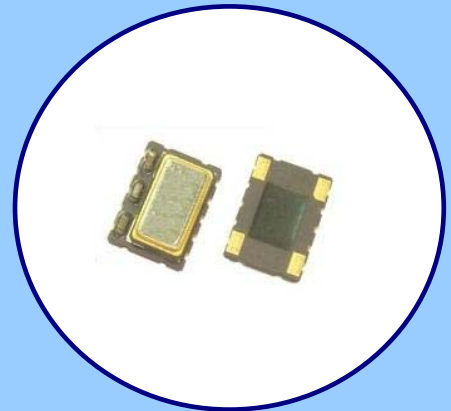


**FEATURES**

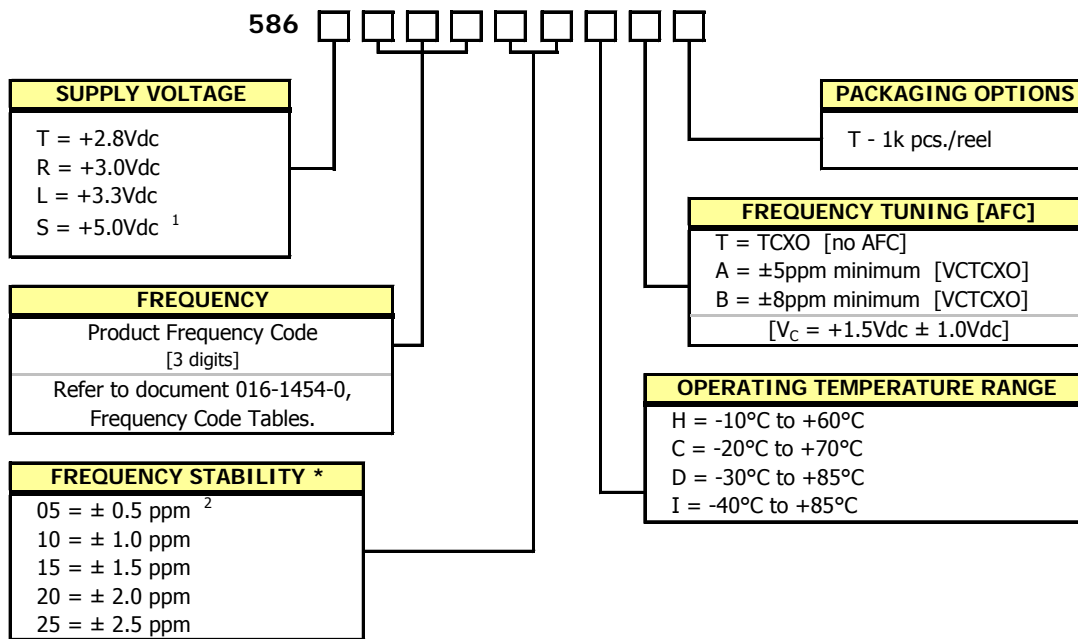
- HCMOS Output
- **Optional Voltage Control for Frequency Tuning [VCTCXO]**
- 7.0mm x 5.0mm Surface Mount Package
- Frequency Range 5 – 52 MHz
- Fundamental Crystal Design
- Frequency Stability, Options from,  $\pm 0.5\text{ppm} \sim \pm 2.5\text{ppm}$
- Operating Voltage, +2.8Vdc  $\sim$  +5.0Vdc
- Operating Temperature to -40°C to +85°C
- Tape & Reel Packaging Standard, EIA-418
- **RoHS/Green Compliant [6/6]**



**APPLICATIONS**

The Model 586 is a quartz based analog TCXO with an HCMOS output and optional frequency tuning. M586 is suitable for applications such as wireless communications, base stations, small cells, broadband access and test equipment.

**ORDERING INFORMATION**



\* Frequency vs. Temperature Only

1] Limited availability. Consult factory.

2] Only available with temperature range codes "H" and "C".

**Not all performance combinations and frequencies may be available.  
Contact your local CTS Representative or CTS Customer Service for availability.**

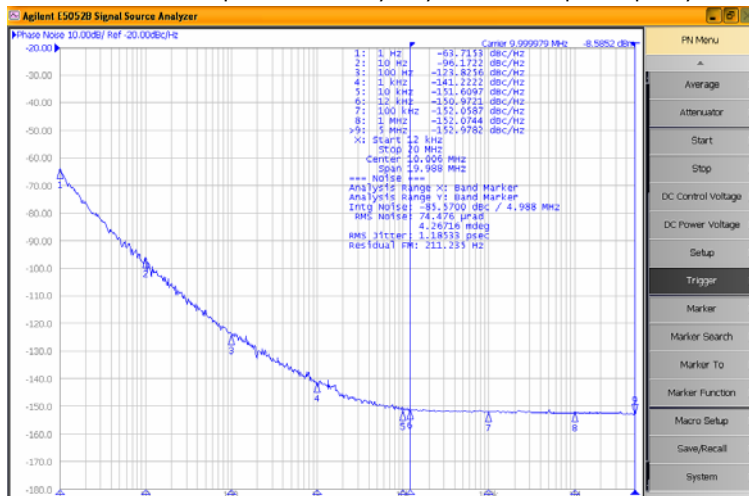
**ELECTRICAL CHARACTERISTICS**

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Maximum Supply Voltage	$V_{CC}$	-	-0.6	-	6.0	V
Maximum Control Voltage	$V_C$	-	-0.5	-	$V_{CC}$	V
Storage Temperature	$T_{STG}$	-	-55	-	+125	°C
Frequency Range	$f_0$	Std frequencies listed in Ordering Information	5	-	52	MHz
Frequency Stability	$\Delta f/f_0$	Frequency vs. Temperature Only	0.5,1.0, 1.5,2.0,2.5			± ppm
Frequency Stability vs. Initial Calibration vs. Reflow Shift vs. Supply Voltage vs. Load vs. Aging vs. Aging	-	@ +25°C 1 hour after reflow ±5% change ±10% change 1st year 10 year [Except stability code 05]	-	-	1.0 2.0 0.2 0.2 1.0 8.0	± ppm
Operating Temperature Order Code 'H' Order Code 'C' Order Code 'D' Order Code 'I'	$T_A$	-	-10 -20 -30 -40	25	+60 +70 +85 +85	°C
Supply Voltage Order Code 'T' Order Code 'R' Order Code 'L' Order Code 'S'	$V_{CC}$	±5%	2.66 2.85 3.14 4.75	2.8 3.0 3.3 5.0	2.94 3.15 3.47 5.25	V
Supply Current	$I_{CC}$	-	-	-	8.0	mA
Control Voltage	$V_C$	-	0.5	1.5	2.5	V
Frequency Tuning [VCTCXO Only]	-	$V_C = 1.5V \pm 1.0V$	A = 5 minimum B = 8 minimum			± ppm
$V_C$ Input Impedance	$ZV_C$	-	100	-	-	kOhm
Output Waveform		HCMOS				
Output Voltage Levels Logic '1' Level Logic '0' Level	$V_{OH}$ $V_{OL}$	HCMOS Load	0.9* $V_{CC}$ -	- -	- 0.1* $V_{CC}$	V
Output Load	$C_L$	-	-	-	15	pF
Rise and Fall Time	$T_{R}$ $T_{F}$	@ 20% - 80% Levels	-	3.0	8.0	ns
Output Duty Cycle	SYM	@ 50% Level	45	-	55	%
Start Up Time	$T_S$	-	-	-	2	ms
Phase Noise <sup>1</sup>	-	-				dBc/Hz

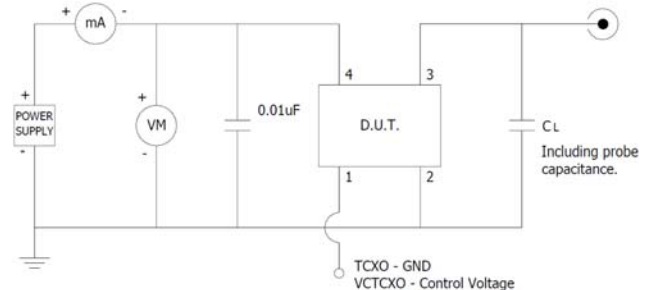
ELECTRICAL PARAMETERS

Notes:

1. Phase Noise performance may vary based on output frequency. See example plot at 10 MHz below.

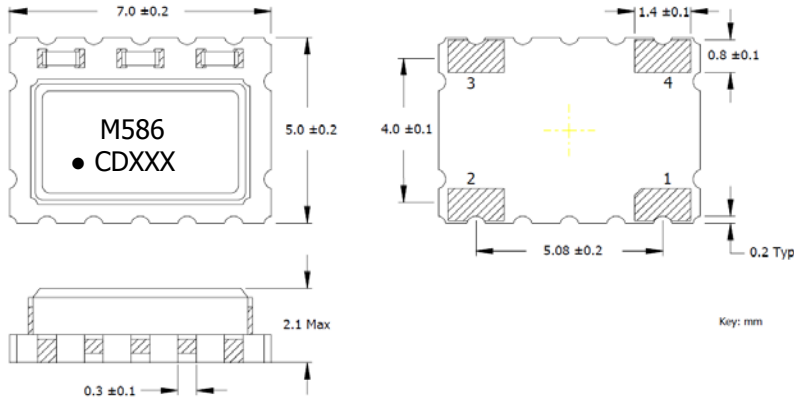


**TEST CIRCUIT – HCMOS LOAD**



**MECHANICAL SPECIFICATIONS**

**PACKAGE DRAWING**



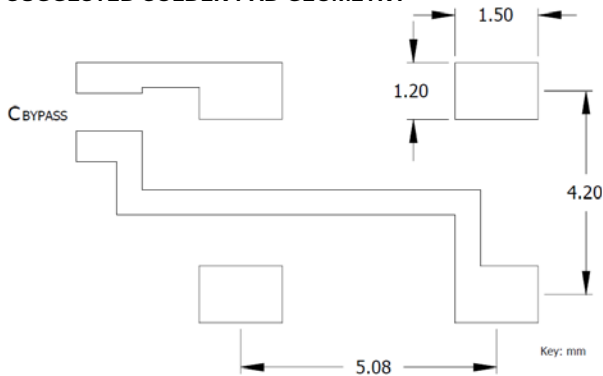
**MARKING INFORMATION**

1. M586 – CTS Model Series.
2. ● – Pin 1 identifier.
3. C – CTS identifier.
4. D – Date code. See Table II for codes.
5. xxx – Frequency Code.
6. Refer to document 016-1454-0, Frequency Code Tables.

**NOTES**

1. DO NOT make connections to non-labeled pins or castellations as they may have internal connections used in the manufacturing process.
2. Termination pads (e4); barrier plating is nickel [Ni] with gold [Au] flash plate.
3. Reflow conditions per JEDEC J-STD-020, 260°C maximum.
4. MSL = 1.

**SUGGESTED SOLDER PAD GEOMETRY**



**D.U.T. PIN ASSIGNMENTS**

PIN	SYMBOL	DESCRIPTION
1	V <sub>C</sub>	Control Voltage – VCTCXO [Note 1] GND - TCXO
2	GND	Circuit & Package Ground
3	Output	HCMOS Output
4	V <sub>CC</sub>	Supply Voltage

**NOTES**

1. Connect to ground for TCXO [no AFC] option.

**TABLE II – DATE CODE**

YEAR		MONTH				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
		2001	2005	2009	2013												
2001	2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M	
2002	2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z	
2003	2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m	
2004	2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z	

**PACKAGING INFORMATION [reference]**

Device quantity is 1k pcs. maximum per 180mm reel.

