



Features

- Miniature SMD Type (5.0×3.2×1.5mm)
- Reflowable
- AFC function available
- 2.3 to 3.5V drive available
- Frequency Stability : ±2ppm at -30°C to +85°C

Applications

- PDC, GSM, CDMA, TDMA

How to Order

KT18B - D C V 30 □ - 19.680M - T
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series

K	±5ppm
E	±2.5ppm
D	±2.0ppm

③ Lower operating temp

C	-30°C
E	-20°C
G	-10°C

④ Upper operating temp

W	85°C
V	80°C
U	75°C

⑤ Supply Voltage

28	2.8V	30	3.0V
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⑥ Option Code

⑦ Frequency(MHz)

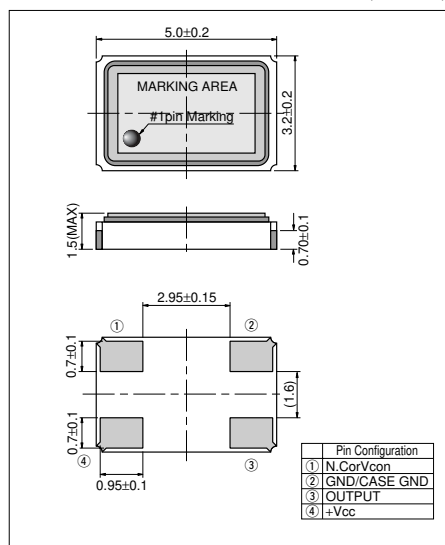
12.800	16.800	19.680
13.000	19.200	19.800
14.400	19.440	26.000

⑧ Packaging

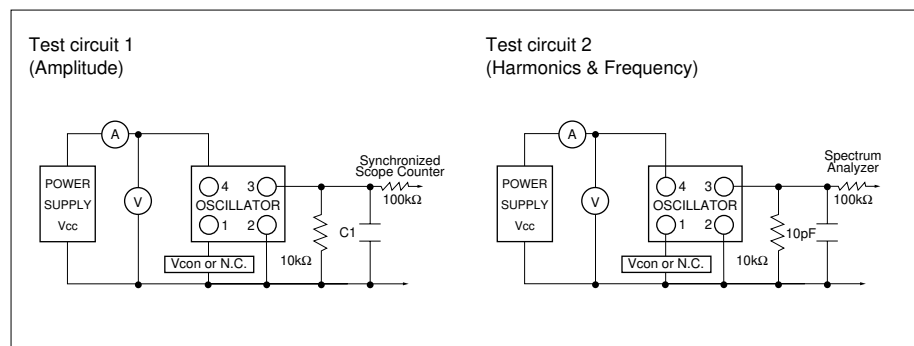
T	Tape & Reel
	4,000pcs/Reel

Dimensions

(Unit : mm)

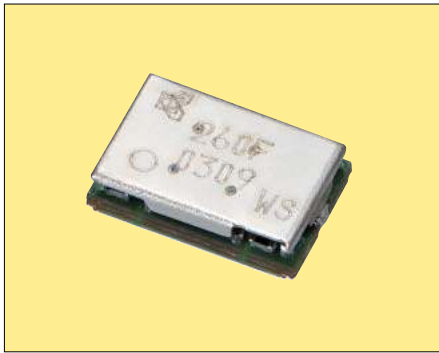


Test circuit



Specifications

Items	Code	Specifications			Unit	Remarks
		Cellular				
Supply Voltage	Vcc	2.3 to 3.5			V	—
Output Frequency	fo	12.800	16.800	19.680	MHz	—
		13.000	19.200	19.800		
		14.400	19.440	26.000		
Operating Temp.	Topr	-30 to +85			°C	—
Storage Temp.	Tstg	-40 to +85			°C	—
Frequency Stability	Δf/fo	±2.0max			ppm	vs Temp. (After Reflow)
		±2.5max				
		±0.2max			ppm	vs Load
		±0.3max			ppm	vs Voltage
Aging Rate	Aging	±1.0max			ppm/year	25°C±2°C
Output Voltage	Vout	0.8min			Vp-p	Load 10kΩ/10pF
Supply Current	Icc	2.0max			mA	—
Voltage Control Range	Δf/V	±8.0 to ±15			ppm	—
Harmonics	—	-5.0max			dBc	—



Features

- Miniature SMD Type (5.2×3.4×1.3mm)
- Reflowable
- AFC function available
- 2.7V/2.8V/3.0V drive available
- Frequency Stability : ±2ppm at -30°C to +80°C
- Phase Noise -140dBc/Hz @ 1kHz offset(max)

Applications

- GSM, CDMA, TDMA

How to Order

KT20A - D C V 30 □ - 19.680M - T
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series

K	±5ppm
E	±2.5ppm
D	±2.0ppm

③ Lower operating temp

C	-30°C
E	-20°C
G	-10°C

④ Upper operating temp

V	80°C
T	70°C
R	60°C

⑤ Supply Voltage

28	2.8V	30	3.0V
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⑥ Option Code

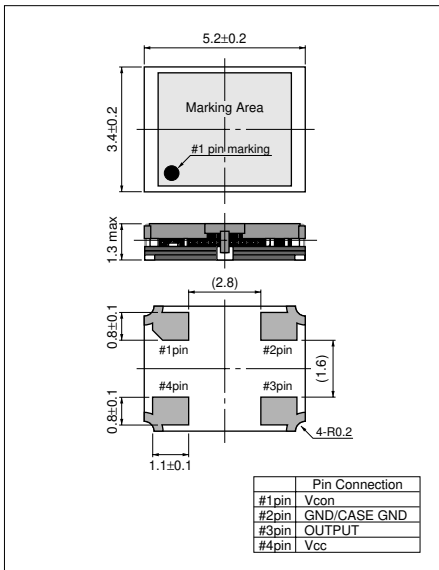
⑦ Frequency(MHz)		
19.200	19.680	26.000
19.440	19.800	

⑧ Packaging

T	Tape & Reel
4,000pcs/Reel	

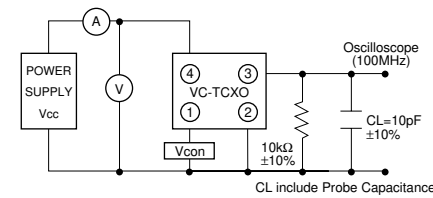
Dimensions

(Unit : mm)

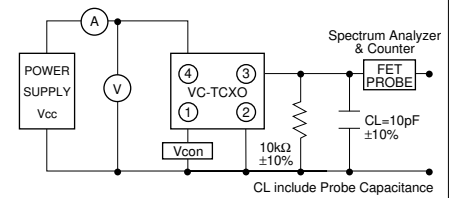


Test circuit

Test circuit 1
(Amplitude)



Test circuit 2
(Harmonics & Frequency)



Specifications

Items	Code	Specifications			Unit	Remarks		
		Cellular						
Supply Voltage	Vcc	2.7			V	—		
		2.8						
		3.0						
Output Frequency	fo	19.200	19.680	26.000	MHz	—		
		19.440	19.800					
Operating Temp.	Topr	-30 to +80			°C	—		
Storage Temp.	Tstg	-40 to +85			°C	—		
Frequency Stability	Δf/fo	±2.0max			ppm	vs Temp. (After Reflow)		
		±2.5max						
		±0.2max					ppm	vs Load
		±0.3max					ppm	vs Voltage
Aging Rate	Aging	±1.0max			ppm/year	25°C±2°C		
Output Voltage	Vout	0.8min			Vp-p	Load 10kΩ/10pF		
Supply Current	Icc	1.5max			mA	No Load		
Voltage Control Range	Δf/V	±8.0 to ±15			ppm	—		
Harmonics	—	-5.0max			dBc	—		



Features

- Miniature SMD Type (3.2×2.5×1.0mm)
- Reflowable
- AFC function available
- 2.3 to 3.5V drive available
- Frequency Stability : ±2.0ppm at -30°C to +85°C

Applications

- PDC, GSM, CDMA, TDMA

How to Order

KT21 - D C V 30 □ - 19.680M - T
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series

K	±5ppm
E	±2.5ppm
D	±2.0ppm

③ Lower operating temp

C	-30°C
E	-20°C
G	-10°C

④ Upper operating temp

W	85°C
V	80°C
U	75°C

⑤ Supply Voltage

28	2.8V	30	3.0V
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⑥ Option Code

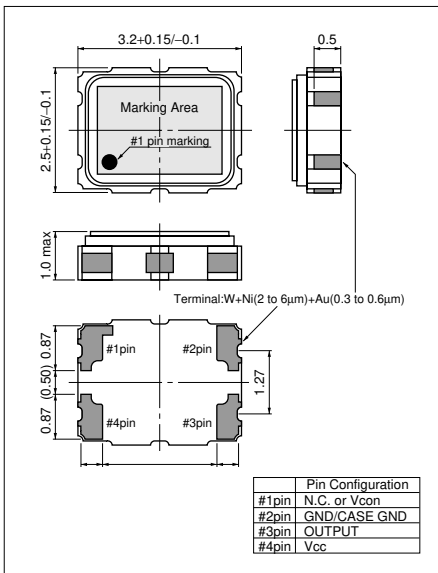
⑦ Frequency(MHz)		
12.600	19.200	26.000
13.000	19.440	38.400
14.400	19.680	
16.800	19.800	

⑧ Packaging

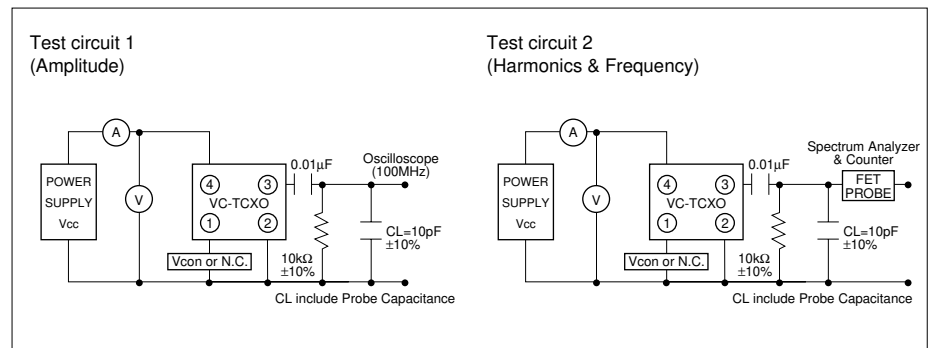
T	Tape & Reel
	4,000pcs/Reel

Dimensions

(Unit : mm)



Test circuit

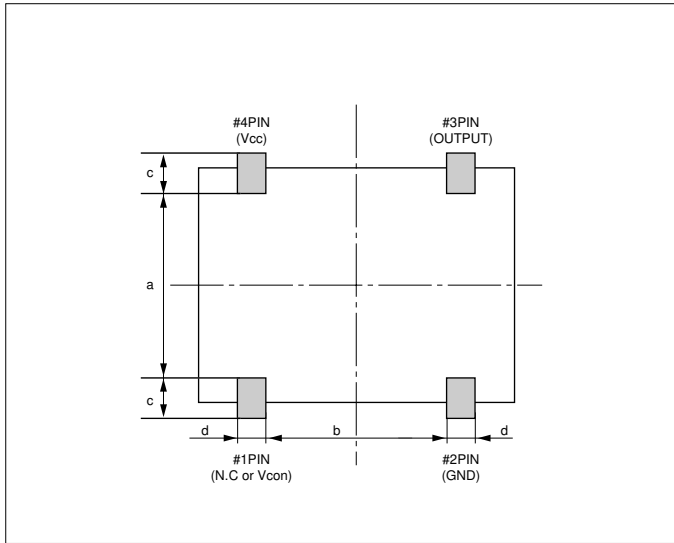


Specifications

Items	Code	Specifications			Unit	Remarks		
		Cellular						
Supply Voltage	Vcc	2.3 to 3.5			V	—		
Output Frequency	fo	12.600	19.200	26.000	MHz	—		
		13.000	19.440	38.400				
		14.400	19.680					
		16.800	19.800					
Operating Temp.	Topr	-30 to +85			°C	—		
Storage Temp.	Tstg	-40 to +85			°C	—		
Frequency Stability	Δf/fo	±2.0max			ppm	vs Temp. (After Reflow)		
		±2.5max						
		±0.2max					ppm	vs Load
		±0.3max					ppm	vs Voltage
Aging Rate	Aging	±1.0max			ppm/year	25°C±2°C		
Output Voltage	Vout	0.8min			Vp-p	Load 10kΩ/10pF		
Supply Current	Icc	2.0max			mA	—		
Voltage Control Range	Δf/V	exp: ±8.0 to ±15			ppm	—		
Harmonics	—	-5.0max			dBc	—		

Recommended Land Pattern

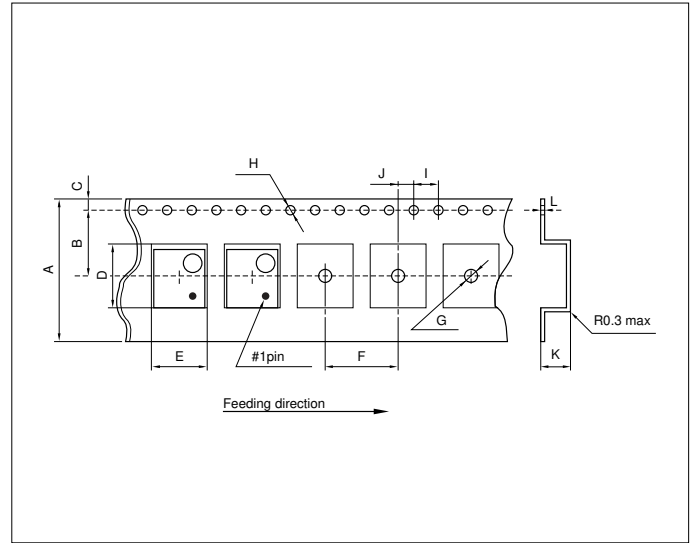
(Unit : mm)



	KT18B	KT20A	KT21
a	1.60	1.6	0.5
b	2.95	2.8	2.24
c	1.00	1.1	0.87
d	1.30	1.4	0.78

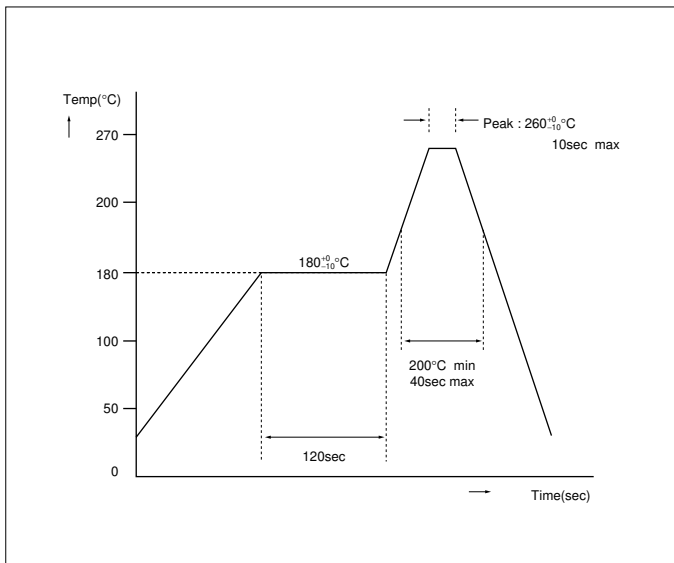
Packaging

(Unit : mm)



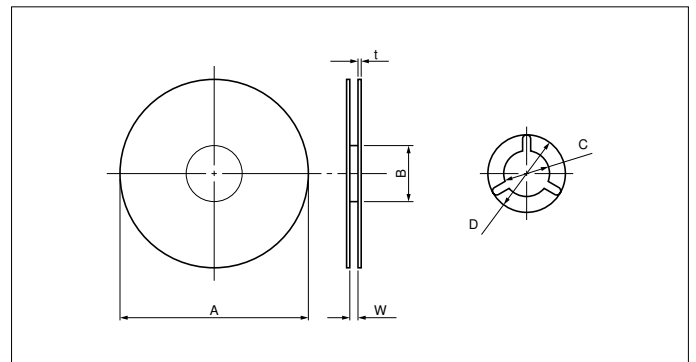
	A	B	C	D	E	F	G	H	I	J	K	L
KT18B	12.0	5.5	1.75	5.5	3.7	8.0	$\phi 1.5$	$\phi 1.5$	4.0	2.0	0.3	1.6
KT20A				3.5	2.8	4.0						1.8
KT21				8	3.5	2.8						4.0

Recommended Reflow Profile



Reel Dimensions

(Unit : mm)



	A	B	C	D	W	t
KT18B	$\phi 330$	$\phi 100$	$\phi 13$	$\phi 21$	13.5	2.2
KT20A						
KT21	$\phi 254$	$\phi 60$			9.0	