DETAIL PRODUCT

SPECIFICATION CONTROL DRAWING

Revision Record					
Revision	**DCO**	**Description**	**Eng. Approval** Initials and Date	**QA Approval** Initials and Date	**Release Date**
-					

UNLESS OTHERWISE SPECIFIED Dimensions are in Inches Tolerances Decimal / Fraction / Angular	
.xxx ± .005 .xx ± .02 .x ± .1 / x/x ± 1/16 / x° ± 2°	

Initial Release	
Prepared	**Date**
Joe Lepisto	11/30/12
Checked	**Date**
Joe Adler	
Engineering Approval	**Date**
Richard Duong	
Quality Assurance Approval	**Date**
Craig Albright	
Released	**Date**

Q-TECH CORPORATION
10150 West Jefferson Blvd.
Culver City, CA 90232-3510 USA

TITLE

MCM5716-1 500MHz SAW OSCILLATOR, COMMERCIAL, DETAIL SPECIFICATION FOR

DRAWING NO.	REVISION
A-7069	-

SCALE	SIZE	CAGE CODE	PAGE
NONE	**A**	**51774**	**1 of 8**

1 PURPOSE

1.1 The purpose of this Detail Specification Control Drawing (SCD) is to describe the specific quality and reliability requirements for Commercial Saw Oscillators.

2 SCOPE

2.1 This specification establishes the minimum detail requirements for MCM5716-1.

3 PART PROTECTION AND SAFETY

3.1 These items are susceptible to breakdown damage resulting from electrostatic discharge. Every precaution shall be taken while handling, installing, and testing the parts to prevent static charge. Care should be exercised to not apply more than rated voltage or current to any terminal/pad during testing.

4 PART NUMBER

4.1 The Q-Tech Part Number shall be as specified in Table 1 herein.

5 APPLICABLE DOCUMENTATION & REFERENCES

5.1 The following documents form a part of this drawing to the extent specified or modified herein.

5.2 **Industry**

5.2.1 ISO 14644 Standards

5.2.1.1 14644-1, *Classification of Air Cleanliness*

5.2.1.2 14644-2, *Specifications for Testing and Monitoring to Prove Continued Compliance with ISO 14644-1*

5.2.1.3 Federal Standard 209, *Airborne Particulate Cleanliness Classes in Cleanrooms and Cleanzones* (Superseded by ISO Standard 14644)

5.3 **Application of Documents**

5.3.1 **Issue of Documents**

Document revisions in effect on the date of the customer purchase order form a part of this drawing except as modified herein.

5.3.2 **Order of Precedence**

In the event of conflict between this document and the references cited herein or other requirements, the precedence in which requirements shall govern, in descending order, is as follows:

a) Applicable Customer Purchase Order
b) Applicable Customer Detail SCD and/or Detail Drawing
c) Applicable Q-Tech Corporation Detail SCD/Drawing
d) Applicable Q-Tech Corporation General SCD(TBD)
e) Other Specifications, Standards, and Documentation Referenced Above

5.3.3 **Customer Purchase Order Special Requirements**

Additional special requirements shall be specified in the applicable customer purchase order when additional requirements or modifications are needed for compliance to special programs or product line compliance. Unique identification of the items produced may be required.

6 GENERAL REQUIREMENTS

6.1 Definition of Requirements

Items supplied to this detail SCD shall meet the detail requirements specified herein.

6.2 Individual Item Requirements

The individual item requirements shall be in accordance with this SCD.

6.3 Approved Source of Supply

Saw oscillators shall be supplied from the manufacturer specified in “Source of Supply” below.

6.4 Design and Construction

6.4.1 **Outline Dimensions and Terminal Connections**

The outline dimensions and terminal connections shall be as shown in Figure 3 herein.

6.5 Performance Requirements

6.5.1 **Maximum Ratings**

The maximum ratings shall be as specified in Table 2 herein.

6.5.2 **Electrical Performance Characteristics and Limits**

The electrical performance requirements and limits shall be in accordance with Table 3 herein.

6.5.3 **Delta Limits**

Except for frequency aging (refer to Table 3 herein), delta limits shall be in accordance with the general SCD (TBD)

7 QUALITY ASSURANCE PROVISIONS

7.1 General

The quality assurance provisions shall be in accordance with the general SCD(TBD). with the exceptions, modifications, and additions specified herein.

7.2 Screening

The screening tests shall be in accordance with the general SCD (TBD).

7.3 Quality Conformance Inspection (QCI)

Quality Conformance Inspection shall be in accordance with the general SCD (TBD).

8 PREPARATION FOR DELIVERY

8.1 Preservation, Packaging, and Packing

Saw oscillators shall be prepared for delivery in accordance with the general SCD (TBD).

9 SOURCE OF SUPPLY

9.1 **Approved Manufacturer**

Q-Tech Corporation
10150 West Jefferson Boulevard
Culver City, CA 90232-3510 USA

10 NOTES

10.1 The notes of the general SCD are applicable to this drawing.

10.2 **Generic Reference**

For generic reference only, the nearest Q-Tech Corporation catalog equivalent part number is (TBD).

Table 1 – Part Number

Customer Part Number	Manufacturer Part Number	Usage
MCM5716-1	MCM5716-1	Commercial
Engineering models are designated by deleting the "M" reference from the Part Number.		

Table 2 – Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Supply Voltage	V_{CC}	0	5.5	Volts
Operating Temperature	T_C	-40	+85	°C
Storage Temperature	T_{STG}	-55	+125	°C
Lead Solder Temperature/Time			+250/10	°C/Seconds
Package Thermal Resistance	Θ_{jc}		50	°C/W

Table 3 – Electrical Performance Characteristics

Specifications					
Parameter	Unit	Min	Typical	Max	Notes
Center Frequency Fo	KHz	-25	500 MHz	+25	Vtune = Floating. At time of shipment
Absolute Pull Range APR	ppm	na	na	na	Vtune = 0.5V to 5.0V, -40C to 85C
Tuning K	KHz/V	na	na	na	Average incremental sensitivity
Tuning Kr = Kmax/Kmin	unit less	na	na	na	
Temperature Stability	ppm	-60	na	20	Referenced to 500 MHz over -40 to 85 degC.
Output Power	dBm	8	10	12	50 Ohm load, -40C to 85C
Harmonic Spurious	dBc		-30	-20	50 Ohm load, -40C to 85C
Non-harmonic Spurious	dBc	na	<-80	-80	50 Ohm load, -40C to 85C(no sub-harm)
SSB Phase Noise at 1KHz	dBc/Hz		-122		
SSB Phase Noise at 10KHz	dBc/Hz		-145		
SSB Phase Noise Floor	dBc/Hz		-170		
Vibration Sensitivity	ppb/G	na	1	2	per axis
Output Frequency Multiplier	unit less	na	1	na	No internal frequency multiplication
Aging First Year	ppm		20		
Aging (Life)	ppm		40		Total Aging over Expected 20 year life
Worst case freq deviation	ppm	-100		+50	For all conditions over the life of the unit.
V Supply	Volts	4.75	5.0	5.25	
I Supply	mA	na	30	na	50 Ohm load, -40C to 85C, w/o oven
NOTE: VOLTAGE CONTROL IS AVAILABLE THOUGH ATRIBUTES ARE NOT SPECIFIED HEREIN.					

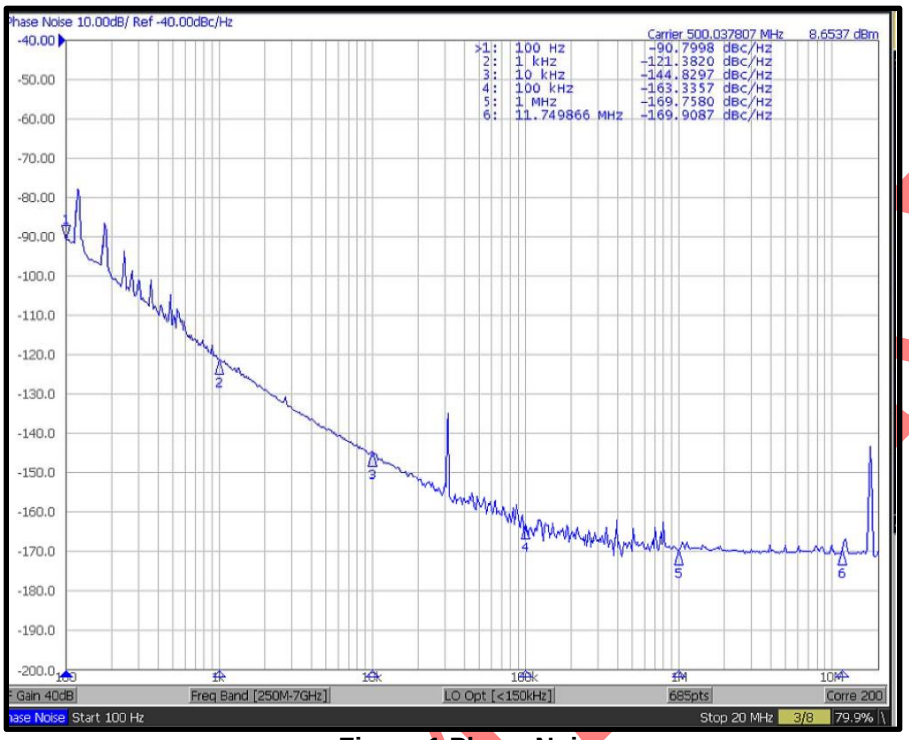

Figure 1 Phase Noise

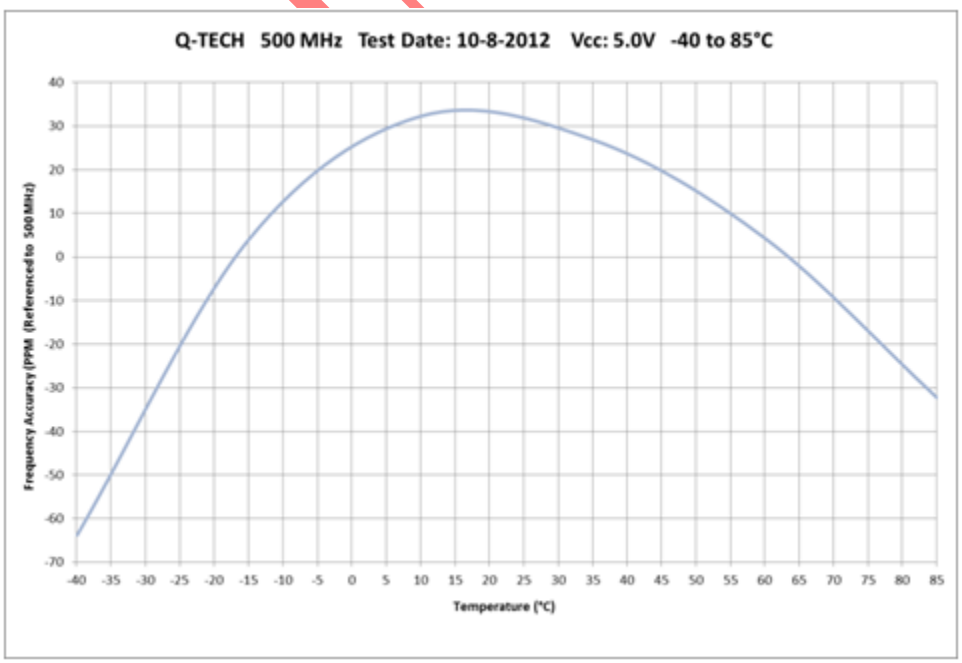

Figure 2 Frequency Stability Reference to Nominal Frequency in ppm

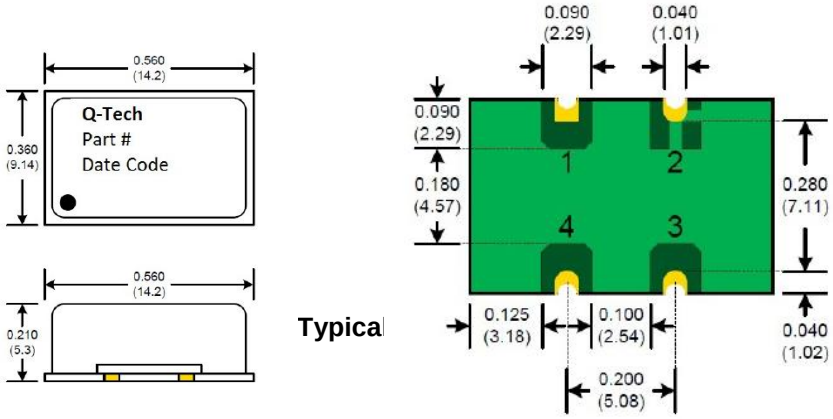

Figure 3 – Package Dimensions and Terminal Connections

Table 4 – Terminal Connections

Terminal No.	Connection	Terminal No.	Connection
1	N/C		
2	GROUND		
3	OUTPUT		
4	VDD		

NOTES
1. Dimensions are in inches.
2. Lead numbers are for reference only and are not marked on the unit.
3. A triangle symbol is marked on the corner of the package to indicate Pin 1.