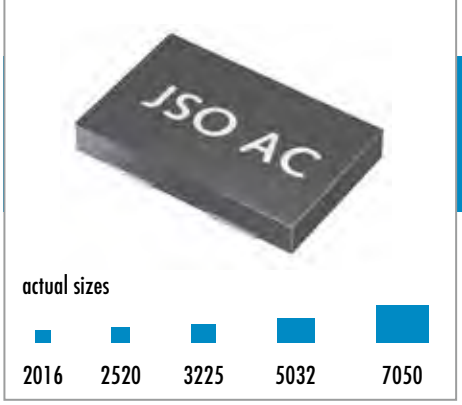


Automotive MEMS-Oscillator · JSO AC series · 1.8 V

- low power oscillator with HCMOS/LVCMOS output
- qualified according to AEC-Q100
- extended shock & vibration resistance
- compatible to industry standard packages 2016 – 7050
- configured to customer's specification

General Data

type		JSOxxDxAC 1.8 V
frequency range		1.0 ~ 110.0 MHz (temp. range T1 ~ T8)
		115.0 ~ 137.0 MHz (temp. range T1 ~ T8)
frequency stability over all		±20 ppm ~ ±50 ppm (see table 1)
current consumption		see table 2
supply voltage V_{DC}		1.8 V ± 10%
temperature	operating	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)		tristate-only (T) or none (N), see table 3
output enable time max.		150 ns (T)
output disable time max.		150 ns
start-up time max.		10 ms
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*		B ±50 ppm	G ±30 ppm	C ±25 ppm	D ±20 ppm	AEC-Q100 Grade
-40°C ~ +85°C	T1	○	○	○	○	3
-40°C ~ +105°C	T2	○	○	○	○	2
-40°C ~ +125°C	T3	○	○	○	○	1
-55°C ~ +125°C	T8	○	○	○	○	
○ 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

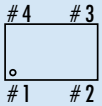
note: current at default edge control setting "D", also refer to table 4.

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

pin #1 (e/d control)	option	functionality
low "0" (V_{IL} ≤ 0.2 V_{DC})	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



#4: V_{DC} #3: output
#1: e/d #2: GND

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

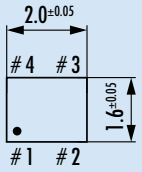
RoHS 2011/65/EC compliant · Pb free · REACH compliant · Conflict mineral free

Jauch MEMS – Uses SiTime's MEMS First™ technology

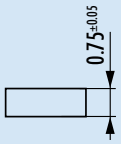
Automotive MEMS-Oscillator · JSO AC series · 1.8 V

Dimensions

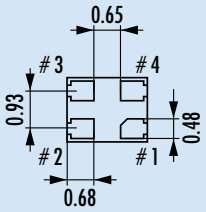
2.0 x 1.6 x 0.75
JSO21



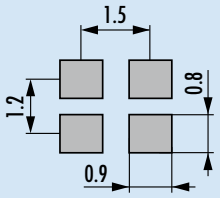
top view



side view

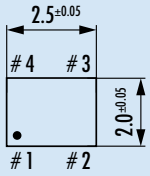


bottom view

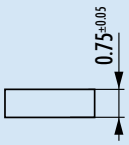


pad layout

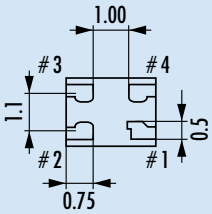
2.5 x 2.0 x 0.75
JSO22



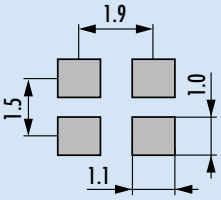
top view



side view

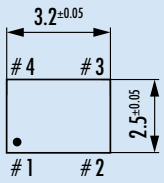


bottom view

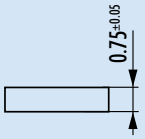


pad layout

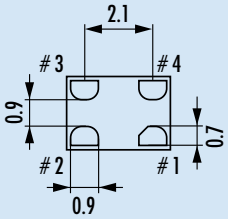
3.2 x 2.5 x 0.75
JSO32



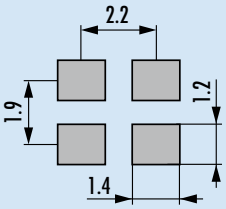
top view



side view

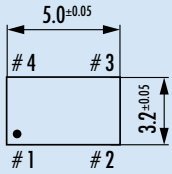


bottom view

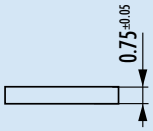


pad layout

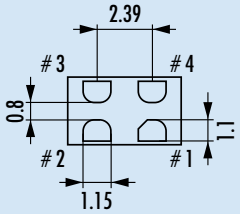
5.0 x 3.2 x 0.75
JSO53



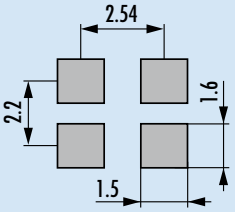
top view



side view

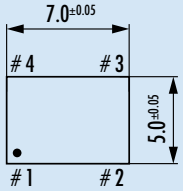


bottom view

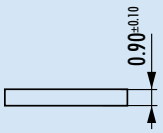


pad layout

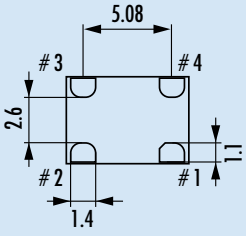
7.0 x 5.0 x 0.90
JSO75



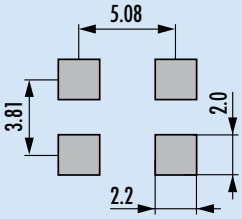
top view



side view



bottom view



pad layout

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