

### 3.2 mm x 2.5 mm 6 Pads SMD TCXO or TC/VCXO Oscillator

I595 / I795 Series

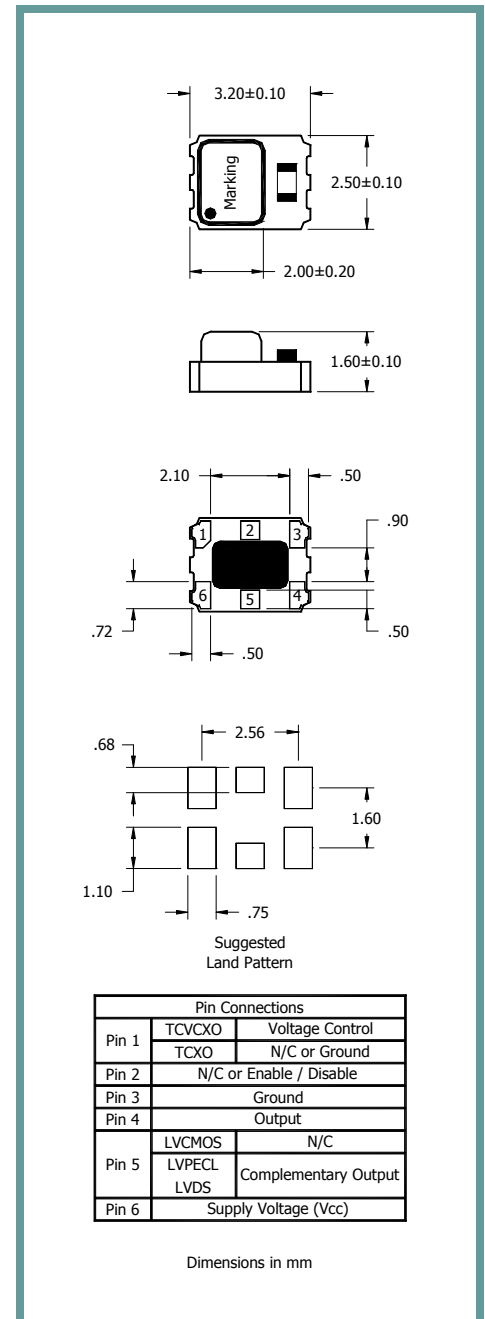
#### Product Features:

Advanced PLL Technology  
0.8 pSec Phase Jitter typ.  
Fast Delivery  
RoHS and Lead Free Compliant

#### Applications:

Server & Storage  
CDMA / WCDMA  
802.11 / Wifi  
T1/E1, T3/E3

<b>Frequency</b> LVCMOS LVPECL LVDS	10.000 MHz to 245.000 MHz 10.000 MHz to 1450.000 MHz 10.000 MHz to 1450.000 MHz
<b>Output Levels</b> LVCMOS LVPECL LVDS	Logic "0" = 10% of Vcc max Logic "1" = 90% of Vcc min Logic "0" = Vcc - 1.85 Vmin, Vcc - 1.60 V max Logic "1" = Vcc - 1.03 V min, Vcc -0.60 V max Logic "0" = 1.10 V typ, 0.90 V min Logic "1" = 1.40 V typ, 1.60 V max
<b>Load</b> LVCMOS LVPECL LVDS	15pF Differential Differential
<b>Duty Cycle</b>	50% ±5% (Ref to 50% of waveform)
<b>Rise / Fall Time</b> LVCMOS LVPECL LVDS	1.5 nSec typ, 3.0 nSec max (10% to 90% of waveform) 0.2 nSec typ, 0.5 nSec max (20% to 80% of waveform) 0.2 nSec typ, 0.4 nSec max (20% to 80% of waveform)
<b>Frequency Stability</b> Initial Calibration Tolerance vs. Temperature vs. Aging vs. Voltage vs. Load vs. Reflow	±1.0 ppm max at +25°C ±2°C at time of shipment See Stability in Part Number Guide ±1.0 ppm max per year at +25°C ±0.2 ppm max for a ±5% change in Supply Voltage (Vcc) ±0.2 ppm max for a ±10% change in load ±1.0 ppm max after 1 reflow and measured 24 hours after.
<b>Start-up Time</b>	5 mSec max
<b>Supply Voltage (±5%)</b>	+2.50 VDC , +3.30 VDC See Part Number Guide
<b>Current</b>	See table 1 sheet 2
<b>Current with Output Disabled</b>	18 mA typ
<b>Phase Noise (RMS)</b>	0.8 pSec typ (12.000 kHz to 20.000 MHz) Less than 400nSec (1.875 kHz to 21.000 MHz)
<b>Temperature Range</b> Operating Storage	See Operating Temperature in Part Number Guide -55°C to +150°C
<b>Notes:</b> 1. An 0.01 µF and 10 µF bypass capacitors are recommended between Vcc (Pin 6) and GND (Pin 3) to minimize power supply noise	



Part Number Guide				Sample Part Number: I595-63Q8H-20.000		
Package	Input Voltage	Operating Temperature	Stability (in ppm)	Output	Enable / Disable (Pin 2)	Frequency
I595 = TCXO	3 = +3.3 V	1 = 0°C to +70°C	0 = ±1.5*	3 = LVCMOS	H = Enable	20.000 MHz
	6 = +2.5 V	2 = -40°C to +85°C	P = ±2.0*	8 = LVDS	O = N/C	
I795 = TCVCXO		3 = -20°C to +70°C	Q = ±2.5*	9 = LVPECL		
		5 = -30°C to +85°C	R = ±3.0			
			J = ±5.0			

\* Not available for all temperature ranges

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#### Pin Select Functions

Voltage Control Function (Pin 1) I795 only		E/D Function (Pin 2)	
VC Voltage Center & Range	+1.5 V $\pm$ 1.0 V for both Vcc = +2.5 V & +3.3 V	E/D Control	0.7% of Vcc min or no connection enable output 0.3% of Vcc max to disable output (high impedance)
Frequency Pull Range	$\pm$ 8.0 ppm	E/D Time	200 nSec max
Linearity	$\pm$ 1% typ, $\pm$ 10% max	Disable Time	50 nSec max
Transfer Function	Positive		
Absolute Voltage			
Vcc = +3.3 V	+3.63 V max		
Vcc = +2.5 V	+2.63 V max		
Input Impedance	770 k $\Omega$ typ		
Harmonics	-5.0 dBc max		

#### SSB Phase Noise

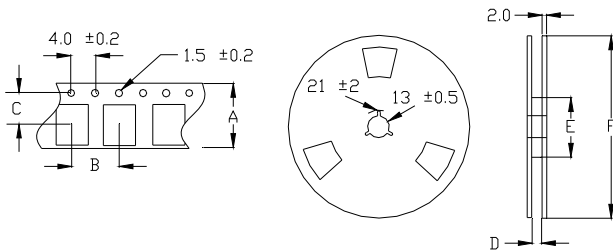
Offset	77.76	156.25	212.50	622.08	1000.00	1250.00
10 Hz	-62 dBc/Hz	-65 dBc/Hz	-61 dBc/Hz	-51 dBc/Hz	-40 dBc/Hz	-43 dBc/Hz
100 Hz	-100 dBc/Hz	-92 dBc/Hz	-90 dBc/Hz	-79 dBc/Hz	-73 dBc/Hz	-75 dBc/Hz
1 kHz	-116 dBc/Hz	-108 dBc/Hz	-106 dBc/Hz	-97 dBc/Hz	-91 dBc/Hz	-89 dBc/Hz
10 kHz	-122 dBc/Hz	-114 dBc/Hz	-110 dBc/Hz	-102 dBc/Hz	-99 dBc/Hz	-95 dBc/Hz
100 kHz	-124 dBc/Hz	-117 dBc/Hz	-112 dBc/Hz	-103 dBc/Hz	-99 dBc/Hz	-96 dBc/Hz
1 MHz	-144 dBc/Hz	-139 dBc/Hz	-133 dBc/Hz	-125 dBc/Hz	-121 dBc/Hz	-117 dBc/Hz
10 MHz	-152 dBc/Hz	-147 dBc/Hz	-142 dBc/Hz	-134 dBc/Hz	-129 dBc/Hz	-127 dBc/Hz

#### Supply Current

Current Consumption	LVC MOS	LVPECL	LVDS
<b>Vcc = +2.50 VDC</b> All values are typical an over the operating temperature.	50 MHz = 24mA 125 MHz = 28 mA 200 MHz = 30 mA	156 MHz = 36mA 600 MHz = 40mA 800 MHz = 46mA 1.0G Hz = 50mA	156 MHz = 22mA 600 MHz = 28mA 800 MHz = 30mA 1.0G Hz = 34mA
<b>Vcc = +3.30 VDC</b> All values are typical an over the operating temperature.	50 MHz = 26mA 125 MHz = 30 mA 200 MHz = 34 mA	156 MHz = 40mA 600 MHz = 45mA 800 MHz = 48mA 1.0G Hz = 52mA	156 MHz = 25mA 600 MHz = 30mA 800 MHz = 32mA 1.0G Hz = 36mA

Table 1

#### Tape and Reel Information:

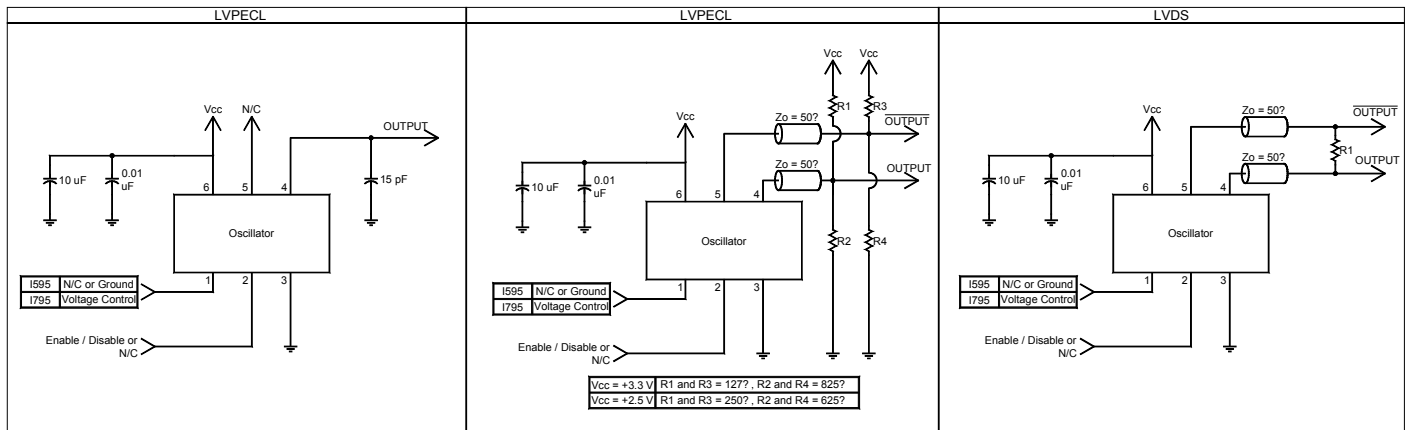


Quantity per Reel	3000
A	8.0 $\pm$ 0.2
B	4.0 $\pm$ 0.1
C	3.5 $\pm$ 0.05
D	9.0 $\pm$ 0.3
E	60 / 80
F	180 / 250

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#### Typical Applications:



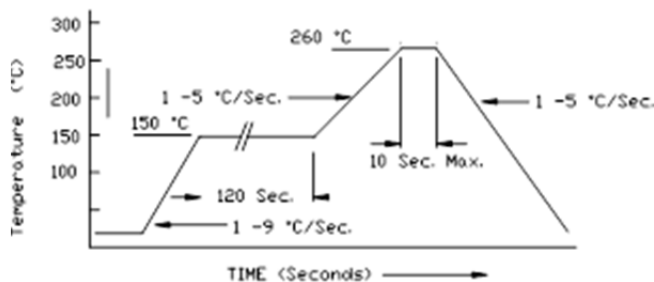
#### Environmental Specifications:

Thermal Shock	MIL-STD-883, Method 1011, Condition A
Moisture Resistance	MIL-STD-883, Method 1004
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Mechanical Vibration	MIL-STD-883, Method 2007, Condition A
Resistance to Soldering Heat	J-STD-020C, Table 5-2 Pb-free devices (except 2 cycles max)
Hazardous Substance	Pb-Free / RoHS / Green Compliant
Solderability	JESD22-B102-D Method 2 (Preconditioning E)
Terminal Strength	MIL-STD-883, Method 2004, Test Condition D
Gross Leak	MIL-STD-883, Method 1014, Condition C
Fine Leak	MIL-STD-883, Method 1014, Condition A2, R1=2x10 <sup>-8</sup> atm cc/s
Solvent Resistance	MIL-STD-202, Method 215

#### Package Information:

MSL – N.A. (package does not contain plastic, storage life is unlimited under normal room conditions)  
Termination = e4 (Au over Ni over W base metallization)

#### Pb Free Solder Reflow Profile:



#### Marking:

Line 1: I - Date Code (yyww)  
Line 2: Frequency

Units are backward compatible with 240°C reflow process.

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