

SPECIFICATIONS	MODEL JL-D622C-R
TITLE Condenser Microphone	PART NO.

REVISION AND UPDATES

REV	ECO NO.	DESCRIPTION	DATE	BY

APPROVED BY		'09 02 26	CHECKED BY		'09 02 26	PREPARED BY		'09 02 26
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	<b>SPECIFICATIONS</b>	MODEL NO. JL-D622C-R	SHEET 1 OF 4
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Scope: The specification describes the requirements of a digital type omni-directional condenser microphone for use in cellular phone · PDA · NB etc.

1、Electrical requirements: V<sub>dd</sub>=1.8V, f<sub>CLK</sub>=2.4M Hz, Duty cycle=50%

2-1、Sensitivity : -27 ± 3 dBfs ( 0 dB = 1V/Pa, at 1K Hz )

2-2、Current consumption : Less than 500 μA

2-3、Directivity : Omni-directional

2-4、Digital noise floor : -81 dBfs ( Standard )

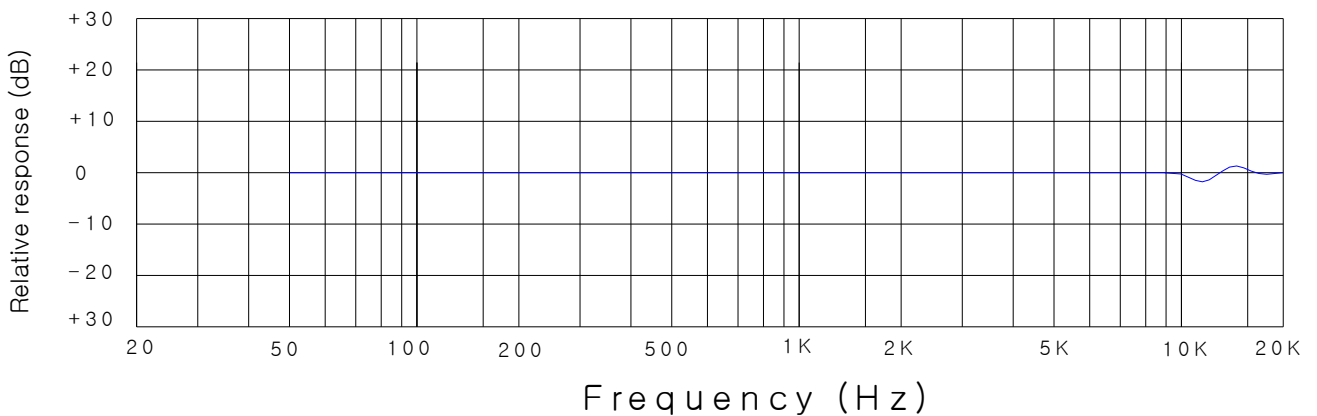
2-5、S/N ratio : More than 58dB

2-6、Max. input sound level : 120 dB SPL ( THD < 10% )

2-7、Power-up initialization : 20ms ( Data invalid time )

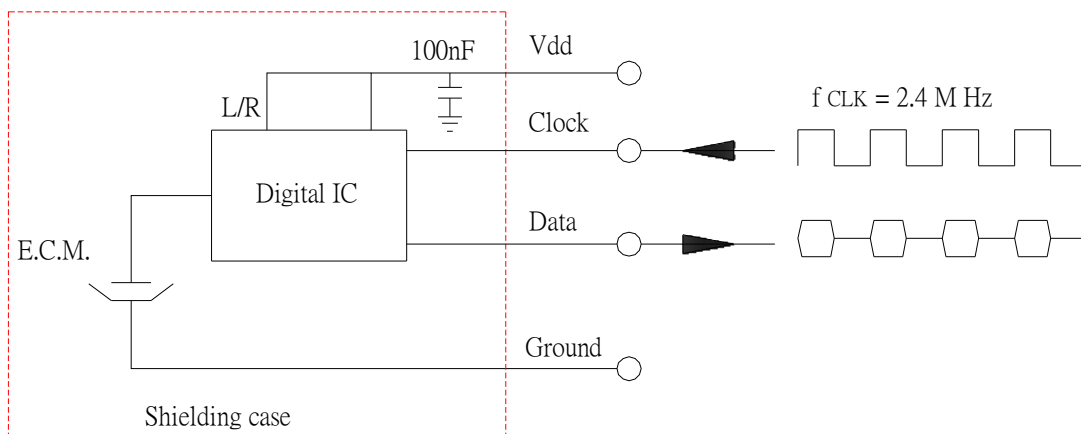
2-8、THD + noise : Less than 5% ( 115dB SPL, f<sub>in</sub>=1K Hz )

2-8、Frequency response:



2-9、Operation voltage range : 1.64V ~ 3.6V

2-10、Test circuit diagram:



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2-11、Test condition :

Power supply :  $V_{dd} = 1.8V$

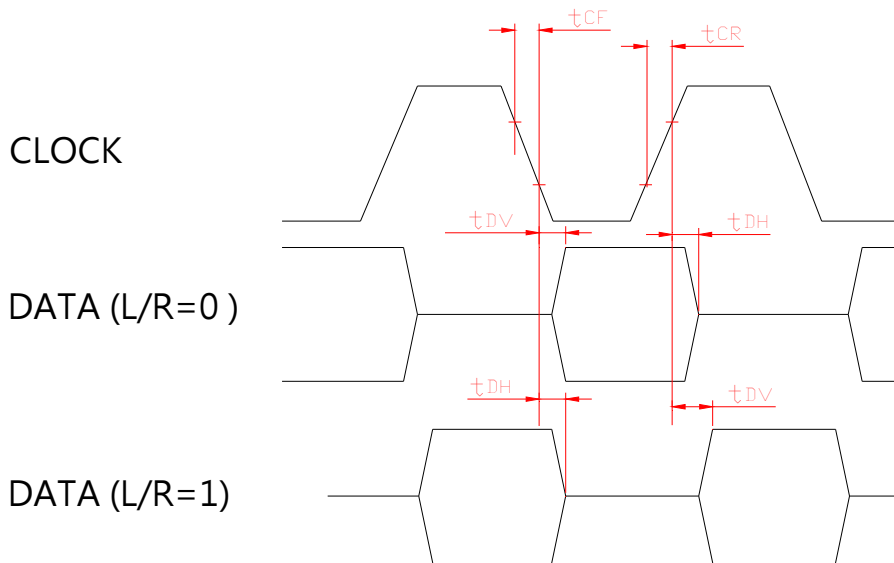
Clock frequency :  $f_{CLK} = 2.4 \text{ MHz}$

Clock jitter :  $\sigma_{clock} = 0.5ns$

Bandwidth : 20 Hz ~ 20K Hz

### 3、Digital input – output characteristic

Parameter	Symbol	Min	Typ	Max	Unit	Comments
Clock freq.(sample rate)	fCLK	1	2.4	4	MHz	
Clock duty cycle	fDC	40	50	60	%	
Jitter tolerance	$\sigma$			0.5	ns	
Input/output voltage low	V <sub>IO</sub> L	-0.3		0.35xV <sub>dd</sub>	V	
Output voltage high	V <sub>OH</sub>	0.65xV <sub>dd</sub>		V <sub>dd</sub> +0.3	V	
Input voltage high	V <sub>IH</sub>	0.65xV <sub>dd</sub>		3.63	V	
Input capacitance	C <sub>IN</sub>			10	pF	
Input current @ Low V	I <sub>L</sub>	1		10	mA	Chort circuit current
Output current @ high V	I <sub>H</sub>	1		10	mA	Short circuit current
Clock rise time	t <sub>CR</sub>			10	ns	RL=1M $\Omega$ ,CL=13pF
Clock fall time	t <sub>CF</sub>			10	ns	RL=1M $\Omega$ ,CL=13pF
Delay time for data valid	t <sub>DV</sub>	18		40	ns	RL=1M $\Omega$ ,CL=13pF
Delay time for data high Z	t <sub>DH</sub>	0		15	ns	RL=1M $\Omega$ ,CL=13pF



Timing diagram of CLK, L/R and DATA

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4、Mechanical requirements：

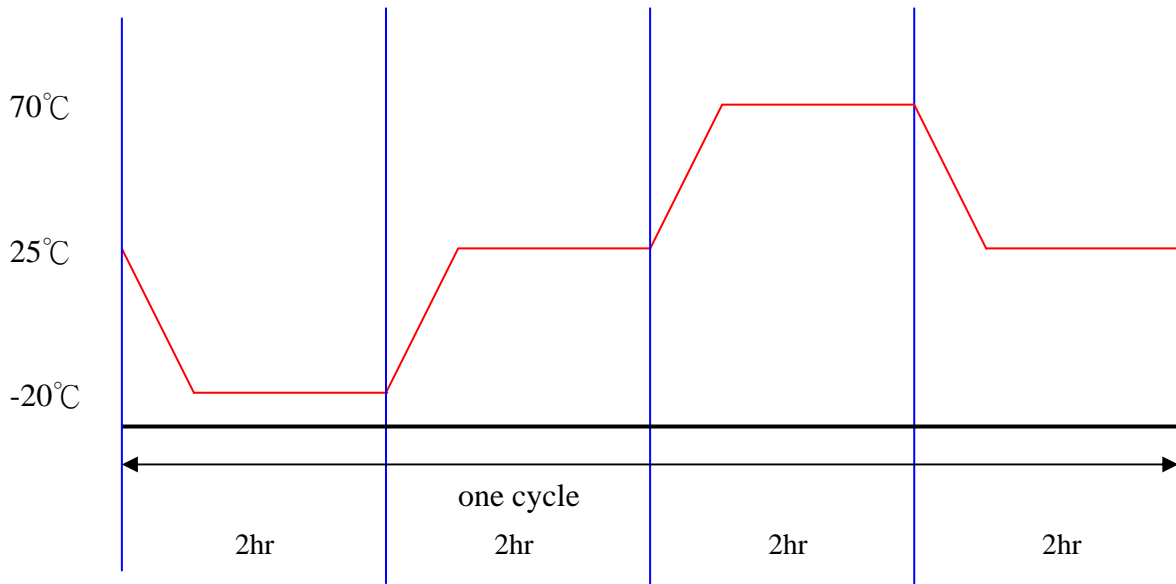
- 3-1、Dimension :  $\varnothing 6 \times 2.2$  mm
- 3-3、Soldering heat shock : After soldering heat shock at  $350 \pm 5^{\circ}\text{C}$  for  $3 \pm 1$  seconds.  
The microphone should be without damage.
- 3-4、Terminal strength :After applied a 1 Kg force on terminal for 1 minute. The microphone should be without damage.
- 3-5、Operating temperature range :  $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- 3-6、Storage temperature range :  $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$

4、Reliability test：

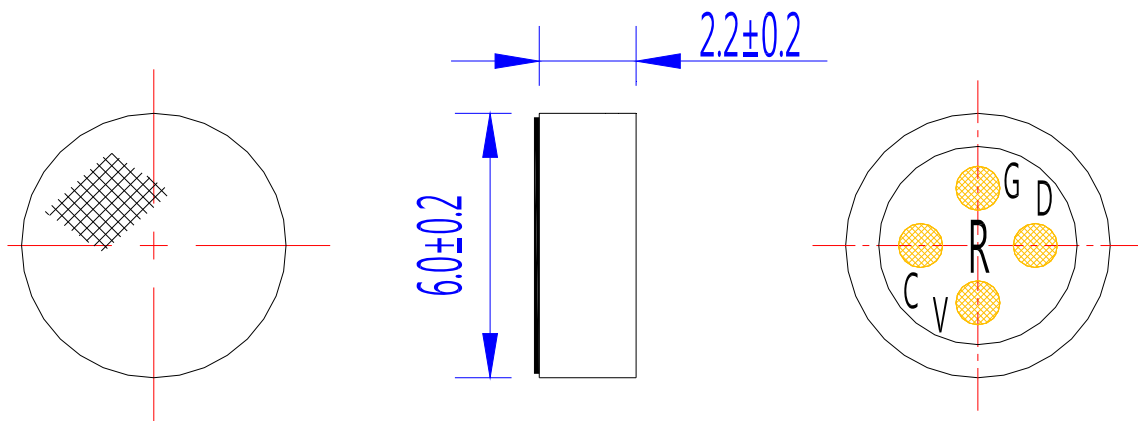
- 4-1、Vibration test :After vibrations with 10Hz~55Hz，full amplitude 2mm each 3 minutes for 30 minutes at three axes. The sensitivity should be within  $\pm 3$  dB form initial value.
- 4-2、Drop test :After drop form 1 meter height to concrete floor，each 5 face for 5 times with packing. The sensitivity should be with  $\pm 3$  dB from initial value.
- 4-3、Humidity test :After exposure at  $40 \pm 2^{\circ}\text{C}$  and 90%~95% humidity for 200 hours.  
The sensitivity should be with  $\pm 3$  dB form initial value.  
(The measurement should be done after 3 hours at conditioning  $25 \pm 2^{\circ}\text{C}$ .)
- 4-4、High temperature test :After exposure at  $70 \pm 2^{\circ}\text{C}$  for 200 hours. The sensitivity should be with  $\pm 3$  dB from initial value.  
(The measurement should be done after 3 hours at conditioning  $25 \pm 2^{\circ}\text{C}$ .)
- 4-5、Low temperature test :After exposure at  $-20 \pm 2^{\circ}\text{C}$  for 200 hours. The sensitivity should be with  $\pm 3$  dB from initial value.  
(The measurement should be done after 3 hours at conditioning  $25 \pm 2^{\circ}\text{C}$ .)
- 4-6、Temperature cycle test :After exposure at  $-20 \pm 2^{\circ}\text{C}$  for 2 hours，at  $25 \pm 2^{\circ}\text{C}$  for 2 hours，at  $70 \pm 2^{\circ}\text{C}$  for 2 hours，5 cycles.  
The sensitivity should be with  $\pm 3$  dB from initial value.  
(The measurement should be done after 3 hours at conditioning  $25 \pm 2^{\circ}\text{C}$ .)

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5 · Microphone dimension ·



Pin description

Mark	Pin name	Function
D	DATA	Left Mic PDM digital data output
V	VDD	Power supply
C	CLK	Clock digital input signal
G	GND	Ground

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