

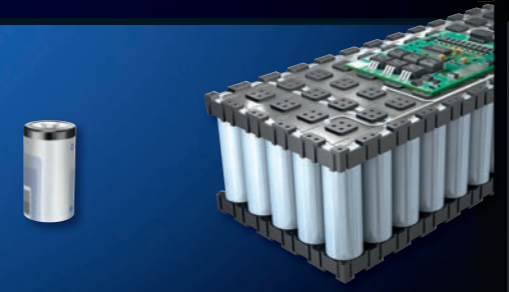
THE SPECIALISTS

FOR FREQUENCY CONTROL AND BATTERY TECHNOLOGY



RELIABLE SOLUTIONS FOR ELECTRONIC APPLICATIONS

- Consumer electronics
- Industrial applications
- Avionics, space & military applications
- Medical applications
- Telecommunication
- Solar technology applications
- Energy saving applications

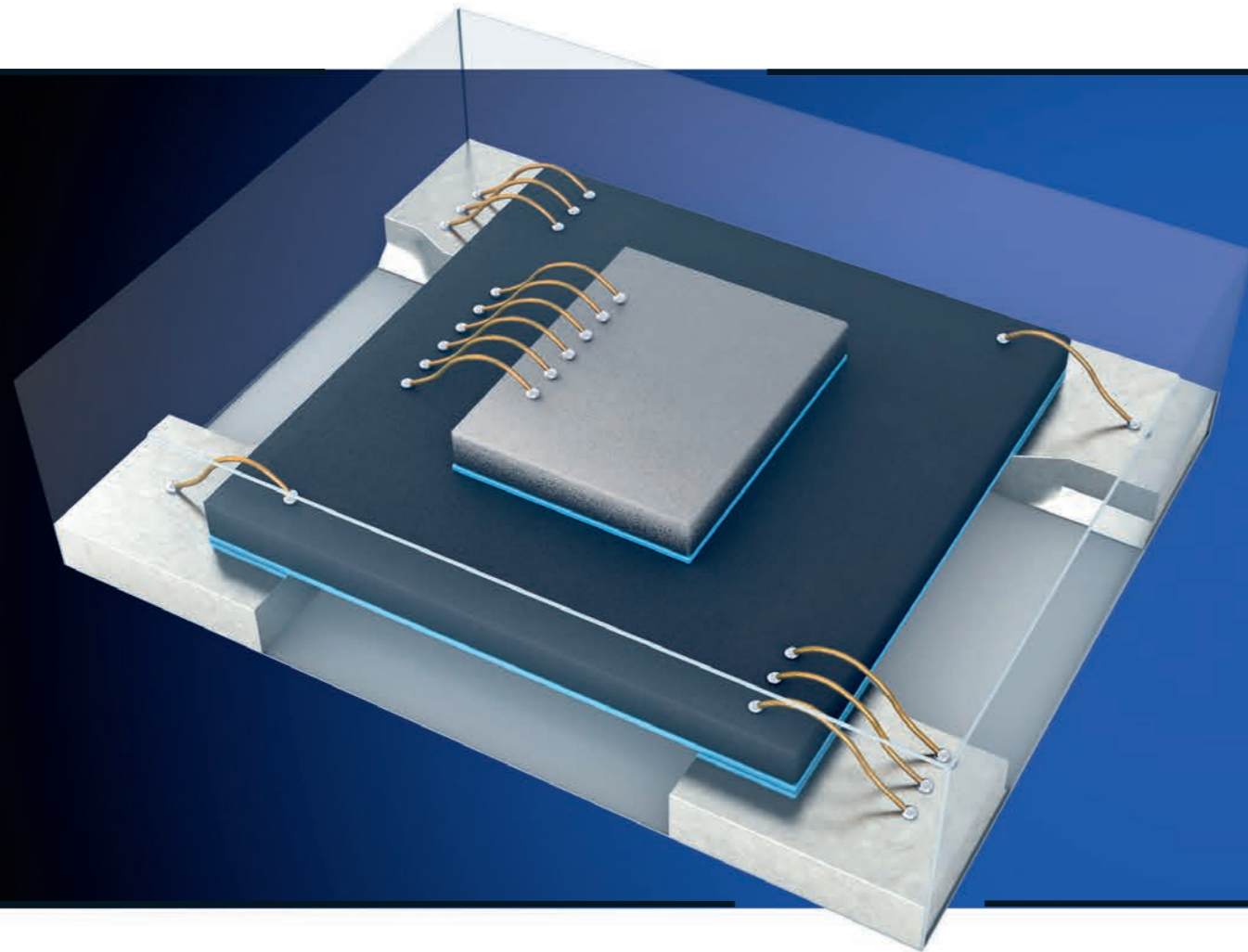


MEMS TIMING



MEMS OSCILLATORS

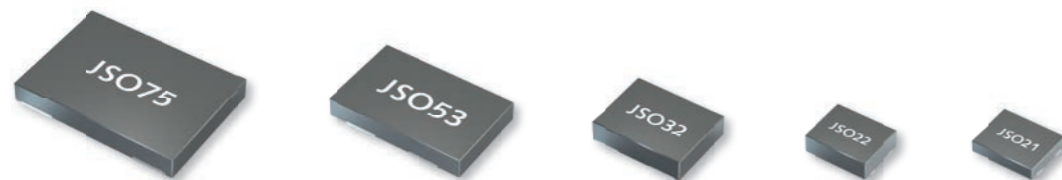




PRODUCT FEATURES

- Silicon MEMS resonator based oscillators
- Frequency range 1 MHz ~ 137 MHz
- Best temperature stability ± 20 ppm
- Widest temperature range $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$
- Supply voltage range 1.8 Volt ~ 3.3 Volt
- Compatible to all standard oscillator packages and pad layouts
- 50,000 G shock and 70 G vibration resistance
- Extremely high reliability (MTBF 500 million hours)

NEW AT JAUCH: MEMS OSCILLATORS



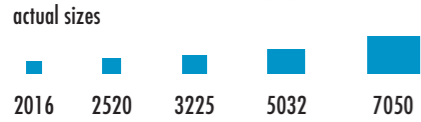
EASY TO CONFIGURE: CHECK OUT OUR WEBSITE

DROP-IN REPLACEMENT FOR THE FOLLOWING PACKAGES

- 2016 (2.0 x 1.6 x 0.75 mm)
- 2520 (2.5 x 2.0 x 0.75 mm)
- 3225 (3.2 x 2.5 x 0.75 mm)
- 5032 (5.0 x 3.2 x 0.75 mm)
- 7050 (7.5 x 5.0 x 0.90 mm)

ADDITIONAL SERVICES

- Local configuration center in Germany
- Technical customer support by field application engineers
- Free samples shipped without delivery charge within 48 hours



MEMS-Oscillator · J50 LC series · 1.8 V

- low power oscillator with HCMOS/LVCMOS output
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification
- extended shock & vibration resistance
- very fast delivery service
- 500 million hours MTBF

General Data

type	J50xxCxLC 1.8 V	
frequency range	1.0 ~ 110.0 MHz (temp. range T0 ~ T8) 115.0 ~ 137.0 MHz (temp. range T0 ~ T1)	
frequency stability over all	±20 ppm ~ ±100 ppm (see table 1)	
current consumption	see table 2	
supply voltage V _{DC}	1.8 V ± 10%	
temperature	operating	
	T0 = -20°C ~ +70°C	
	T1 = -40°C ~ +85°C	
	T2 = -40°C ~ +105°C	
	T3 = -40°C ~ +125°C	
T8 = -55°C ~ +125°C		
storage	-55°C ~ +150°C	
output	logic	HCMOS/LVCMOS
	rise & fall time	4.2 ns max. at 15 pF / 6.8 ns max. at 30 pF (see table 4)
	load max.	30 pF max. recommended (≤ 74.0 MHz)
		15 pF max. recommended (> 74.0 MHz)
	other load capacitances possible, see supplementary document	
	current max.	2 mA
low level max.	0.1 x V _{DC}	
high level min.	0.9 x V _{DC}	
standby function (e/d)	stop (S), tristate-only (T) or none (N), see table 3	
output enable time max.	5 ms (S) / 150 ns (T)	
output disable time max.	150 ns	
start-up time max.	5 ms	
standby current max.	2 µA (for stop (S), see table 3)	
phase jitter 12 kHz ~ 20 MHz	< 3.0 ps RMS	
symmetry at 0.5 x V _{DC}	45% ~ 55% (standard)	

note: some frequencies can't be configured, see table 5.

Packing Note / Marking

QTY < 250 pcs. → cut tape
QTY 250/500/1K/3K pcs. → tape and reel
Marking: lot code only



Table 1: Frequency Stability Code

stability code / temp. code*	A	B	G	C	D
	±100 ppm	±50 ppm	±30 ppm	±25 ppm	±20 ppm
-20°C ~ +70°C T0	○	○	○	○	○
-40°C ~ +85°C T1	○	○	○	○	○
-40°C ~ +105°C T2	○	○	○	○	○
-40°C ~ +125°C T3	○	○	○	○	○
-55°C ~ +125°C T8	○	○	○	○	○

● standard ○ available □ ask if available

* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

Table 2: Current Consumption typ. (for max. add 30%)

current at load	5 pF	15 pF	30 pF	60 pF	unit
output disabled	3.5	3.5	3.5	3.5	mA
1.0 ~ 19.9 MHz	3.6	3.9	4.4	5.5	mA
20.0 ~ 29.9 MHz	4.2	4.5	5.4	6.5	mA
30.0 ~ 49.9 MHz	4.5	5.1	6.5		mA
50.0 ~ 79.9 MHz	4.9	6.3			mA
80.0 ~ 110.0 MHz	5.7	7.6			mA
115.0 ~ 137.0 MHz	(8.0)	(13.0)			mA

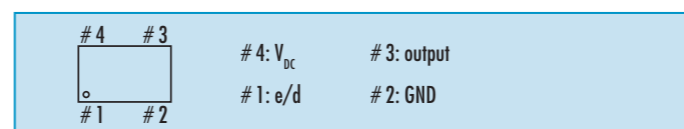
note: current at default edge control setting "D", also refer to table 4.

Table 3: Configurable Standby Function Options (e/d)

pin #1 (e/d control)	option	functionality
low "0" (V _{IL} ≤ 0.2 V _{DC})	S = Stop	output weakly pulled down, oscillator in sleep mode
	T = TriState	output high impedance, oscillator operates
	N = None	oscillator output active
high "1" (V _{IH} ≥ 0.8 V _{DC})	all	oscillator output active
open*	all	oscillator output active

* a pull up resistor is recommended in EMI stressed circuit environments.

Pin Connection



note: a capacitor of 0.1 µF between V_{DC} and GND is recommended.

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MEMS-Oscillator · J50 LC series · 1.8 V

Table 4: Max. Rise & Fall Time vs. Load Capacitance

C _L	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
	5 pF	15 pF	30 pF	5 pF	15 pF	30 pF
edge control	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
D = 0*	1.8	4.2	6.8	1.2	2.8	4.8
1	2.2	5.0	7.6	1.4	3.4	5.2
2	2.4	5.6	8.8	1.6	3.8	6.0
3	2.8	6.0	10.0	1.8	4.2	6.8
4	4.8	9.8	17.0	3.4	6.6	11.6
5	6.6	12.6	21.0	4.4	8.6	15.0
6	10.0	18.0	32.0	6.6	12.0	22.0
7	18.0	34.0	62.0	12.4	24.0	44.0

* default edge control setting "D" at V_{DC} = 1.8 V, please also refer to the supplementary information on our homepage for typical values and more details.

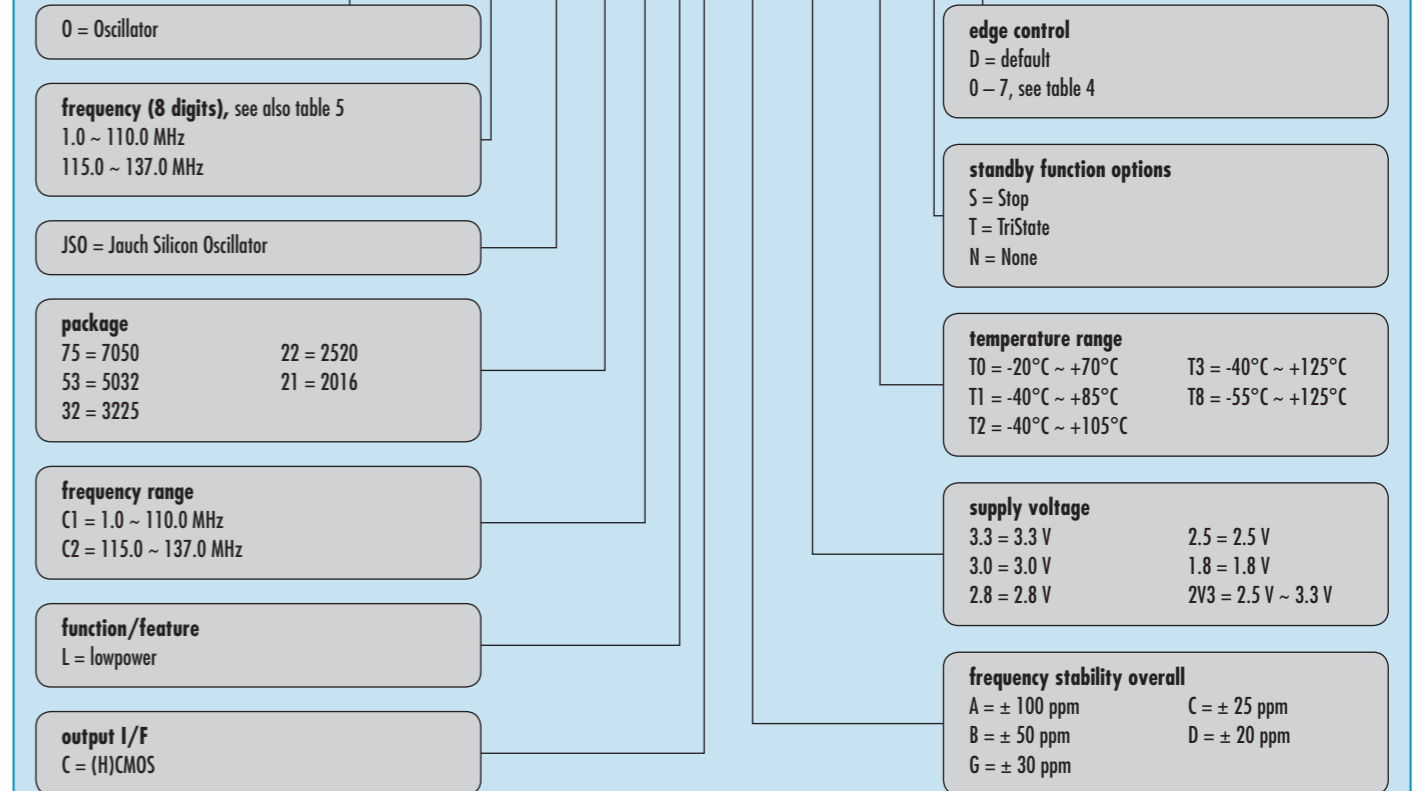
Table 5: Non-Configurable Frequencies

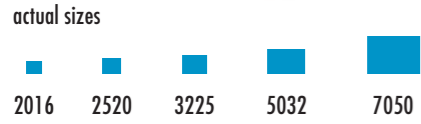
operating temperature option		operating temperature option	
T2 – (-40°C ~ +105°C)		T8 – (-55°C ~ +125°C)	
T3 – (-40°C ~ +125°C)			
from (MHz)	to (MHz)	from (MHz)	to (MHz)
61.223	61.674	61.223	61.974
69.796	70.485	69.240	70.827
79.063	79.162	78.715	79.561
81.428	82.232	80.160	80.174
91.834	92.155	80.780	82.632
94.249	94.430	91.834	95.474
94.875	94.994	96.192	96.209
97.714	98.679	96.936	99.158
110.0	115.194	110.0	119.342
117.811	118.038	–	–
118.594	118.743	120.239	120.262
122.142	122.705	121.170	121.243
123.022	123.348	121.601	123.948

Order Information

Example:

O 26.123456 – J50 75 C1 L C – B – 1.8 – T0 – S – D





MEMS-Oscillator · J50 LC series · 2.5 V

- low power oscillator with HCMOS/LVCMOS output
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification
- extended shock & vibration resistance
- very fast delivery service
- 500 million hours MTBF

General Data

type	J50xxCxLC 2.5 V	
frequency range	1.0 ~ 110.0 MHz (temp. range T0 ~ T8) 115.0 ~ 137.0 MHz (temp. range T0 ~ T1)	
frequency stability over all	±20 ppm ~ ±100 ppm (see table 1)	
current consumption	see table 2	
supply voltage V _{DC}	2.5 V ± 10%	
temperature	operating	
	T0 = -20°C ~ +70°C	
	T1 = -40°C ~ +85°C	
	T2 = -40°C ~ +105°C	
	T3 = -40°C ~ +125°C	
T8 = -55°C ~ +125°C		
storage	-55°C ~ +150°C	
output	logic	HCMOS/LVCMOS
	rise & fall time	3.0 ns max. at 15 pF / 6.0 ns max. at 30 pF (see table 4)
	load max.	30 pF max. recommended (≤ 83.0 MHz)
		15 pF max. recommended (> 83.0 MHz)
		other load capacitances possible, see supplementary document
	current max.	3 mA
low level max.	0.1 × V _{DC}	
high level min.	0.9 × V _{DC}	
standby function (e/d)	stop (S), tristate-only (T) or none (N), see table 3	
output enable time max.	5 ms (S) / 150 ns (T)	
output disable time max.	150 ns	
start-up time max.	5 ms	
standby current max.	3 µA (for stop (S), see table 3)	
phase jitter 12 kHz ~ 20 MHz	< 3.0 ps RMS	
symmetry at 0.5 × V _{DC}	45% ~ 55% (standard)	

note: some frequencies can't be configured, see table 5.

Packing Note / Marking

QTY < 250 pcs. → cut tape
QTY 250/500/1K/3K pcs. → tape and reel
Marking: lot code only



Table 1: Frequency Stability Code

stability code / temp. code*	A	B	G	C	D
	±100 ppm	±50 ppm	±30 ppm	±25 ppm	±20 ppm
-20°C ~ +70°C T0	○	○	○	○	○
-40°C ~ +85°C T1	○	○	○	○	○
-40°C ~ +105°C T2	○	○	○	○	○
-40°C ~ +125°C T3	○	○	○	○	○
-55°C ~ +125°C T8	○	○	○	○	○

● standard ○ available □ ask if available

* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

Table 2: Current Consumption typ. (for max. add 30%)

current at load	5 pF	15 pF	30 pF	60 pF	unit
output disabled	3.7	3.7	3.7	3.7	mA
1.0 ~ 19.9 MHz	3.8	4.2	5.0	6.4	mA
20.0 ~ 29.9 MHz	4.3	5.0	6.4	9.0	mA
30.0 ~ 49.9 MHz	4.7	5.8	7.8	11.6	mA
50.0 ~ 79.9 MHz	5.6	7.6	10.7		mA
80.0 ~ 110.0 MHz	6.6	9.2			mA
115.0 ~ 137.0 MHz	(8.5)	(13.0)			mA

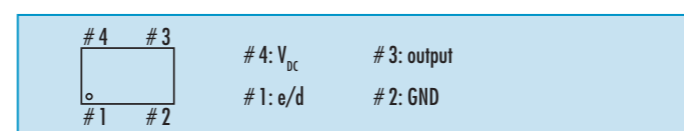
note: current at default edge control setting "D", also refer to table 4.

Table 3: Configurable Standby Function Options (e/d)

pin #1 (e/d control)	option	functionality
low "0" (V _{IL} ≤ 0.2 V _{DC})	S = Stop	output weakly pulled down, oscillator in sleep mode
	T = TriState	output high impedance, oscillator operates
	N = None	oscillator output active
high "1" (V _{IH} ≥ 0.8 V _{DC})	all	oscillator output active
open*	all	oscillator output active

* a pull up resistor is recommended in EMI stressed circuit environments.

Pin Connection



note: a capacitor of 0.1 µF between V_{DC} and GND is recommended.

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MEMS-Oscillator · J50 LC series · 2.5 V

Table 4: Max. Rise & Fall Time vs. Load Capacitance

C _L	5 pF	15 pF	30 pF	5 pF	15 pF	30 pF
edge control	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
0	1.2	2.4	5.2	0.8	1.7	3.4
1	1.4	2.6	5.8	0.9	1.9	3.8
D = 2*	1.6	3.0	6.0	1.1	2.1	4.0
3	1.8	4.0	6.6	1.2	2.6	4.6
4	3.2	6.4	11.0	2.2	4.4	7.8
5	4.4	8.4	14.6	2.9	5.8	10.4
6	6.6	12.4	23.0	4.4	8.6	15.2
7	12.8	25.0	46.0	8.6	16.6	30.0

* default edge control setting "D" at V_{DC} = 2.5 V, please also refer to the supplementary information on our homepage for typical values and more details.

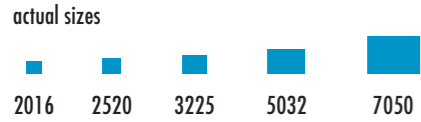
Table 5: Non-Configurable Frequencies

operating temperature option		operating temperature option	
T2 – (-40°C ~ +105°C)		T8 – (-55°C ~ +125°C)	
T3 – (-40°C ~ +125°C)			
from (MHz)	to (MHz)	from (MHz)	to (MHz)
61.223	61.674	61.223	61.974
69.796	70.485	69.240	70.827
79.063	79.162	78.715	79.561
81.428	82.232	80.160	80.174
91.834	92.155	80.780	82.632
94.249	94.430	91.834	95.474
94.875	94.994	96.192	96.209
97.714	98.679	96.936	99.158
110.0	115.194	110.0	119.342
117.811	118.038	–	–
118.594	118.743	120.239	120.262
122.142	122.705	121.170	121.243
123.022	123.348	121.601	123.948

Order Information

Example: **O 26.123456 – J50 75 C1 L C – B – 2.5 – T0 – S – D**

- O = Oscillator**
- frequency (8 digits), see also table 5**
1.0 ~ 110.0 MHz
115.0 ~ 137.0 MHz
- J50 = Jauch Silicon Oscillator**
- package**
75 = 7050 22 = 2520
53 = 5032 21 = 2016
32 = 3225
- frequency range**
C1 = 1.0 ~ 110.0 MHz
C2 = 115.0 ~ 137.0 MHz
- function/feature**
L = lowpower
- output I/F**
C = (H)CMOS
- edge control**
D = default
0 – 7, see table 4
- standby function options**
S = Stop
T = TriState
N = None
- temperature range**
T0 = -20°C ~ +70°C T3 = -40°C ~ +125°C
T1 = -40°C ~ +85°C T8 = -55°C ~ +125°C
T2 = -40°C ~ +105°C
- supply voltage**
3.3 = 3.3 V 2.5 = 2.5 V
3.0 = 3.0 V 1.8 = 1.8 V
2.8 = 2.8 V 2V3 = 2.5 V ~ 3.3 V
- frequency stability overall**
A = ± 100 ppm C = ± 25 ppm
B = ± 50 ppm D = ± 20 ppm
G = ± 30 ppm



MEMS-Oscillator · J50 LC series · 2.8 V

- low power oscillator with HCMOS/LVCMOS output
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification
- extended shock & vibration resistance
- very fast delivery service
- 500 million hours MTBF

General Data

type	J50xxCxLC 2.8 V	
frequency range	1.0 ~ 110.0 MHz (temp. range T0 ~ T8) 115.0 ~ 137.0 MHz (temp. range T0 ~ T1)	
frequency stability over all	±20 ppm ~ ±100 ppm (see table 1)	
current consumption	see table 2	
supply voltage V _{DC}	2.8 V ± 10%	
temperature	operating	
	T0 = -20°C ~ +70°C	
	T1 = -40°C ~ +85°C	
	T2 = -40°C ~ +105°C	
	T3 = -40°C ~ +125°C	
T8 = -55°C ~ +125°C		
storage	-55°C ~ +150°C	
output	logic	HCMOS/LVCMOS
	rise & fall time	2.9 ns max. at 15 pF / 5.7 ns max. at 30 pF (see table 4)
	load max.	30 pF max. recommended (≤ 88.0 MHz)
		15 pF max. recommended (> 88.0 MHz)
	other load capacitances possible, see supplementary document	
	current max.	3 mA
low level max.	0.1 × V _{DC}	
high level min.	0.9 × V _{DC}	
standby function (e/d)	stop (S), tristate-only (T) or none (N), see table 3	
output enable time max.	5 ms (S) / 150 ns (T)	
output disable time max.	150 ns	
start-up time max.	5 ms	
standby current max.	4 µA (for stop (S), see table 3)	
phase jitter 12 kHz ~ 20 MHz	< 3.0 ps RMS	
symmetry at 0.5 × V _{DC}	45% ~ 55% (standard)	

note: some frequencies can't be configured, see table 5.

Packing Note / Marking

QTY < 250 pcs. → cut tape
QTY 250/500/1K/3K pcs. → tape and reel
Marking: lot code only



Table 1: Frequency Stability Code

stability code / temp. code*	A	B	G	C	D
	±100 ppm	±50 ppm	±30 ppm	±25 ppm	±20 ppm
-20°C ~ +70°C T0	○	○	○	○	○
-40°C ~ +85°C T1	○	○	○	○	○
-40°C ~ +105°C T2	○	○	○	○	○
-40°C ~ +125°C T3	○	○	○	○	○
-55°C ~ +125°C T8	○	○	○	○	○

● standard ○ available □ ask if available

* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

Table 2: Current Consumption typ. (for max. add 30%)

current at load	5 pF	15 pF	30 pF	60 pF	unit
output disabled	3.8	3.8	3.8	3.8	mA
1.0 ~ 19.9 MHz	4.1	4.3	5.2	6.9	mA
20.0 ~ 29.9 MHz	4.4	5.2	6.7	9.8	mA
30.0 ~ 49.9 MHz	4.8	6.2	8.3	12.7	mA
50.0 ~ 79.9 MHz	6.1	8.1	11.7		mA
80.0 ~ 110.0 MHz	7.0	10.0			mA
115.0 ~ 137.0 MHz	(9.0)	(14.0)			mA

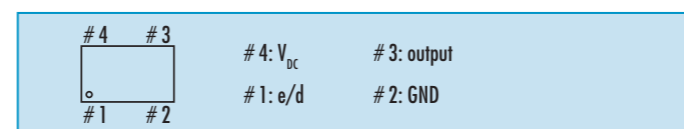
note: current at default edge control setting "D", also refer to table 4.

Table 3: Configurable Standby Function Options (e/d)

pin #1 (e/d control)	option	functionality
low "0" (V _{IL} ≤ 0.2 V _{DC})	S = Stop	output weakly pulled down, oscillator in sleep mode
	T = TriState	output high impedance, oscillator operates
	N = None	oscillator output active
high "1" (V _{IH} ≥ 0.8 V _{DC})	all	oscillator output active
open*	all	oscillator output active

* a pull up resistor is recommended in EMI stressed circuit environments.

Pin Connection



note: a capacitor of 0.1 µF between V_{DC} and GND is recommended.

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MEMS-Oscillator · J50 LC series · 2.8 V

Table 4: Max. Rise & Fall Time vs. Load Capacitance

C _L	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
	5 pF	15 pF	30 pF	5 pF	15 pF	30 pF
edge control						
0	1.2	2.2	4.6	0.8	1.6	3.0
1	1.3	2.4	5.2	0.9	1.8	3.5
D = 2*	1.5	2.9	5.7	1.0	2.0	3.8
3	1.6	3.6	6.4	1.1	2.4	4.4
4	3.0	6.2	10.4	2.0	4.2	7.4
5	4.0	7.6	13.6	2.8	5.4	9.4
6	5.8	11.6	21.0	4.0	8.0	14.2
7	12.0	23.0	42.0	8.2	15.2	28.0

* default edge control setting "D" at V_{DC} = 2.8 V, please also refer to the supplementary information on our homepage for typical values and more details.

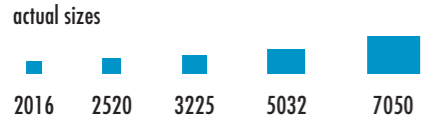
Table 5: Non-Configurable Frequencies

operating temperature option		operating temperature option	
T2 – (-40°C ~ +105°C)		T8 – (-55°C ~ +125°C)	
T3 – (-40°C ~ +125°C)			
from (MHz)	to (MHz)	from (MHz)	to (MHz)
61.223	61.674	61.223	61.974
69.796	70.485	69.240	70.827
79.063	79.162	78.715	79.561
81.428	82.232	80.160	80.174
91.834	92.155	80.780	82.632
94.249	94.430	91.834	95.474
94.875	94.994	96.192	96.209
97.714	98.679	96.936	99.158
110.0	115.194	110.0	119.342
117.811	118.038	–	–
118.594	118.743	120.239	120.262
122.142	122.705	121.170	121.243
123.022	123.348	121.601	123.948

Order Information

Example: **O 26.123456 – JSO 75 C1 L C – B – 2.8 – T0 – S – D**

- O = Oscillator**
- frequency (8 digits)**, see also table 5
1.0 ~ 110.0 MHz
115.0 ~ 137.0 MHz
- JSO = Jauch Silicon Oscillator**
- package**
75 = 7050 22 = 2520
53 = 5032 21 = 2016
32 = 3225
- frequency range**
C1 = 1.0 ~ 110.0 MHz
C2 = 115.0 ~ 137.0 MHz
- function/feature**
L = lowpower
- output I/F**
C = (H)CMOS
- edge control**
D = default
0 – 7, see table 4
- standby function options**
S = Stop
T = TriState
N = None
- temperature range**
T0 = -20°C ~ +70°C T3 = -40°C ~ +125°C
T1 = -40°C ~ +85°C T8 = -55°C ~ +125°C
T2 = -40°C ~ +105°C
- supply voltage**
3.3 = 3.3 V 2.5 = 2.5 V
3.0 = 3.0 V 1.8 = 1.8 V
2.8 = 2.8 V 2V3 = 2.5 V ~ 3.3 V
- frequency stability overall**
A = ± 100 ppm C = ± 25 ppm
B = ± 50 ppm D = ± 20 ppm
G = ± 30 ppm



MEMS-Oscillator · J50 LC series · 3.0 V

- low power oscillator with HCMOS/LVCMOS output
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification
- extended shock & vibration resistance
- very fast delivery service
- 500 million hours MTBF

General Data

type	J50xxCxLC 3.0 V	
frequency range	1.0 ~ 110.0 MHz (temp. range T0 ~ T8) 115.0 ~ 137.0 MHz (temp. range T0 ~ T1)	
frequency stability over all	±20 ppm ~ ±100 ppm (see table 1)	
current consumption	see table 2	
supply voltage V _{DC}	3.0 V ± 10%	
temperature	operating	
	T0 = -20°C ~ +70°C	
	T1 = -40°C ~ +85°C	
	T2 = -40°C ~ +105°C	
	T3 = -40°C ~ +125°C	
T8 = -55°C ~ +125°C		
storage	-55°C ~ +150°C	
output	logic	HCMOS/LVCMOS
	rise & fall time	3.3 ns max. at 15 pF / 6.2 ns max. at 30 pF (see table 4)
	load max.	30 pF max. recommended (≤ 81.0 MHz)
		15 pF max. recommended (> 81.0 MHz)
		other load capacitances possible, see supplementary document
	current max.	4 mA
low level max.	0.1 x V _{DC}	
high level min.	0.9 x V _{DC}	
standby function (e/d)	stop (S), tristate-only (T) or none (N), see table 3	
output enable time max.	5 ms (S) / 150 ns (T)	
output disable time max.	150 ns	
start-up time max.	5 ms	
standby current max.	5 µA (for stop (S), see table 3)	
phase jitter 12 kHz ~ 20 MHz	< 3.0 ps RMS	
symmetry at 0.5 x V _{DC}	45% ~ 55% (standard)	

note: some frequencies can't be configured, see table 5.

Packing Note / Marking

QTY < 250 pcs. → cut tape
QTY 250/500/1K/3K pcs. → tape and reel
Marking: lot code only



Table 1: Frequency Stability Code

stability code / temp. code*	A	B	G	C	D
	±100 ppm	±50 ppm	±30 ppm	±25 ppm	±20 ppm
-20°C ~ +70°C T0	○	○	○	○	○
-40°C ~ +85°C T1	○	○	○	○	○
-40°C ~ +105°C T2	○	○	○	○	○
-40°C ~ +125°C T3	○	○	○	○	○
-55°C ~ +125°C T8	○	○	○	○	○

● standard ○ available □ ask if available

* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

Table 2: Current Consumption typ. (for max. add 30%)

current at load	5 pF	15 pF	30 pF	60 pF	unit
output disabled	3.9	3.9	3.9	3.9	mA
1.0 ~ 19.9 MHz	4.1	4.5	5.4	7.2	mA
20.0 ~ 29.9 MHz	4.5	5.4	6.9	10.1	mA
30.0 ~ 49.9 MHz	4.9	6.3	8.6	13.2	mA
50.0 ~ 79.9 MHz	6.1	8.4	12.2		mA
80.0 ~ 110.0 MHz	7.3	10.5	15.5		mA
115.0 ~ 137.0 MHz	(9.5)	(14.0)			mA

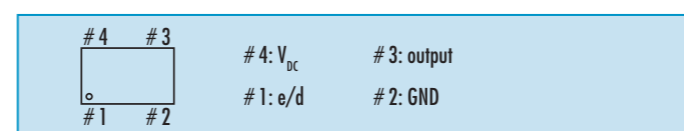
note: current at default edge control setting "D", also refer to table 4.

Table 3: Configurable Standby Function Options (e/d)

pin #1 (e/d control)	option	functionality
low "0" (V _{IL} ≤ 0.2 V _{DC})	S = Stop	output weakly pulled down, oscillator in sleep mode
	T = TriState	output high impedance, oscillator operates
	N = None	oscillator output active
high "1" (V _{IH} ≥ 0.8 V _{DC})	all	oscillator output active
open*	all	oscillator output active

* a pull up resistor is recommended in EMI stressed circuit environments.

Pin Connection



note: a capacitor of 0.1 µF between V_{DC} and GND is recommended.

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Table 4: Max. Rise & Fall Time vs. Load Capacitance

C _L	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
	5 pF	15 pF	30 pF	5 pF	15 pF	30 pF
edge control						
0	1.1	2.0	4.2	0.7	1.4	2.8
1	1.2	2.2	4.8	0.8	1.6	3.3
2	1.3	2.8	5.4	0.9	1.9	3.6
D = 3*	1.5	3.3	6.2	1.0	2.2	4.0
4	2.8	5.8	10.0	1.8	4.0	6.8
5	3.8	7.4	13.0	2.6	5.2	9.0
6	5.5	11.0	19.0	3.8	7.6	13.4
7	11.4	22.0	40.0	7.8	14.6	27.0

* default edge control setting "D" at V_{DC} = 3.0 V, please also refer to the supplementary information on our homepage for typical values and more details.

Table 5: Non-Configurable Frequencies

operating temperature option		operating temperature option	
T2 – (-40°C ~ +105°C)		T8 – (-55°C ~ +125°C)	
T3 – (-40°C ~ +125°C)			
from (MHz)	to (MHz)	from (MHz)	to (MHz)
61.223	61.674	61.223	61.974
69.796	70.485	69.240	70.827
79.063	79.162	78.715	79.561
81.428	82.232	80.160	80.174
91.834	92.155	80.780	82.632
94.249	94.430	91.834	95.474
94.875	94.994	96.192	96.209
97.714	98.679	96.936	99.158
110.0	115.194	110.0	119.342
117.811	118.038	–	–
118.594	118.743	120.239	120.262
122.142	122.705	121.170	121.243
123.022	123.348	121.601	123.948

Order Information

Example: **O 26.123456 – JSO 75 C1 L C – B – 3.0 – T0 – S – D**

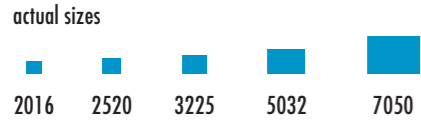
- O = Oscillator**
- frequency (8 digits), see also table 5**
1.0 ~ 110.0 MHz
115.0 ~ 137.0 MHz
- JSO = Jauch Silicon Oscillator**
- package**
75 = 7050 22 = 2520
53 = 5032 21 = 2016
32 = 3225
- frequency range**
C1 = 1.0 ~ 110.0 MHz
C2 = 115.0 ~ 137.0 MHz
- function/feature**
L = lowpower
- output I/F**
C = (H)CMOS
- edge control**
D = default
0 – 7, see table 4
- standby function options**
S = Stop
T = TriState
N = None
- temperature range**
T0 = -20°C ~ +70°C T3 = -40°C ~ +125°C
T1 = -40°C ~ +85°C T8 = -55°C ~ +125°C
T2 = -40°C ~ +105°C
- supply voltage**
3.3 = 3.3 V 2.5 = 2.5 V
3.0 = 3.0 V 1.8 = 1.8 V
2.8 = 2.8 V 2V3 = 2.5 V ~ 3.3 V
- frequency stability overall**
A = ± 100 ppm C = ± 25 ppm
B = ± 50 ppm D = ± 20 ppm
G = ± 30 ppm



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All specifications are subject to change without notice

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MEMS-Oscillator · J50 LC series · 3.3 V

- low power oscillator with HCMOS/LVCMOS output
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification
- extended shock & vibration resistance
- very fast delivery service
- 500 million hours MTBF

General Data

type	J50xxCxLC 3.3 V	
frequency range	1.0 ~ 110.0 MHz (temp. range T0 ~ T8) 115.0 ~ 137.0 MHz (temp. range T0 ~ T1)	
frequency stability over all	±20 ppm ~ ±100 ppm (see table 1)	
current consumption	see table 2	
supply voltage V _{DC}	3.3 V ± 10%	
temperature	operating	
	T0 = -20°C ~ +70°C	
	T1 = -40°C ~ +85°C	
	T2 = -40°C ~ +105°C	
	T3 = -40°C ~ +125°C	
T8 = -55°C ~ +125°C		
storage	-55°C ~ +150°C	
output	logic	HCMOS/LVCMOS
	rise & fall time	3 ns max. at 15 pF / 6 ns max. at 30 pF (see table 4)
	load max.	30 pF max. recommended (≤ 83.0 MHz)
		15 pF max. recommended (> 83.0 MHz)
	other load capacitances possible, see supplementary document	
	current max.	4 mA
low level max.	0.1 x V _{DC}	
high level min.	0.9 x V _{DC}	
standby function (e/d)	stop (S), tristate-only (T) or none (N), see table 3	
output enable time max.	5 ms (S) / 150 ns (T)	
output disable time max.	150 ns	
start-up time max.	5 ms	
standby current max.	5 µA (for stop (S), see table 3)	
phase jitter 12 kHz ~ 20 MHz	< 3.0 ps RMS	
symmetry at 0.5 x V _{DC}	45% ~ 55% (standard)	

note: some frequencies can't be configured, see table 5.

Packing Note / Marking

QTY < 250 pcs. → cut tape
QTY 250/500/1K/3K pcs. → tape and reel
Marking: lot code only



Table 1: Frequency Stability Code

stability code / temp. code*	A	B	G	C	D
	±100 ppm	±50 ppm	±30 ppm	±25 ppm	±20 ppm
-20°C ~ +70°C T0	○	○	○	○	○
-40°C ~ +85°C T1	○	○	○	○	○
-40°C ~ +105°C T2	○	○	○	○	○
-40°C ~ +125°C T3	○	○	○	○	○
-55°C ~ +125°C T8	○	○	○	○	○

● standard ○ available □ ask if available

* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

Table 2: Current Consumption typ. (for max. add 30%)

current at load	5 pF	15 pF	30 pF	60 pF	unit
output disabled	4.0	4.0	4.0	4.0	mA
1.0 ~ 19.9 MHz	4.0	4.6	5.6	7.6	mA
20.0 ~ 29.9 MHz	4.6	5.7	7.4	10.9	mA
30.0 ~ 49.9 MHz	5.1	6.7	9.2	14.3	mA
50.0 ~ 79.9 MHz	6.4	9.0	13.2		mA
80.0 ~ 110.0 MHz	7.7	11.2	17.0		mA
115.0 ~ 137.0 MHz	(10.0)	(14.5)			mA

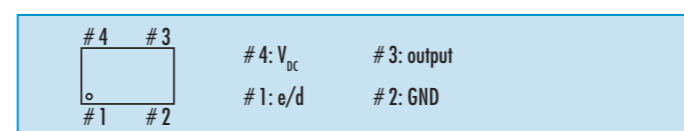
note: current at default edge control setting "D", also refer to table 4.

Table 3: Configurable Standby Function Options (e/d)

pin #1 (e/d control)	option	functionality
low "0" (V _{IL} ≤ 0.2 V _{DC})	S = Stop	output weakly pulled down, oscillator in sleep mode
	T = TriState	output high impedance, oscillator operates
	N = None	oscillator output active
high "1" (V _{IH} ≥ 0.8 V _{DC})	all	oscillator output active
open*	all	oscillator output active

* a pull up resistor is recommended in EMI stressed circuit environments.

Pin Connection



note: a capacitor of 0.1 µF between V_{DC} and GND is recommended.

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MEMS-Oscillator · J50 LC series · 3.3 V

Table 4: Max. Rise & Fall Time vs. Load Capacitance

C _L	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
	5 pF	15 pF	30 pF	5 pF	15 pF	30 pF
edge control						
0	1.0	1.7	3.6	0.7	1.2	2.6
1	1.1	1.8	4.4	0.7	1.3	3.0
2	1.2	2.6	5.0	0.8	1.8	3.3
D = 3*	1.3	3.0	6.0	0.9	2.0	3.8
4	2.6	5.4	9.4	1.5	3.8	6.4
5	3.4	6.6	12.0	2.4	5.0	8.6
6	5.2	10.0	17.0	3.6	7.0	12.4
7	10.4	21.0	35.0	7.4	14.0	25.0

* default edge control setting "D" at V_{DC} = 3.3 V, please also refer to the supplementary information on our homepage for typical values and more details.

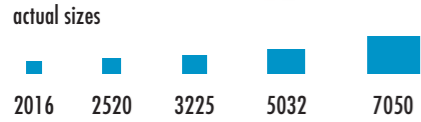
Table 5: Non-Configurable Frequencies

operating temperature option		operating temperature option	
T2 – (-40°C ~ +105°C)		T8 – (-55°C ~ +125°C)	
T3 – (-40°C ~ +125°C)			
from (MHz)	to (MHz)	from (MHz)	to (MHz)
61.223	61.674	61.223	61.974
69.796	70.485	69.240	70.827
79.063	79.162	78.715	79.561
81.428	82.232	80.160	80.174
91.834	92.155	80.780	82.632
94.249	94.430	91.834	95.474
94.875	94.994	96.192	96.209
97.714	98.679	96.936	99.158
110.0	115.194	110.0	119.342
117.811	118.038	–	–
118.594	118.743	120.239	120.262
122.142	122.705	121.170	121.243
123.022	123.348	121.601	123.948

Order Information

Example: **O 26.123456 – JSO 75 C1 L C – B – 3.3 – T0 – S – D**

- O = Oscillator**
- frequency (8 digits), see also table 5**
1.0 ~ 110.0 MHz
115.0 ~ 137.0 MHz
- JSO = Jauch Silicon Oscillator**
- package**
75 = 7050 22 = 2520
53 = 5032 21 = 2016
32 = 3225
- frequency range**
C1 = 1.0 ~ 110.0 MHz
C2 = 115.0 ~ 137.0 MHz
- function/feature**
L = lowpower
- output I/F**
C = (H)CMOS
- edge control**
D = default
0 – 7, see table 4
- standby function options**
S = Stop
T = TriState
N = None
- temperature range**
T0 = -20°C ~ +70°C T3 = -40°C ~ +125°C
T1 = -40°C ~ +85°C T8 = -55°C ~ +125°C
T2 = -40°C ~ +105°C
- supply voltage**
3.3 = 3.3 V 2.5 = 2.5 V
3.0 = 3.0 V 1.8 = 1.8 V
2.8 = 2.8 V 2V3 = 2.5 V ~ 3.3 V
- frequency stability overall**
A = ± 100 ppm C = ± 25 ppm
B = ± 50 ppm D = ± 20 ppm
G = ± 30 ppm



MEMS-Oscillator · J50 LC series · 2.5 V ~ 3.3 V

- low power oscillator with HCMOS/LVCMOS output
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification
- extended shock & vibration resistance
- very fast delivery service
- 500 million hours MTBF

General Data

type	J50xxCxLC 2.5 V ~ 3.3 V	
frequency range	1.0 ~ 110.0 MHz (temp. range T0 ~ T8) 115.0 ~ 137.0 MHz (temp. range T0 ~ T1)	
frequency stability over all	±20 ppm ~ ±100 ppm (see table 1)	
current consumption	see table 2	
supply voltage V _{DC}	2.5 V - 10% ~ 3.3 V + 10%	
temperature	operating	
	T0 = -20°C ~ +70°C	
	T1 = -40°C ~ +85°C	
	T2 = -40°C ~ +105°C	
	T3 = -40°C ~ +125°C	
T8 = -55°C ~ +125°C		
storage	-55°C ~ +150°C	
output	logic	HCMOS/LVCMOS
	rise & fall time	4.0 ns max. at 15 pF / 6.6 ns max. at 30 pF (see table 4)
	load max.	30 pF max. recommended (≤ 76.0 MHz)
		15 pF max. recommended (> 76.0 MHz)
		other load capacitances possible, see supplementary document
	current max.	3 mA
low level max.	0.1 x V _{DC}	
high level min.	0.9 x V _{DC}	
standby function (e/d)	stop (S), tristate-only (T) or none (N), see table 3	
output enable time max.	5 ms (S) / 150 ns (T)	
output disable time max.	150 ns	
start-up time max.	5 ms	
standby current max.	3 µA (for stop (S), see table 3)	
phase jitter 12 kHz ~ 20 MHz	< 3.0 ps RMS	
symmetry at 0.5 x V _{DC}	45% ~ 55% (standard)	

note: some frequencies can't be configured, see table 5.

Packing Note / Marking

QTY < 250 pcs. → cut tape
QTY 250/500/1K/3K pcs. → tape and reel
Marking: lot code only



Table 1: Frequency Stability Code

stability code / temp. code*	A	B	G	C	D
	±100 ppm	±50 ppm	±30 ppm	±25 ppm	±20 ppm
-20°C ~ +70°C T0	○	○	○	○	○
-40°C ~ +85°C T1	○	○	○	○	○
-40°C ~ +105°C T2	○	○	○	○	○
-40°C ~ +125°C T3	○	○	○	○	○
-55°C ~ +125°C T8	○	○	○	○	○

● standard ○ available □ ask if available

* includes stability at 25°C, operating temp. range, supply voltage change, shock and vibration, aging 1st year.

Table 2: Current Consumption typ. (for max. add 30%)

current at load	5 pF	15 pF	30 pF	60 pF	unit
output disabled	4.0	4.0	4.0	4.0	mA
1.0 ~ 19.9 MHz	4.0	4.6	5.6	7.6	mA
20.0 ~ 29.9 MHz	4.6	5.7	7.4	10.9	mA
30.0 ~ 49.9 MHz	5.1	6.7	9.2	14.3	mA
50.0 ~ 79.9 MHz	6.4	9.0	13.2		mA
80.0 ~ 110.0 MHz	7.7	11.2	17.0		mA
115.0 ~ 137.0 MHz	(10.0)	(14.5)			mA

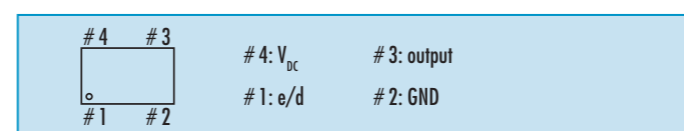
note: current at default edge control setting "D", also refer to table 4.

Table 3: Configurable Standby Function Options (e/d)

pin #1 (e/d control)	option	functionality
low "0" (V _{IL} ≤ 0.2 V _{DC})	S = Stop	output weakly pulled down, oscillator in sleep mode
	T = TriState	output high impedance, oscillator operates
	N = None	oscillator output active
high "1" (V _{IH} ≥ 0.8 V _{DC})	all	oscillator output active
open*	all	oscillator output active

* a pull up resistor is recommended in EMI stressed circuit environments.

Pin Connection



note: a capacitor of 0.1 µF between V_{DC} and GND is recommended.

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MEMS-Oscillator · J50 LC series · 2.5 V ~ 3.3 V

Table 4: Max. Rise & Fall Time vs. Load Capacitance

C _L	at 10% ~ 90% of V _{DC}			at 20% ~ 80% of V _{DC}		
	5 pF	15 pF	30 pF	5 pF	15 pF	30 pF
edge control						
0	1.2	2.4	5.2	0.8	1.7	3.4
1	1.4	2.6	5.8	0.9	1.9	3.8
2	1.6	3.0	6.0	1.1	2.1	4.0
D = 3*	1.8	4.0	6.6	1.2	2.6	4.6
4	3.2	6.4	11.0	2.2	4.4	7.8
5	4.4	8.4	14.6	2.9	5.8	10.4
6	6.6	12.4	23.0	4.4	8.6	15.2
7	12.8	25.0	46.0	8.6	16.6	30.0

* default edge control setting "D" at V_{DC} = 2.5 V ~ 3.3 V, please also refer to the supplementary information on our homepage for typical values and more details.

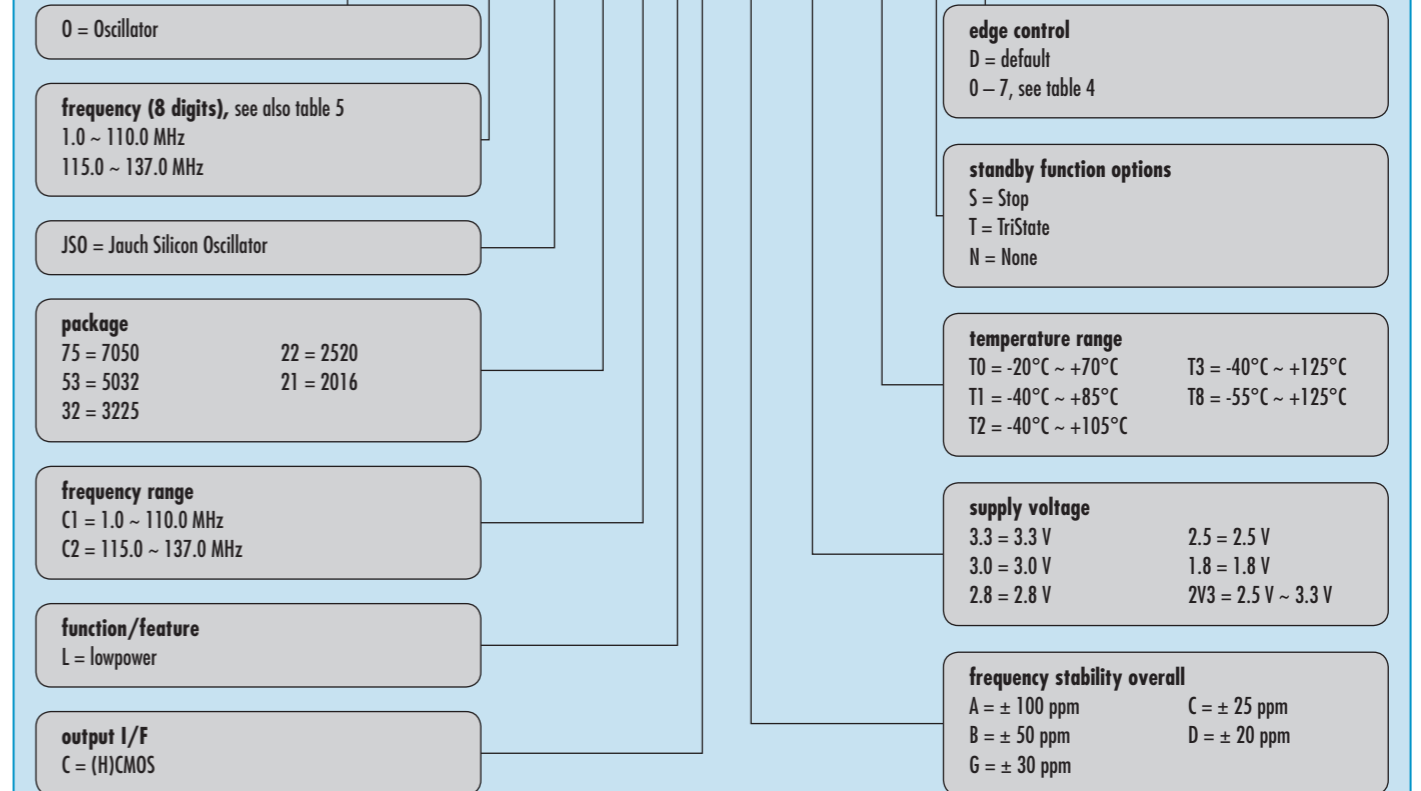
Table 5: Non-Configurable Frequencies

operating temperature option		operating temperature option	
T2 – (-40°C ~ +105°C)		T8 – (-55°C ~ +125°C)	
T3 – (-40°C ~ +125°C)			
from (MHz)	to (MHz)	from (MHz)	to (MHz)
61.223	61.674	61.223	61.974
69.796	70.485	69.240	70.827
79.063	79.162	78.715	79.561
81.428	82.232	80.160	80.174
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94.875	94.994	96.192	96.209
97.714	98.679	96.936	99.158
110.0	115.194	110.0	119.342
117.811	118.038	–	–
118.594	118.743	120.239	120.262
122.142	122.705	121.170	121.243
123.022	123.348	121.601	123.948

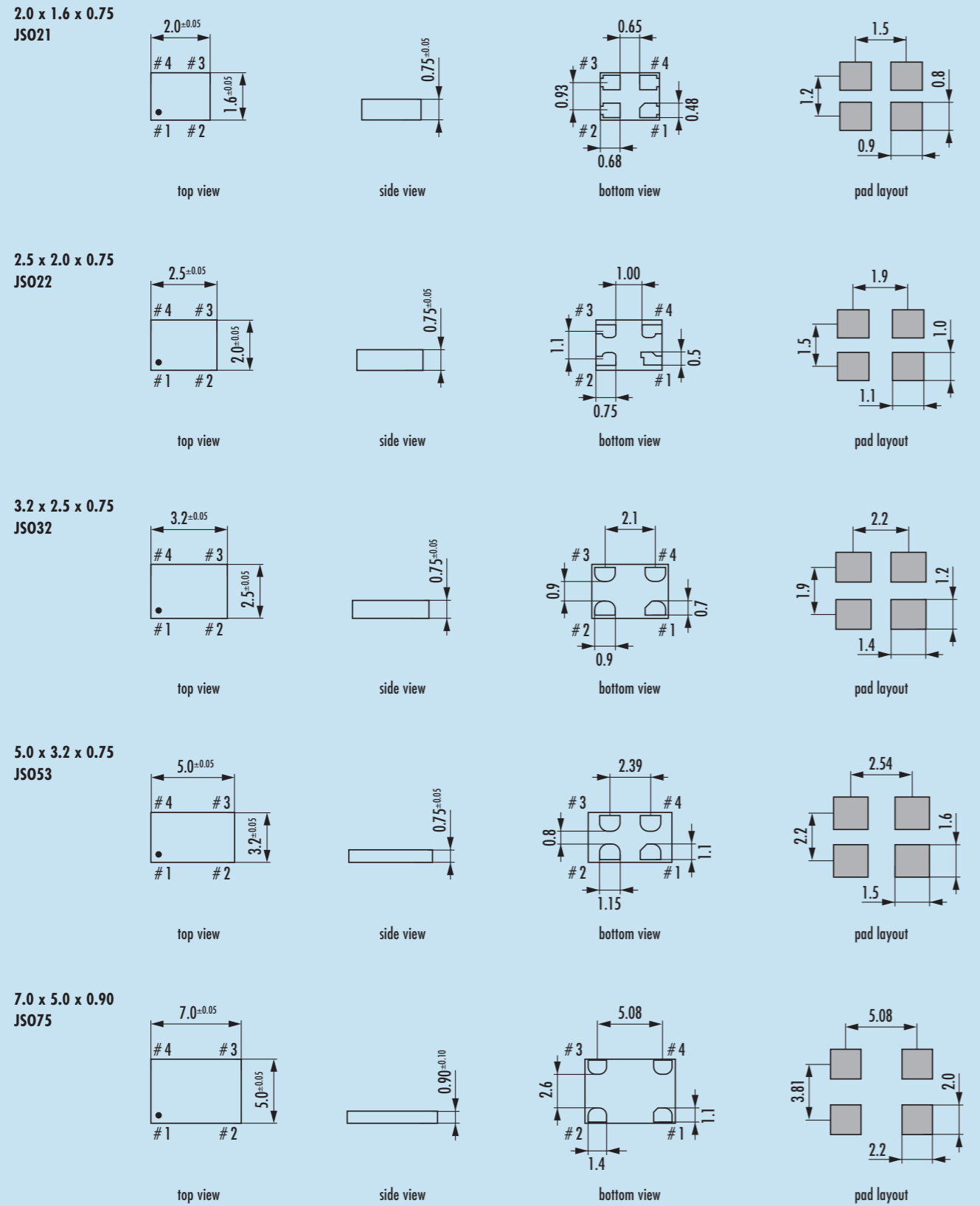
Order Information

Example:

O 26.123456 – J50 75 C1 L C – B – 2V3 – T0 – S – D



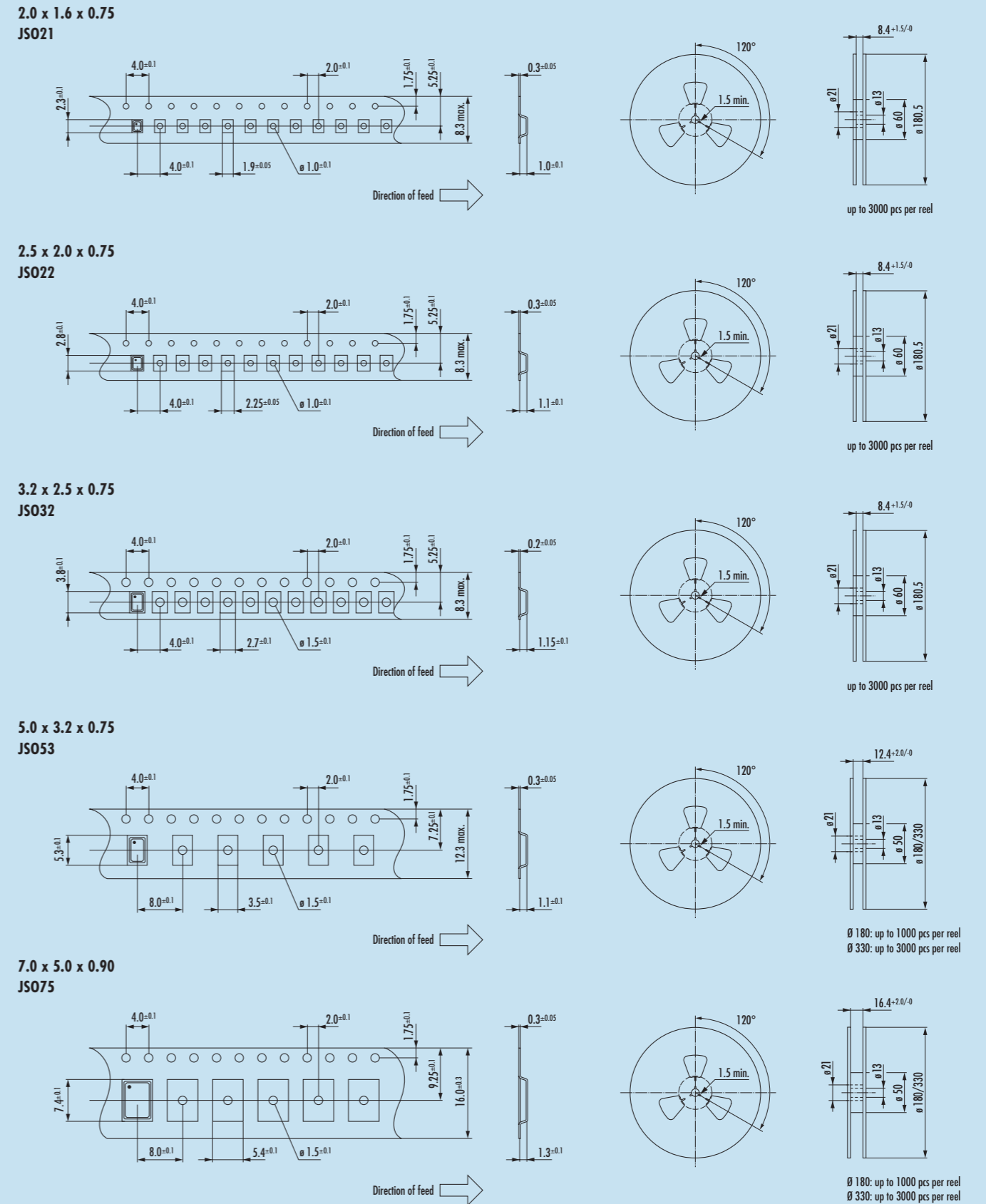
Dimensions



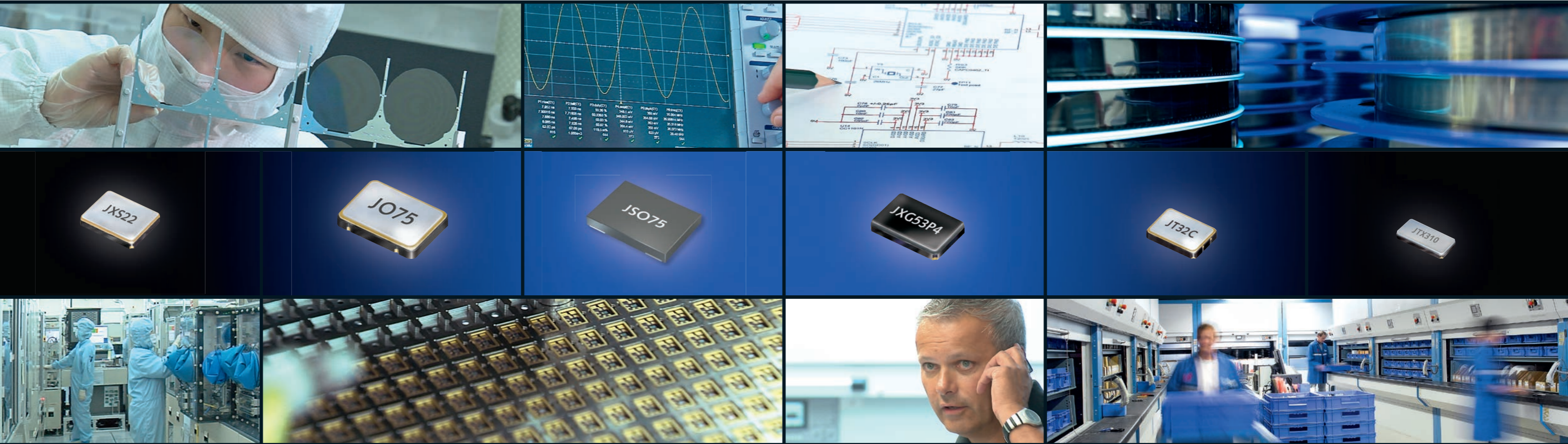
Pin connection #1: e/d #2: GND #3: output #4: V_{DC} note: a capacitor of 0.1 μF between V_{DC} and GND is recommended

in mm

Taping Specification



in mm



PRODUCTS IN TOP QUALITY

QUARTZ CRYSTALS

QUARTZ CRYSTAL OSCILLATORS

MEMS OSCILLATORS

- Inhouse R & D center
- Technical customer support by field application engineers
- Excellent product availability with over 28 million components in stock
- Standard and customized quartz crystal and MEMS products
- Worldwide presence expert advice by quartz crystal specialists

