



Serial No. : 2017-0561

DATE : 2017/06/28

ITEM :

CRYSTAL OSCILLATOR

TYPE : DSV221SR

NOMINAL FREQUENCY : 25.000MHz

SPEC No. : 1XVG025000RA

If there is a change in this specifications, the specification number may be changed.

RECEIPT	
DATE	
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General Manufacturer of Quartz Devices

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DSV221SR TYPE SPECIFICATION

1/10

1. Device Name

VCXO (Output Load Condition C-MOS)

2. Type Name

DSV221SR

3. Nominal Frequency

25.000 MHz

4. Absolute Maximum Value

	Item	Symbol	Rating	unit
1	Supply Voltage	V _{CC}	-0.5 ~ +7.0	V
2	Storage Temperature Range	T _{stg}	-40 ~ +85	°C

5. Recommended Operating Conditions

	Item	Symbol	min.	typ.	max.	unit
1	Supply Voltage	V _{CC}	+1.62	+1.8	+1.98	V
2	Control Voltage Range	V _{cont}	0	+0.90	+1.8	V
3	Operating Temperature Range	T _{use}	-10	-	+70	°C
4	Output Load	L _{CMOS}	-	-	15	pF

6. Electrical Characteristics

(Unless otherwise noted: T_a=+25°C, L_{CMOS}=15pF, V_{CC}=+1.8V, V_{cont}=+0.90V)

	Item	Symbol	Conditions	min.	typ.	max.	unit
1	Frequency Tolerance	f _{tol}	V _{CC} =+1.8±0.18V T _a =-30 ~ +85°C	-40	-	+40	ppm
2	1.Frequency Control Range	f _{cont}	Control Polarity: Positive Slope V _{cont} =+0.90±0.90V	±100	-	-	ppm
	2 Input Resistance	Z _{cntr}	V _{cont} -GND	1	-	-	MΩ
3	Current Consumption	I _{CC}	at No Load	-	-	4.0	mA
4	Output Character		Output :C-MOS				
	1.Symmetry	SYM	50% V _{CC}	45	-	55	%
	2.Rise Time	t _r	10 ~ 90% V _{CC}	-	-	10	ns
	3.Fall Time	t _f	90 ~ 10% V _{CC}	-	-	10	ns
	4.Low Level	V _{OL}		-	-	V _{CC} ×0.1	V
	5.High Level	V _{OH}		V _{CC} ×0.9	-	-	V

Measurement circuit and output wave form is refer to Fig.1.and Fig.2.

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

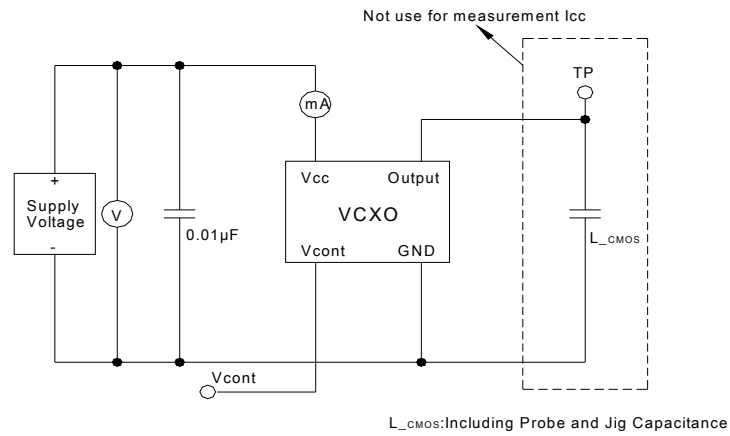


Fig.1.Measurement circuit

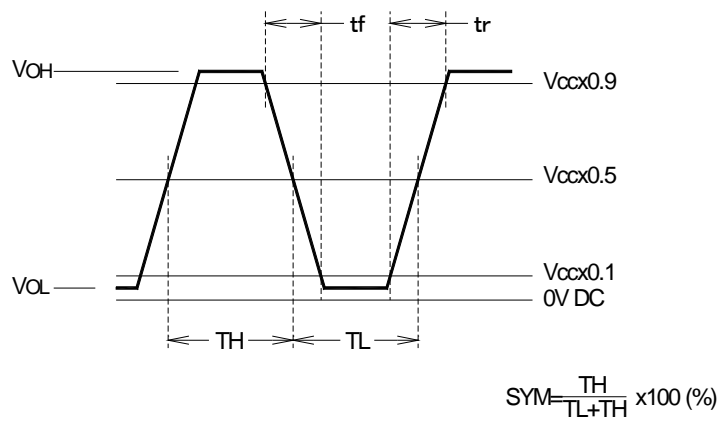
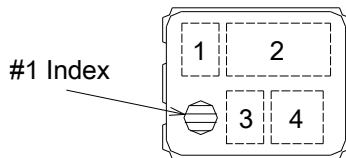
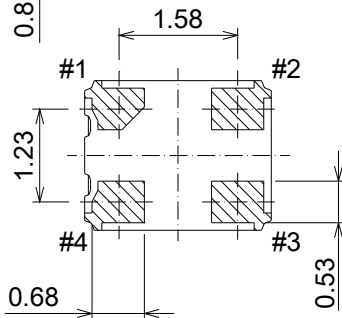
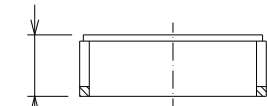
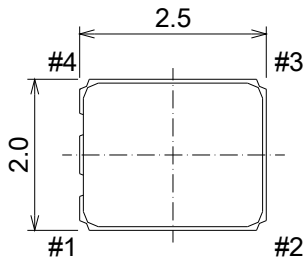


Fig.2.Output wave form

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

7. Dimensions



Pin Connections

Pin No.	Connection
#1	Vcont
#2	GND
#3	Output
#4	Vcc

Tolerance: ± 0.15
unit: mm

- 1.Type:refer to **【Type code】**
- 2.Nominal Frequency:Include decimal point 4 dights
- 3.KDS LOGO(D)
- 4.Lot No. refer to **【Lot No.】**

【Type Code】

Type	Marking
DSV221SR	VR

【Lot No.】

Year (1digit)+Week (2digits)
e.g. 2017/1/1 → 701

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

4/10

8. Mechanical Performance

8.1 Natural Drop

Drop 3 times from the height of 50cm onto min. 30mm thickness hard wooden board.

The component shall satisfy requirement of the electrical characteristics.

8.2 Resistance impact

6ms/1000m/s² to X,Y and Z axes (6 directions), 3cycles.

The component shall satisfy requirement of the electrical characteristics. No physical damage.

8.3 Vibration

Frequency 10 ~ 55Hz, Sine Wave full amplitude of 1.5mm to X, Y and Z axis, Duration of

2h to each axis. The component shall satisfy requirement of the electrical characteristics.

No physical damage.

8.4 Sealing Tightness

Leak Rate 1.0x10⁻⁹ Pa m³/s max. measured by Helium leak detector. And no bubble continued (1 time max.) in Fluorinert at +125±5°C.

8.5 Solderability

After applying ROSIN Flux, dipping in solder bath at +245±5°C for 5s. Over 90% of terminal shall be covered by solder.

9. Environment Performance

9.1 Humidity

Temperature +60±2°C, RH 90 ~ 95%, Duration of 240h.

Back to the room temperature first, then in 24h, the component shall be checked.

The component shall satisfy requirement of the electrical characteristics. No physical damage.

9.2 Storage in Low Temperature

Lower Operating temperature ±3°C, Duration of 240h.

Back to the room temperature first, then in 24h, the component shall be checked.

The component shall satisfy requirement of the electrical characteristics. No physical damage.

9.3 Storage in High Temperature

Upper Operating temperature ±2°C, Duration of 240h.

Back to the room temperature first, then in 24h, the component shall be checked.

The component shall satisfy requirement of the electrical characteristics. No physical damage.

9.4 Temperature cycles

Lower Operating temperature ±3°C(30 min) ⇔ Upper Operating temperature ±2°C(30 min)

20cycles. Back to the room temperature first, then in 24h, the component shall be checked.

The component shall satisfy requirement of the electrical characteristics. No physical damage.

9.5 High Temperature Operation

Upper Operating temperature ±2°C, maximum V_{CC} Duration of 240h.

Back to the room temperature first, then in 24h, the component shall be checked.

The component shall satisfy requirement of the electrical characteristics. No physical damage.

(*) Upper Operating temperature: Case of +85°C max.-> +85°C

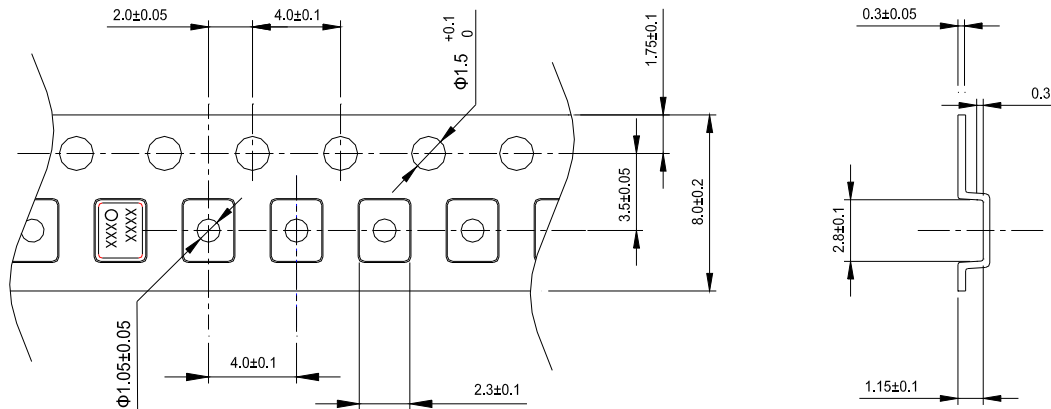
(*) Lower Operating temperature: Case of -30°C max.-> -30°C

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

10. Taping and Packing

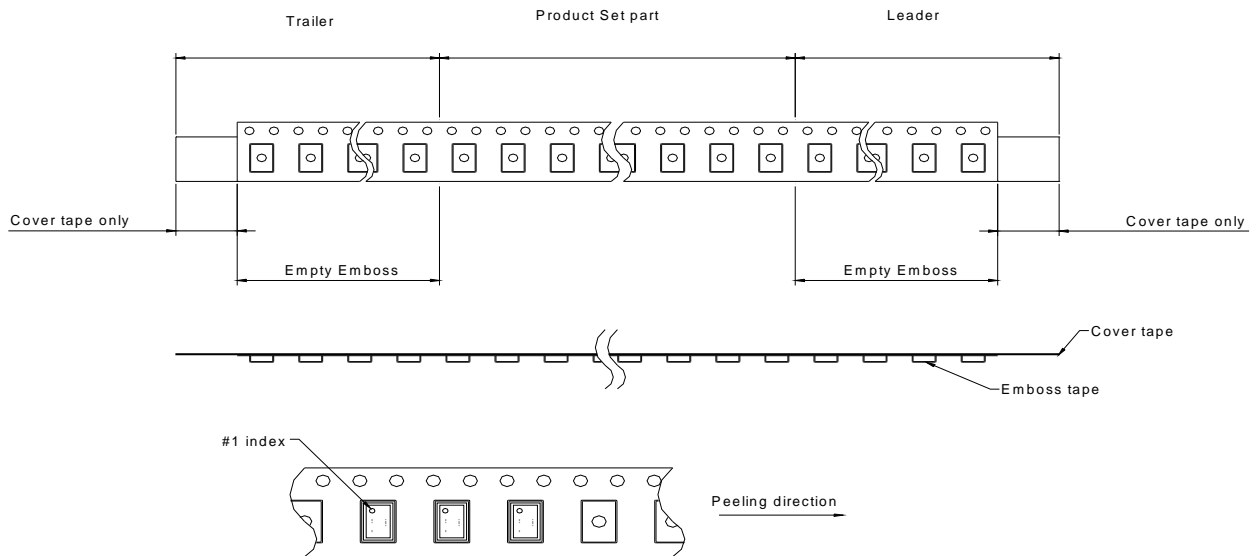
10.1 Emboss Tape specifications



Material:A-PET (Conductivity)
unit: mm

10.2 Joint of Tape

Emboss Tape and cover tape should not be jointed.



10.3 Taping Dimension

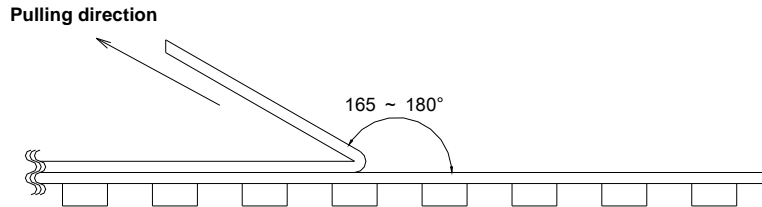
Leader	Cover tape	The length of cover tape in the leader is more than 400mm including empty emboss area.
	Emboss tape	After all products were packaged, must remain more than twenty pieces or 400mm empty area, which should be sealed by cover tape.
Trailer	Cover tape	The tip of cover tape shall be fixed temporary by paper tape and roll around the core of reel one round.
	Emboss tape	The empty emboss area which are sealed by cover tape must remain more than 40mm.

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

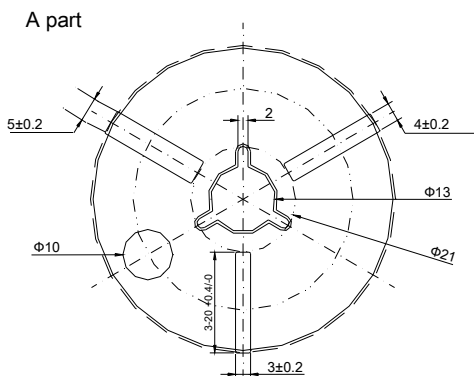
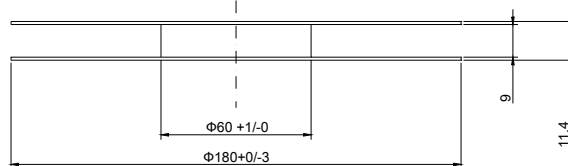
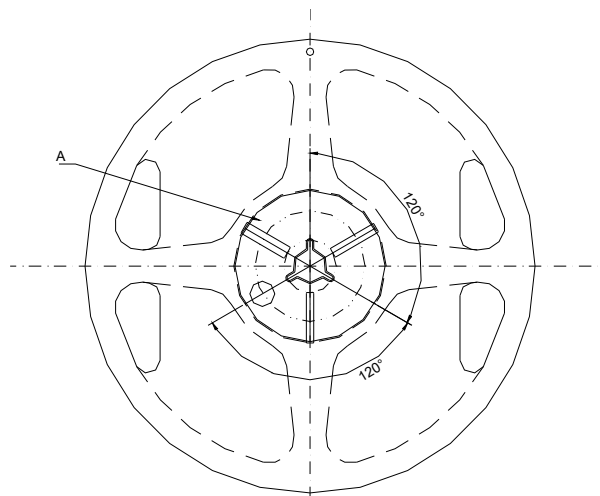
DSV221SR TYPE SPECIFICATION

10.4 Peeling Strength of Cover tape

The peeling strength of cover tape pulls and keep to angle 165 ~ 180° direction and make limit 0.1 ~ 0.7N without prescription, when it pulled it with the speed of 300mm/min. (Others conform to JIS C 0806_1990)



10.5 Reel Dimensions



Material: PS (Conductivity)
unit:mm

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

10.6 Storage

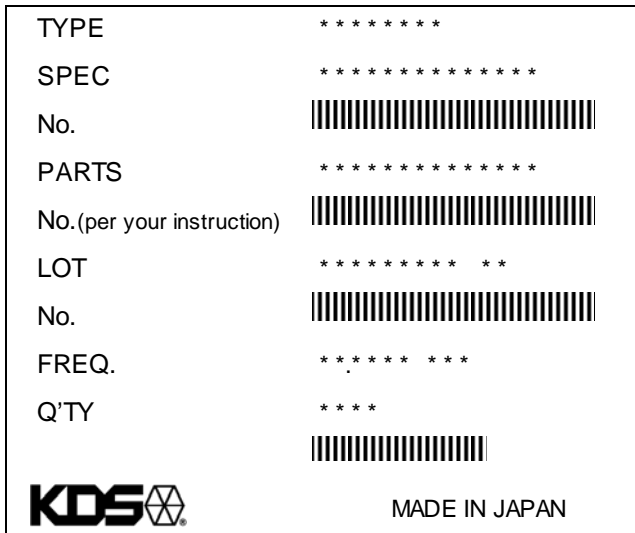
Temperature:+40°C max. Humidity:80% max.

10.7 Quantity on Reel

2000pcs./reel

10.8 Label in Reel

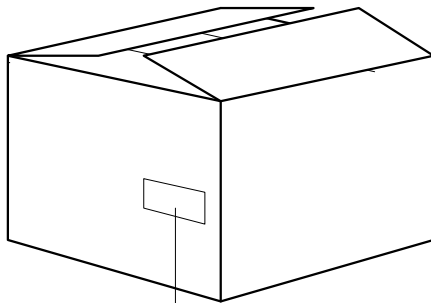
Label at every reel.



10.9 Shipping Carton box

Packed in a carton box. The following label on the side of carton box.

The cushion is filled in the carton box.



Item		Lot No.	
Spec		Q'ty	pcs
Delivery Date		Notes	

Indication sheet

Note) A designated actual thing vote uses it in the case that there is appointment.

The above thing is used except for it.

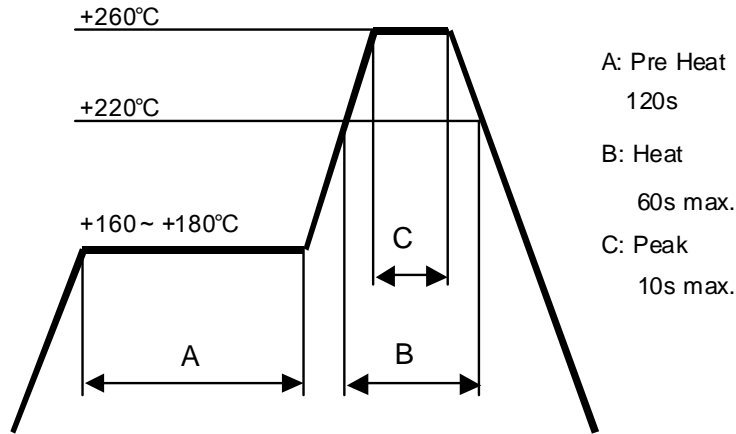
Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

11. Supplement

11.1 Soldering

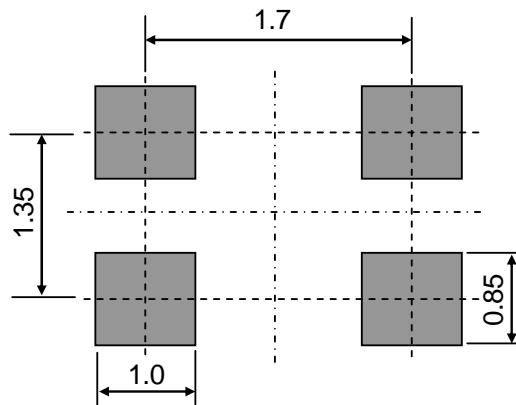
Please stay with our proposed reflow condition and do then soldering 2 times max.



11.2 Solder iron (Example)

Bit temp.: +350°C max.
 Duration: 5s max.
 Each terminal solder a 1 time max.

11.3 Land pattern layout (Example)



unit: mm

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

DSV221SR TYPE SPECIFICATION

9/10

11.4 Mounting

This component is designed for automatic insertion. However you are requested to do the trial with your insertion machine in order to be sure of proper operation and no damage of component. Please pay attention to board warp which may damage the component and cause soldering process. Please mount so that the metalize side and other electrical conductivity structures (a main part lid is included) of the ceramic base side do not contact electrically.

11.5 Cleaning

Cleaning liquid which corrodes Nickel shall not be used. It may cause the problem on the surface color marking etc. Ultrasonic cleaning is possible however you are requested to check on your board. Because we only checked as single unit.

11.6 Handling

This product is designed to withstand Drop and Vibration however the crystal blank might be broken. So if excess force is given, please check the characteristics before use. This Products has C-MOS circuit inside. Please pay attention to latch-up, static-electricity as same handling as other C-MOS devices.

11.7 By-pass Capacitor

It has no by-pass capacitor integrated. We recommend you to use capacitor (like ceramic chip capacitor) 0.01 μ F in-between V_{CC} and GND.

11.8 Storage

Please keep away from high temperature and high humidity, which may cause put solderability. No direct Sunlight. No dew as well.

11.9 Thrust an ultrasonic cleaning

Because It use a small, thin crystal piece depending on a condition, the inside does resonance, and there is fear to cause the non-oscillation. When it' s the worst, it may be destroyed. About the ultrasonic cleaning, it is use in the implementation of your company is in a state and confirming a thing without the influence in the appearance and a characteristic beforehand.

11.10 Point out supersonic wave welding

It can' t recommend implementation by the supersonic wave welding and the processing so that the vibration excessive inside of the crystal oscillator propagates, and there is a threat that It cause characteristic deterioration and the non-oscillation.

11.11 About RoHS Compliance

These Products do not contain the six substances restricted and prohibited on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
(DIRECTIVE 2011/65/EU OF THE EUROPIAN PARLIAMENT AND OF THE COUNCIL)

Date	Spec No.	Rev.	Remark
2017/06/28	1XVG025000RA	-	

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