EB52F3A15N-25.000M

Gross Leak Test

Mechanical Shock

Resistance to Soldering Heat

Resistance to Solvents

Temperature Cycling

Lead Integrity

Solderability

Vibration



EB52F3 A 15 N -25.000M

Series 3.3Vdc 14-Pin DIP LVCMOS TCXO

Operating Temperature Range

0°C to +50°C

Frequency Stability ±1.5ppm Maximum

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L Nominal Frequency 25.000MHz

- Control Voltage None (No Connect on Pin 1)

irrequency Stability ±1.5ppm Maximum (Inclusive of Operating Temperature Range) irrequency Stability vs. Input Voltage ±0.3ppm Maximum (±5%) tippm/Year Maximum ±1ppm/Year Maximum irrequency Stability vs. Load ±0.2ppm Maximum (±2PF) Operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% operating Temperature Range 0°C to +50°C supply Voltage Logic High (Voh) 90% of Vdd Maximum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum titse/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) oad Drive Capability 15pF Maximum obutput Logic Type CMOS Scontrol Voltage None (No Connect on Pin 1) ternand Trim ±3ppm Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) oput Impedance 10kOhms Typical thase Noise -70dBc at 10Hz Offset, -100dBc at 10	ELECTRICAL SPECIFICATIONS				
irrequency Stability vs. Input Voltage ±0.3ppm Maximum (±5%) trequency Stability vs. Load ±0.2ppm Maximum (±2pF) Operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% apput Current 20mA Maximum Dutput Voltage Logic Ligh (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum tise/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum tise/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Colic Gapability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) theranal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) nuput Impedance 10kOhms Typical 'hase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 10kHz Offset, -140dBc at 10kHz Offset, -145dBc at 100kHz Offset ENVIRONMENTAL & MECHANICAL SPECIFICATIONS ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Nominal Frequency	25.000MHz			
sign at 25°C ±1pm/Year Maximum trequency Stability vs. Load ±0.2ppm Maximum (±2pF) Operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% put Current 20mA Maximum Dutput Voltage Logic High (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Stise/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage 50% ±10% (Measured at 50% of waveform) Dot put Logic Type CMOS Control Voltage None (No Connect on Pin 1) tternal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) nput Impedance 10kOhms Typical "hase Noise -70dBc at 10Hz Offset, -100dBc at 10Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 10kHz Offset Ktorage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Frequency Stability	±1.5ppm Maximum (Inclusive of Operating Temperature Range)			
intercequency Stability vs. Load ±0.2ppm Maximum (±2pF) Operating Temperature Range 0°C to +50°C Supply Voltage 3.3Vdc ±5% Dutput Current 20mA Maximum Dutput Voltage Logic High (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Supproved Stability 10% of Vdd Maximum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Stase/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage 50% ±10% (Measured at 50% of waveform) Ocd Drive Capability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) tternal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) nput Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 10Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -1456Bc at 100kHz Offset Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Frequency Stability vs. Input Voltage	±0.3ppm Maximum (±5%)			
Operating Temperature Range 0°C to +50°C supply Voltage 3.3Vdc ±5% nput Current 20mA Maximum Dutput Voltage Logic High (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum tisse/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum tisse/Fall Time 50% ±10% (Measured at 50% of waveform) oad Drive Capability 15pF Maximum Dutput Logic Type CMOS Sontrol Voltage None (No Connect on Pin 1) +=spr Minimum (Top of Can) 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) nput Impedance 10kOhms Typical *hase Noise -70dBc at 10Hz Offset, -100dBc at 10Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 10kHz Offset	Aging at 25°C	±1ppm/Year Maximum			
Supply Voltage 3.3Vdc ±5% apput Current 20mA Maximum Dutput Voltage Logic High (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Stee/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Stee/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage Logic Low (Vol) 15% (Measured at 50% of waveform) .oad Drive Capability 15pF Maximum Dutput Logic Type CMOS Scontrol Voltage None (No Connect on Pin 1) thernal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) nput Impedance 10kOhms Typical *hase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 100kHz Offset Ktorage Temperature Range -40°C to +85°C	Frequency Stability vs. Load	±0.2ppm Maximum (±2pF)			
Dutput Current 20mA Maximum Dutput Voltage Logic High (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum titse/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Voltage Logic Type 50% ±10% (Measured at 50% of waveform) Logic Type CMOS Control Voltage None (No Connect on Pin 1) Internal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 100kHz Offset ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Operating Temperature Range	0°C to +50°C			
Dutput Voltage Logic High (Voh) 90% of Vdd Minimum Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Rise/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Duty Cycle 50% ±10% (Measured at 50% of waveform) Load Drive Capability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) https://doi.org/10.1000/000000000000000000000000000000	Supply Voltage	3.3Vdc ±5%			
Dutput Voltage Logic Low (Vol) 10% of Vdd Maximum Rise/Fall Time 10nSec Maximum (Measured at 20% to 80% of waveform) Dutput Cycle 50% ±10% (Measured at 50% of waveform) Load Drive Capability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) hternal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical *Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 100kHz Offset Rotorage Temperature Range -40°C to +85°C	Input Current	20mA Maximum			
Insec Maximum (Measured at 20% to 80% of waveform) Duty Cycle 50% ±10% (Measured at 50% of waveform) Load Drive Capability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) hternal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, -145dBc at 10kHz Offset Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Output Voltage Logic High (Voh)	90% of Vdd Minimum			
Duty Cycle 50% ±10% (Measured at 50% of waveform) Load Drive Capability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) Internal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - Etorage Temperature Range -40°C to +85°C	Output Voltage Logic Low (Vol)	10% of Vdd Maximum			
Load Drive Capability 15pF Maximum Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) ±3ppm Minimum (Top of Can) ±3ppm Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) hput Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - Witrage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Rise/Fall Time	10nSec Maximum (Measured at 20% to 80% of waveform)			
Dutput Logic Type CMOS Control Voltage None (No Connect on Pin 1) +3ppm Minimum (Top of Can) +3ppm Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical *hase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - Water Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Duty Cycle	50% ±10% (Measured at 50% of waveform)			
Control Voltage None (No Connect on Pin 1) hternal Trim ±3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Load Drive Capability	15pF Maximum			
+3ppm Minimum (Top of Can) Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - 145dBc at 100kHz Offset Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Output Logic Type	CMOS			
Modulation Bandwidth 10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc) Input Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - 145dBc at 100kHz Offset Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Control Voltage	None (No Connect on Pin 1)			
nput Impedance 10kOhms Typical Phase Noise -70dBc at 10Hz Offset, -100dBc at 100Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - 145dBc at 100kHz Offset Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Internal Trim	±3ppm Minimum (Top of Can)			
-70dBc at 10Hz Offset, -100dBc at 10Hz Offset, -130dBc at 1kHz Offset, -140dBc at 10kHz Offset, - 145dBc at 100kHz Offset itorage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Modulation Bandwidth	10kHz Minimum (Measured at -3dB with a Control Voltage of 1.65Vdc)			
145dBc at 100kHz Offset Storage Temperature Range -40°C to +85°C ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Input Impedance	10kOhms Typical			
ENVIRONMENTAL & MECHANICAL SPECIFICATIONS	Phase Noise				
	Storage Temperature Range	-40°C to +85°C			
ine Leak Test MIL-STD-883, Method 1014 Condition A (Internal Crystal Only)	ENVIRONMENTAL & MECHANICAL SPECIFICATIONS				
	Fine Leak Test	MIL-STD-883, Method 1014 Condition A (Internal Crystal Only)			

MIL-STD-883, Method 1014 Condition C (Internal Crystal Only)

MIL-STD-883, Method 2004

MIL-STD-202, Method 210

MIL-STD-202, Method 215

MIL-STD-883, Method 2003

MIL-STD-883, Method 1010

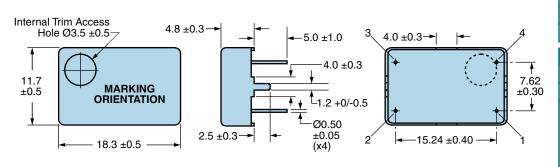
MIL-STD-202, Method 213 Condition C

MIL-STD-883, Method 2007 Condition A

EB52F3A15N-25.000M

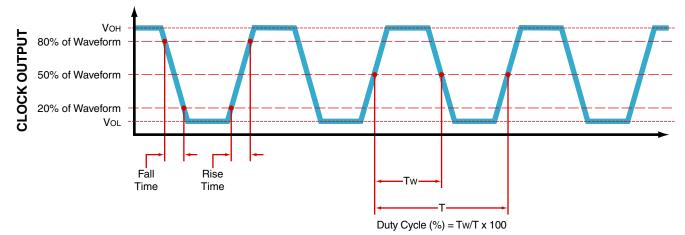


MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	No Connect
2	Case/Ground
3	Output
4	Supply Voltage
LINE	MARKING
1	ECLIPTEK
1 2	ECLIPTEK 25.000M

OUTPUT WAVEFORM



EB52F3A15N-25.000M



Test Circuit for CMOS Output



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.

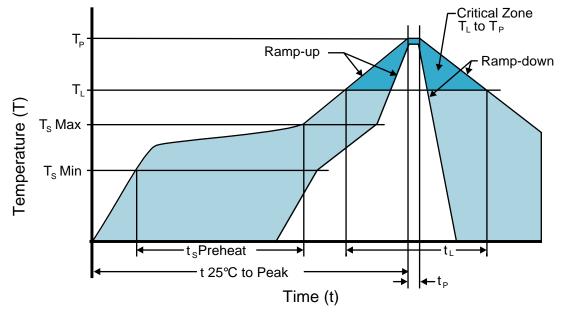
Note 2: A low capacitance (<12pF), 10X attenuation factor, high impedance (>10Mohms), and high bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value \dot{C}_1 includes sum of all probe and fixture capacitance.



Recommended Solder Reflow Methods

EB52F3A15N-25.000M



Low Temperature Solder Bath (Wave Solder)

•
5°C/second Maximum
N/A
150°C
N/A
30 - 60 Seconds
5°C/second Maximum
150°C
200 Seconds Maximum
245°C Maximum
245°C Maximum 1 Time / 235°C Maximum 2 Times
5 seconds Maximum 1 Time / 15 seconds Maximum 2 Times
5°C/second Maximum
N/A
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.

Low Temperature Solder Bath (Wave Solder) Note 1

Device is non-hermetic; Post reflow aqueous wash is not recommended

Low Temperature Solder Bath (Wave Solder) Note 2

Temperatures shown are applied to back of PCB board and device leads only.