Electrical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Nominal Frequency	F_0	10		1400	MHz	See Note 1

Frequency Stabilities

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
vs. Operating Temperature	ΔF/F	See Ordering Information			ppm	See Note 2
vs. Aging		-3.0 -1.0		+3.0 +1.0	ppm ppm	1st year Per year after 1st year

RF Output

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Output Type	LVDS/CML/LVPECL					
Output Load	50 Ω to (Vcc-2) V_{DC} 100 Ω differential load					See Note 3 LVPECL Waveform LVDS/CML Waveform
Symmetry	T_{DC}	45	50	55	%	@LVPECL – V_{DD}-1.3 V LVDS -1.25 V
Logic "1" Function	V_{OH}	V_{CC} -1.02			V	LVPECL
Logic "0" Function	V_{OL}			V_{CC} -1.63	V	LVPECL
Differential Voltage		250	350	450	mV	LVDS Load
		0.7	0.95	1.2	V_{pk-pk}	CML
Output Skew			20 15 20		ps ps ps	LVPECL CML LVDS
Common Mode Voltage			1.2		V	LVDS Output
Rise/Fall Time			0.23	0.50	ns	@ 20/80% LVPECL, LVDS, CML
Startup Time	T_{SU}			10	ms	
Enable Function		80% V_{CC} min or N/C: Output active 0.5V max: Output disables to high-Z				Output Option B or G
		0.5V max or N/C: Output active 80% V_{CC} min: Output disables to high-Z				Output Option S or M

Phase Noise

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Phase Noise (measured @ 105 MHz)			-74		dBc/Hz	10 Hz Offset
			-107		dBc/Hz	100 Hz Offset
			-124		dBc/Hz	1 kHz Offset
			-129		dBc/Hz	10 kHz Offset
			-136		dBc/Hz	100 kHz Offset
			-147		dBc/Hz	1 MHz Offset
			-153		dBc/Hz	10 MHz Offset
Phase Jitter @ 105 MHz	ΦJ		0.3		ps RMS	Integrated 12 kHz – 20 MHz

Operating Voltage and Current

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Voltage	V_{CC}	3.135	3.300	3.465	V	M2200
Operating Current		2.375	2.500	2.625	V	M2201
Standby Current		1.710	1.800	1.890	V	M2202
Operating Current	I_{CC}			125	mA	LVPECL
				100	mA	LVDS
				110	mA	CML

Temperature

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Operating Temperature	OTR	See Ordering Information			°C	
Storage Temperature	STR	-55		+125	°C	

Environmental Conditions

Parameter	Conditions
Shock	MIL-STD-202, Method 213, Condition C
Vibration	MIL-STD-202, Method 201 & 204 (10g from 10Hz to 2000Hz)
Solderability	EIAJ-STD-002
Hermeticity	MIL-STD-202, Method 112, (1x10-8 atm. cc/s of Helium)
Thermal Cycle	MIL-STD-883, Method 1010, Condition B (-55°C to +125°C, 15 min. dwell, 10 cycles)
Max Soldering Conditions	See solder profile, Figure 1

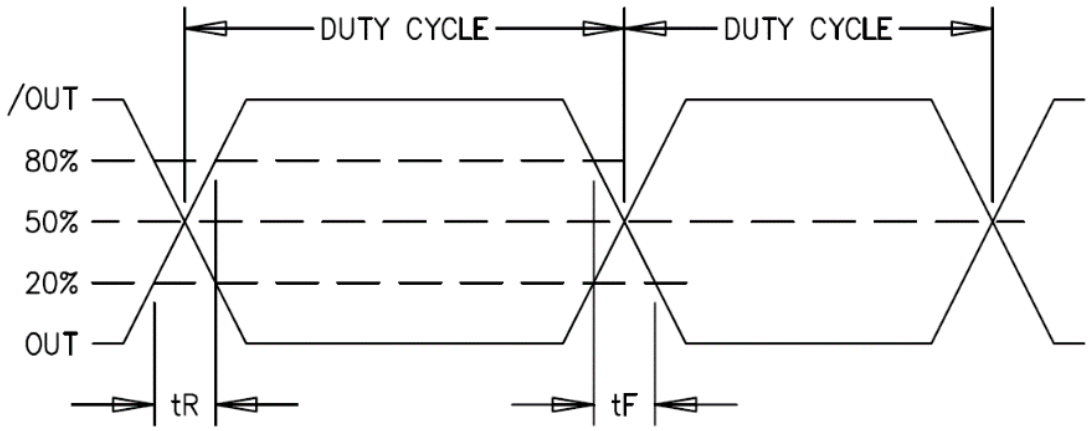
Features and Applications

Features	Applications
Wide Frequency Range 10 MHz to 1.4 GHz	Avionics and Aerospace
Operating Voltage 3.3V, 2.5V, or 1.8V	Communication and Navigation
9x14 mm "J" Lead Ceramic Package	Military Radios
Low Jitter Performance < 0.25 ps RMS, 12 kHz - 20 MHz	Test & Measurement Equipment
Resistance Weld Hermetically Sealed	Instrumentation and Industrial
Less than 4 weeks lead time	

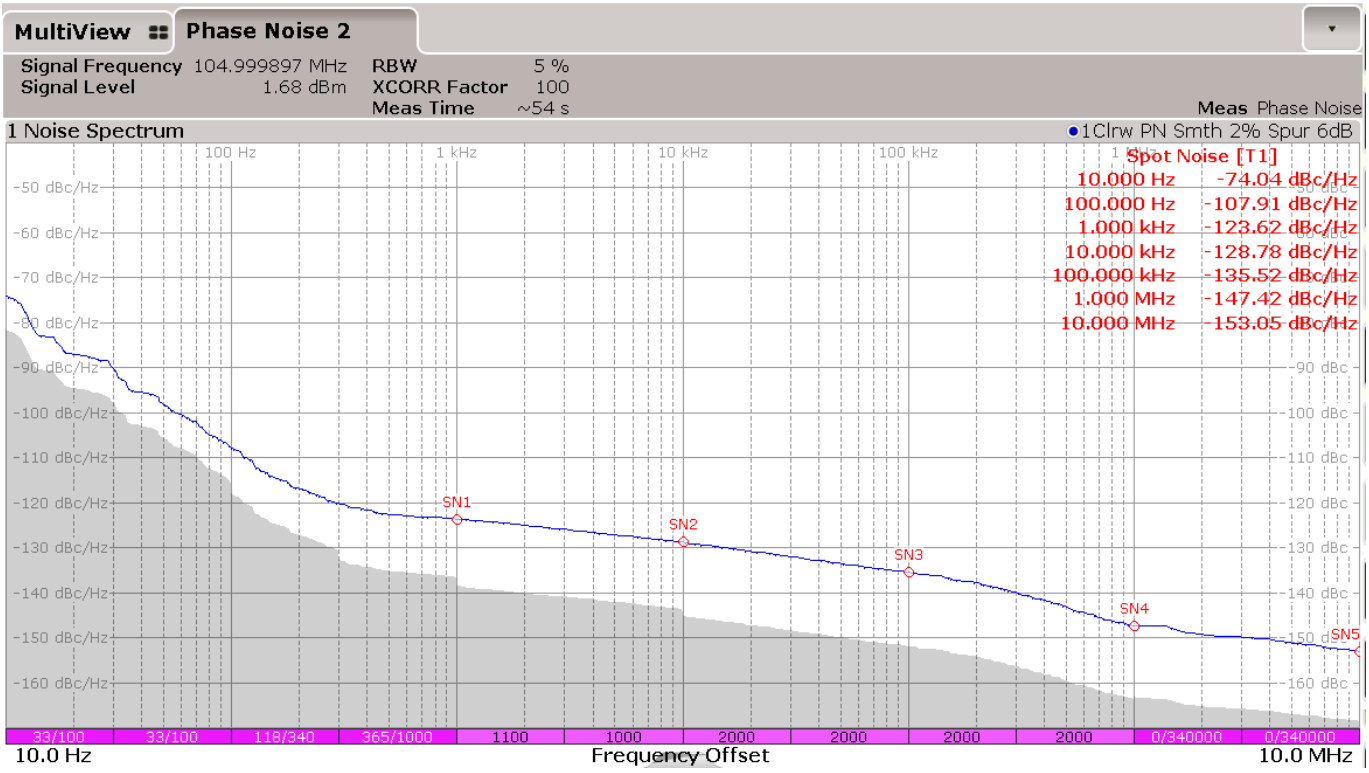
Notes

Note 1	Contact factory for standard frequency availability over 945 MHz
Note 2	Stability is inclusive of initial tolerance, deviation over temperature, shock, vibration, supply voltage, and aging for one year at 50°C mean ambient temperature.
Note 3	See Load Circuit Diagram in this Datasheet. Consult factory with nonstandard output load requirements.

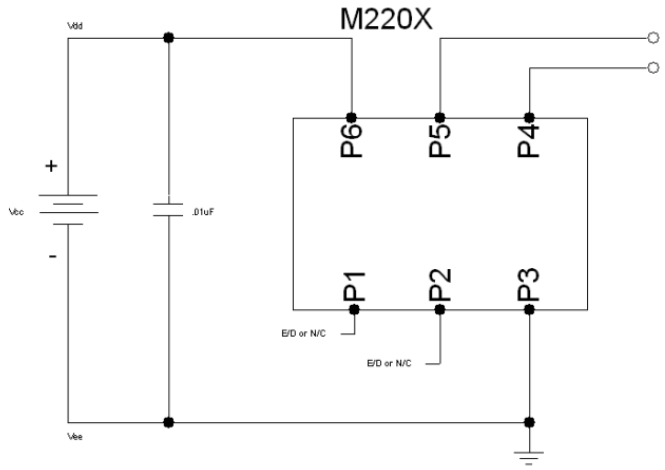
Output Waveform (LVPECL, LVDS, CML)

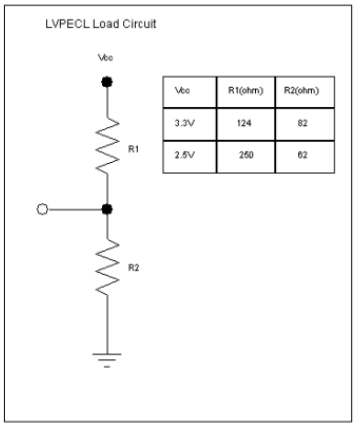


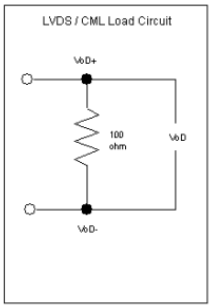
Phase Noise Plot (@ 105 MHz)



Load Circuit Diagrams







Soldering Profile

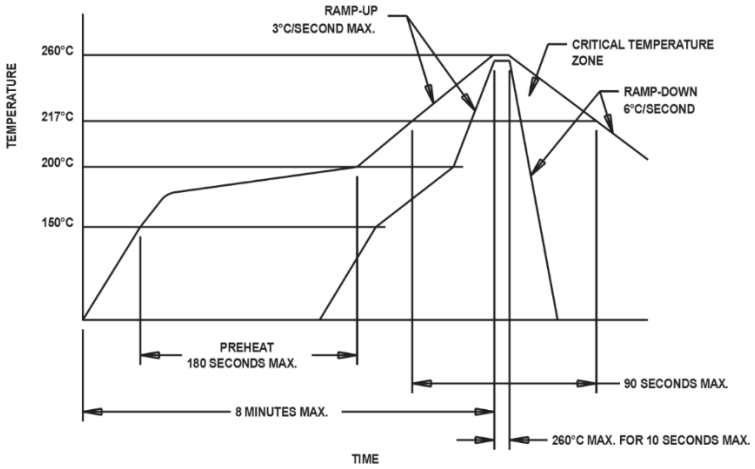
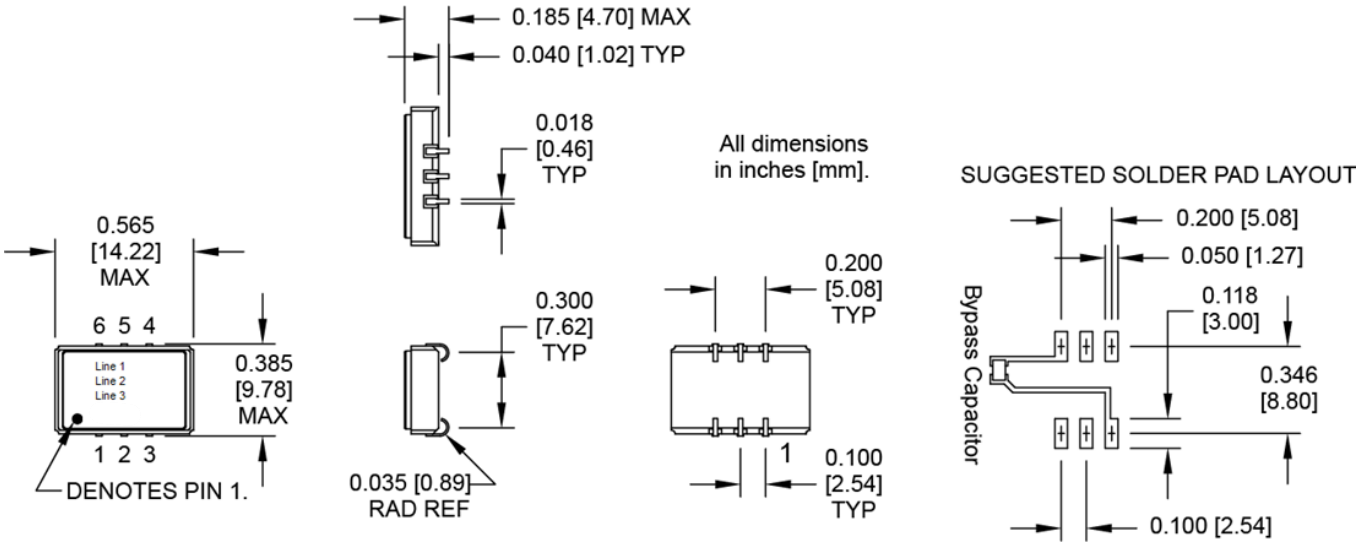


Figure 1

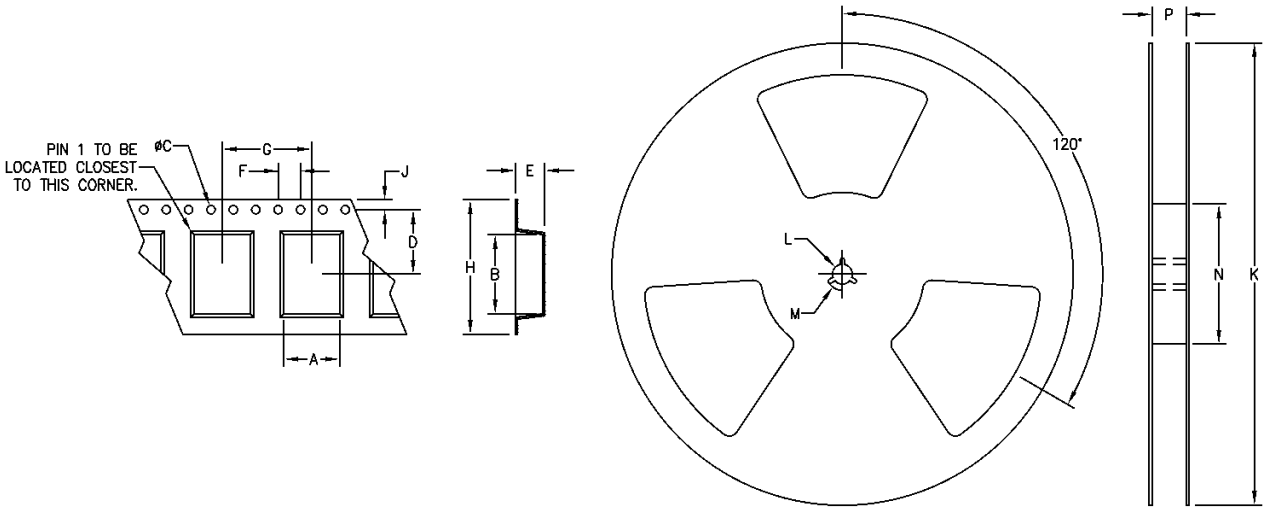
Mechanical and pin out information

Pad	Function
1	Enable/Disable or N/C
2	Enable/Disable or N/C
3	Ground
4	Output
5	Complementary Output
6	Supply Vcc+

Package Dimensions



Tape and Reel Specifications



A	B	C	D	E	F	G	H	J	K	L	M	N
10	14.2	1.5	11.5	5	4	16	24	1.75	330	13	20.2	60

Ordering Information

M220x 6 8 B P J 00.0000MHz

Product Series
M2200 = 3.3V
M2201 = 2.5V
M2202 = 1.8V

Temperature Range	
2	-40°C to +85°C
3	-55°C to +105°C
4	-55°C to +125°C
6	-20°C to +70°C

Stability	
3	± 100 ppm
4	± 50 ppm
8	± 20 ppm

Frequency (Customer specified)

Package/Lead Configuration	
J	Gold Flash J-lead

Logic Type	
P	LVPECL
L	LVDS
M	CML

Enable/Disable	
B	Enable High (pin 1)
G	Enable High (pin 2)
S	Enable Low (pin 1)
M	Enable Low (pin 2)
U	No Enable/Disable

Revision History

Date	Rev	Author	Details of Revision
11-13-25	A	AR	Initial Version