

Features

- Frequency Range 10MHz to 460MHz
- Frequency Stability ± 10 , ± 25 or ± 50 ppm
- Operating Voltage: 1.71V to 3.60V
- Operating Temperature Range
Industrial: -40° to $+85^{\circ}$ C
Ext. Commercial: -20° to $+70^{\circ}$ C
- High Supply Noise Rejection: -50dBc
- Short Lead Time
- Ultra-Miniature Footprints
2.5 x 2.0 x 0.85mm
3.2 x 2.5 x 0.85mm
5.0 x 3.2 x 0.85mm
7.0 x 5.0 x 0.85mm
- Excellent Shock & Vibration Resistance
Qualified to MIL-STD-883
- High Reliability
- Low Current Consumption
- Supply Voltage from 2.25 to 3.6 Volts
- Standby and Output Enable Function
- LVDS and HCSL versions available



Description

The Euroquartz EMEM1102 and EMEM1122 series of high performance oscillators utilize MEMS (Micro Electro-Mechanical System) technology, offering excellent jitter and stability performance over a wide range of supply voltages and temperature ranges. The EMEM1102 has a standby feature allowing it to completely power down when the 'EN' pin is pulled low; the EMEM1122 outputs are disabled when EN is low.

Both oscillators are available in industry-standard oscillator packages, including the small 2.5 x 2.0mm and are 'drop-in' replacements for standard LVPECL quartz crystal oscillators.

Electrical Specifications

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage ¹			2.25		3.6	V
Supply Current	I _{DD}	EN pin low - outputs disabled EMEM1102 EMEM1122		20	0.095 22	mA
Frequency Stability	Δf	Includes frequency variations due to initial tolerance, temp. and power supply voltage.			± 10 ± 25 ± 50	ppm
Ageing	Δf	1 year @ 25°			± 5	ppm
Startup Time ²	T _{SU}	T = 25°C			5	ms
Input Logic Levels Input Logic High Input Logic Low	V _{IH} V _{IL}		0.75*V _{DD}		0.25*V _{DD}	V
Output Disable Time ³	T _{DA}				5	ns
Output Enable Time	T _{EN}	EMEM1102 EMEM1122			5 20	ms ns
Enable Pull-up Resistor		Pull-up resistor exists		40		k Ω
LVPECL Outputs						
Supply Current	I _{DD}	Output Enabled, R _L = 50 Ω		56.5	58	mA
Output Logic Levels Output Logic High Output Logic Low	V _{OH} V _{OL}	R _L = 50 Ω	V _{DD} - 1.08 -		- V _{DD} - 1.55	V
Pk to Pk Output Swing		Single-Ended		800		mV
Output Transition Time ³ Rise Time Fall Time	t _R t _F	20% to 80% R _L = 50 Ω , C _L = 0pF		250		ps
Frequency	F ₀	Single Frequency	10		460	MHz
Output Duty Cycle	SYM	Differential	48		52	%
Period Jitter	J _{PER}			2.5		ps _{RMS}
Integrated Phase Noise	J _{PH}	200kHz to 20MHz @156.25MHz 100kHz to 20MHz @156.25MHz 12kHz to 20MHz @156.25MHz		0.25 0.38 1.7	2	ps _{RMS}

- Notes:
1. Pin 6 V_{DD} should be filtered with 0.1 μ F capacitor.
 2. t_{SU} is time to 100ppm of output frequency after V_{DD} is applied and outputs are enabled.
 3. Output waveform and test circuit figures below define the parameters.
 4. Output is enabled if pad is floated or not connected.

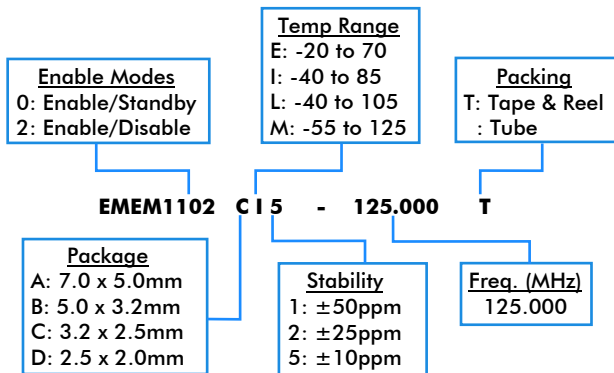
Output Enable Modes

EN Pin	DSC1102	DSC1122
High	Outputs Active	Outputs Active
NC	Outputs Active	Outputs Active
Low	Standby	Outputs Disabled

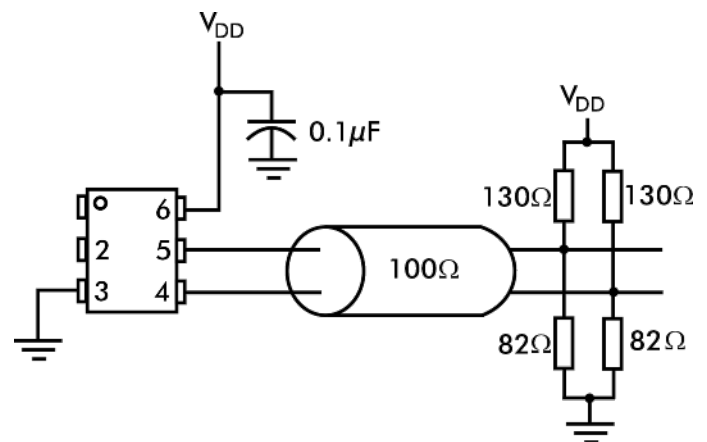
Absolute Maximum Ratings

Item	Min.	Max.	Unit	Condition
Supply Voltage	-0.3	+4.0	V	
Input Voltage	-0.3	VDD+0.3	V	
Junction Temp.	-	+150	°C	
Storage Temp.	-55	+150	°C	
Soldering Temp.	-	+260	°C	40 sec. max.
ESD				
HBM		4000	V	
MM		400		
CDM		1500		

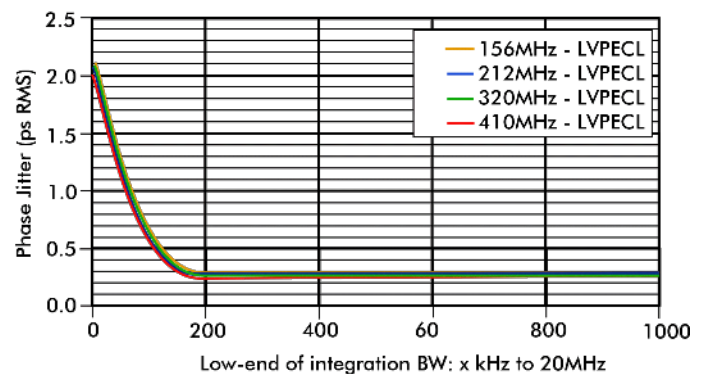
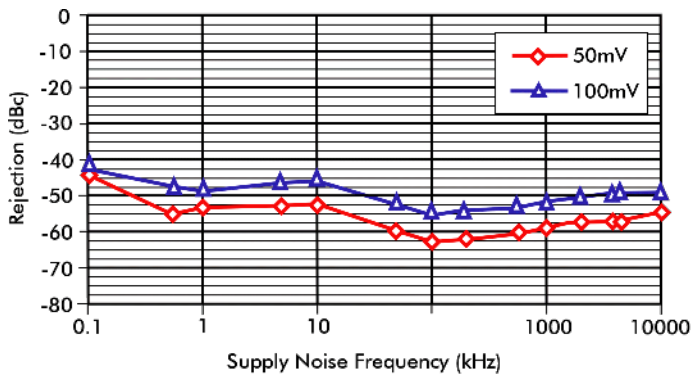
Ordering Code



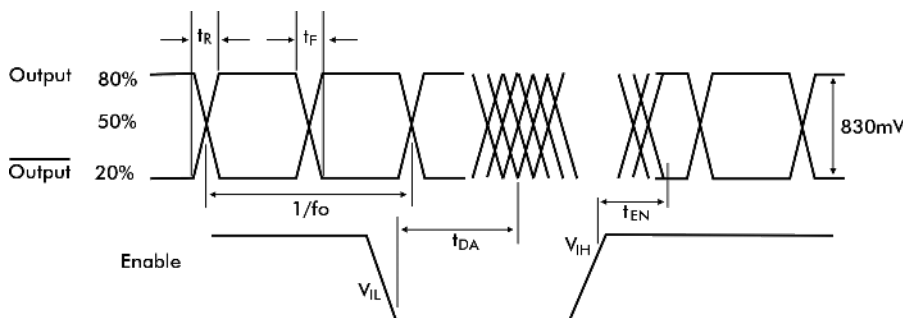
Typical Termination Scheme



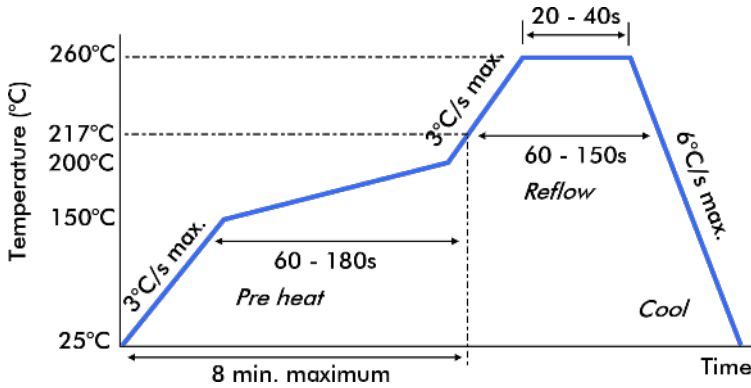
Nominal Performance Parameters (Unless specified otherwise: T = 25°C, V_{DD} = 3.3V)



Output Waveform



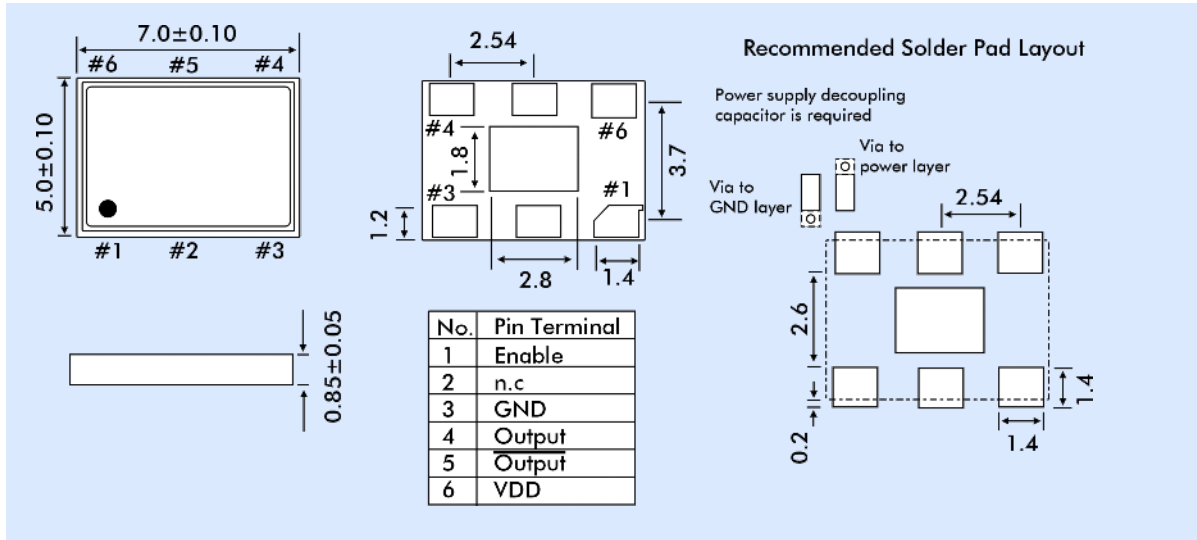
Solder Reflow Profile



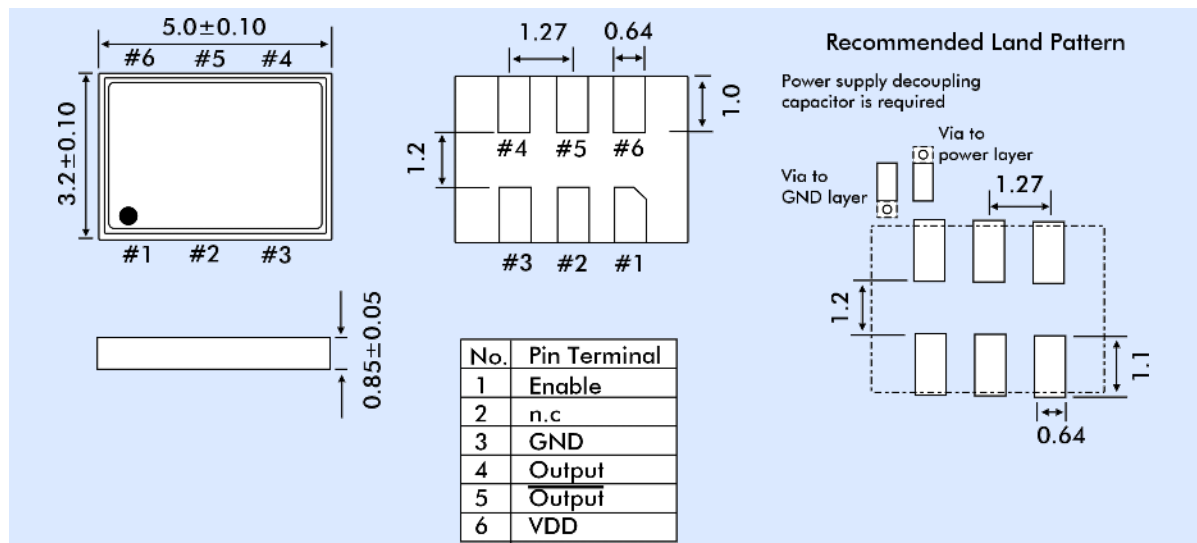
MSL1 @ 260°C refer to JSTD-020C	
Ramp-up Rate (200°C to Peak Temp.)	3°C/s max.
Preheat Time 150°C to 200°C	60-180s
Time maintained above 217°C	60-150s
Peak Temperature	255-260°C
Time within 5°C of actual peak	20-40s
Ramp-Down Rate	6°C/s max.
Time 25°C to Peak Temperature	8 min max.

PACKAGE DIMENSIONS

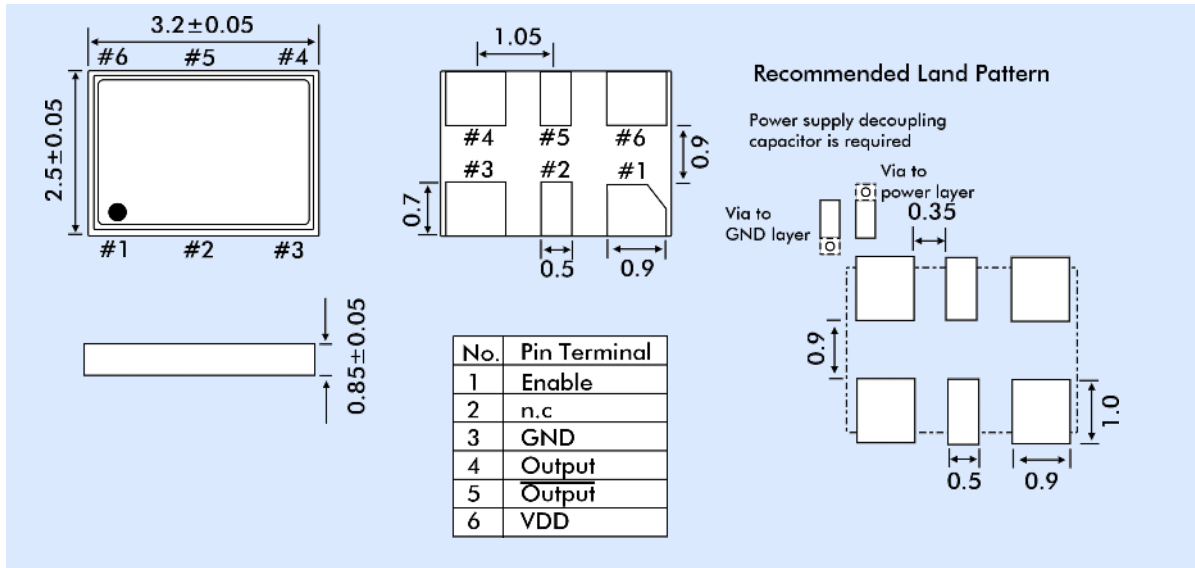
7.0 x 5.0mm Plastic Package



5.0 x 3.2mm Plastic Package



3.2 x 2.5mm Plastic Package



2.5 x 2.0mm Plastic Package

