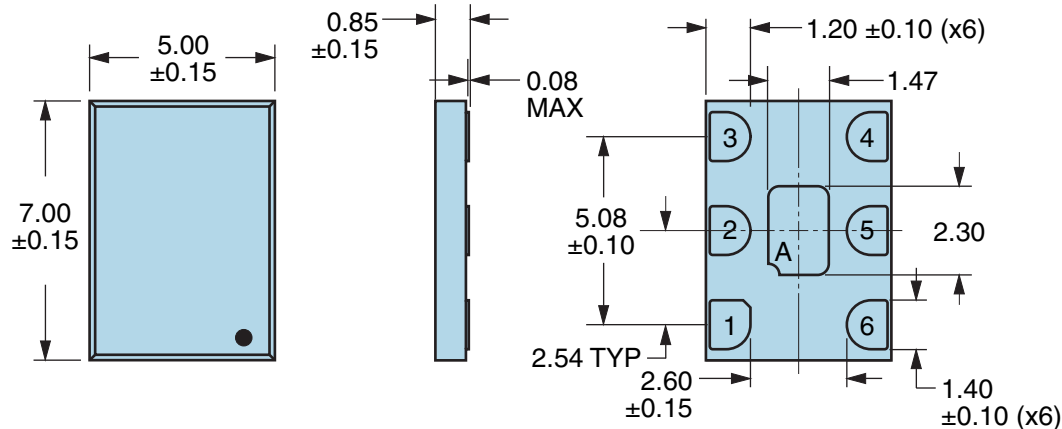
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Thermal Shock	MIL-STD-883, Method 1011, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A, 20G

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MECHANICAL DIMENSIONS (all dimensions in millimeters)



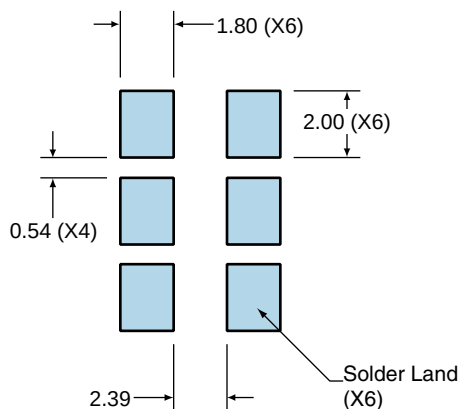
PIN	CONNECTION
1	Standby (ST)
2	No Connect
3	Case Ground
4	Output
5	Complementary Output
6	Supply Voltage

LINE	MARKING
1	XXXX or XXXXX XXXX or XXXXX=Ecliptek Manufacturing Lot Code

Note A: Center paddle is connected internally to oscillator ground (Pad 3).

Suggested Solder Pad Layout

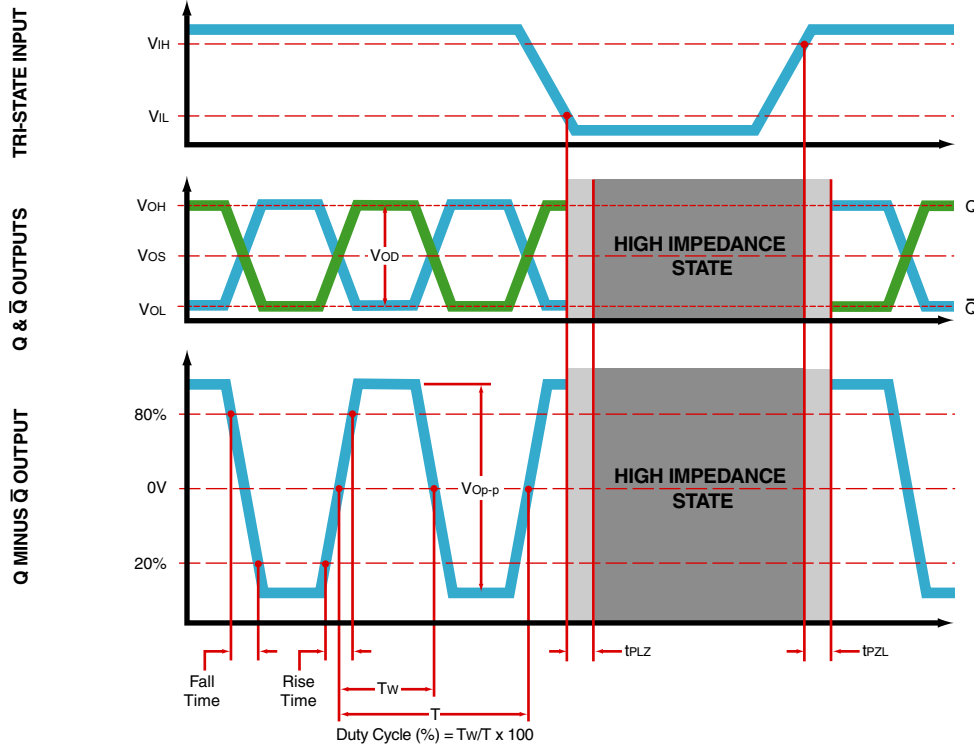
All Dimensions in Millimeters



All Tolerances are ± 0.1

EMDS13L2J-122.668M

OUTPUT WAVEFORM & TIMING DIAGRAM

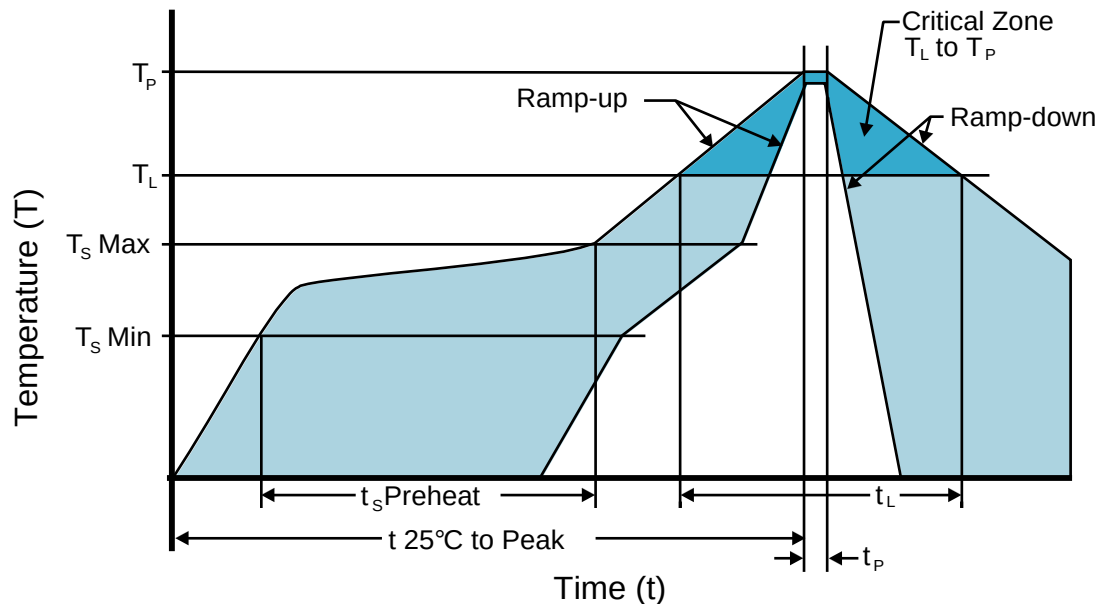


The diagram illustrates a test setup for a CMOS inverter. The circuit includes the following components and connections:

- Power Supplies:** Three power supplies are shown. The first is connected to the inverter's input through a switch. The second is connected to the inverter's supply voltage (V_{DD}). The third is connected to the inverter's ground.
- Meters:** A voltage meter is connected in parallel with the inverter's input. A current meter is connected in series with the inverter's input.
- Capacitors:** Two capacitors are connected to the inverter's supply and ground pins, labeled $0.01\mu\text{F}$ (Note 1) and $0.1\mu\text{F}$ (Note 1).
- Switch:** A switch is connected to the inverter's input, controlled by a power supply.
- Output:** The inverter's output is connected to a 100 Ohms resistor, which is then connected to an oscilloscope and a frequency counter.
- Ground:** The ground is connected to the inverter's ground and the 100 Ohms resistor.

Note 3: Test circuit PCB traces need to be designed for a characteristic line impedance of 50 ohms.

Recommended Solder Reflow Methods



High Temperature Infrared/Convection

T _s MAX to T _L (Ramp-up Rate)	3°C/second Maximum
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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
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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
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Target Peak Temperature (T _P Target)	250°C +0/-5°C
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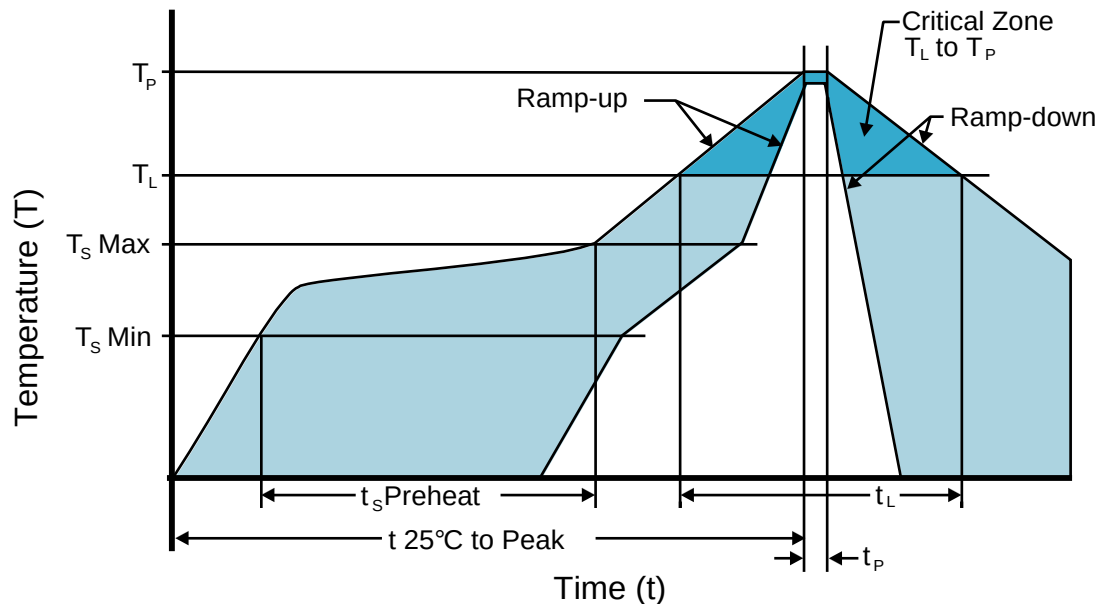
Time within 5°C of actual peak (t _p)	20 - 40 seconds
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Ramp-down Rate	6°C/second Maximum
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Time 25°C to Peak Temperature (t)	8 minutes Maximum
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Moisture Sensitivity Level	Level 1
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Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°C

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) 60 - 120 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) 240°C Maximum

Target Peak Temperature (Tp Target) 240°C Maximum 2 Times / 230°C Maximum 1 Time

Time within 5°C of actual peak (tp) 10 seconds Maximum 2 Times / 80 seconds Maximum 1 Time

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.