VCXO VG-4231CA

SEIKO EPSON CORPORATION

Product name VG-4231CA 19.200000 MHz GRH-T
Product code / Ordering code Q3614CA001195xx
Please refer to the 8.Packing information about xx (last 2 digits)

Output waveform CMOS
Pb free / Complies with EU RoHS directive
Reference weight Typ.153mg

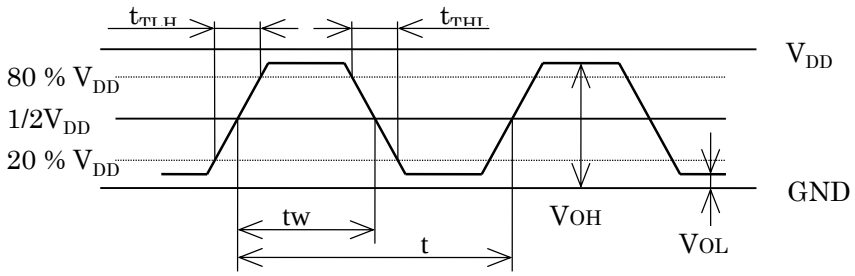
1.Absolute maximum ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Maximum supply voltage	Vcc-GND	-0.3	-	+7	V	-
Storage temperature	T_stg	-55	-	+125	ºC	Storage as single product after unpacking.
Input voltage	Vin	-0.3	-	Vcc+0.3	V	Vc traminal

2.Specifications(characteristics)

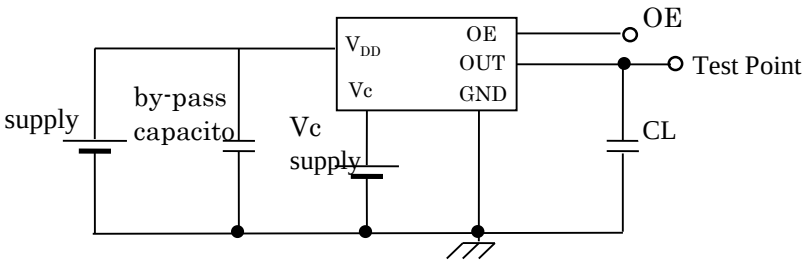
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f0		19.2000		MHz	
Supply voltage	Vcc	4.5	5	5.5	V	-
Control voltage	Vc	0.5	2.5	4.5	V	Vc=2.5V+/-2.0V
Operating temperature	T_use	-40	-	+85	ºC	-
Frequency tolerance	f_tol	-50	-	+50	$x10^{-6}$	T_Use
Current consumption	Icc	-	-	20	mA	no load
Disable current	I_dis	-	-	15	mA	OE=GND
Frequency control range	f_cont	+/-130	-	-	$x10^{-6}$	-
Absolute pull range	APR	+/-65	-	-	$x10^{-6}$	-
Modulation characteristics	BW	-	20	-	kHz	+/-3dB
Input resistance	Rin	50	-	-	kΩ	-
Frequency change polarity	-					Positive Polarity
Symmetry	SYM	40	-	60	%	50% Vcc level
Output voltage	VOH	Vcc-0.4	-	-	V	50%Vcc Level
	VOL	-	-	0.4	V	-
Output load condition	L_CMOS	-	-	15	pF	-
Input voltage	VIH	70%Vcc	-	-	V	-
	VIL	-	-	30%Vcc	V	-
Rise time	tr	-	-	4	ns	20%Vcc to 80%Vcc level
Fall time	tf	-	-	4	ns	20%Vcc to 80%Vcc level
Start-up time	t_str	-	-	10	ms	t=0 at 90%Vcc
Jitter	t_{DJ}	-	TBD	-	ps	Deterministic Jitter
	T_{RJ}	-	TBD	-	ps	Random Jitter
	t_{RMS}	-	TBD	-	ps	δ(RMS of total distribution)
	t_{p-p}	-	TBD	-	ps	Peak to Peak
	t_{acc}	-	TBD	-	ps	Accumulated Jitter(δ) n=2 to 50000 cycles
Phase jitter	tPJ	-	-	TBD	ps	Off set Frequency: 12kHz to 20MHz
Frequency aging	f_aging	-10	-	10	$x10^{-6}$	25ºC,10years

3.Timing chart

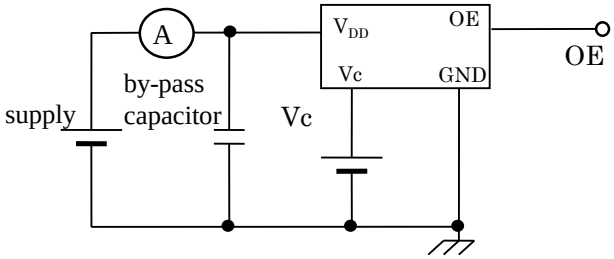


4.Test circuit

1) C-MOS load CL=15 pF



2) Current consumption

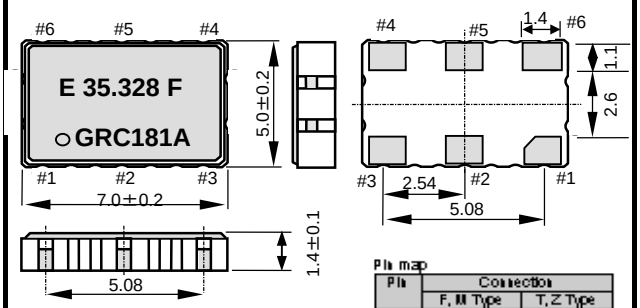


*Current consumption under the disable function should be OE=GND

3) Condition

1. Oscilloscope :Impedance Min. 1 MW
   Input capacitance Max. 15 pF
   Band width Min. 400 MHz
   Impossible to measure both frequency and wave form at the same time.
   (In case of using oscilloscope's amplifier output, possible to measure both at the same time.)
2. CL includes probe capacitance.
3. By-pass capacitor (0.01 mF to 0.1 mF) is placed closely between VDD and GND.
4. Use the current meter whose internal impedance value is small.
5. Power Supply
   ・Start up time (0 %VDD→90 %VDD) of power source should be more than 150 ms.
   ・Impedance of power supply should be as lowest as possible.
6. One point earth of test cirouit is required.

5.External dimensions (Unit: mm)

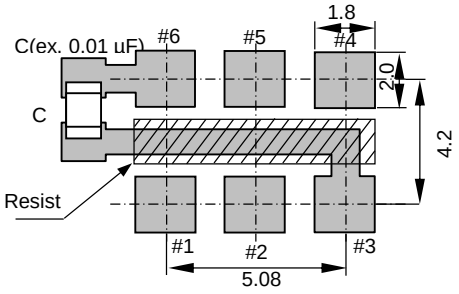


OE pin = "H" or "open": Specified frequency output.
OE pin = "L" : Output is high impedance.

Pin map

Pin	Connection	
	F, M Type	T, Z Type
1	Vc	
2	N.C.	OE
3	GND	
4	OUT	
5	OE	N.C.
6	Vcc	

6.Footprint(Recommended) (Unit: mm)

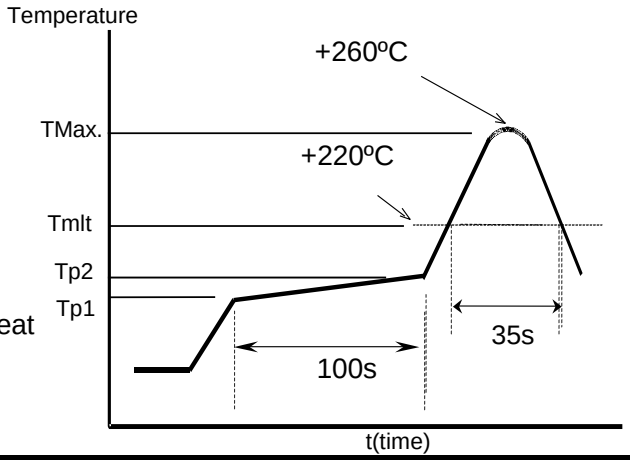


To maintain stable operation, provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).

7.Reflow profile

Pre Heating Temperature
Tp1 ~ Tp2 = + 170 °C
Heating Temperature
TMlt = + 220 °C
Peek Temperature
TMax. = + 260 °C

Point of measuring
In case of Solder ability
Terminal.
In case of Resistance to soldering heat
Surface.



8.Packing information

[1]Product number last 2 digits code(xx) description The recommended code is "00"

Q3614CA001195xx

Code	Condition	Code	Condition
00	1000pcs / Reel	11	Any Q'ty / Reel
01	Any Q'ty vinyl bag(Tape cut)	12	250pcs / Reel
02	Tube	13	500pcs / Reel

[2] Taping specification

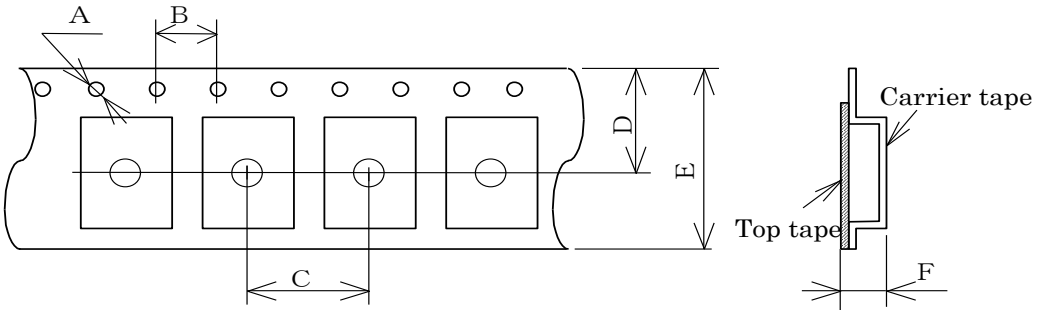
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm



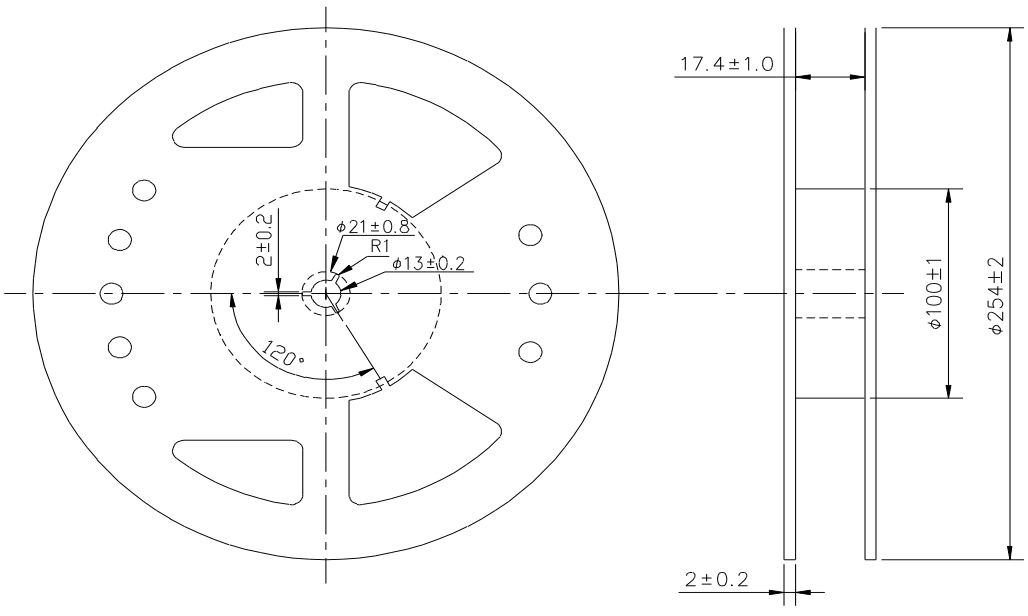
Symbol	A	B	C	D	E	F
Value	Φ1.5	4	8	9.25	16	2.3

(2) Reel dimensions

Center material : PS

Material of the Reel : PS

Unit: mm



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