

3.3V Differential LV-PECL output SAW oscillator for high temp environment EG – 2103CA – P

- Frequency range: 100 ~ 625 MHz
- Frequency stability: $\pm 100 \times 10^{-6}$
- Temperature range: $-5 \sim +85 \text{ }^\circ\text{C}$, $-20 \sim +70 \text{ }^\circ\text{C}$
- Low jitter. (Fundamental Oscillation)
- Package: 7.0×5.0×1.2 mm_{Typ.}
- Output Control (OE)
- Heat resistance allow reflow soldering for Pb-Free
- RoHS Compliant

1. Absolute Maximum Rating

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply voltage	V _{CC}	-0.5	-	7.0	V	
Input voltage	V _{IN}	-0.5	-	V _{CC} +0.5	V	
Storage temperature range	T _{stg}	-40	-	+100	°C	Stored as bare product

2. Operating Range

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Supply voltage	V _{CC}	3.0	3.3	3.6	V	
Operating temperature range	T _{use}	-5	-	+85	°C	Code "R" *1
		-20	-	+70		Code "S" *1
Output load condition (LV-PECL)	L _{ECL}	-	50	-	Ω	

3. Electrical Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Start up time	t _{osc}	-	-	10	ms	t = 0 at V _{CC} = Min.
Current consumption	I _{CC}	-	80	100	mA	L _{ECL} = 50 Ω, OE = V _{CC}
Output disable current	I _{dis}	-	-	32	mA	OE = GND
Rise time	t _r	-	-	400	ps	20 % → 80 % of (V _{OH} - V _{OL})
Fall time	t _f	-	-	400	ps	80 % → 20 % of (V _{OH} - V _{OL})
Symmetry	SYM	45	-	55	%	at outputs crossing point
High level output voltage	V _{OH}	V _{CC} -1.03*2	2.345	V _{CC} -0.88	V	DC characteristics
Low level output voltage	V _{OL}	V _{CC} -1.81*3	1.595	V _{CC} -1.62*4		
High level input voltage	V _{IH}	70 %V _{CC}	-	V _{CC} +0.3	V	OE terminal
Low level input voltage	V _{IL}	0.3	-	30 %V _{CC}		
Input current	I _{IH}	-200	-	-20	μA	V _{IN} = 70 %V _{CC}
	I _{IL}	-20	-	-2		V _{IN} = GND
Output disable time	t _{PXZ}	-	-	100	ns	
Output enable time	t _{PZX}	-	-	100	ns	
Jitter *5	t _{RMS}	-	3	-	ps	σ(RMS of total distribution)
	t _{P-P}	-	25	-		Peak to Peak

4. Frequency Characteristics

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Output frequency	fo	100.00	-	156.25	MHz	
		200.00	-	312.50		
		400.00	-	625.00		
Frequency tolerance*6	f _{tol}	-100	-	+100	×10 ⁻⁶	

*Note 1: Please see "7.Product Codes".

*Note 2: V_{OH}=V_{CC}-1.09 V Min. at T_{use}< 0 °C

*Note 3: V_{OL}=V_{CC}-1.83 V Min. at T_{use}< 0 °C

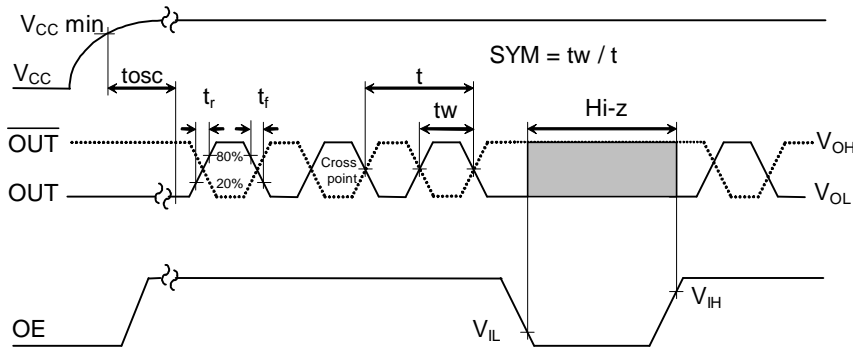
*Note 4: V_{OL}=V_{CC}-1.56 V Max. at T_{use}< 0 °C

*Note 5: Based on DTS-2075 Digital timing system made from WAVECREST CORPORATION with jitter analysis software VISI6.

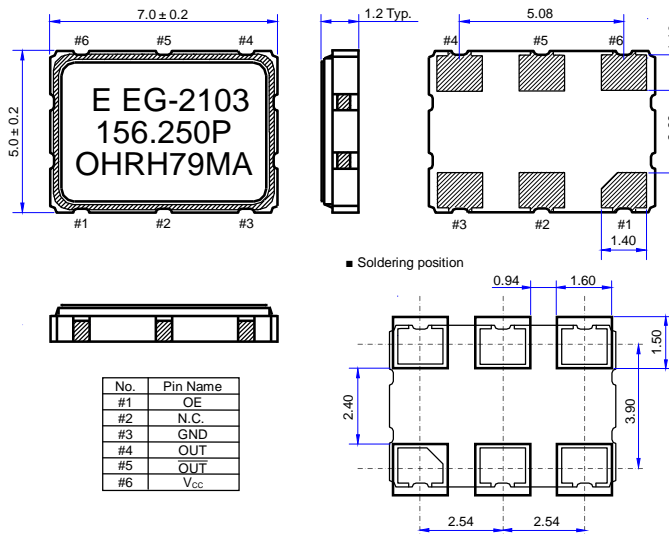
*Note 6: This includes initial frequency tolerance, temperature, supply voltage variation, reflow drift and estimation of 5 years aging at T_{use} Max.

*Note : Please place a 0.01 μF to 0.1 μF capacitor closely between V_{CC} and GND to obtain stable operation and protect against power line ripple.

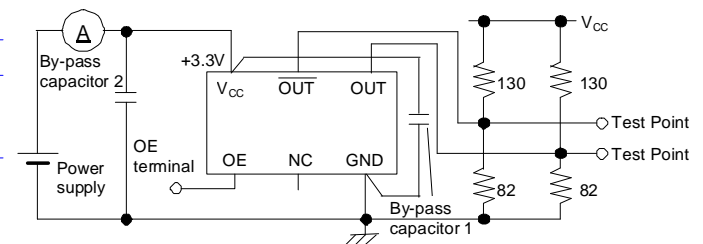
5. Timing Chart



6. External Dimensions (Unit : mm)



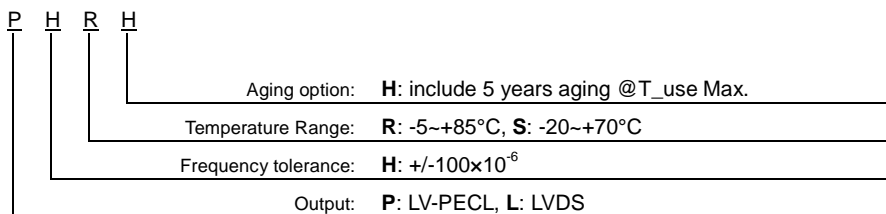
Test Circuit



- (1) By-pass capacitor 1 (approx. 0.01 uF to 0.1uF) is placed closely between V_{CC} to GND.
- (2) By-pass capacitor 2 (approx. 10uF) is placed closely between V_{CC} to GND.

7. Product Codes

EG-2103CA 156.2500M



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EPSON TOYOCOM CORPORATION

Electronic devices information on WWW server

<http://www.epsontoyocom.co.jp>

EPSON ELECTRONICS AMERICA, INC.
 HEADQUARTER 2580 Orchard Parkway, San Jose, CA 95131, U.S.A.
 Phone: (1)800-228-3964 (Toll free) : (1)408-922-0200 Fax: (1)408-922-0238

EPSON EUROPE ELECTRONICS GmbH
 HEADQUARTER Riesstrasse 15, 80992 Munich, Germany
 Phone: (49)-(0)89-14005-0 Fax: (49)-(0)89-14005-110

EPSON (CHINA) CO., LTD.
 7F, Jinbao Building No.89 Jinbao Street Dongcheng District, Beijing, China, 100005
 Phone: (86) 10-8522-1199 Fax: (86) 10-8522-1120

EPSON HONG KONG LTD.
 20/F, Harbour Centre, 25 Harbour Road, Wanchai, Hong kong, China
 Phone: (852) 2585-4600 Fax: (852) 2827-2152

EPSON TAIWAN TECHNOLOGY & TRADING LTD.
 14F, No.7, Song Ren Road, Taipei 110
 Phone: (886) 2-8786-6688 Fax: (886)2-8786-6660

EPSON SINGAPORE PTE. LTD.
 No.1, HarbourFront Place, #03-02 HarbourFront Tower One, Singapore 098633
 Phone: (65) 6586-5500 Fax: (65) 6271-3182

SEIKO EPSON CORPORATION KOREA Office
 5F, KLI 63 Building, 60 Yoido-dong, Youngdeungpo-Ku, Seoul, 150-763, Korea
 Phone: (82) 2-784-6027 Fax: (82) 2-767-3677