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Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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MODEL 636



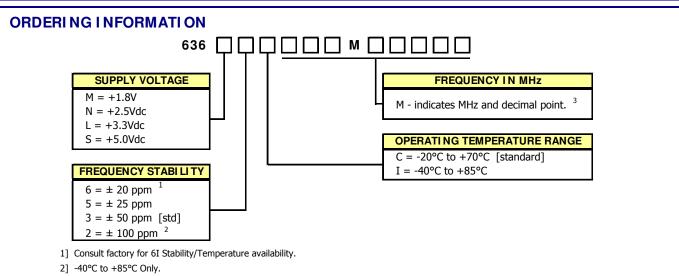
HCMOS/TTL CLOCK OSCILLATOR

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°C
- Output Enable Standard
- Tape & Reel Packaging Standard, EIA-418
- RoHS/ Green Compliant [6/6]

APPLI CATI ONS

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.

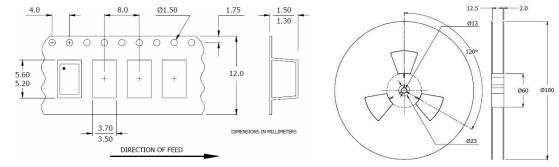


3] Frequency is recorded with three leading significant digits before the 'M' and 5 significant digits after the 'M' (including zeros). [Ex. 3.579545 MHz, code as 003M57954; 14.31818 MHz, code as 014M31818; 125 MHz, code as 125M00000]

> 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.



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PAGE 1-3

REV. H

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ELECTRI CAL CHARACTERI STI CS

	PARAMETER	SYMBOL	CONDI TI ONS	MIN	ТҮР	МАХ	UNIT	
	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]	Δf/f _o	-	-	-	20,25, 50 or 100	± ppm	
	Aging	∆f/f ₀	-	-	-	3	± ppm/yr	
	Operating Temperature							
	Commercial	T _A	-	-20	25	70	°C	
	Industrial			-40	25	85		
	Supply Voltage			1.62	1.0	1.00		
	Model 636M Model 636N V _{CC}		± 10 %	1.62 2.25	1.8 2.5	1.98 2.75	v	
	Model 636L	vcc	- 10 /0	2.97	3.3	3.63	v	
	Model 636S			4.50	5.0	5.50		
	Supply Current		$C_L = 15 pF$					
	Model 636M		1.0 MHz to 34.999 MHz	-	-	8		
	[+1.8V]		35 MHz to 60 MHz	-	-	15		
			60.001 MHz to 99.999 MHz	-	-	25		
			100 MHz to 106.250 MHz 106.251 MHz to 160 MHz	-	-	35 35		
	Model 636N		1.0 MHz to 34.999 MHz	-	-	10		
	[+2.5V]		35 MHz to 60 MHz	-	-	20	mA	
			60.001 MHz to 99.999 MHz	-	-	30		
		I _{CC}	100 MHz to 106.250 MHz	-	-	40		
~		-00	106.251 MHz to 160 MHz	-	-	40		
l iii	Model 636L [+3.3V] Model 636S	-	1.0 MHz to 34.999 MHz	-	-	16		
l E			35 MHz to 60 MHz 60.001 MHz to 99.999 MHz	-	-	25 40		
A			100 MHz to 106.250 MHz	-	-	50		
AR.			106.251 MHz to 160 MHz	-	-	50		
a l			1.0 MHz to 34.999 MHz	-	-	25		
N S	[+5.0]		35 MHz to 60 MHz	-	-	50		
E.			60.001 MHz to 99.999 MHz	-	-	60		
ECTRI CAL PARAMETERS	Output Land		100 MHz to 106.250 MHz	-	-	80		
E I	Output Load Model 636M		1.0 MHz to 160 MHz	_		15		
	Model 636N & 636L		1.0 MHz to 50 MHz	-	-	30		
		CL	50.001 MHz to 160 MHz			15	pF	
	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		CNOCLEET	000/1/				
	Logic '1' Level	V _{OH}	CMOS Load	90%V _{CC}	-	- 10%V _{CC}	V	
	Logic '0' Level Output Current	V _{OL}	CMOS Load	-	-	10%V _{CC}		
	Logic '1' Level (M,N,L,S) I _{OH}		$V_{OH} = 90\% V_{CC}$			-2, -4, -8, -16		
	Logic '0' Level (M,N,L,S)	I _{OL}	$V_{OL} = 10\% V_{CC}$	_	_		mA	
	Output Duty Cycle	SYM	@ 50% Level	45	-	+2, +4, +8, +16	%	
	Rise and Fall Time Model 636M, 636N & 636L		@ 10% - 90% Levels, $C_1 = 15 pF$		_	55	70	
			1.0 MHz to 50 MHz	_	6	10		
		T _R , T _F	50.001 MHz to 125 MHz		3	5	ns	
			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	Ts	Application of V _{CC}	-	5	10	ms	
	Period Jitter, Pk-Pk	-	-	-	-	100	n-	
	Period Jitter, RMS			-	-	25	ps	
	Phase Jitter, RMS Notes:	-	Bandwidth 12 kHz - 20 MHz	-	-	1		

Notes:

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

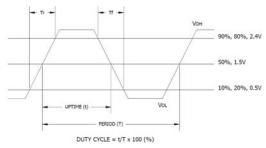


MODEL 636 5.0MM X 3.2MM LOW COST HCMOS/TTL CLOCK OSCILLATOR

ELECTRI CAL CHARACTERI STI CS

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

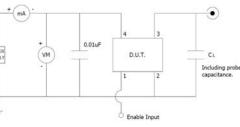
LVCMOS OUTPUT WAVEFORM



TEST CI RCUI T, CMOS LOAD

ENABLE TRUTH TABLE

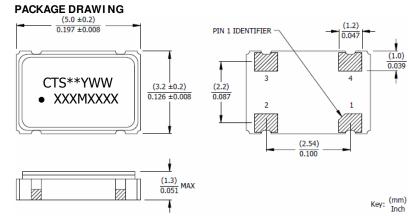
High Imp.



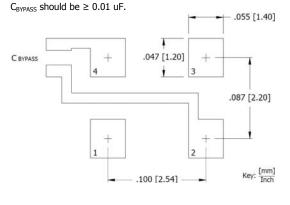
PIN 1	PIN 3
Logic `1'	Output
Open	Output

Logic '0'

MECHANI CAL SPECI FI CATI ONS



SUGGESTED SOLDER PAD GEOMETRY



MARKING INFORMATION

- 1. ** 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

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

D.U.T. PIN ASSI GNMENTS

PI N	SYMBOL	DESCRI PTI ON		
1	EOH	Enable		
2	GND	Circuit & Package Ground		
3	Output	RF Output		
4	V _{cc}	Supply Voltage		