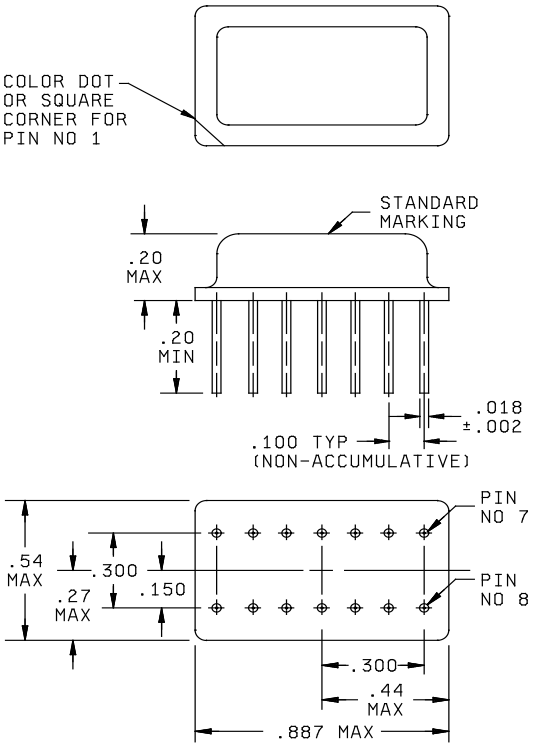
INCH-POUND
MIL-PRF-55310/16K
18 December 2017
SUPERSEDING
MIL-PRF-55310/16J
9 January 2008

PERFORMANCE SPECIFICATION SHEET

OSCILLATOR, CRYSTAL CONTROLLED, TYPE 1 (CRYSTAL OSCILLATOR (XO)), 0.1 Hz THROUGH 80 MHz, HERMETIC SEAL, SQUARE WAVE, TTL

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-55310.



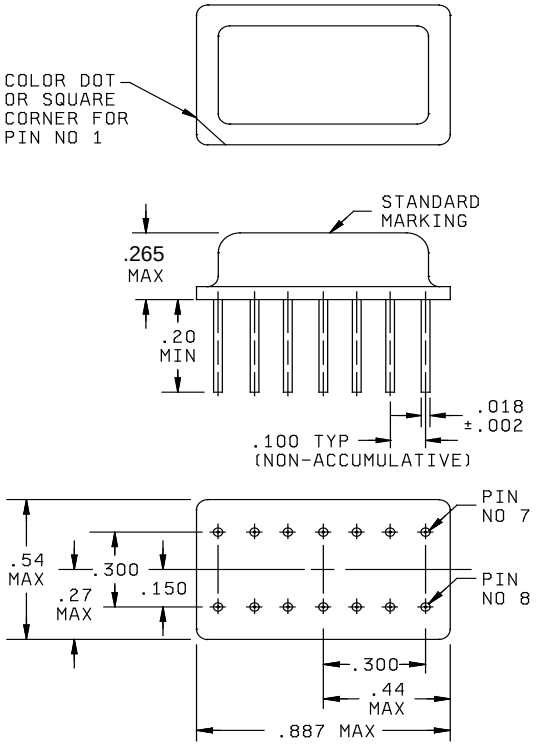
Pin number	Function
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	B - (GND/CASE)
8	OUTPUT
9	NC
10	NC
11	NC
12	NC
13	NC
14	B+

Inches	mm	Inches	mm
.002	0.05	.27	6.9
.018	0.46	.300	7.62
.100	2.54	.44	11.2
.150	3.81	.54	13.7
.20	5.1	.887	22.53

Configuration A (standard package height (see table I))

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.005 (0.13 mm) for three place decimals and ±.02 (0.5 mm) for two place decimals.
4. All pins with NC function may be connected internally and are not to be used as external tie points or connections.

FIGURE 1. Dimensions and configuration.



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.002	0.05	.27	6.9
.018	0.46	.300	7.62
.100	2.54	.44	11.2
.150	3.81	.54	13.7
.265	6.73	.887	22.53

Configuration B (high package height (see table I))

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.005 (0.13 mm) for three place decimals and ±.02 (0.5 mm) for two place decimals.
4. All pins with NC function may be connected internally and are not to be used as external tie points or connections.

FIGURE 1. Dimensions and configuration - Continued.

REQUIREMENTS:

Interface and physical dimensions: See figure 1.

Mounting: See figure 1.

Terminals: See figure 1.

Seal: Hermetic in accordance with MIL-PRF-55310, maximum leakage rate 5 x 10^{-8} atm cc/s.

Weight: 0.5 ounce, maximum.

Oscillator: Class 2 or any class 1 or class 3 oscillator meeting all class 2 requirements and verification tests specified herein and in MIL-PRF-55310.

Calibration: Manufacturer calibrated.

Screening: In accordance with MIL-PRF-55310, product level B or S, as applicable.

Temperature:

Operating: See table I.

Storage: -62°C to + 125°C.

Oscillator load: Standard TTL loads (see table I).

Output waveform: Symmetrical square wave.

Supply voltage: 5.0 V dc ±10 percent.

Input current: At designated supply voltage (see table I).

Output frequency: Frequency as designated at time of acquisition (see table I).

Output voltage: At designated TTL load (see table I).

Logic 1: 2.4 V dc, minimum.

Logic 0: 0.5 V dc, maximum.

Rise and fall times: See table I.

Duty cycle: See table I.

Initial accuracy at reference temperature (up to 30 days after shipment): See table I.

Initial frequency-temperature accuracy (one-half temperature cycle): Verification applicable. 1/

Frequency-temperature tolerance (one-half temperature cycle, referenced to frequency measured at +23°C ±1°C, immediately prior to starting of the test): See table I. Measurements taken at ten equally spaced increments over the specified operating temperature range. 1/

1/ For the purpose of transitioning this device to MIL-PRF-55310, 'Frequency stability versus temperature' has been renamed 'Frequency-temperature tolerance'. The verification requirements of 'initial frequency-temperature accuracy (one-half temperature cycle)' shall apply except that frequency measurements shall be referenced to the frequency measured at +23°C ±1°C (f_{ref}) instead of to the nominal frequency (f_{nom}).

TABLE I. Dash numbers and operating characteristics.

Dash number		Output frequency range	Input current max at 5.25 V ±1% 1/	Pulse characteristics			Initial accuracy ppm at +23°C ±1°C	Frequency aging ppm/year after 30 days	Frequency-temperature tolerance (ppm)		
Package (Max height)				Rise and fall times max	Duty cycle at 1.4 V	Load max 2/			-55°C to +125°C	-55°C to +105°C	-20°C to +70°C
A	B								A	B	C
			mA	ns	percent						
01	02	0.1 Hz to 250 Hz	158	15	45 to 55	10 TTL	±15	±5	±50	±40	±25
04	05	0.1 Hz to 250 Hz	158	15	45 to 55	10 TTL	±25	±10	±100	±80	±50
11	12	250 Hz to 150 kHz	94	15	45 to 55	10 TTL	±15	±5	±50	±40	±25
14	15	250 Hz to 150 kHz	94	15	45 to 55	10 TTL	±25	±10	±100	±80	±50
21	22	150 kHz to 5 MHz	70	15	45 to 55	10 TTL	±15	±5	±50	±40	±25
24	25	150 kHz to 5 MHz	70	15	45 to 55	10 TTL	±25	±10	±100	±80	±50
31	32	4 MHz to 20 MHz	30	15	40 to 60	10 TTL	±15	±5	±50	±40	±25
34	35	4 MHz to 20 MHz	30	15	40 to 60	10 TTL	±25	±10	±100	±80	±50
41	42	20 MHz to 80 MHz	65	5	40 to 60	6 TTL	±15	±5	±50	±40	±25
44	45	20 MHz to 80 MHz	65	5	40 to 60	6 TTL	±25	±10	±100	±80	±50

1/ Maximum input current for no load condition. Actual configuration of TTL loads must be added to determine power supply requirements.
2/ A TTL unit load is defined as: 1.6 mA sink, 0.04 mA source, and 2 pF capacitance.

Frequency-voltage tolerance: ±2 ppm maximum for a ±10 percent change in supply voltage. Measurements taken at reference temperature and operating temperature range end points.

Frequency aging: Measurements shall be taken at +70°C ±0.2°C at intervals of not more than every 72 hours for 30 days minimum (see table I).

±5 ppm per year, maximum	±10 ppm per year, maximum
±0.7 ppm per 30 days.	±1.5 ppm per 30 days
±1.5 ppm per 90 days	±3 ppm per 90 days

Terminal strength: MIL-STD-202-211, test condition C.

Applied force: 2 pounds each terminal for 10 seconds.

Bends: Five at 45 degrees each.

Frequency-environmental tolerance: Not applicable.

Vibration, sinusoidal: In accordance with MIL-PRF-55310 and MIL-STD-202-204.

Nonoperating: Test condition D.

Operating: Not required.

Ambient pressure:

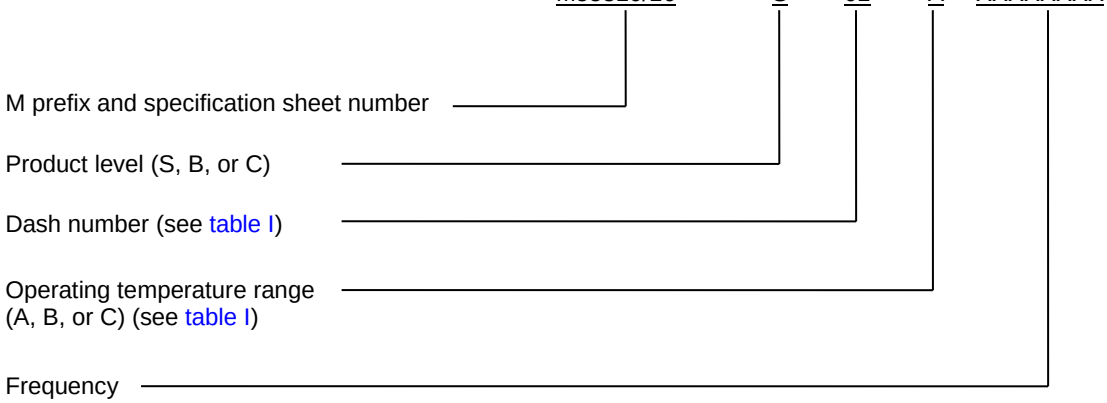
Nonoperating: In accordance with MIL-PRF-55310.

Operating: MIL-STD-202-105, test condition C.

Part or Identifying Number (PIN): Consists of "M" prefix followed by specification sheet number, a dash and coded alphas, and numeric number. See example:

EXAMPLE

M55310/16- S 01 A XXXXXXXX



Reference documents. In addition to MIL-PRF-55310, this document references the following:

MIL-STD-202-105 MIL-STD-202-204 MIL-STD-202-211

The margins of this specification sheet are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - CR
Navy - EC
Air Force - 184
DLA – CC

Review activities:
Army - AR, AV, MI, SM
Navy - AS, CG, MC
Air Force - 19, 71
NASA - NA

Preparing activity:
Army - CR

Agent:
DLA - CC

(Project 5955-2018-001)

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