

MODEL 589

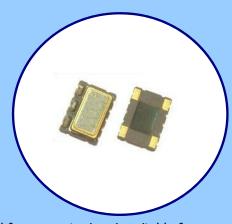


STRATUM 3

TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR

FEATURES

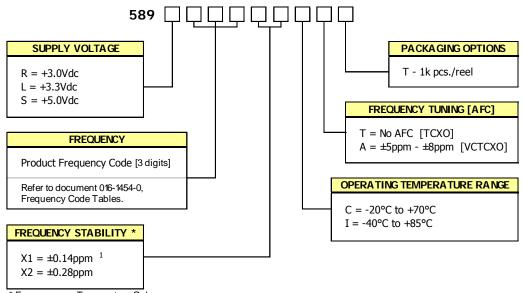
- HCMOS Output
- Optional Voltage Control for Frequency Tuning [VCTCXO]
- 7.0mm x 5.0mm Surface Mount Package
- Frequency Range 5 52 MHz
- Fundamental Crystal Design
- Operating Voltage, +3.0Vdc, +3.3Vdc or +5.0Vdc
- Overall Frequency Stability ±4.6ppm
- Operating Temperature to -40°C to +85°C
- Tape & Reel Packaging Standard, EIA-418
- RoHS/Green Compliant [6/6]



APPLICATIONS

The Model 589, a quartz based analog TCXO with HCMOS output and optional frequency tuning, is suitable for applications requiring Stratum 3 performance such as base stations, Microcells, Femtocells, 1588 and Synchronous Ethernet timing, wireless communications, test and measurement.

ORDERING INFORMATION



^{*} Frequency vs. Temperature Only

1) Only available with temperature range code "C".

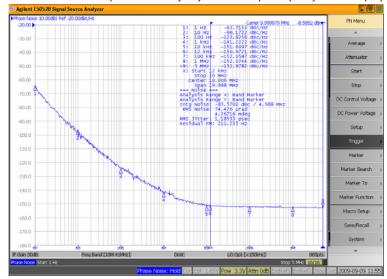
Not all performance combinations and frequencies may be available. Contact your local CTS Representative or CTS Customer Service for availability.

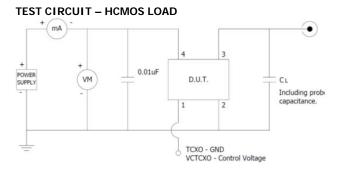
ELECTRICAL CHARACTERISTICS

	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}	-	-40	-	+100	°C		
	Operating Temperature Order Code 'C' Order Code 'I'	T _A	-	-20 -40	+25	+70 +85	°C		
	Frequency Range	f _O	-	5	-	52	MHz		
	Supply Voltage Order Code 'R' Order Code 'L' Order Code 'S'	V _{CC}	±5%	2.85 3.14 4.75	3.0 3.3 5.0	3.15 3.47 5.25	V		
	Supply Current	I_{CC}		-	-	6.0	mA		
TERS	Frequency Stability Overall Frequency Stability vs. Initial Calibration	Δf/f _O	Reference to f ₀ , Including 20 years aging @ +25°C, at time of shipment	-	-	4.60 1.00			
ELECTRICAL PARAMETERS	vs. Operating Temperature vs. Supply Voltage	Δf/f ₂₅	[Fmax Fmin.]/2, over -40°C to +85°C [Fmax Fmin.]/2, over -20°C to +70°C ±5% change @ +25°C	- - -	- - -	0.28 0.14 0.40	± ppm		
	vs. Load		±5% change	-	-	0.10			
2	vs. Aging	A E I E	20 years @ +40°C	-	-	2.80			
I R	Holdover	Δf/f _O	[Fmax Fmin.]/2, over 24 hours	-	-	0.32	.,		
	Control Voltage	V _C	-	0.5	1.5 5 - 8	2.5	. V		
□	Frequency Tuning [VCTCXO Only]	- 70.4	$V_C = 1.5V \pm 1.0V$, monotonic positive	100	5 - 8 I	_	± ppm		
	V _C Input Impedance						kOhm		
	Output Waveform Output Voltage Levels Logic '1' Level Logic '0' Level	V _{OH}	HCMOS Load HCMOS Load	0.9*V _{CC}	-	- 0.1*V _{CC}	V		
	Output Load	tput Load C _L -					pF		
	Rise and Fall Time	and Fall Time T _R , T _F @ 20% - 80% Levels					ns		
	Output Duty Cycle						%		
	Start Up Time	Ts	-	-	-	2	ms		
	Enable Function Enable Input Voltage Disable Input Voltage	V _{IH}	Pin 8 Logic '1', Output Enabled Pin 8 Logic '0', Output Disabled [High Imp]	0.7*V _{CC}	-	- 0.3*V _{CC}	V		
	Phase Noise ¹	- v _{IL}	-			0.5 VCC	dBc/Hz		
	Note:								

Notes:

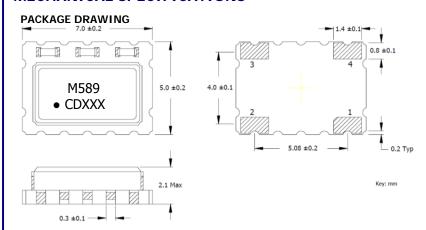
^{1.} Phase Noise performance may vary based on output frequency. See example plot at 10 MHz below.





MODEL 589 STRATUM 3 TCXO/VC-TCXO - HCMOS

MECHANICAL SPECIFICATIONS



MARKING INFORMATION

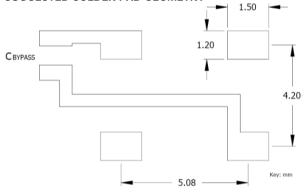
- 1. M589 CTS Model Series.
- 2. − Pin 1 identifier.
- 3. C CTS identifier.
- 4. D Date code. See Table II for codes.
- 6. xxx Frequency Code.

Refer to document 016-1454-0, Frequency Code Tables.

NOTES

- 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	Control Voltage – VCTCXO [Note 1]						
		V _C	GND - TCXO						
	2	GND	Circuit & Package Ground						
	3	Output	HCMOS Output						
	4	V_{CC}	Supply Voltage						

NOTES

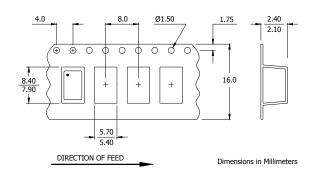
1. Connect to ground for TCXO [no AFC] option.

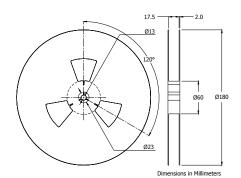
TABLE II - DATE CODE

	MONTH				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC
	YEAR			JAIN	FLB	WAK	AFK	IVIAT	JOIN	JUL	AUG	JLF	001	NOV	DEC	
2001	2005	2009	2013	2017	Α	В	С	D	E	F	G	Н	J	K	L	М
2002	2006	2010	2014	2018	N	Р	Q	R	S	Т	U	٧	W	Χ	Υ	Z
2003	2007	2011	2015	2019	а	b	С	d	е	f	g	h	j	k	_	m
2004	2008	2012	2016	2020	n	р	q	r	S	t	u	٧	w	х	У	Z

PACKAGING INFORMATION [reference]

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





Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

CTS:

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        589L200X2ITT
        589L128X2ITT
        589L307X2ITT
        589L100X2CAT
        589L100X2CTT
        589L100X2ITT
        589L100X2ITT
        589L100X2ITT
        589L100X2ITT
        589S100X2ITT
        589S320X2CAT
        589S320X2CAT
        589S320X2IAT
        589S328X2IAT
        589S288X2IAT
        589S288X2IAT
        589S288X2IAT
        589S288X2IAT
        589S288X2IAT
        589S288X2IAT
        589S280X2IAT
        589S280X2IAT
        589S270X2CAT
        589S270X2CAT
        589S270X2CAT
        589S250X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S160X2IAT
        589S1160X2IAT
        589S100X2IAT
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