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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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# MEMS-TCXO · JSO TR · 32.768kHz

- ultra-stable 32.768 kHz clock source
- ultra-small CSP package 1.5 x 0.8 mm
- very short start-up time
- can replace tuning fork crystals
- wide supply voltage range 1.5 V ~ 3.63 V
- very low supply current

actual size

## General Data

type		JSO15B1TR
supply voltage $V_{DC}$		1.5 V ~ 3.63 V
current consumption typ.		1.2 $\mu$ A (rail-to-rail mode, no load, $V_{DC} = 1.8$ V)
output frequency		32.768 kHz
frequency stability vs. temp.		$\pm 10$ ppm ~ $\pm 22$ ppm (see table 1)
frequency stability vs. voltage		$\pm 0.75$ ppm at 1.8 V $\pm 0.18$ V $\pm 1.5$ ppm at 1.5 V ~ 3.63 V
aging	at +25°C	$\pm 1$ ppm first year
temperature	operating	0°C ~ +70°C / -40°C ~ +85°C
	storage	-50°C ~ +125°C
output	low level max.	0.1 x $V_{DC}$
	high level min.	0.9 x $V_{DC}$
	load max.	15 pF
	current max.	1.0 $\mu$ A
	rise & fall time	200 ns max. (15 pF, 10 <-> 90 %) 50 ns max. (5 pF, 10 <-> 90 %)
start-up time max.		400 ms
power supply ramp max.		100 ms
period jitter RMS typ.		35 ns

Table 1: Frequency Stability Code

stability code / temp. code	D	K	F		
including frequency tolerance*	$\pm 22$ ppm	$\pm 13$ ppm	$\pm 10$ ppm		
excluding frequency tolerance**	$\pm 20$ ppm	$\pm 10$ ppm	$\pm 5$ ppm		
0°C ~ +70°C	T0	○	○	○	
-40°C ~ +85°C	T1	○	○	○	
○ available					

\* includes tolerance at 25°C and frequency stability in operating temp. range.  
\*\* frequency stability in operating temp. range, frequency tolerance excluded.

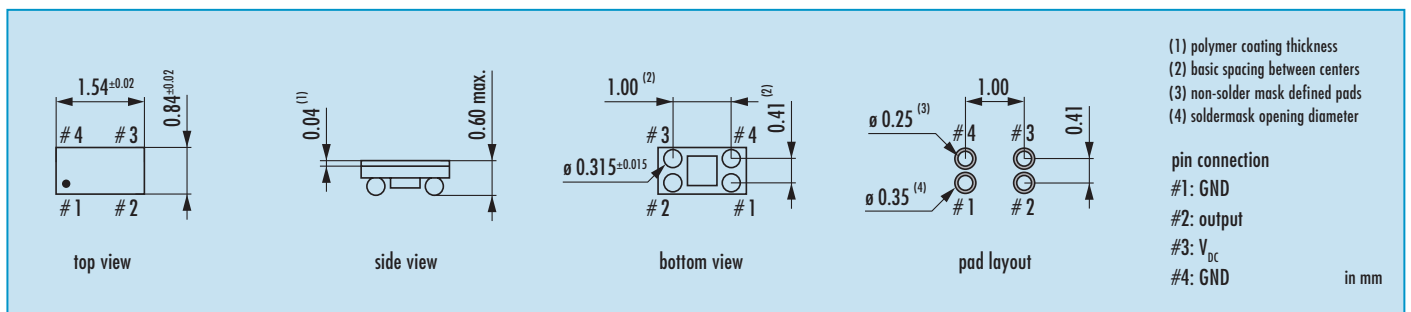
Table 2: Current Consumption typ. (for max. add 40%)

supply current at load	none	5 pF	10 pF	15 pF	unit
at startup (150 ms max.)	30.0				$\mu$ A
during temp. compensation*	6.0				$\mu$ A
$V_{RR} = 1.80$ V, compensation inactive	1.2	1.5	1.8	2.1	$\mu$ A
$V_{RR} = 2.50$ V, compensation inactive	1.3	1.7	2.0	2.5	$\mu$ A
$V_{RR} = 3.30$ V, compensation inactive	1.4	1.9	2.5	3.0	$\mu$ A

\* repetitive temp. compensation consuming 6  $\mu$ A for 10 ms, repeating every 350 ms

More information about the features of the JSO TR 32.768 kHz TCXO can be found [here](#).

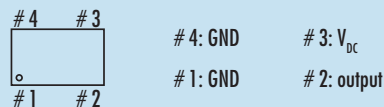
## Dimensions



## Packing Note / Marking

QTY < 1K pcs. → cut tape  
QTY 1K/3K → tape and reel  
Marking: identifier for pin 1

## Pin Connection



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

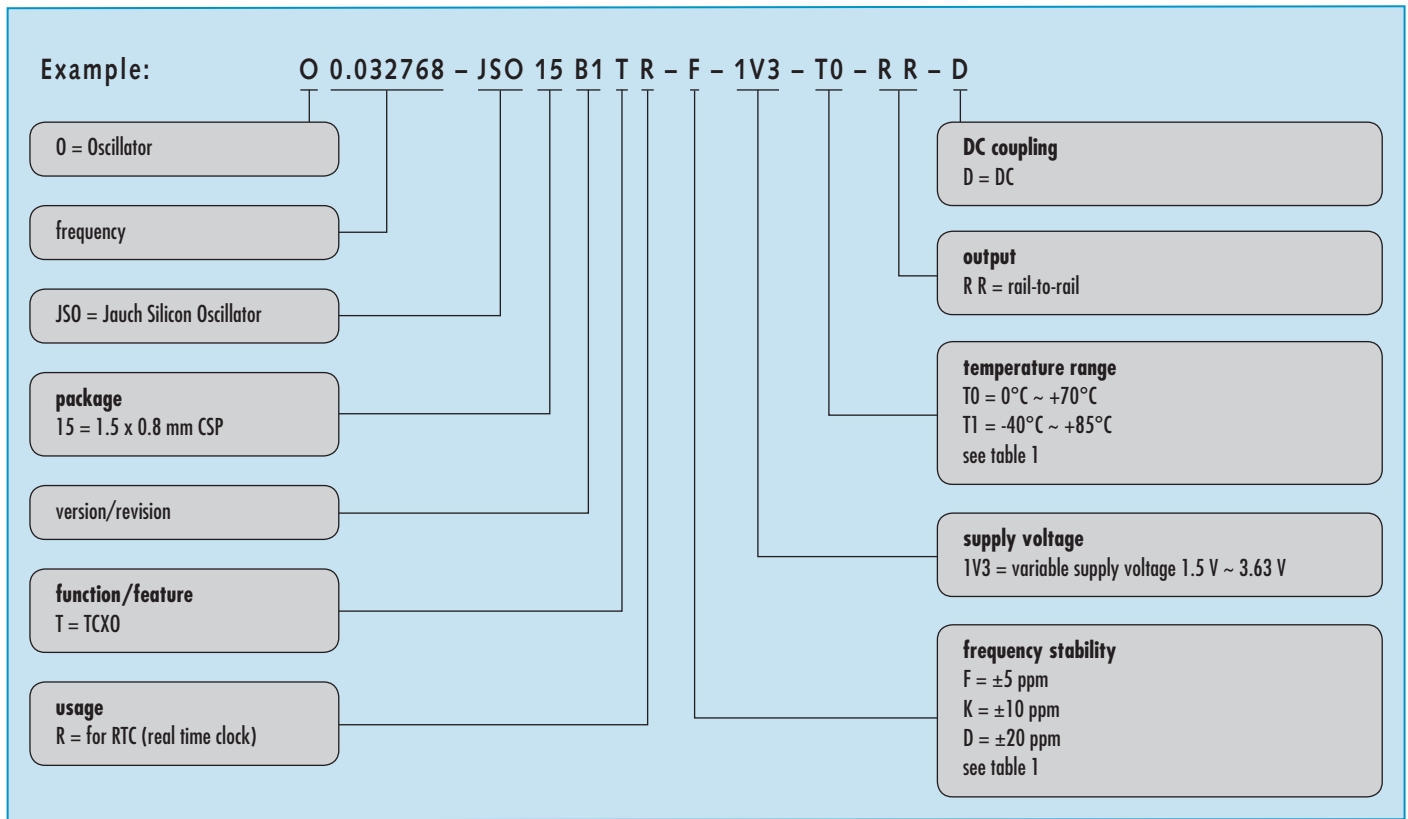
Jauch MEMS – Uses SiTime's MEMS First™ technology



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full data can be found under: [www.jauch.de](http://www.jauch.de) / [www.jauch.co.uk](http://www.jauch.co.uk) / [www.jauch.fr](http://www.jauch.fr) / [www.jauchusa.com](http://www.jauchusa.com)  
All specifications are subject to change without notice

# MEMS-TCXO · JSO TR · 32.768kHz

## Order Information



## Note

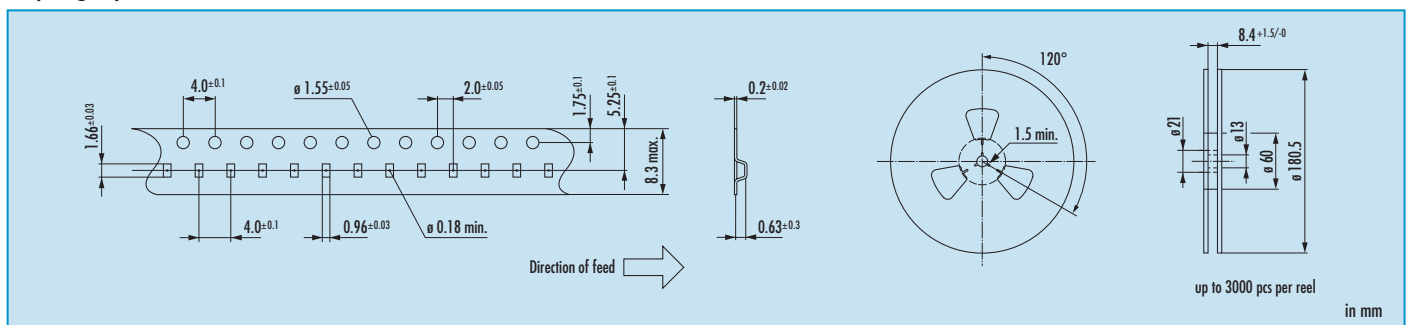
**Standard type O 0.032768-JSO15B1TR-F-1V3-T1-RR-D typically available from stock**

Frequency stability (table 1): F = ±5 ppm

Operating temperature range: T1 = -40°C ~ +85°C

Supply voltage: 1V3 = 1.5 V ~ 3.63 V variable

## Taping Specification



## Reflow Soldering Profile

