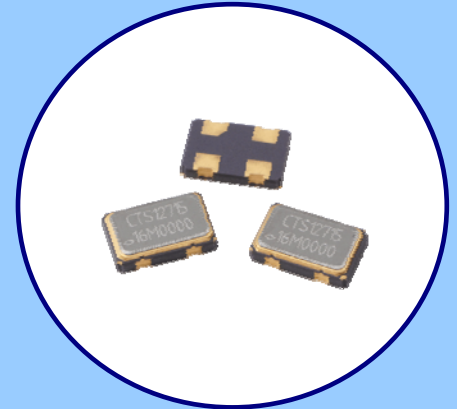


FEATURES

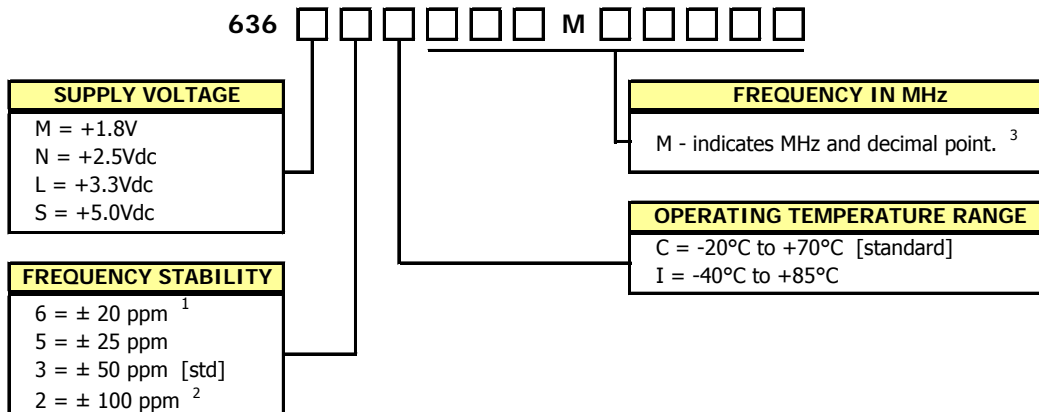
- Standard 5.0mm x 3.2mm 4-Pad Surface Mount Package
- HCMOS/TTL Compatible Output
- Fundamental and 3rd Overtone Crystal Designs
- Frequency Range 1 – 160 MHz
- Frequency Stability ± 50 ppm Standard, ± 25 ppm and ± 20 ppm Available
- Operating Voltages +1.8Vdc, +2.5Vdc, +3.3Vdc or +5.0Vdc
- Operating Temperature to -40°C to $+85^{\circ}\text{C}$
- Output Enable Standard
- Tape & Reel Packaging Standard, EIA-418
- **RoHS/Green Compliant [6/6]**



APPLICATIONS

Model 636 is ideal for applications; such as digital video, networking equipment, broadband access, Ethernet/Gigabit Ethernet, microprocessors/DSP/FPGA, storage area networks, computers and peripherals, cameras and other portable devices to name a few.

ORDERING INFORMATION



1] Consult factory for 6I Stability/Temperature availability.

2] -40°C to $+85^{\circ}\text{C}$ Only.

3] Frequency is recorded with three leading significant digits before the 'M' and 5 significant digits after the 'M' (including zeros).

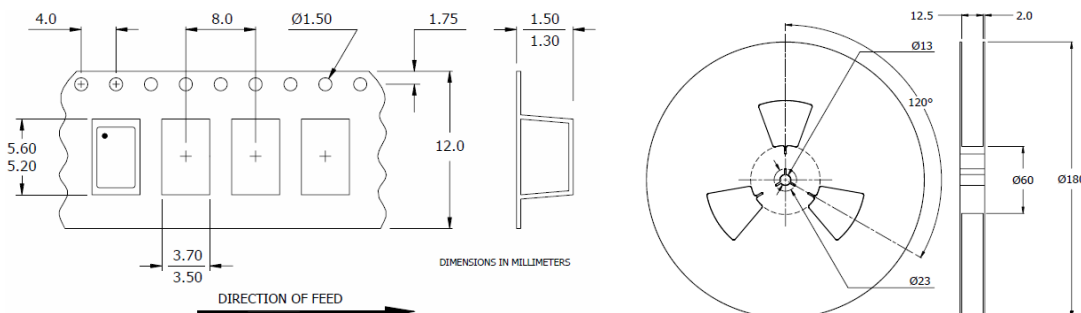
[Ex. 3.579545 MHz, code as 003M57954; 14.31818 MHz, code as 014M31818; 125 MHz, code as 125M00000]

Not all performance combinations and frequencies may be available.

Contact your local CTS Representative or CTS Customer Service for availability.

PACKAGING INFORMATION [Reference]

Factory may package reels in quantities of 1k pcs. or 3k pcs. Reel size is 180mm. **12mm tape width.**



ELECTRICAL CHARACTERISTICS

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	
ELECTRICAL PARAMETERS	Maximum Supply Voltage	V_{CC}	-	-0.5	-	7.0	V	
	Storage Temperature	T_{STG}	-	-55	-	125	°C	
	Frequency Range	f_0	-	1.0	-	160	MHz	
	Frequency Stability [See Note 1 and Ordering Information]	$\Delta f/f_0$	-	-	-	20,25, 50 or 100	± ppm	
	Aging	$\Delta f/f_0$	-	-	-	3	± ppm/yr	
	Operating Temperature Commercial	T_A	-	-	-20	25	70	°C
	Industrial				-40		85	
	Supply Voltage Model 636M Model 636N Model 636L Model 636S	V_{CC}	± 10 %	-	1.62	1.8	1.98	V
					2.25	2.5	2.75	
					2.97	3.3	3.63	
					4.50	5.0	5.50	
	Supply Current Model 636M [+1.8V]	I_{CC}	$C_L = 15pF$	-	1.0 MHz to 34.999 MHz		8	mA
					35 MHz to 60 MHz		15	
					60.001 MHz to 99.999 MHz		25	
					100 MHz to 106.250 MHz		35	
					106.251 MHz to 160 MHz		35	
	Model 636N [+2.5V]				1.0 MHz to 34.999 MHz		10	
					35 MHz to 60 MHz		20	
					60.001 MHz to 99.999 MHz		30	
					100 MHz to 106.250 MHz		40	
					106.251 MHz to 160 MHz		40	
	Model 636L [+3.3V]				1.0 MHz to 34.999 MHz		16	
					35 MHz to 60 MHz		25	
					60.001 MHz to 99.999 MHz		40	
					100 MHz to 106.250 MHz		50	
					106.251 MHz to 160 MHz		50	
	Model 636S [+5.0]				1.0 MHz to 34.999 MHz		25	
	35 MHz to 60 MHz				50			
	60.001 MHz to 99.999 MHz				60			
	100 MHz to 106.250 MHz				80			
Output Load Model 636M	C_L				-	-	1.0 MHz to 160 MHz	
Model 636N & 636L		1.0 MHz to 50 MHz		30				
		50.001 MHz to 160 MHz		15				
Model 636S		1.0 MHz to 50 MHz		50				
	50.001 MHz to 80 MHz		30					
	80.001 MHz to 106.250 MHz		15					
Output Voltage Levels Logic '1' Level	V_{OH}	CMOS Load	90% V_{CC}	-	-	-	V	
Logic '0' Level	V_{OL}	CMOS Load	-	-	10% V_{CC}	-		
Output Current Logic '1' Level (M,N,L,S)	I_{OH}	$V_{OH} = 90\%V_{CC}$	-	-	-2, -4, -8, -16	mA		
Logic '0' Level (M,N,L,S)	I_{OL}	$V_{OL} = 10\%V_{CC}$	-	-	+2, +4, +8, +16			
Output Duty Cycle	SYM	@ 50% Level	45	-	55	%		
Rise and Fall Time Model 636M, 636N & 636L	T_R, T_F	@ 10% - 90% Levels, $C_L = 15pF$	-	1.0 MHz to 50 MHz		6	10	
				50.001 MHz to 125 MHz		3	5	
				125.001 MHz to 160 MHz		1.5	2.5	
Model 636S				1.0 MHz to 20 MHz		6	8	
				20.001 MHz to 50 MHz		3	5	
				50.001 MHz to 106.250 MHz		1.5	2	
Start Up Time	T_S	Application of V_{CC}	-	5	10	ms		
Period Jitter, Pk-Pk	-	-	-	-	100	ps		
Period Jitter, RMS	-	-	-	-	25			
Phase Jitter, RMS	-	Bandwidth 12 kHz - 20 MHz	-	-	1			

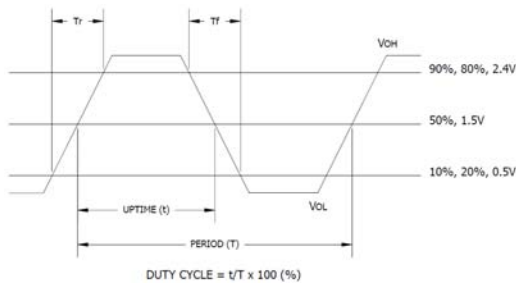
Notes:

- Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and aging.

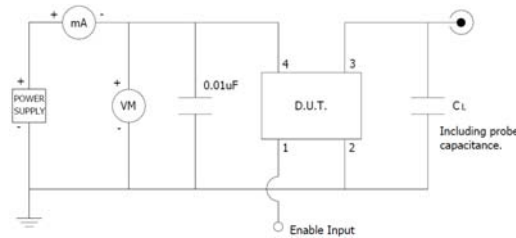
ELECTRICAL CHARACTERISTICS

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
ELECTRICAL PARAMETERS	Enable Function						
	Enable Input Voltage	V _{IH}	Pin 1 Logic '1', Output Enabled	1.26	-	-	V
	Model 636M		Pin 1 Logic '1', Output Enabled	1.75	-	-	
	Model 636N		Pin 1 Logic '1', Output Enabled	2.0	-	-	
	Model 636L		Pin 1 Logic '1', Output Enabled	4.0	-	-	
	Disable Input Voltage	V _{IL}	Pin 1 Logic '0', Output Disabled	-	-	0.3	
	Model 636M,636N,636L		Pin 1 Logic '0', Output Disabled	-	-	0.8	
Enable Time (M,N,L,S)	T _{PLZ}	Pin 1 Logic '1'	-	-	10	ms	
Standby Current	I _{ST}	Pin 1 Logic '0', Output Disabled	-	-	10	µA	

LVC MOS OUTPUT WAVEFORM



TEST CIRCUIT, CMOS LOAD

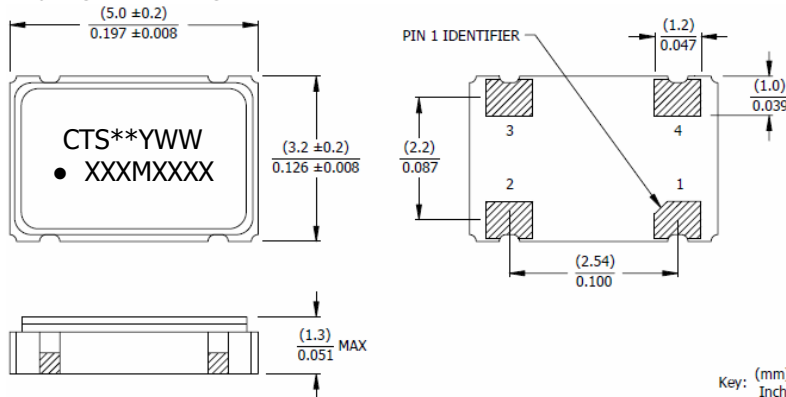


ENABLE TRUTH TABLE

PIN 1	PIN 3
Logic '1'	Output
Open	Output
Logic '0'	High Imp.

MECHANICAL SPECIFICATIONS

PACKAGE DRAWING



MARKING INFORMATION

- ** - Manufacturing Site Code.
- YWW - Date code, Y - year, WW - week.
- XXXMXXXX - Frequency is marked with only leading significant digits before the 'M' and 4 digits after the 'M' [including zeros].
Ex. XXMXXXX [62M5000]
XXXMXXXX [155M5200]

NOTES

- Termination pads [e4]. Barrier-plating is nickel [Ni] with gold [Au] flash plate.
- Reflow conditions per JEDEC J-STD-020, 260°C maximum, 20 seconds.
- MSL = 1.

D.U.T. PIN ASSIGNMENTS

PIN	SYMBOL	DESCRIPTION
1	EOH	Enable
2	GND	Circuit & Package Ground
3	Output	RF Output
4	V _{CC}	Supply Voltage

SUGGESTED SOLDER PAD GEOMETRY

C_{BYPASS} should be ≥ 0.01 µF.

