

LOW EMI SPREAD SPECTRUM

EMC 810

Clock Oscillator



RoHS 5.0VDC OR 3.3VDC, SMT

PRODUCT DESCRIPTION

The EMC810 Clock Oscillator is an advanced spread spectrum modulator with a standard TTL or CMOS compatible output that meets clock requirements of all major CISC, RISC, and DSP processors. It provides a modulated clock source that reduces electromagnetic emissions and associated harmonics at the source. The EMC810 is a direct replacement for 3.3V or 5V crystal oscillators and is plug compatible to standard plastic Surface Mount packages. It is available in a wide range of Selectable Output Frequencies (4 to 128 MHz).

The EMC810 can reduce emissions up to 20 dB. Compliance with international regulations can be obtained with EMC810 during pre-production and chamber testing, effectively eliminating multiple designs and testing cycles.

- Accelerate compliance approvals
- Reduce engineering and compliance costs
- Accelerate market launch schedules

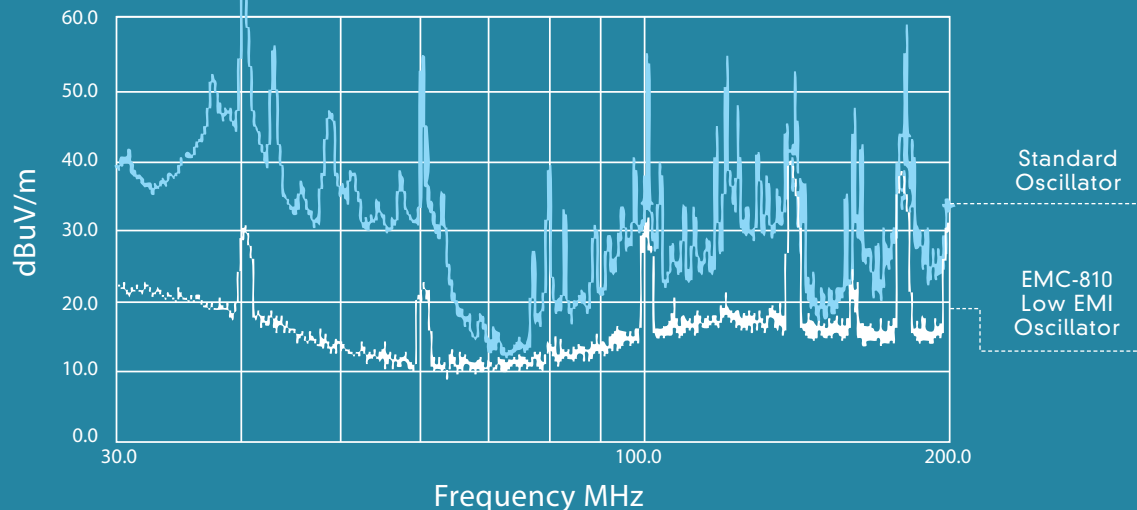
APPLICATION

The EMC810 Clock Oscillator is designed for installations into electronic equipment required to meet FCC or European EMC Directives and is particularly appropriate for applications in —

- Telecommunications
- Capital Equipment
- Consumer Electronics, Printers
- Aerospace
- Medical Equipment

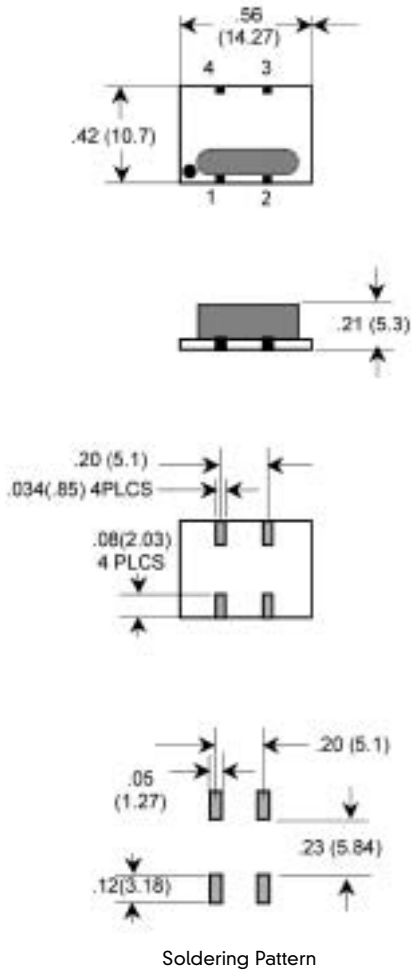
Equipment previously classified as non-complying can be retrofitted at the compliance test lab or in the field with the EMC810 Clock Oscillator. Once upgraded, this same equipment can be shipped into any country requiring compliance.

OUTPUT DATA



STANDARD OSCILLATOR COMPARED TO LOW EMI OSCILLATOR

DIMENSIONS



PIN CONFIGURATION

Pin Number	Function
1	NC
2	GND
3	OUTPUT
4	VDC

ORDERING OPTIONS

PRODUCT MODEL NUMBER + OPERATING VOLTAGE + OPERATING TEMPERATURE + FREQUENCY – BANDWIDTH – LF – PACKAGING

EMC810

S3 for 3.3 VDC
S5 for 5.0 VDC

B = 0° C To + 70° C

-020.000 for 20 MHz
-032.768 for 32.768 MHz
-128.000 for 128 MHz

-CX = Center Spread
-DX = Down Spread
See Table 1 for Selection

Lead Free

-T = Tape and Reel
(for 1,000 units or more)

EXAMPLE: EMC810S3B-033.000-C1-T

For 3.3V Operating Voltage, 0° C to +70° C, 33.000 MHz, ±1.4% Center Spread with Tape and Reel

ABSOLUTE MAXIMUM CONDITIONS

Description	Parameter	Min	Max	Unit
Temperature, Storage	TS	-65	150	°C
Temperature, Operating	TOP	0	70	°C
Temperature, Junction	TJ	—	150	°C

ELECTRICAL CHARACTERISTICS

Description	Parameter	Min	Max	Unit
3.3V Operating Voltage +/-5%	VDD	3.125	3.465	V
5V Operating Voltage +/-5%	VDD	4.75	5.25	V
Frequency Range	F0	4	128	MHz
Output Low Voltage @ 4 ma	VOL1	—	0.4	V
Output Low Voltage @ 10 ma	VOL2	—	1.2	V
Output High Voltage @ 4 ma	VOH1	2.4	—	V
Output High Voltage @ 6 ma	VOH2	2	—	V
Output Load Capacitor	CL	—	15	pF
Clock Rise Time	TR1	2	5	ns
Clock Fall Time	TF1	2	4.4	ns
Output Clock Duty Cycle	TDCOUT	40	60	%
Cycle-To-Cycle Jitter F=4MHz	TCCJ1	—	800	ps
Cycle-To-Cycle Jitter F=8MHz	TCCJ1	—	450	ps
Cycle-To-Cycle Jitter F=16MHz	TCCJ2	—	400	ps
Cycle-To-Cycle Jitter F=32MHz	TCCJ3	—	380	ps
Cycle-To-Cycle Jitter F=64MHz	TCCJ4	—	380	ps
Cycle-To-Cycle Jitter F=128MHz	TCCJ5	—	380	ps

TOTAL SPREAD % SELECTION

Frequency (MHz)	C1	C3	D1	D3
	Center (%)	Center (%)	Down (%)	Down (%)
4 - 5	±1.4	±0.5	-3	-1.9
5 - 6	±1.3	±0.4	-2.7	-1.7
6 - 7	±1.2	±0.4	-2.5	-1.5
7 - 8	±1.1	±0.3	-2.3	-1.4
8 - 10	±1.4	±0.5	-3	-1.9
10 - 12	±1.3	±0.4	-2.7	-1.7
12 - 14	±1.2	±0.4	-2.5	-1.5
14 - 16	±1.1	±0.3	-2.3	-1.4
16 - 20	±1.4	±0.5	-3	-1.9
20 - 24	±1.3	±0.4	-2.7	-1.7
24 - 28	±1.2	±0.4	-2.5	-1.5
28 - 32	±1.1	±0.3	-2.3	-1.4
32 - 40	±1.4	±0.5	-3	-1.9
40 - 48	±1.3	±0.4	-2.7	-1.7
48 - 56	±1.2	±0.4	-2.5	-1.5
56 - 64	±1.1	±0.3	-2.3	-1.4
64 - 80	±1.3	±0.5	-3.0	-1.9
80 - 96	±1.3	±0.4	-2.7	-1.7
96 - 112	±1.2	±0.4	-2.5	-1.5
112 - 128	±1.1	±0.3	-2.3	-1.4