



actual size

Oscillator · TCXO · JT22C

TCXO with HCMOS output · 2.5 x 2.0 mm

- excellent phase noise
- operating temperature range -40 °C ~ +85 °C
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



General Data

type	JT22C	
frequency range	4.0 ~ 54.0 MHz	
frequency stability	at +25 °C	± 0.5 ppm
	temperature	± 2.5 ppm (others on request)
	aging first year	± 1.0 ppm
	supply voltage	± 0.2 ppm (at V _{DC} ± 5%)
	load change	± 0.2 ppm
	after reflow	± 1.0 ppm
current consumption max.	→ see table 1	
supply voltage V_{DC}	2.5 / 2.8 / 3.3 (± 5%)	
temperature	operating	-30 °C ~ +75 °C / -40 °C ~ +85 °C
	storage	-40 °C ~ +125 °C
output	rise & fall time	5.0 ns max.
	load max.	15 pF
	current max.	4.0 mA
	low level max.	0.1 x V _{DC}
	high level min.	0.9 x V _{DC}
harmonics distortion max.	-5.0 dBc	
symmetry at 0.5 x V_{DC}	45% ~ 55% max.	
start-up time max.	10 ms	
standby current max.	10 µA	
output enable time max.	10 ms	
output disable time max.	250 ns	
Jitter 1 σ	3.0 ps	
phase noise at 10 kHz offset	-145 dBc/Hz	

Table 1: Current Consumption max.

	4 ~ 10 MHz	~ 20 MHz	~ 30 MHz	~ 40 MHz	~ 54 MHz
2.5 V	3.1 mA	3.7 mA	4.2 mA	4.6 mA	5.5 mA
2.8 V	3.4 mA	4.1 mA	4.7 mA	5.2 mA	6.0 mA
3.3 V	4.0 mA	4.8 mA	5.5 mA	6.0 mA	7.0 mA

Enable / Disable Function

pin #1 (e/d control)	pin #3 (output)
open	active
high "1" (V _{IH} ≥ 0.7 V _{DC})	active
low "0" (V _{IL} ≤ 0.3 V _{DC})	high impedance
stop function:	
<ul style="list-style-type: none"> • oscillator stops • output high impedance 	

Note

4 user pins (e/d, GND, output, V_{DC})
leave the other pins unconnected!

Dimensions

top view

side view

bottom view

pad layout

TCXO
JT22C
1: e/d
2: GND
3: output
4: V_{DC}

pin connection

in mm

Order Information

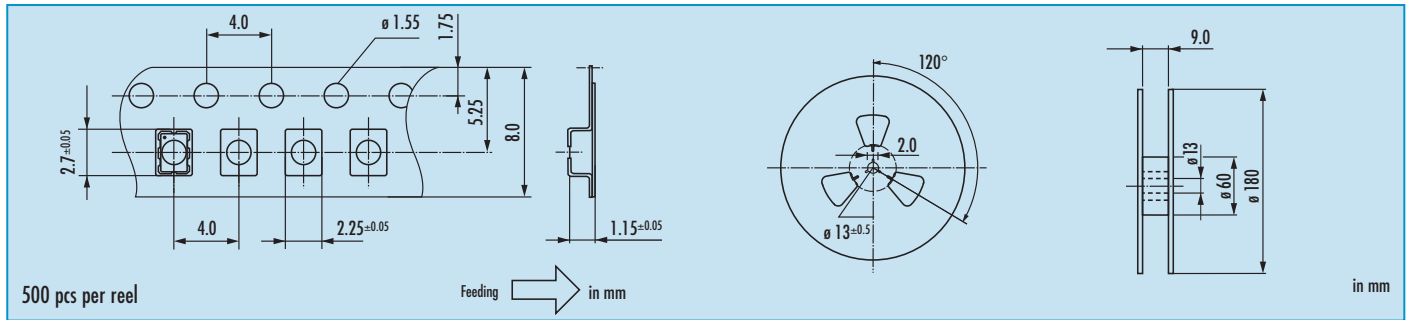
0		frequency in MHz		type		frequency stability code		operating temp. code		supply voltage
Oscillator		4.0 ~ 54.0 MHz		JT22C = TCXO		A = ± 2.5 ppm		G = -30 °C ~ +75 °C K = -40 °C ~ +85 °C		2.5 = 2.5 V 2.8 = 2.8 V 3.3 = 3.3 V

Example: O 16.3680-JT22C-A-K-3.3-LF (Suffix LF = RoHS compliant / Pb free pads)

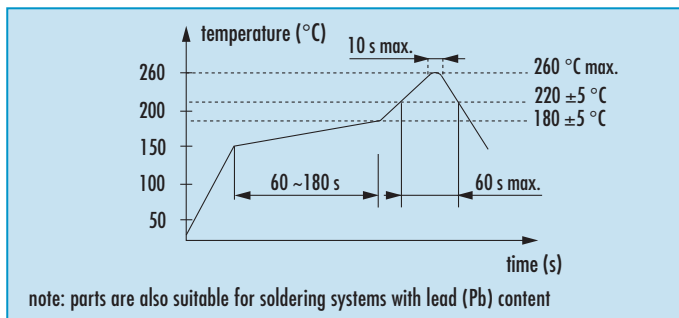


Oscillator · TCXO · JT22C

Taping Specification



Reflow Soldering Profile



Marking

frequency

company code / stability code / date code (YM)

date code:

A ~ M: Jan. - Dec.

9: 2009 2: 2012

0: 2010 3: 2013

1: 2011 4: 2014

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk



actual size

Oscillator · (VC)TCXO · JT32(V)

Temp. Compensated Crystal Oscillator · 3.2 x 2.5 mm

- low power VCTCXO or TCXO
- temperature range -40 °C ~ +85 °C available
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



General Data

type		JT32 / JT32V
frequency range		8.0 ~ 45.0 MHz
frequency stability	at +25 °C	± 0.5ppm
	temperature	± 1ppm ~ ± 5ppm (table 1)
	aging first year	± 1ppm
	supply voltage	± 0.2ppm (at V _{DC} ± 5%)
	load change	± 0.2ppm
current consumption max.		2.5mA max.
supply voltage V _{DC}		2.5 / 2.8 / 3.0 / 3.3 (± 5%)
temperature	operating	see table 1
	storage	-40 °C ~ +85 °C
output	load nom.	10KΩ // 10pF
	level min.	0.8Vpp (clipped sine)
external tuning range JT32 V		± 8ppm min.
external tuning voltage		1.5 V ± 1.0 V
start-up time max.		2.5 ms
phase noise	at 100Hz	-113 dBc/Hz
	at f _o	-135 dBc/Hz
13 MHz	at 10KHz	-145 dBc/Hz

Table 1: Frequency Stability vs. Temperature

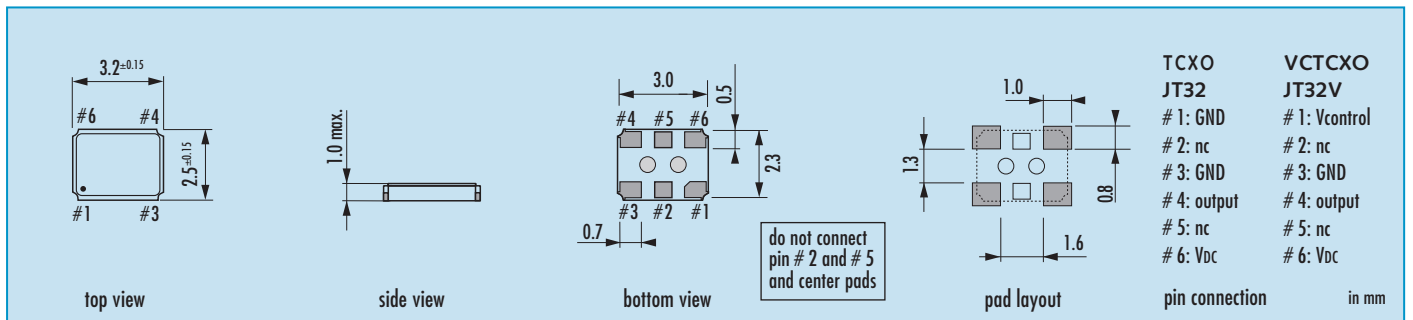
operating temperature code	frequency stability code					
	Y	Z	A	B	C	D
± 5.0 ppm	± 3.0 ppm	± 2.5 ppm	± 2.0 ppm	± 1.5 ppm	± 1.0 ppm	
A: -30 °C ~ +80 °C	○	○	○	○	○	○
B: -20 °C ~ +70 °C	○	○	○	○	○	○
C: -10 °C ~ +60 °C	○	○	○	○	○	○
D: 0 °C ~ +85 °C	○	○	○	○	○	○
E: 0 °C ~ +55 °C	○	○	○	○	○	○
F: -10 °C ~ +70 °C	○	○	○	○	○	○
G: -30 °C ~ +75 °C	○	○	○	○	○	○
H: -20 °C ~ +75 °C	○	○	○	○	○	○
K: -40 °C ~ +85 °C	○	○	○	○		
L: -20 °C ~ +85 °C	○	○	○	○	○	○
M: -30 °C ~ +85 °C	○	○	○	○		

● standard ○ available

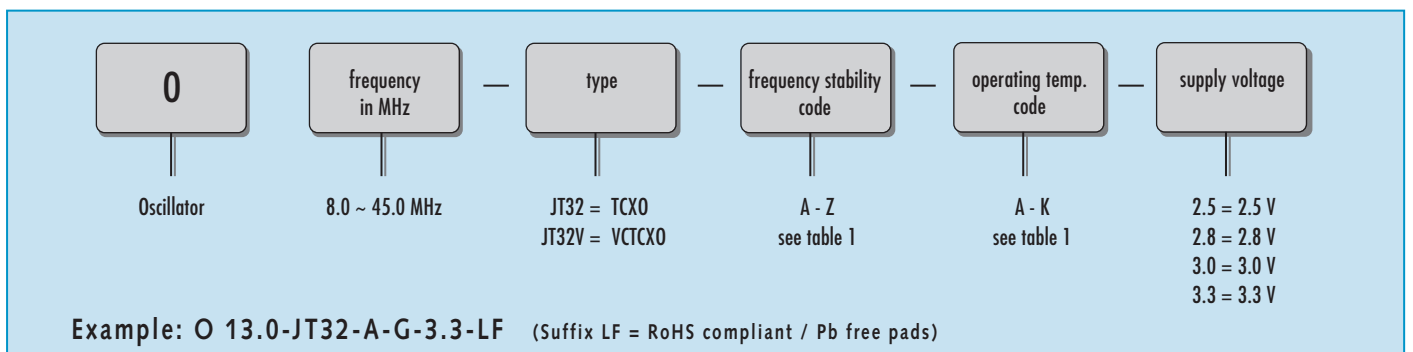
Note

- TCXO JT32: pin #1 connected to ground
- VCTCXO JT32V: pin #1 connected to control voltage
- external AC coupling for output recommended

Dimensions

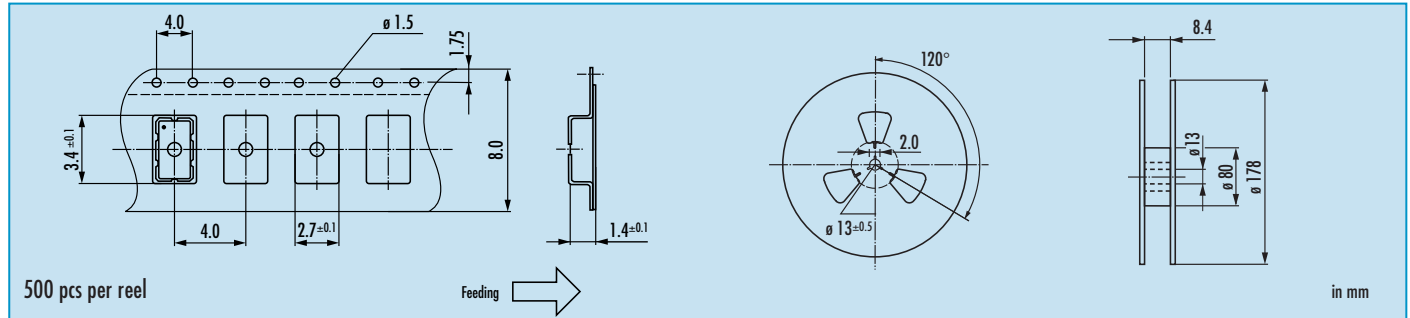


Order Information

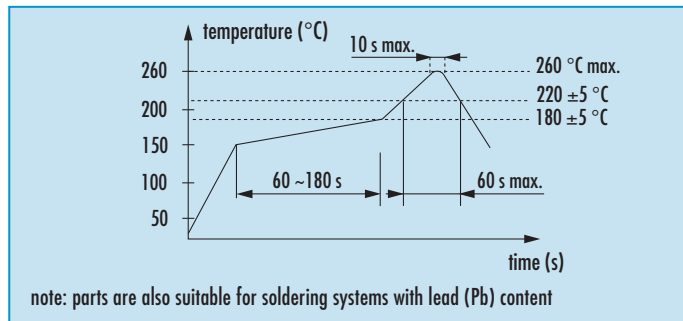


Oscillator · (VC-)TCXO · JT32(V)

Taping Specification



Reflow Soldering Profile



Marking

type / frequency
company code / 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

Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk



actual size

Oscillator · TCXO · JT32C

TCXO with HCMOS output · 3.2 x 2.5 mm

- excellent phase noise
- operating temperature range -40 °C ~ +85 °C
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



General Data

type	JT32C	
frequency range	4.0 ~ 54.0 MHz	
stability	at +25 °C	± 0.5 ppm
	temperature	± 2.5 ppm (others on request)
	aging first year	± 1.0 ppm
	supply voltage	± 0.2 ppm (at V _{DC} ± 5%)
	load change	± 0.2 ppm
	after reflow	± 1.0 ppm
current consumption max.	→ see table 1	
supply voltage V_{DC}	2.5 / 2.8 / 3.3 (± 5%)	
temperature	operating	-30 °C ~ +75 °C / -40 °C ~ +85 °C
	storage	-40 °C ~ +125 °C
output	rise & fall time	5.0 ns max.
	load max.	15 pF
	current max.	4.0 mA
	low level max.	0.1 x V _{DC}
	high level min.	0.9 x V _{DC}
harmonics distortion max.	-5.0 dBc	
symmetry at 0.5 x V_{DC}	45% ~ 55% max.	
start-up time max.	10 ms	
standby current max.	10 µA	
output enable time max.	10 ms	
output disable time max.	250 ns	
Jitter 1 σ	3.0 ps	
phase noise at 10 kHz offset	-145 dBc/Hz	

Table 1: Current Consumption max.

	4 ~ 10 MHz	~ 20 MHz	~ 30 MHz	~ 40 MHz	~ 54 MHz
2.5 V	3.1 mA	3.7 mA	4.2 mA	4.6 mA	5.5 mA
2.8 V	3.4 mA	4.1 mA	4.7 mA	5.2 mA	6.0 mA
3.3 V	4.0 mA	4.8 mA	5.5 mA	6.0 mA	7.0 mA

Enable / Disable Function

pin #1 (e/d control)	pin #3 (output)
open	active
high "1" (V _{IH} ≥ 0.7 V _{DC})	active
low "0" (V _{IL} ≤ 0.3 V _{DC})	high impedance
stop function:	
<ul style="list-style-type: none"> • oscillator stops • output high impedance 	

Note

4 user pins (e/d, GND, output, V_{DC})
leave the other pins unconnected!

Dimensions

top view

side view

bottom view

pad layout

TCXO
JT32C
1: e/d
2: GND
3: output
4: V_{DC}

pin connection

in mm

Order Information

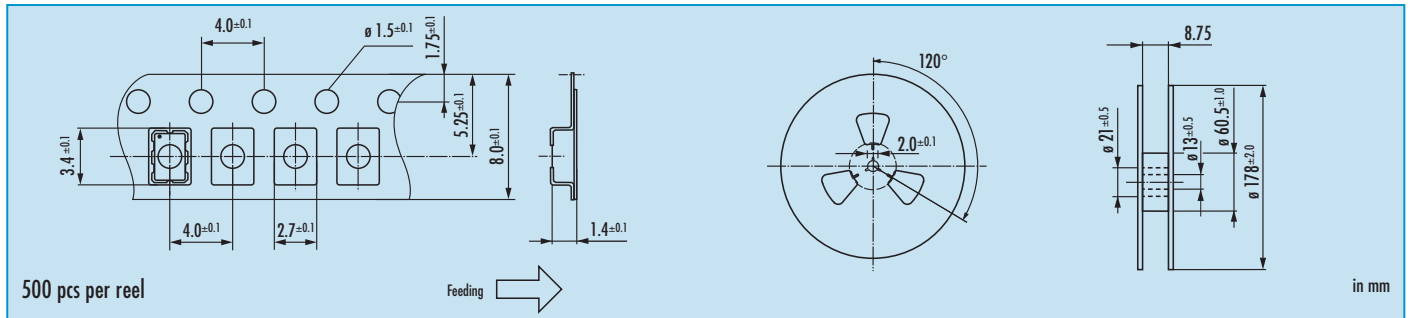
0		frequency in MHz		type		frequency stability code		operating temp. code		supply voltage
Oscillator		4.0 ~ 54.0 MHz		JT32C = TCXO		A = ± 2.5 ppm		G = -30 °C ~ +75 °C K = -40 °C ~ +85 °C		2.5 = 2.5 V 2.8 = 2.8 V 3.3 = 3.3 V

Example: O 16.3680-JT32C-A-K-3.3-LF (Suffix LF = RoHS compliant / Pb free pads)

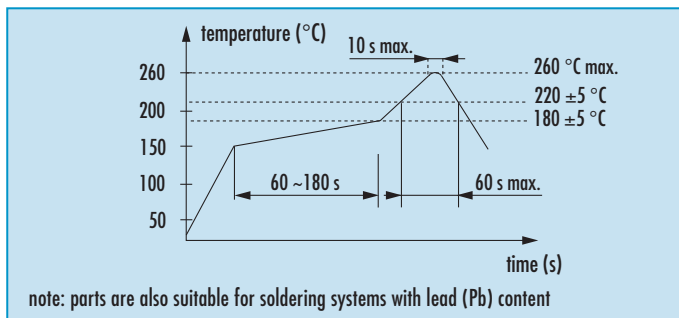


Oscillator · TCXO · JT32C

Taping Specification



Reflow Soldering Profile



Marking

frequency

company code / stability code / date code (YM)

date code:

A ~ M: Jan. - Dec.

9: 2009 2: 2012

0: 2010 3: 2013

1: 2011 4: 2014

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk



actual size

Oscillator · (VC)TCXO · JT53L(V)

Temp. Compensated Crystal Oscillator · 5.0 x 3.2 mm

- low power VCTCXO or TCXO
- temperature range -40 °C ~ +85 °C available
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



General Data

type		JT53L / JT53LV
frequency range		6.0 ~ 45.0 MHz
frequency stability	at +25 °C	± 0.5ppm
	temperature	± 1ppm ~ ± 5ppm (table 1)
	aging first year	± 1ppm
	supply voltage	± 0.2ppm (at V _{DC} ± 5%)
	load change	± 0.2ppm
current consumption max.		2.5mA max.
supply voltage V _{DC}		2.5 V (± 4%) and 2.8 V / 3.0 V / 3.3 V / 5.0 V (± 5%)
temperature	operating	see table 1
	storage	-45 °C ~ +85 °C
output	load nom.	10KΩ // 10pF
	level min.	0.8Vpp (clipped sine)
external tuning range JT53LV		± 8ppm min.
external tuning voltage		1.5 V ± 1.0 V
start-up time max.		2.5 ms
phase noise	at 100Hz	-113 dBc/Hz
	at f _o	at 1KHz
13 MHz	at 10KHz	-140 dBc/Hz

Table 1: Frequency Stability vs. Temperature

operating temperature code	frequency stability code					
	Y	Z	A	B	C	D
± 5.0 ppm	± 3.0 ppm	± 2.5 ppm	± 2.0 ppm	± 1.5 ppm	± 1.0 ppm	
A: -30 °C ~ +80 °C	○	○	○	○	○	○
B: -20 °C ~ +70 °C	○	○	○	○	○	○
C: -10 °C ~ +60 °C	○	○	○	○	○	○
D: 0 °C ~ +85 °C	○	○	○	○	○	○
E: 0 °C ~ +55 °C	○	○	○	○	○	○
F: -10 °C ~ +70 °C	○	○	○	○	○	○
G: -30 °C ~ +75 °C	○	○	○	○	○	○
H: -20 °C ~ +75 °C	○	○	○	○	○	○
K: -40 °C ~ +85 °C	○	○	○	○		
L: -20 °C ~ +85 °C	○	○	○	○	○	○
M: -30 °C ~ +85 °C	○	○	○	○		

● standard ○ available

Note

- TCXO JT53L: pin #1 connected to ground
- VCTCXO JT53LV: pin #1 connected to control voltage
- external AC coupling for output recommended

Dimensions

TCXO JT53L	VCTCXO JT53LV
# 1: GND	# 1: Vcontrol
# 2: GND	# 2: GND
# 3: output	# 3: output
# 4: Vcc	# 4: Vcc

in mm

Order Information

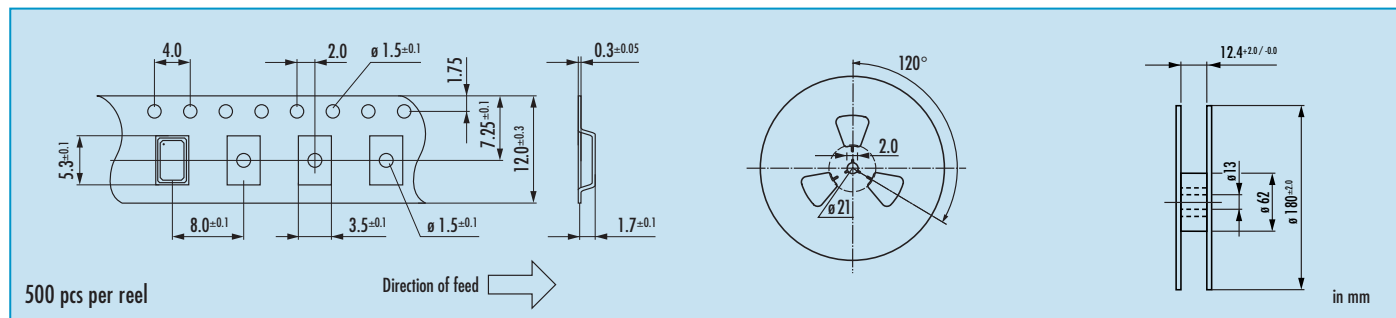
0	frequency in MHz	type	frequency stability code	operating temp. code	supply voltage
Oscillator	6.0 ~ 45.0 MHz	JT53L = TCXO JT53LV = VCTCXO	A ~ Z see table 1	A ~ K see table 1	2.5 = 2.5 V ± 4% 2.8 = 2.8 V 3.0 = 3.0 V } ± 5% 3.3 = 3.3 V 5.0 = 5.0 V option

Example: O 13.0-JT53L-A-B-3.3 (Suffix LF = RoHS compliant / Pb free pads)

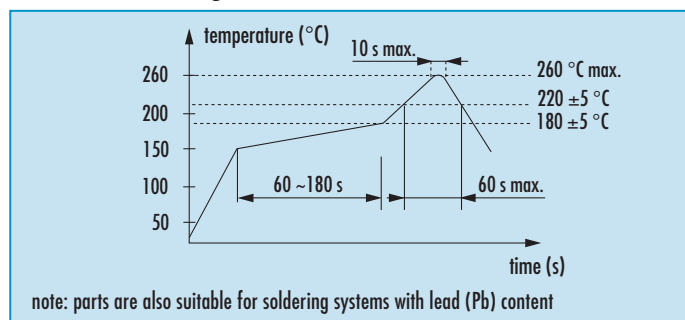


Oscillator · (VC-)TCXO · JT53L(V)

Taping Specification



Reflow Soldering Profile



Marking

frequency

company code / date code

date code:

A ~ M: Jan. - Dec.

9: 2009

0: 2010

1: 2011

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk



actual size

Oscillator · TCXO · JT53C

TCXO with HCMOS output · 5.0 x 3.2 mm

- excellent phase noise
- operating temperature range -40 °C ~ +85 °C
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



General Data

type		JT53C
frequency range		4.0 ~ 54.0 MHz
frequency stability	at +25 °C	± 0.5 ppm
	temperature	± 2.5 ppm (others on request)
	aging first year	± 1.0 ppm
	supply voltage	± 0.2 ppm (at V _{DC} ± 5%)
	load change	± 0.2 ppm
	after reflow	± 1.0 ppm
current consumption max.		→ see table 1
supply voltage V _{DC}		2.5 / 2.8 / 3.3 (± 5%)
temperature	operating	-30 °C ~ +75 °C / -40 °C ~ +85 °C
	storage	-40 °C ~ +125 °C
output	rise & fall time	5.0 ns max.
	load max.	15 pF
	current max.	4.0 mA
	low level max.	0.1 x V _{DC}
	high level min.	0.9 x V _{DC}
harmonics distortion max.		-5.0 dBc
symmetry at 0.5 x V _{DC}		45% ~ 55% max.
start-up time max.		10 ms
standby current max.		10 µA
output enable time max.		10 ms
output disable time max.		250 ns
Jitter 1 σ		3.0 ps
phase noise at 10 kHz offset		-145 dBc/Hz

Table 1: Current Consumption max.

	4 ~ 10 MHz	~ 20 MHz	~ 30 MHz	~ 40 MHz	~ 54 MHz
2.5 V	3.1 mA	3.7 mA	4.2 mA	4.6 mA	5.5 mA
2.8 V	3.4 mA	4.1 mA	4.7 mA	5.2 mA	6.0 mA
3.3 V	4.0 mA	4.8 mA	5.5 mA	6.0 mA	7.0 mA

Enable / Disable Function

pin #1 (e/d control)	pin #3 (output)
open	active
high "1" (V _{IH} ≥ 0.7 V _{DC})	active
low "0" (V _{IL} ≤ 0.3 V _{DC})	high impedance
stop function:	
<ul style="list-style-type: none"> • oscillator stops • output high impedance 	

Note

4 user pins (e/d, GND, output, V_{DC})
leave the other pins unconnected!

Dimensions

top view

side view

bottom view

pad layout

TCXO
JT53C
1: e/d
2: GND
3: output
4: V_{DC}

pin connection

in mm

Order Information

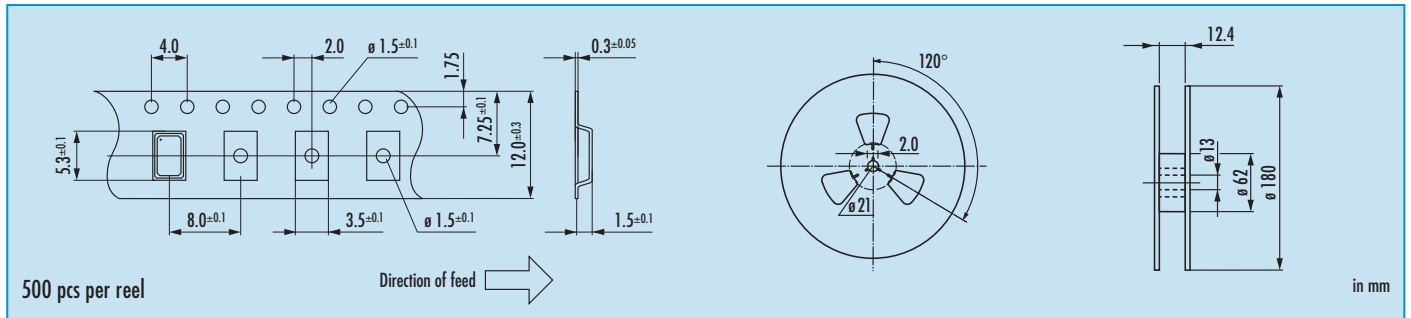
0	frequency in MHz	type	frequency stability code	operating temp. code	supply voltage
Oscillator	4.0 ~ 54.0 MHz	JT53C = TCXO	A = ± 2.5 ppm	G = -30 °C ~ +75 °C K = -40 °C ~ +85 °C	2.5 = 2.5 V 2.8 = 2.8 V 3.3 = 3.3 V

Example: O 16.3680-JT53C-A-K-3.3-LF (Suffix LF = RoHS compliant / Pb free pads)

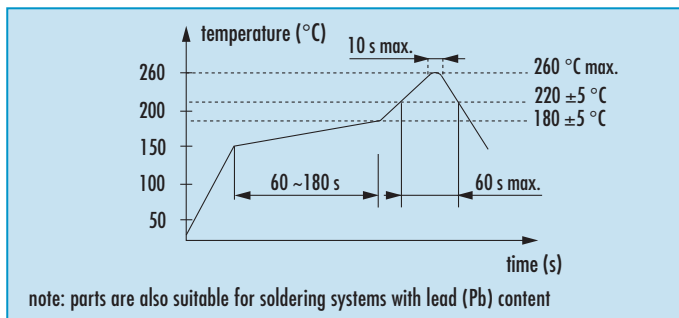


Oscillator · TCXO · JT53C

Taping Specification



Reflow Soldering Profile



Marking

frequency

company code / stability code / date code (YM)

date code:

A ~ M: Jan. - Dec.

9: 2009 2: 2012

0: 2010 3: 2013

1: 2011 4: 2014

Jan.	Febr.	Mar.	Apr.	May	June
A	B	C	D	E	F
July	Aug.	Sept.	Oct.	Nov.	Dec.
G	H	J	K	L	M

Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk



actual size

Oscillator · (VC)TCXO · JT75(V)

Temp. Compensated Crystal Oscillator · 7.0 x 5.0 mm

- low power VCTCXO or TCXO
- reflow soldering temperature: 260 °C max.
- ceramic/metal package



General Data

type		JT75 / JT75V
frequency range		10.0 ~ 26.0 MHz
frequency	at +25 °C	± 0.5 ppm
	temperature	± 1 ppm ~ ± 2.5 ppm (table 1)
stability	aging first year	± 1 ppm
	supply voltage	± 0.2 ppm (at V _{DC} ± 5%)
	load change	± 0.2 ppm
current consumption max.		2.0 mA max.
supply voltage V _{DC}		2.8 / 3.0 / 3.3 / 5.0 V (± 5%)
temperature	operating	see table 1
	storage	-40 °C ~ +85 °C
output	load nom.	10 KΩ // 10 pF
	level min.	0.8 Vpp (clipped sine)
external tuning range JT75 V		± 8 ppm min.
external tuning voltage		1.5 V ± 1.0 V
start-up time max.		2.5 ms
phase noise	at 100Hz	-110 dBc/Hz
	at f _o	-125 dBc/Hz
13 MHz	at 10KHz	-130 dBc/Hz

Table 1: Frequency Stability vs. Temperature

operating temperature code	frequency stability code			
	A	B	C	D
A: -30 °C ~ +80 °C	± 2.5 ppm	± 2.0 ppm	± 1.5 ppm	± 1.0 ppm
B: -20 °C ~ +70 °C	○	○	○	○
C: -10 °C ~ +60 °C	○	○	○	○
D: 0 °C ~ +85 °C	○	○	○	○
E: 0 °C ~ +55 °C	○	○	○	○
F: -10 °C ~ +70 °C	○	○	○	○
G: -30 °C ~ +75 °C	○	○	○	○
H: -20 °C ~ +75 °C	○	○	○	○

● standard ○ on request

Note

- TCXO JT75: pin #1 connected to ground
- VCTCXO JT75V: pin #1 connected to control voltage
- internal AC coupling of output

Dimensions

top view

side view

bottom view

pad layout

TCXO JT75	VCTCXO JT75V
# 1: GND	# 1: Vcontrol
# 2: GND	# 2: GND
# 3: output	# 3: output
# 4: Vcc	# 4: Vcc
# 5, 6, 7, 8 N.C.	# 5, 6, 7, 8 N.C.

pin connection

in mm

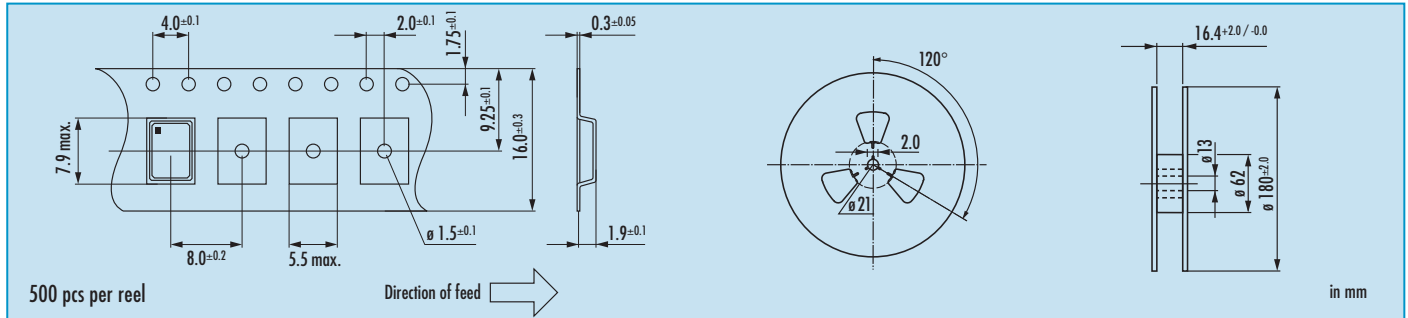
Order Information

0	frequency in MHz	type	frequency stability code	operating temp. code	supply voltage
Oscillator	10.0 ~ 26.0 MHz	JT75 = TCXO JT75V = VCTCXO	A ~ D see table 1	A ~ H see table 1	2.8 = 2.8 V 3.0 = 3.0 V 3.3 = 3.3 V 5.0 = 5.0 V

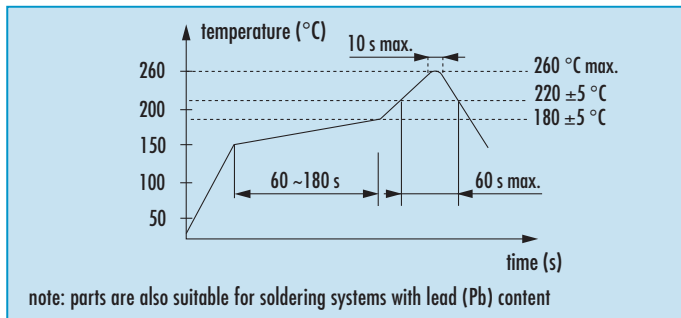
Example: O 13.0-JT75-A-A-3.3-LF (Suffix LF = RoHS compliant / Pb free pads)

Oscillator · (VC)TCXO · JT75(V)

Taping Specification



Reflow Soldering Profile



Marking

frequency

company code / stability code / voltage code / 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

Packing Note

- standard packing units are 500 pieces per reel
- non-multiple packing units are only supplied taped / bulk