actual size

Quartz Crystal · JTX210

SMD Tuning Fork Crystal · 2.0 x 1.2 mm

- 32.768 kHz
- reflow soldering temperature: 260 °C max.
- package height 0.6 mm max.

RoHS 2011/65/EC
RoHS compliant

Pb free

General Data

type	JTX210
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. / 9.0 pF / 7.0 pF
temperature constant (T_C)	T_C = -0.04 · 10^{-6} / °C^2 max. T_C = -0.034 · 10^{-6} / °C^2 typical
frequency temperature characteristic	f (ppm) = T_C · (25 °C - T)^2 T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.3 pF typical
series resistance max. (ESR)	90 kΩ
storage temperature	-55 °C ~ +125 °C
drive level max.	0.5 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

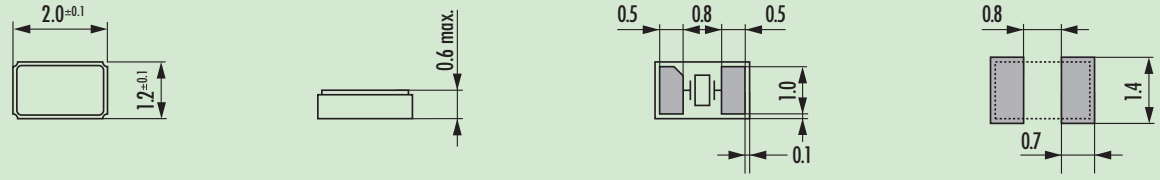
Marking

T / CL code / date code / internal code

CL code: A = 12.5 pF, B = 9 pF, C = 7 pF

	Jan.	Febr.	Mar.	Apr.	May	June	July	Aug.	Sept.	Okt.	Nov.	Dec.
2012	n	p	q	r	s	t	u	v	w	x	y	z
2013	A	B	C	D	E	F	G	H	J	K	L	M
2014	N	P	Q	R	S	T	U	V	W	X	Y	Z
2015	a	b	c	d	e	f	g	h	j	k	l	m

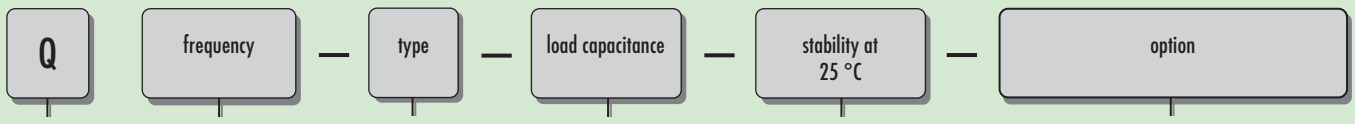
Dimensions



top view | side view | bottom view | pad layout

in mm

Order Information

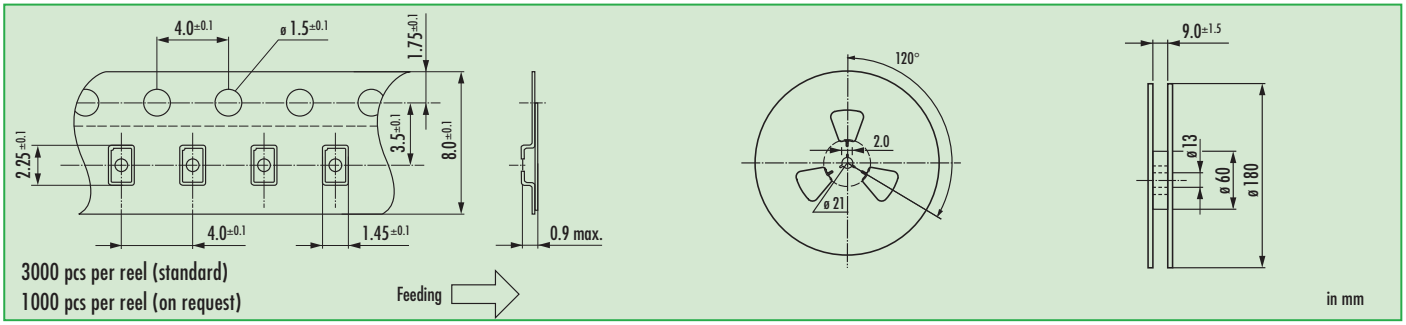


Quartz | 0.032768 MHz | JTX210 | 12.5 pF standard, 9 pF, 7 pF | 20 = ± 20 ppm, 30 = ± 30 ppm | blank = -20 °C ~ +70 °C, T1 = -40 °C ~ +85 °C

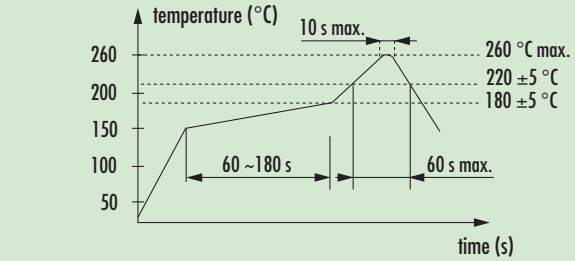
Example: Q 0.032768-JTX210-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

Quartz Crystal · JTX210

Taping Specification



Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · JTX310

SMD Tuning Fork Crystal · 3.2 x 1.5 mm

- 32.768 kHz
- reflow soldering temperature: 260 °C max.
- package height 0.9 mm max.

RoHS 2011/65/EC
RoHS compliant

Pb free

General Data

type	JTX310
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 10 ppm / ± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. (6 pF ~ 9 pF on request)
temperature constant (T_C)	T_C = -0.04 · 10^{-6} / °C^2 max. T_C = -0.034 · 10^{-6} / °C^2 typical
frequency temperature characteristic	f (ppm) = T_C · (25 °C - T)^2 T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.15 pF typical
series resistance max. (ESR)	70 kΩ (60 kΩ ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	0.5 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

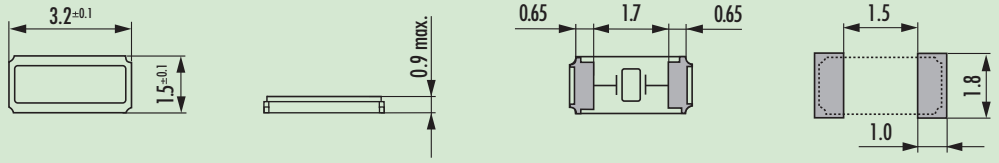
		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

company code
date code / production code

Dimensions



top view | side view | bottom view | pad layout

in mm

Order Information

Q	frequency	—	type	—	load capacitance	—	stability at 25 °C	—	option
Quartz	0.032768 MHz		JTX310		12.5 pF 6 pF ~ 9 pF (on request)		10 = ± 10 ppm 20 = ± 20 ppm 30 = ± 30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-JTX310-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

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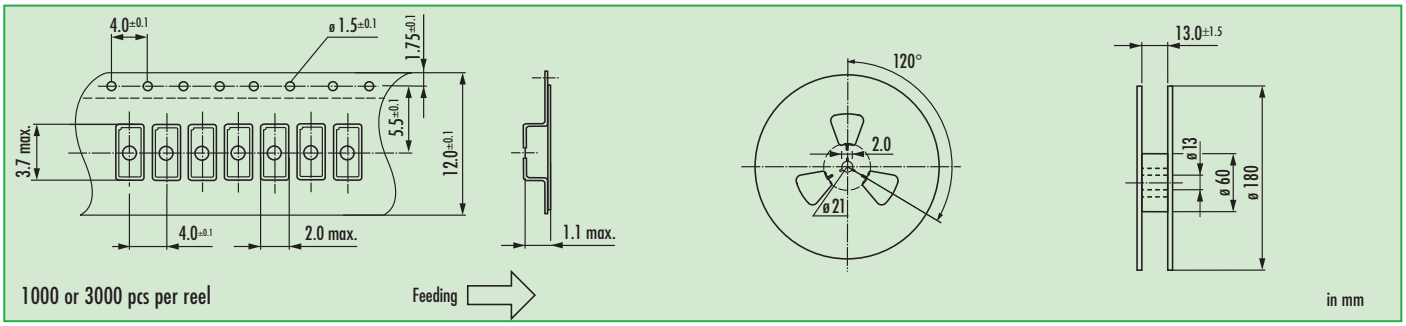
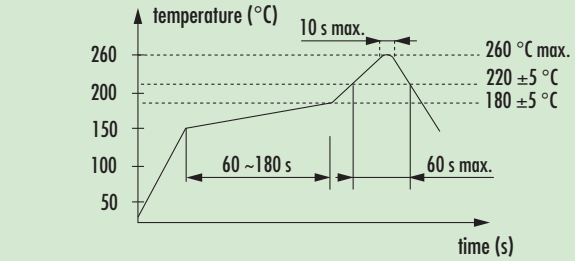
Quartz Crystal · JTX310

Taping Specification



Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · JTX410

SMD Tuning Fork Crystal · 4.1 x 1.5 mm

- 32.768 kHz
- reflow soldering temperature: 260 °C max.
- package height 0.9 mm max.

RoHS 2002/95/EC
RoHS compliant

Pb free

General Data

type	JTX410
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	± 10 ppm / ± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. (7 pF ~ 10 pF on request)
temperature constant (T_C)	T_C = -0.04 · 10^{-6} / °C^2 max. T_C = -0.034 · 10^{-6} / °C^2 typical
frequency temperature characteristic	f (ppm) = T_C · (25 °C - T)^2 T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.2 pF typical
series resistance max. (ESR)	80 kΩ (70 kΩ or 60 kΩ ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	0.5 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

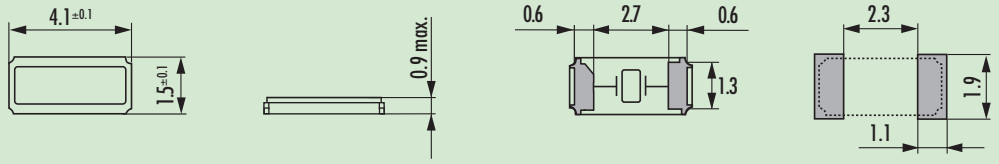
		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

company code
date code / production code

Dimensions



top view | side view | bottom view | pad layout

in mm

Order Information

Q	frequency	—	type	—	load capacitance	—	tolerance at 25 °C	—	option
Quartz	0.032768 MHz		JTX410		12.5 pF 7 pF ~ 10 pF (on request)		10 = ± 10 ppm 20 = ± 20 ppm 30 = ± 30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-JTX410-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

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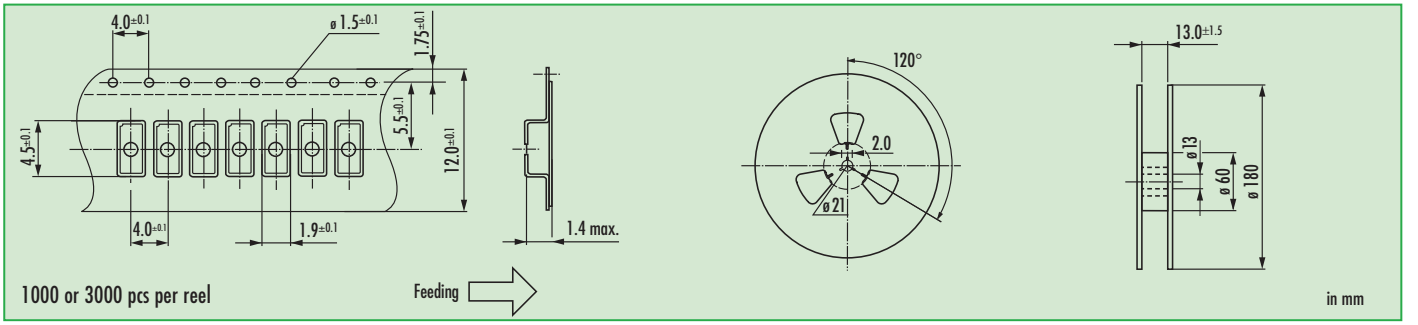
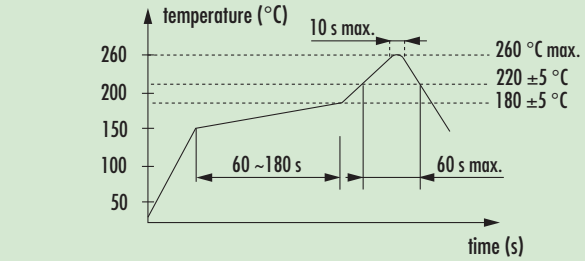
Quartz Crystal · JTX410

Taping Specification



Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · JTX520

SMD Tuning Fork Crystal · 4.8 x 1.9 mm

- 32.768 kHz standard
- reflow soldering temperature: 260 °C max.
- package height 1.0 mm max.

RoHS 2002/95/EC
RoHS compliant

Pb free: pins / pads

General Data

type	JTX520
frequency	32.768 kHz (30.0 ~ 100.0 kHz on request)
frequency tolerance at 25 °C ± 5 °C	± 10 ppm / ± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. (7 pF ~ 12 pF on request)
temperature constant (T_C)	T_C = -0.04 · 10^{-6} / °C^2 max. T_C = -0.034 · 10^{-6} / °C^2 typical
frequency temperature characteristic	f (ppm) = T_C · (25 °C - T)^2 T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.25 pF typical
series resistance max. (ESR)	80 kΩ (70 kΩ ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	1.0 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

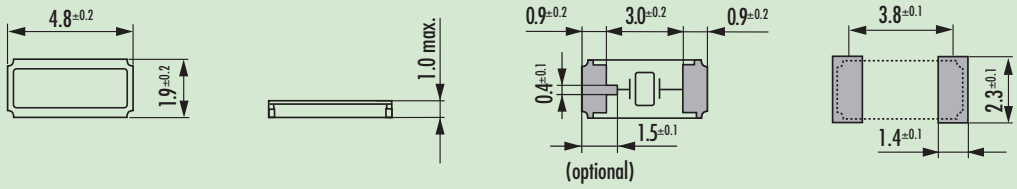
		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

company code
frequency code (optional)
date code
production code (optional)

Dimensions



top view | side view | bottom view | pad layout

in mm

Order Information

Q	frequency	—	type	—	load capacitance	—	tolerance at 25 °C	—	option
Quartz	0.032768 MHz		JTX520		7 ~ 12.5 pF 12.5 pF std.		10 = ± 10 ppm 20 = ± 20 ppm 30 = ± 30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-JTX520-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

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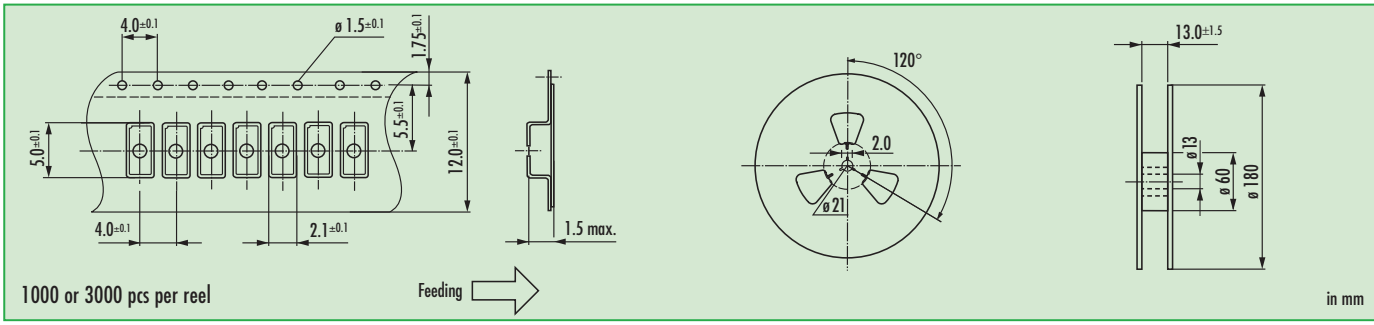
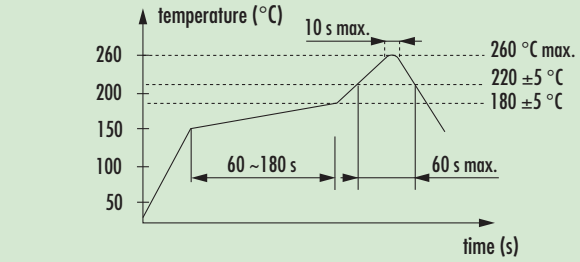
Quartz Crystal · JTX520

Taping Specification



Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · SMQ32SN

SMD Tuning Fork Crystal · 7.0 x 1.5 mm

- 32.768 kHz standard
- reflow soldering temperature: 260 °C max.
- package height 1.4 mm max.

RoHS 2011/65/EC
RoHS compliant

Pb free: pins / pads

General Data

type	SMQ32SN
frequency	32.768 kHz
frequency tolerance at 25 °C ± 5 °C	±20 ppm / ±30 ppm
load capacitance C_L	12.5 pF / 7 pF
temperature constant (T_C)	T_C = -0.04 · 10^{-6} / °C^2 max. T_C = -0.034 · 10^{-6} / °C^2 typical
frequency temperature characteristic	f (ppm) = T_C · (25 °C - T)^2 T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	0.8 pF typical
series resistance max. (ESR)	65 kΩ (12.5 pF) 70 kΩ (7 pF)
storage temperature	-55 °C ~ +125 °C
drive level max.	1 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

internal code / frequency code / date code (my) / CL code

frequency code:

KHz	Code
32.768	3

month code:

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F

CL code:

CL (pF)	Code
12.5	C
7.0	7

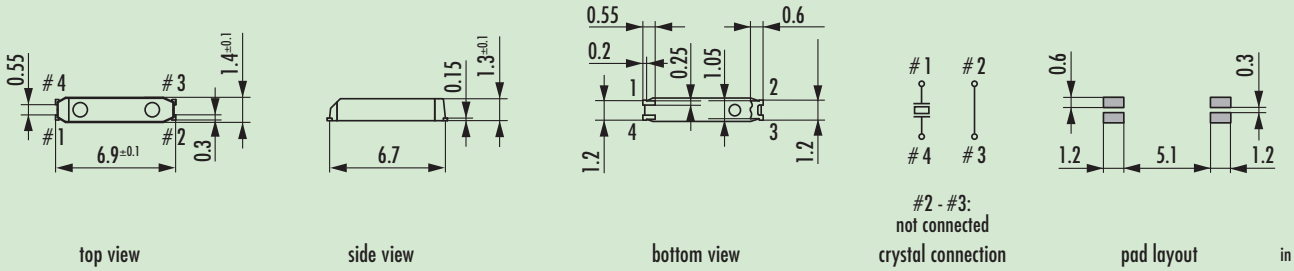
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	M	N

year code:

2013	2014	2015	2016	2017	2018	2019
D	E	F	G	H	J	K

example: C3 ED C, ED = May 2013, C = 12.5pF

Dimensions



top view | side view | bottom view | crystal connection | pad layout | in mm

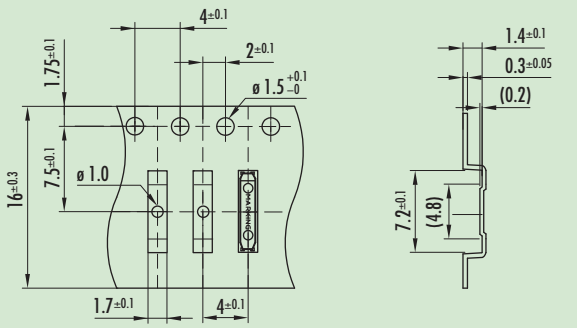
Order Information

Q	frequency	—	type	—	load capacitance	—	stability at 25 °C	—	option
Quartz	0.032768 MHz		SMQ32SN		12.5 pF standard 7 pF		20 = ± 20 ppm 30 = ± 30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SMQ32SN-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

Quartz Crystal · SMQ32SN

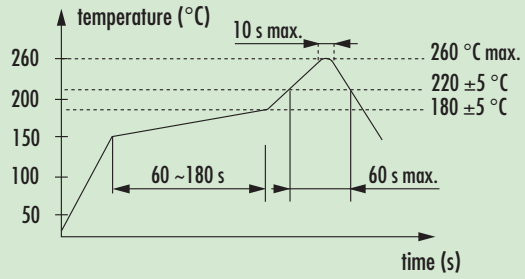
Taping Specification



3000 pcs per reel

in mm

Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · SMQ32SL

SMD Tuning Fork Crystal · 8.0 x 3.8 mm

- 32.768 kHz standard
- reflow soldering temperature: 260 °C max.
- package height 2.5 mm max.

RoHS 2002/95/EC
RoHS compliant

Pb free: pins / pads

General Data

type	SMQ32SL
frequency	32.768 kHz (30.0 ~ 100.0 kHz on request)
frequency tolerance at 25 °C ± 5 °C	±20 ppm / ±30 ppm ±10 ppm (ask if available)
load capacitance C_L	12.5 pF std. (6 pF ~ 16 pF on request)
temperature constant (T_C)	$T_C = -0.04 \cdot 10^{-6} / °C^2$ max. $T_C = -0.034 \cdot 10^{-6} / °C^2$ typical
frequency temperature characteristic	$f (ppm) = T_C \cdot (25 °C - T)^2$ T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.3 pF typical
series resistance max. (ESR)	50 kΩ (35 kΩ ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	1 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

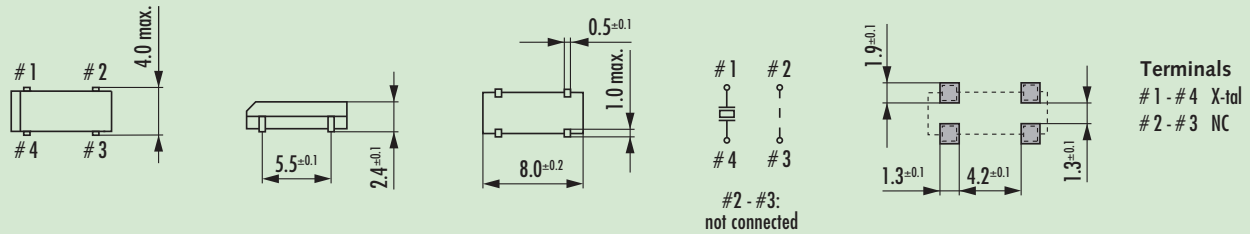
		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

frequency (optional)
internal code / date code

Dimensions



top view | side view | bottom view | crystal connection | pad layout

in mm

Order Information

Q	frequency	—	type	—	load capacitance	—	stability at 25 °C	—	option
Quartz	0.032768 MHz		SMQ32SL		12.5 pF Std. 6 pF ~ 16 pF (on request)		10 = ± 10 ppm 20 = ± 20 ppm 30 = ± 30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SMQ32SL-12.5-20-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

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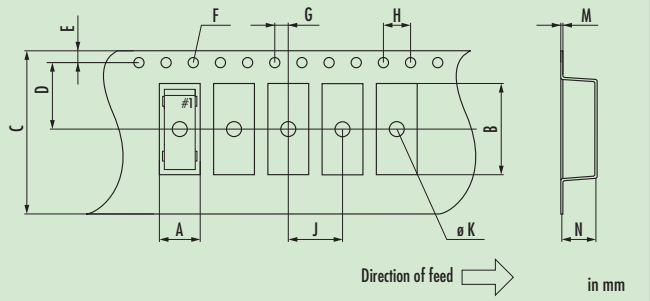
Quartz Crystal · SMQ32SL

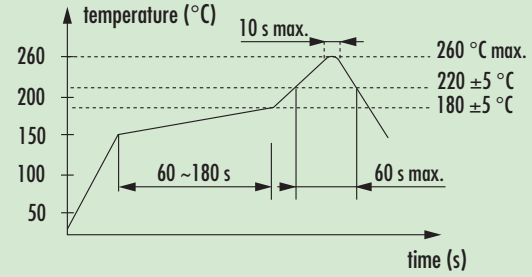
Taping Specification



in mm

1000 pcs per reel											
A	B	C	D	E	F	G	H	J	K	M	N
4.1± 0.2	8.4± 0.2	16.0± 0.3	7.5± 0.1	1.75± 0.1	ø 1.5± 0.1	2.0± 0.1	4.0± 0.1	8.0± 0.1	ø2.5 max.	0.3± 0.05	2.7± 0.1

Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · SMQ32S

SMD Tuning Fork Crystal · 9.2 x 3.4 mm

- 32.768 kHz standard
- reflow soldering temperature: 260 °C max.
- package height 3.0 mm

RoHS 2002/95/EC
RoHS compliant

Pb free: pins / pads

General Data

type	SMQ32S
frequency	32.768 kHz (30.0 ~ 80.0 kHz on request)
frequency tolerance at 25 °C ± 5 °C	± 30 ppm
load capacitance C_L	12.5 pF std. (6 pF ~ 12.5 pF on request)
temperature constant (T_C)	T_C = -0.04 · 10^{-6} / °C^2 max. T_C = -0.034 · 10^{-6} / °C^2 typical
frequency temperature characteristic	f (ppm) = T_C · (25 °C - T)^2 T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.4 pF typical
series resistance max. (ESR)	50 kΩ
storage temperature	-40 °C ~ +90 °C
drive level max.	1 µW
aging first year	< ± 3 ppm

Frequency Stability vs. Temperature

		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

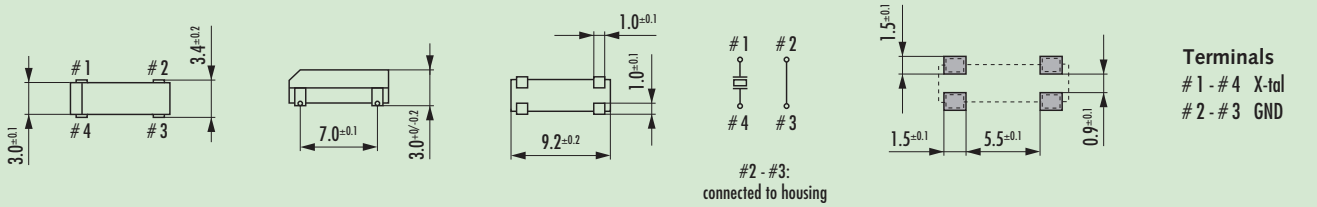
company code / 32.7 / date code

date code:
A ~ M: Jan.- Dec.
1: 2011 4: 2014
2: 2012 5: 2015
3: 2013 6: 2016

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F

July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

Dimensions



top view | side view | bottom view | crystal connection | pad layout

in mm

Order Information

Q	frequency	—	type	—	load capacitance	—	tolerance at 25 °C	—	option
Quartz	0.032768 MHz		SMQ32S		6 pF ~ 12.5 pF 12.5 pF Std.		30 = ± 30 ppm		blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SMQ32S-12.5-30-T1-LF (Suffix LF = RoHS compliant / Pb free pads)

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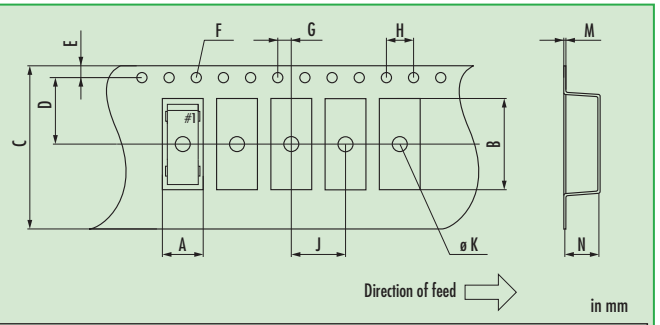
full data can be found under: www.jauch.de / www.jauch.co.uk / www.jauch.fr / www.jauchusa.com

Quartz Crystal · SMQ32S

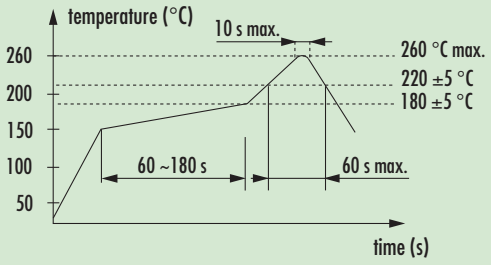
Taping Specification



in mm

1000 pcs per reel											
A	B	C	D	E	F	G	H	J	K	M	N
5.5± 0.1	9.3± 0.1	16.0± 0.3	7.5± 0.1	1.75± 0.1	ø 1.5± 0.1	2.0± 0.1	4.0± 0.1	8.0± 0.1	ø2.5± 0.05	0.3± 0.05	3.4± 0.1

Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content

actual size

Quartz Crystal · SMQ32

SMD Tuning Fork Crystal · 13.2 x 4.9 mm

- 32.768 kHz standard
- reflow soldering temperature: 260 °C max.
- package height 4.8 mm max.

RoHS 2002/95/EC
RoHS compliant

Pb free: pins / pads

General Data

type	SMQ32
frequency	32.768 kHz (30.0 ~ 80.0 kHz on request)
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm
load capacitance C_L	12.5 pF std. (6 pF ~ 12 pF on request)
temperature constant (T_C)	$T_C = -0.04 \cdot 10^{-6} / °C^2$ max. $T_C = -0.034 \cdot 10^{-6} / °C^2$ typical
frequency temperature characteristic	$f (ppm) = T_C \cdot (25 °C - T)^2$ T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	2 pF typical
series resistance max. (ESR)	33.0 kΩ
storage temperature	-40 °C ~ +90 °C
drive level max.	1 µW
aging first year	< ± 5 ppm

Frequency Stability vs. Temperature

		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

● standard

Marking

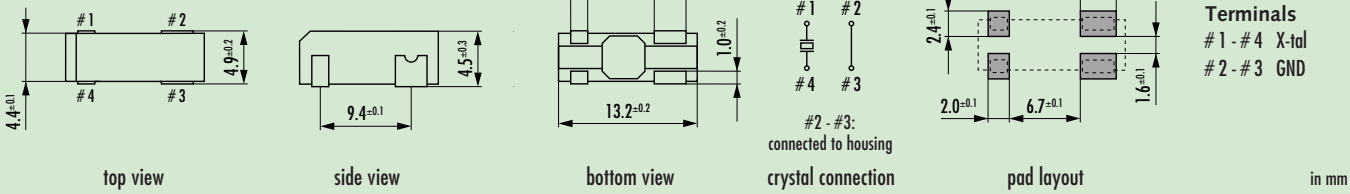
company code / 327 / date code

date code:
A ~ M: Jan.- Dec.
1: 2011 4: 2014
2: 2012 5: 2015
3: 2013 6: 2016

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F

July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

Dimensions



top view | side view | bottom view | crystal connection | pad layout

in mm

Order Information

Q — frequency — type — load capacitance — stability at 25 °C — option

Q	frequency	type	load capacitance	stability at 25 °C	option
Quartz	0.032768 MHz	SMQ32	6 pF ~ 12.5 pF 12.5 pF Std.	30 = ± 30 ppm 20 = ± 20 ppm	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SMQ32-12.5-30-LF (Suffix LF = RoHS compliant / Pb free pads)

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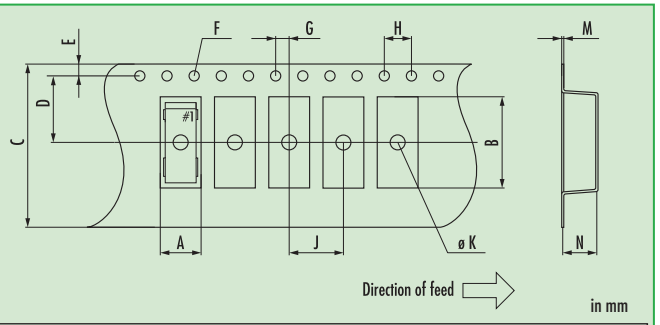
full data can be found under: www.jauch.de / www.jauch.co.uk / www.jauch.fr / www.jauchusa.com

Quartz Crystal · SMQ32

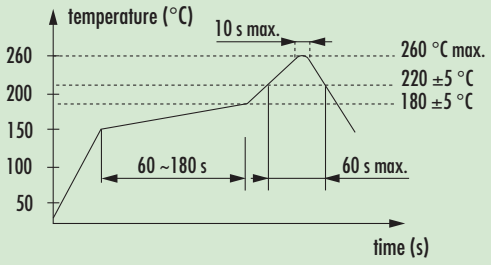
Taping Specification



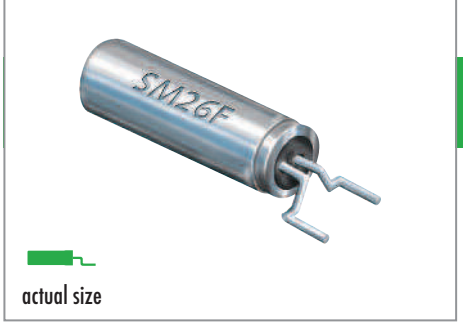
in mm

1000 pcs per reel											
A	B	C	D	E	F	G	H	J	K	M	N
5.3± 0.1	13.4± 0.1	24.0± 0.3	11.5± 0.1	1.75± 0.1	ø 1.5± 0.1	2.0± 0.1	4.0± 0.1	8.0± 0.1	ø2.5± 0.05	0.4	6.0 max.

Reflow Soldering Profile



note: parts are also suitable for soldering systems with lead (Pb) content



actual size

Quartz Crystal · SM26F

Tuning Fork Crystal · 2.0 x 6.0 mm

- 2 x 6 mm cylinder type
- reflow soldering temperature: 260 °C max.
- package height: 2.1 / 3.25 mm max.

RoHS 2011/65/EC
RoHS compliant

General Data

type	SM26F
frequency	32.768 kHz (30.0 ~ 100.0 kHz on request)
frequency tolerance at 25 °C ± 5 °C	± 20 ppm / ± 30 ppm (± 10 ppm ask if available)
load capacitance C_L	12.5 pF std. (6 pF ~ 12.5 pF on request)
temperature constant (T_C)	$T_C = -0.04 \cdot 10^{-6} / °C^2$ max. $T_C = -0.034 \cdot 10^{-6} / °C^2$ typical
frequency temperature characteristic	$f (ppm) = T_C \cdot (25 °C - T)^2$ T = requested temperature
operating temperature range	-20 °C ~ +70 °C / -40 °C ~ +85 °C
shunt capacitance C_0	1.2 pF typical
series resistance max. (ESR)	50.0 kΩ (35.0 kΩ ask if available)
storage temperature	-40 °C ~ +90 °C
drive level max.	1 µW
aging first year	< ± 5 ppm

Frequency Stability vs. Temperature

		- 80 ppm	- 160 ppm	
-20 °C ~ +70 °C	STD.	●		
-40 °C ~ +85 °C	T1		●	

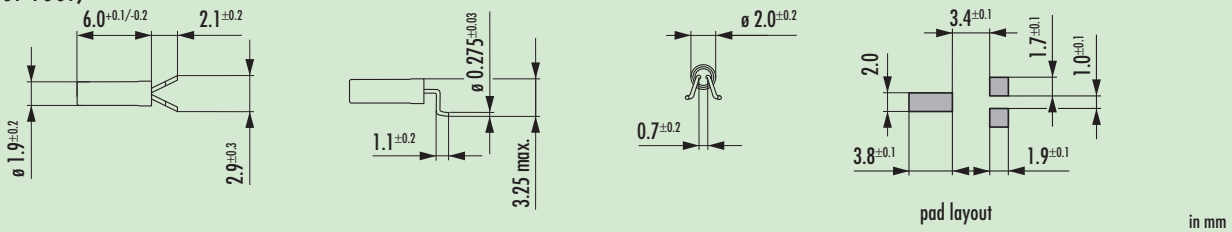
● standard

Marking

company code
frequency code (optional)
date code

Dimensions type A

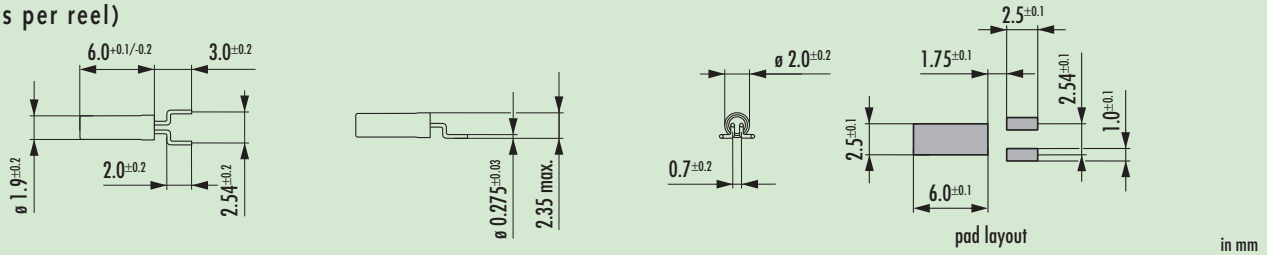
(1000 pcs per reel)



in mm

Dimensions type B

(1000 pcs per reel)



in mm

Order Information

Q	frequency	type	load capacitance	stability at 25 °C	dimensions type	option
Quartz	0.032768 MHz	SM26F	6 pF ~ 12.5 pF 12.5 pF Std.	20 = ± 20 ppm 30 = ± 30 ppm	A = lead type B = lead type	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C

Example: Q 0.032768-SM26F-12.5-20-B-T1-LF

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