



M252x Series

2.0x2.5 mm, LVPECL/LVDS SMT OSCILLATOR

FEATURES

LVPECL/LVDS Differential Output
RMS Phase Jitter < 100 fs, 12 kHz to 20 MHz,
Low Phase Noise
Compliant to RoHS directive
Operating Voltage: 1.8/2.5/3.3 V

APPLICATIONS

10 Gigabit Ethernet switches/routers
Network Interface Card
Military Communications
Optical Transceiver

ORDERING INFORMATION

	M252x	2	4	B	P	N	00.0000 MHz
Product Series M2520 = 3.3 V M2521 = 2.5 V M2522 = 1.8 V (LVDS Only)							
Temperature Range 2: -40°C to +85°C 6: -20°C to +70°C 4: -55°C to +125°C							
Stability 3: ± 100 ppm 6: ± 25 ppm 4: ± 50 ppm 8: ± 20 ppm							
Enable/Disable Function B: Enable High (Pad 1) G: Enable High (Pad 2) U: No Enable/Disable Function							
Output Type P: LVPECL L: LVDS							
Package/Lead Configurations N: Leadless Ceramic (6 Pad)							

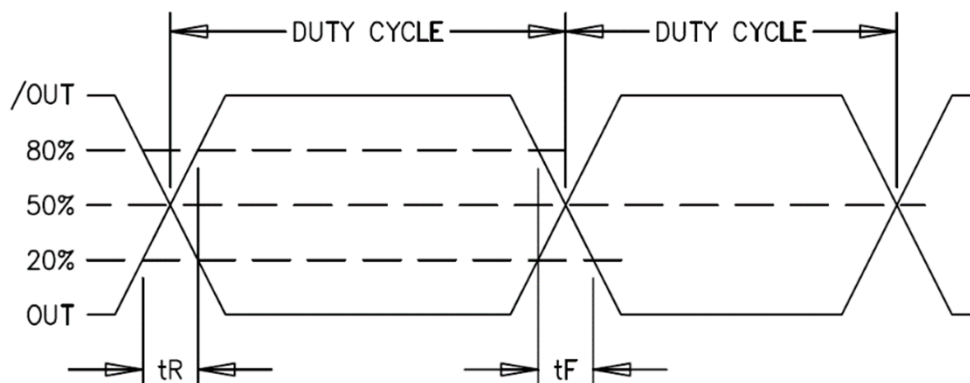
Example Part Number: M252024BPN 156.2500 MHz

04/04/23 Rev. A

LVPECL ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency Range	F ₀	13.5		212.5	MHz	
Frequency Stabilities						
vs. Operating Temperature	$\Delta F/F$	See ordering information			ppm	Includes initial tolerance @ +25°C, deviation over operating temperature.
vs. Aging		-3.0		+3.0	ppm	1st year
RF Output						
		LVPECL Compatible				
Output Load		50 Ω to (V _{CC} - 2) or equivalent				
Symmetry (duty cycle)	T _{DC}	45		55	%	@ 50% of waveform
Logic Level "1"	V _{OH}	V _{CC} - 1.085		V _{CC} - 0.880	V	V _{CC} = 3.3V
		V _{CC} - 1.085		V _{CC} - 0.740	V	V _{CC} = 2.5V
Logic Level "0"	V _{OL}	V _{CC} - 1.830		V _{CC} - 1.555	V	V _{CC} = 3.3V
		V _{CC} - 1.830		V _{CC} - 1.305	V	V _{CC} = 2.5V
Rise/Fall Time	T _R /T _F			0.6	ns	20% to 80% of waveform
Enable/Disable or Standby Logic		70% V _{CC} or N/C			V	Pad 1 or Pad 2 Outputs Enabled
				30% V _{CC}	V	Pad 1 or Pad 2 Outputs disabled to HIGH Impedance State, Oscillator Stops
Start-up Time	T _{SU}			5	ms	T _{ambient} = +25°C
Other Parameters						
Phase Jitter (RMS)	Φ_J		0.045		ps	12 KHz to 20 MHz 156.25MHz
Operating Voltage and Current						
Operating Voltage	V _{CC}	3.135	3.300	3.465	V	M2520
		2.375	2.500	2.625	V	M2521
Operating Current	I _{CC}			70	mA	

OUTPUT WAVEFORM



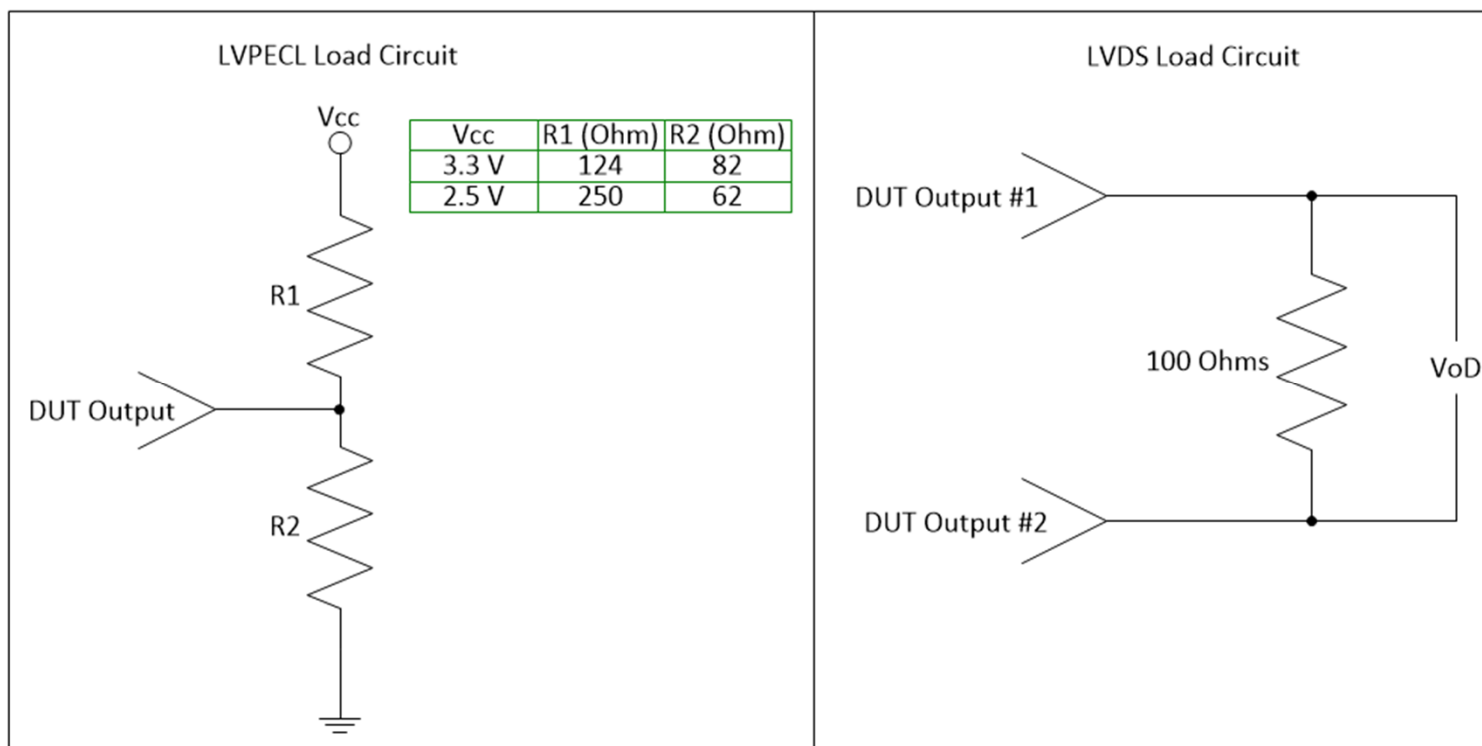
LVDS ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Frequency Range	F ₀	13.5		212.5	MHz	20 MHz to 212.5 MHz @1.8V
Frequency Stabilities						
vs. Operating Temperature	$\Delta F/F$	See ordering information			ppm	Includes initial tolerance @ +25°C, deviation over operating temperature.
vs. Aging		-3.0		+3.0	ppm	1st year
RF Output						
		LVDS Compatible				
Output Load		100 Ω Differential				
Symmetry (duty cycle)	T _{DC}	45		55	%	@ 50% of waveform
Differential Output Voltage	V _{DIFF}	247	450	454	mV	peak-to-peak differential output voltage
Output Offset Voltage	V _{OS}	1.125	1.250	1.375	V	
Rise/Fall Time	T _R /T _F			0.6	ns	20% to 80% of waveform
Enable/Disable or Standby Logic		70% V _{CC} or N/C			V	Pad 1 or Pad 2 Outputs Enabled
				30% V _{CC}	V	Pad 1 or Pad 2 Outputs disabled to HIGH Impedance State, Oscillator Stops
Start-up Time	T _{SU}			5	ms	T _{ambient} = +25°C
Other Parameters						
Phase Jitter (RMS)	Φ_J		0.048		ps	12 KHz to 20 MHz 156.25MHz
Operating Voltage and Current						
Operating Voltage		3.135	3.300	3.465	V	M2520
		2.375	2.500	2.625	V	M2521
		1.710	1.800	1.890	V	M2522
Operating Current				35	mA	

ENVIRONMENTAL CONDITIONS

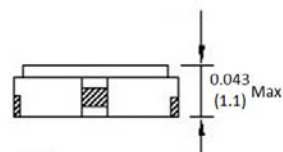
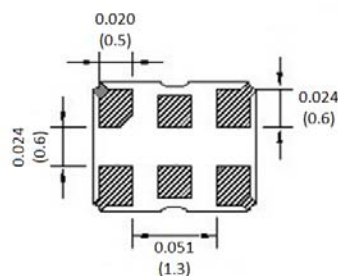
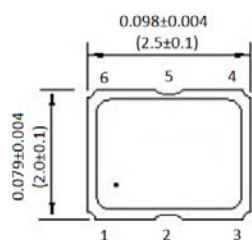
Temperature						
Operating Temperature	T _A	See ordering information			°C	
Storage Temperature	T _S	-55		+125	°C	
Shock	Per MIL-STD-202, Method 213, Condition C (100 g's, 6 ms duration, ½ sinewave)					
Vibration	Per MIL-STD-202, Methods 201 & 204 (10 g's from 10-2000 Hz)					
Solderability	Per EIAJ-STD-002					
Hermeticity	Per MIL-STD-202, Method 112 (1 x 10 ⁻⁸ atm cc/s of helium)					
Thermal Cycle	Per MIL-STD-883, Method 1010, Condition B (-55°C to 125°C, 15 min. dwell, 10 cycles)					

LOAD CIRCUIT DIAGRAMS



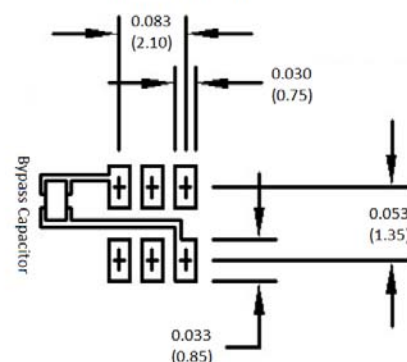
MECHANICAL AND PIN OUT INFORMATION

Pad	Function
1	Enable/Disable or N/C
2	Enable/Disable or N/C
3	Ground
4	Output Q
5	Output $\bar{Q}$
6	Supply +Vcc



All dimensions
in inches (mm).

SUGGESTED SOLDER PAD LAYOUT



LEAD FREE SOLDER PROFILE

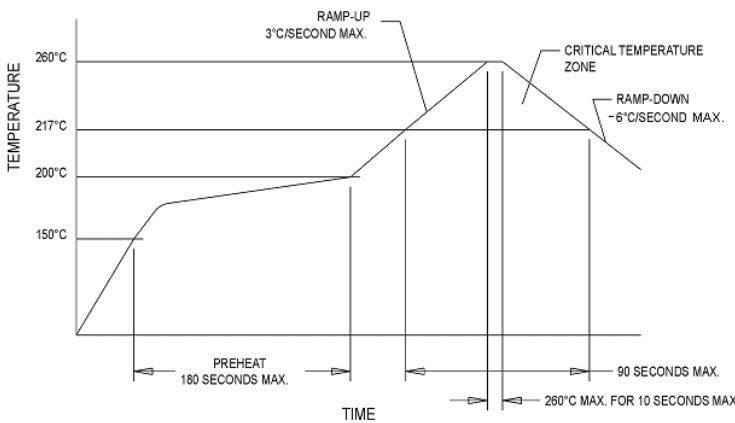
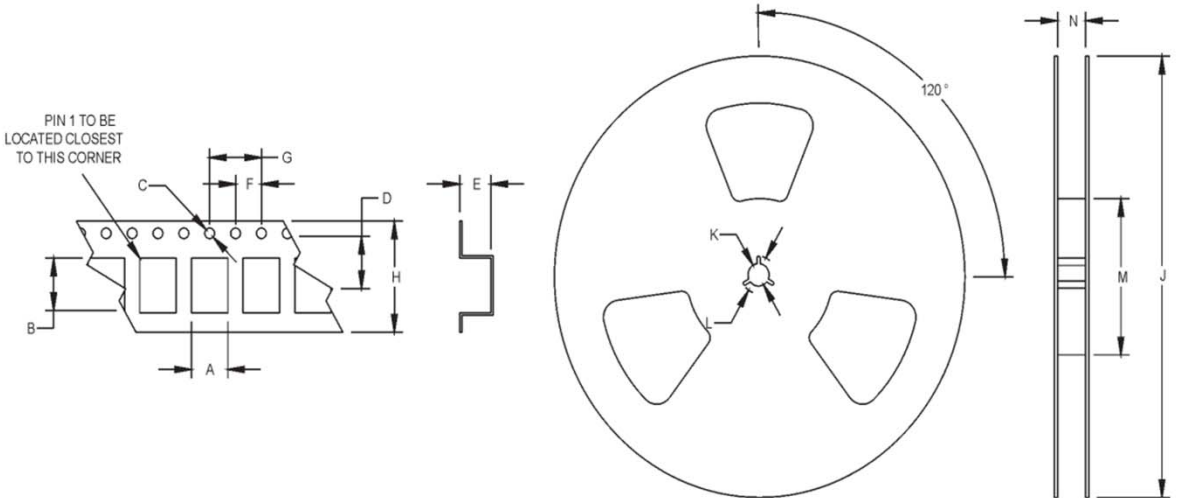


Figure 1

TAPE AND REEL SPECIFICATIONS

All units in mm



A	B	C	D	E	F	G	H	J	K	L	M

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