VCXO/VCSO VG7050EBN

SEIKO EPSON CORPORATION

Product name VG7050EBN 693.483000MHz CJGLBZ
Product code / Ordering code X1G0045510021xx
Please refer to the 8.Packing information about xx (last 2 digits)

Output waveform LV-PECL
Pb free / Complies with EU RoHS directive
Reference weight Typ.166mg

1.Absolute maximum ratings

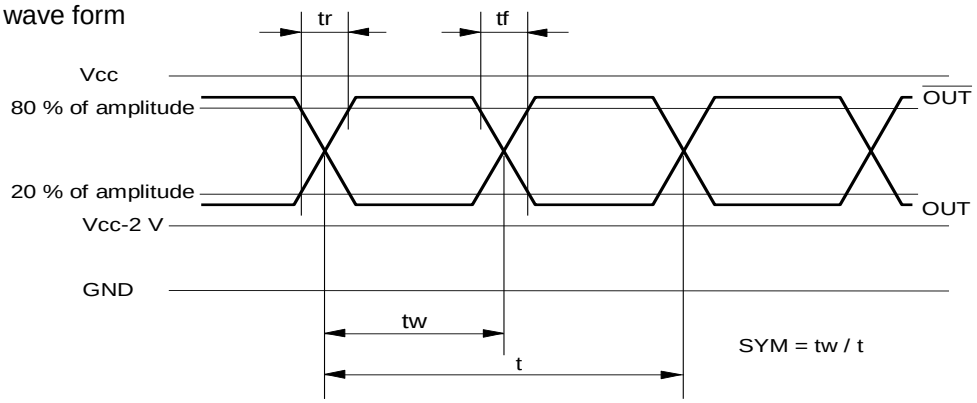
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Maximum supply voltage	Vcc-GND	-0.3	-	+4	V	-
Storage temperature	T_stg	-55	-	+125	ºC	-
Input voltage	Vin	-0.3	-	Vcc+0.3	V	Vc pin

2.Specifications(characteristics)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f0		693.4830		MHz	
Supply voltage	Vcc	2.97	3.3	3.63	V	-
Control voltage	Vc	0.3	1.65	3	V	Vc=1.65V+/-1.35V
Operating temperature	T_use	-40	-	+85	ºC	-
Frequency tolerance	f_tol	-50	-	+50	$x10^{-6}$	includes 10 years aging
Current consumption	Icc	-	-	90	mA	L_ECL = 50Ω
Disable current	I_dis	-	-	-	mA	-
Frequency control range	f_cont	+/-100	-	-	$x10^{-6}$	-
Absolute pull range	APR	+/-50			$x10^{-6}$	-
Modulation characteristics	BW	10	-	-	kHz	+/-3 dB
Input resistance	Rin	5000	-	-	kΩ	DC Level
Frequency change polarity	-					Positive polarity
Symmetry	SYM	45	-	55	%	at outputs crossing point
Output voltage	V_{OH}	Vcc-1.025	-	-	V	-
	V_{OL}	-	-	Vcc-1.62	V	-
Output load condition	L_ECL	-	50	-	Ω	Outputs terminated to Vcc-2.0V
Input voltage	V_{IH}	70%Vcc	-	-	V	OE pin
	V_{IL}	-	-	30%Vcc	V	OE pin
Rise time	tr	-	-	0.4	ns	20 % to 80 % of amplitude
Fall time	tf	-	-	0.4	ns	20 % to 80 % of amplitude
Start-up time	t_str	-	-	10	ms	-
Phase noise	F_{CN}	-	-90	-	dBc/Hz	Offset 100Hz
		-	-107	-	dBc/Hz	Offset 1kHz
		-	-114	-	dBc/Hz	Offset 10kHz
		-	-118	-	dBc/Hz	Offset 100kHz
		-	-137	-	dBc/Hz	Offset 1MHz
Phase jitter	t_{PJ}	-	0.2	-	ps	Offset Frequency: 12kHz to 20MHz
Frequency aging	f_aging	-	-	-	$x10^{-6}$	Included in frequency tolerance

3.Timing chart

Output wave form



4.Test circuit

1) Condition

(1) Oscilloscope

- Bandwidth should be 5 times higher than DUT's output frequency.
- Probe ground should be placed closely from test point and lead length should be as short as possible.

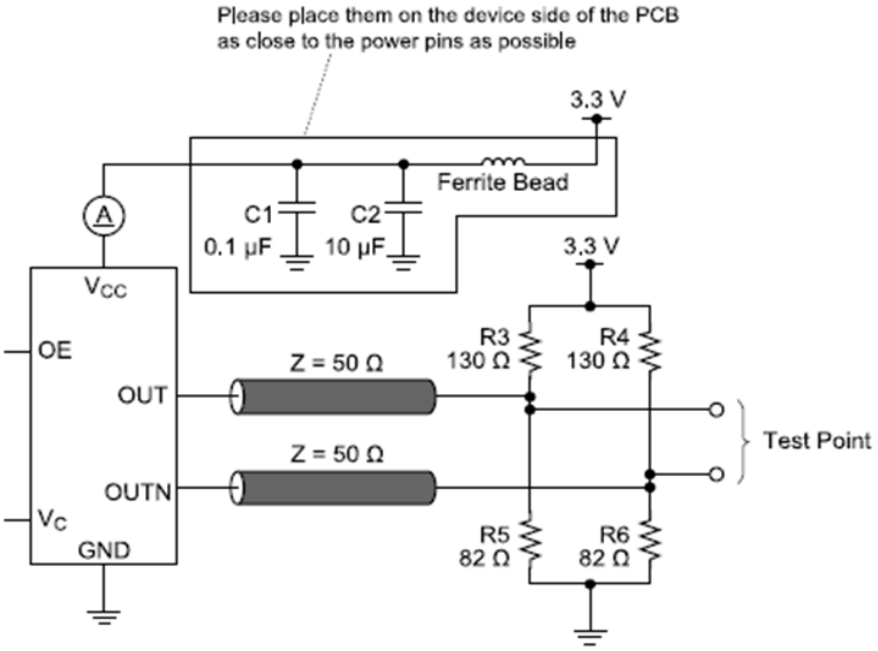
(2) By-pass capacitor (approx. 0.01mF～0.1 mF) should be placed closely between Vcc and GND.

(3) Use the current meter whose internal impedance value is small.

(4) Power supply

- Start up time(0 V→90 %Vcc)of power source should be more than 150us.
- Impedance of power supply should be as low as possible.

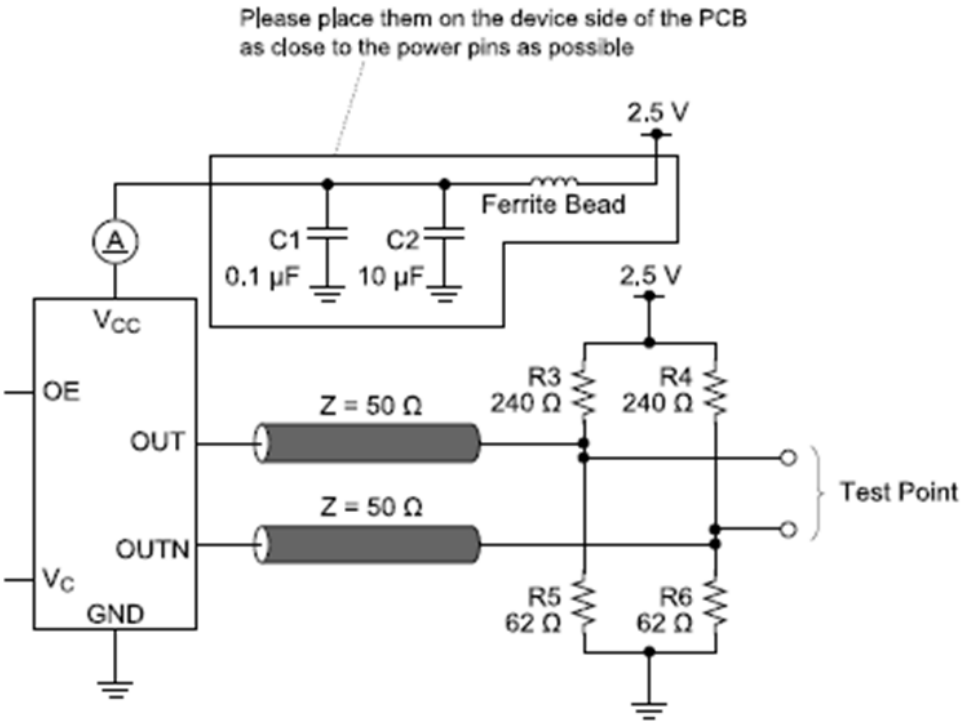
2) Vcc = 3.3V



[Pin Connections]

1. Vc
2. OE
3. GND
4. OUT1 (Positive)
5. OUT2 (Negative)
6. Vcc

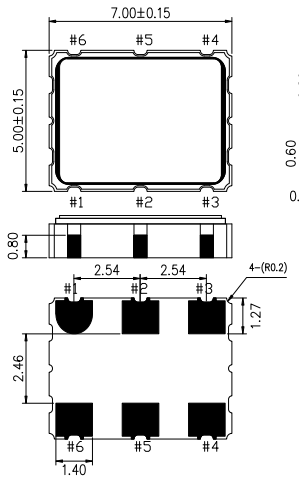
3) Vcc = 2.5V



[Pin Connections]

1. Vc
2. OE
3. GND
4. OUT1 (Positive)
5. OUT2 (Negative)
6. Vcc

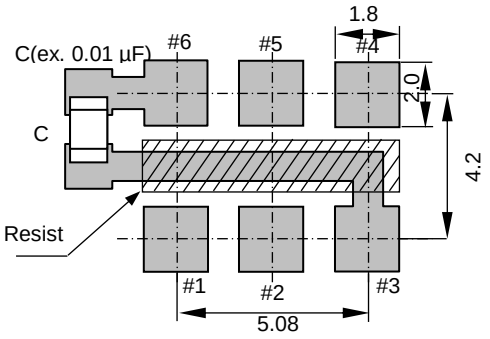
5.External dimensions (Unit: mm)



Pin map

Pin	Connection
1	Vc
2	OE
3	GND
4	OUT
5	OUTN
6	Vcc

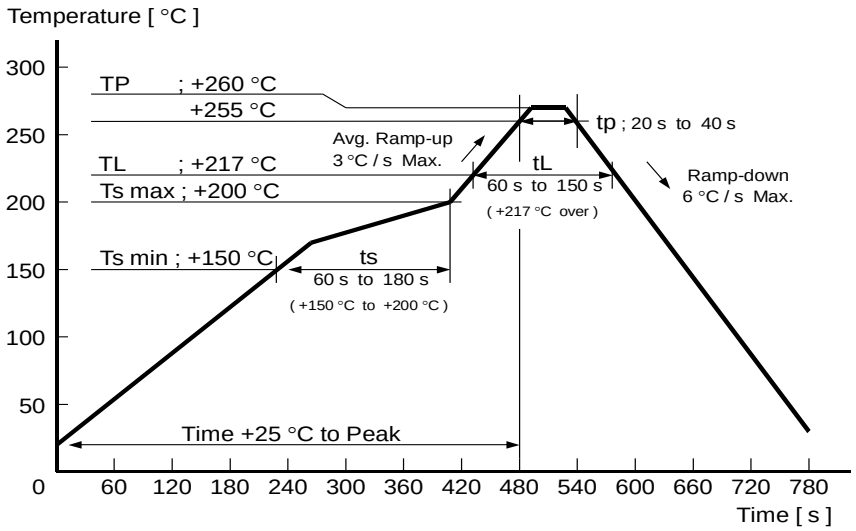
6.Footprint(Recommended) (Unit: mm)



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

Reflow condition (Follow of JEDEC STD-020D.01)



8.Packing information

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

X1G0045510021xx

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

[2] Taping specification

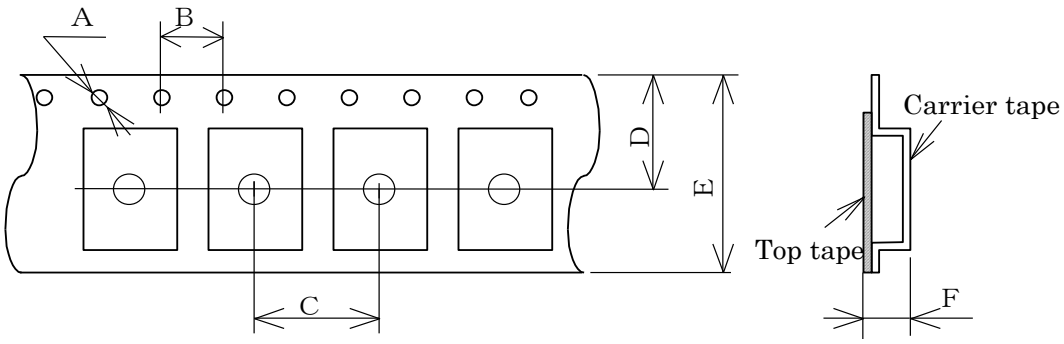
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm

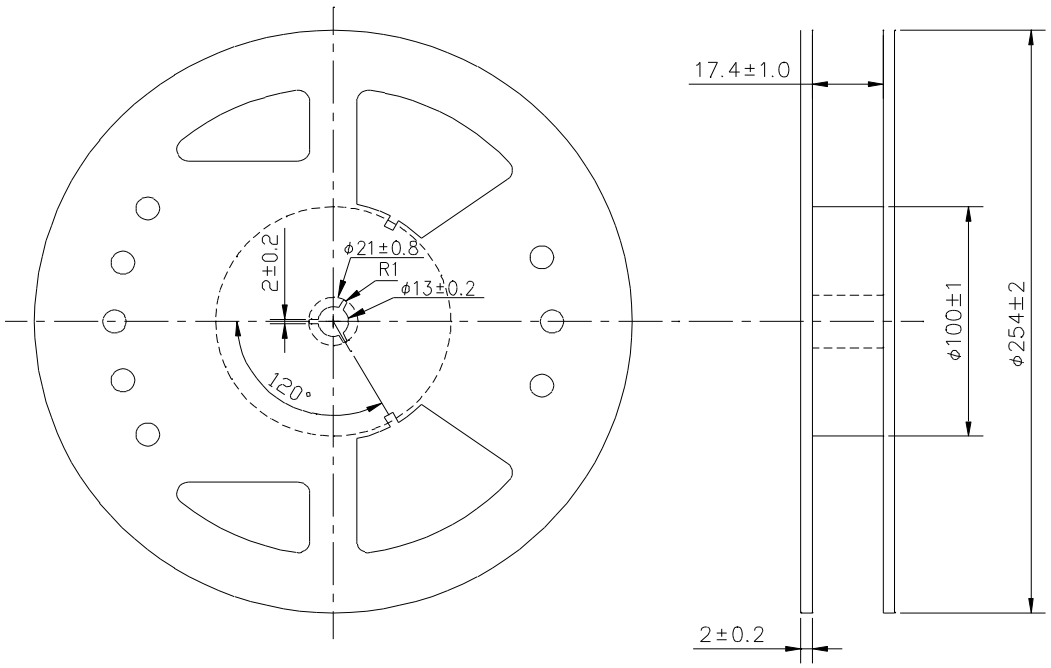


Symbol	A	B	C	D	E	F
Value	Φ1.5	4	8	9.25	16	2.3

(2) Reel dimensions

Center material : PS

Material of the Reel : PS



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