

Product name VG-4513CB-153.600000-GFCT
 Product code / Ordering code X1G0041510009xx

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.65mg

1.Absolute maximum ratings

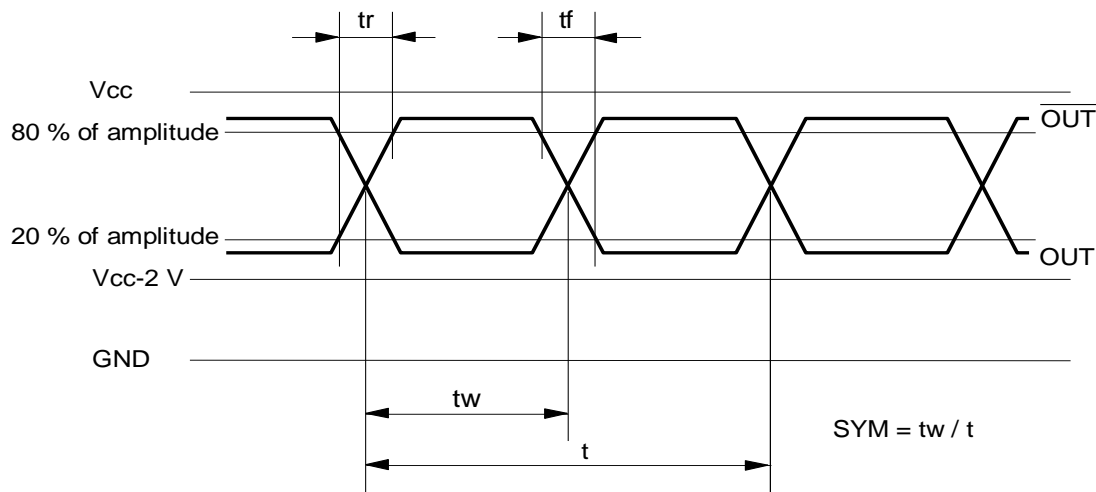
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Maximum supply voltage	V _{cc-GND}	-0.5	-	+5	V	-
Storage temperature	T _{stg}	-55	-	+125	°C	-
Input voltage	V _{in}	-0.5	-	V _{cc} +0.5	V	V _c pin

2.Specifications(characteristics)

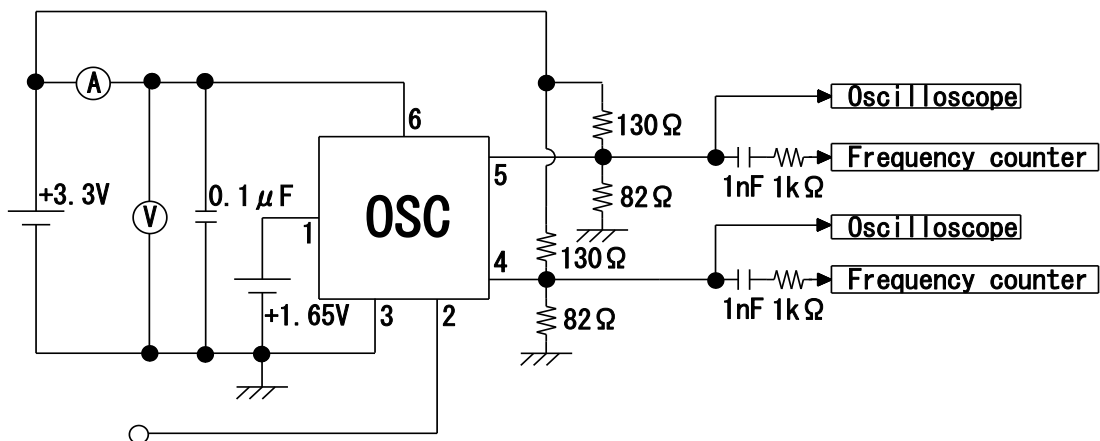
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Output frequency	f ₀		153.6000		MHz	
Supply voltage	V _{cc}	3.135	3.3	3.465	V	-
Control voltage	V _c	0	1.65	3.3	V	V _c =1.65V±1.65V
Operating temperature	T _{use}	-40	-	+85	°C	-
Frequency tolerance	f _{tol}	-50	-	+50	x10 ⁻⁶	includes 20 years aging
Current consumption	I _{cc}	-	-	65	mA	L _{ECL} = 50Ω
Disable current	I _{dis}	-	-	-	mA	-
Frequency control range	f _{cont}	-	-	-	x10 ⁻⁶	-
Absolute pull range	APR	+/-30	+/-70	-	x10 ⁻⁶	-
Modulation characteristics	BW	10	60	-	kHz	+/-3 dB
Input resistance	R _{in}	100	-	-	kΩ	DC Level
Frequency change polarity	-					Positive polarity
Symmetry	SYM	40	-	60	%	V _{cc} -1.3V, V _c =1/2V _{cc}
Output voltage	V _{OH}	V _{cc} -1.1	-	-	V	-
	V _{OL}	-	-	V _{cc} -1.5	V	-
Output load condition	ECL	-	50	-	Ω	Outputs terminated to V _{cc} -2.0V
Input voltage	V _{IH}	70%V _{cc}	-	-	V	OE pin
	V _{IL}	-	-	30%V _{cc}	V	OE pin
Rise time	t _r	-	-	0.5	ns	20 % to 80 % of amplitude
Fall time	t _f	-	-	0.5	ns	20 % to 80 % of amplitude
Start-up time	t _{str}	-	-	10	ms	-
Jitter	t _{DJ}	-	0.1	-	ps	Deterministic Jitter
	T _{RJ}	-	2.5	-	ps	Random Jitter
	t _{RMS}	-	2.5	-	ps	σ(RMS of total distribution)
	t _{p-p}	-	25	-	ps	Peak to Peak
	t _{acc}	-	4	-	ps	Accumulated Jitter(σ) n=2 to 50000 cycles
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



[Pin Connections]

1. Frequency Control Voltage
2. E/D Control
3. Common and case
4. OUT1 (Positive)
5. OUT2 (Negative)
6. Supply Voltage

3) 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.

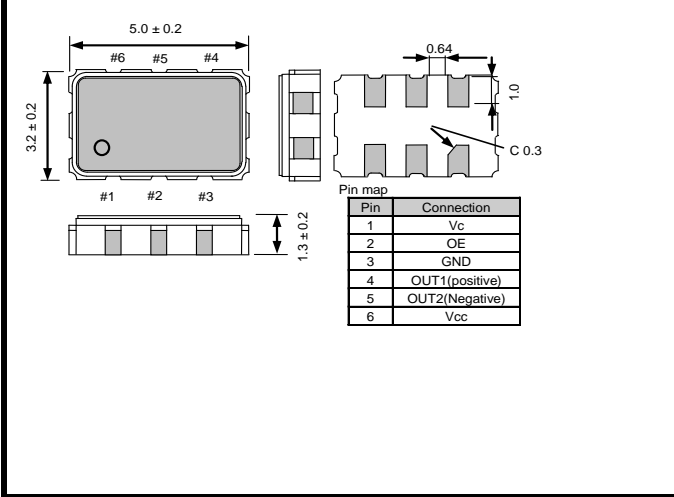
(2) By-pass capacitor (approx. 0.01mF~0.1 mF) should be placed closely between Vcc and GND.

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

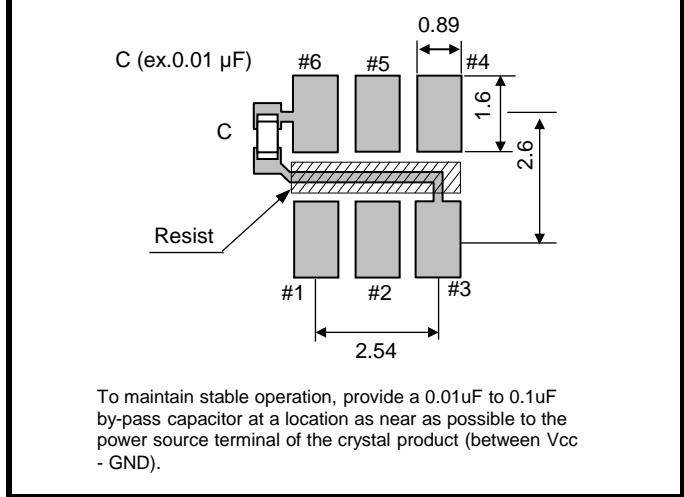
(4) Power supply

- 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.

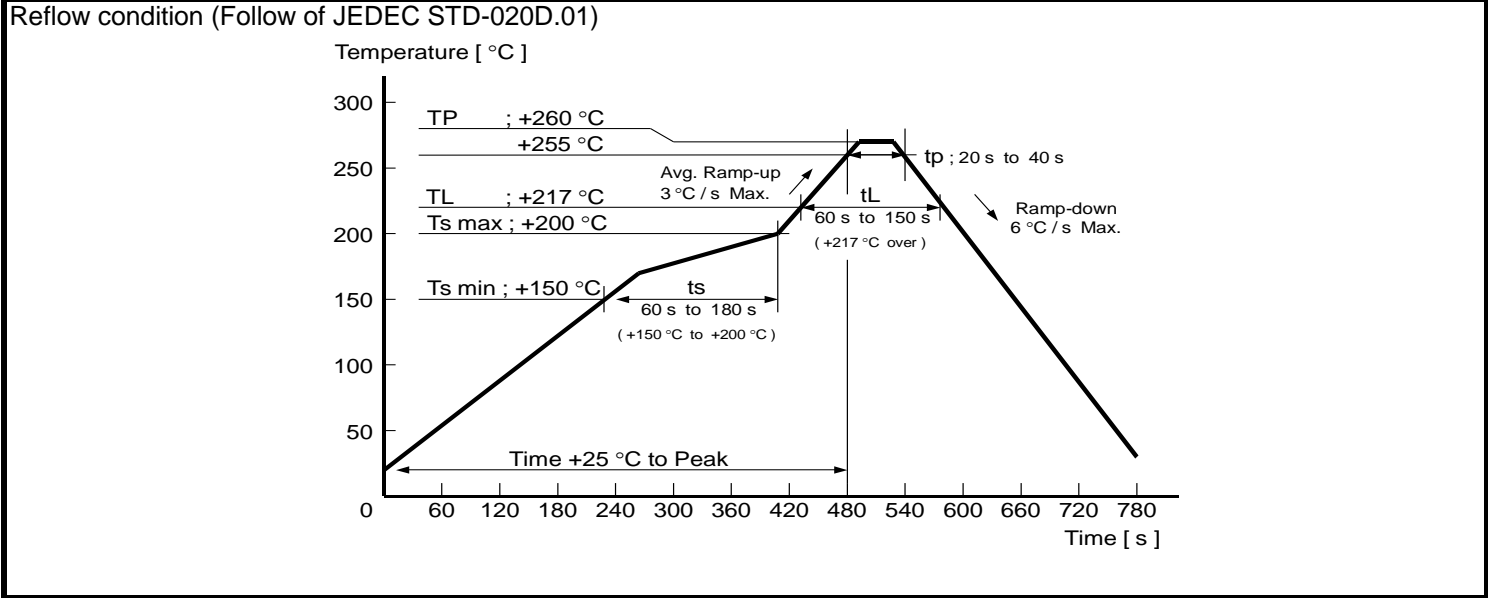
5.External dimensions (Unit: mm)



6.Footprint(Recommended) (Unit: mm)



7.Reflow profile



8.Packing information

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

X1G0041510009xx

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

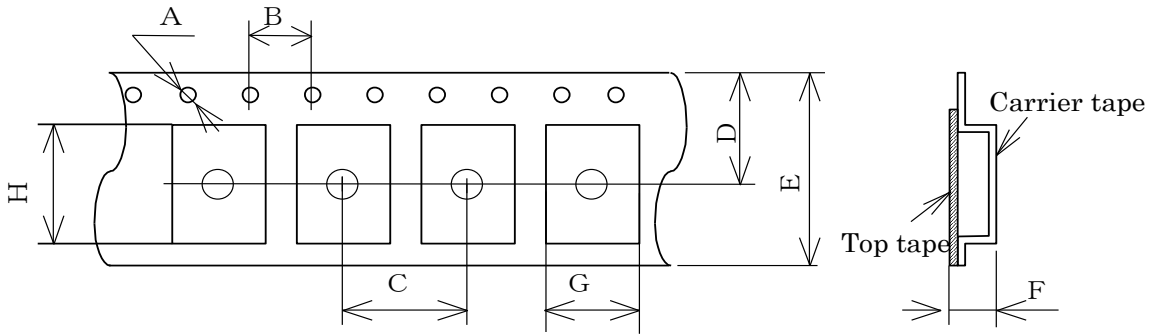
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm

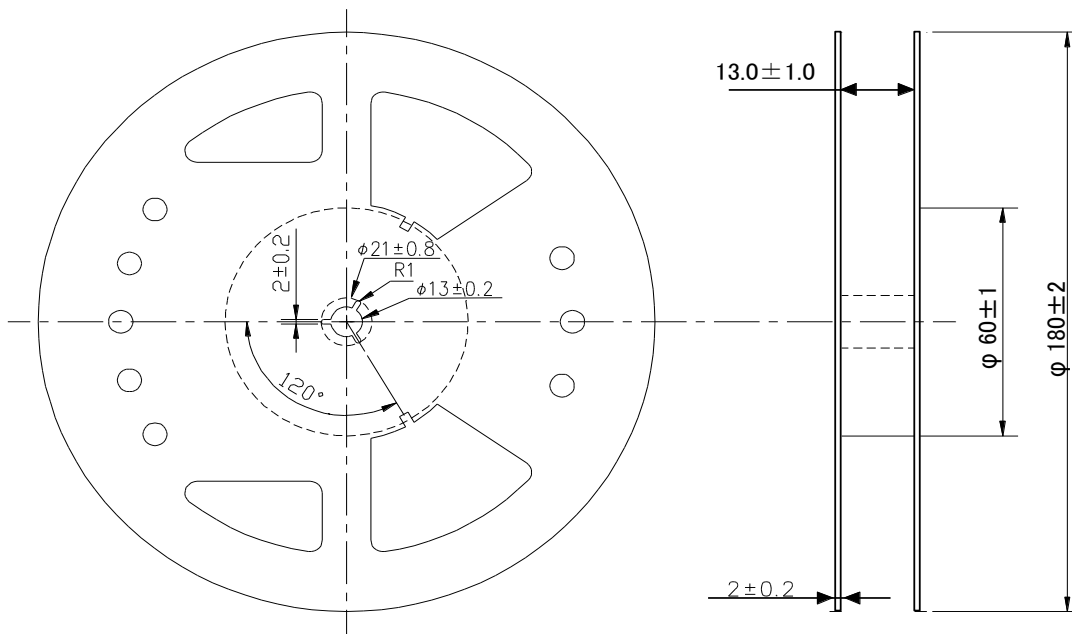


Symbol	A	B	C	D	E	F	G	H
Value	$\Phi 1.5$ $+0.1/-0$	4.0 ± 0.1	8.0 ± 0.1	7.25 ± 0.2	12.0 ± 0.2	1.40 ± 0.1	3.5 ± 0.1	5.4 ± 0.1

(2) Reel dimensions

Center material : PS

Material of the Reel : PS



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