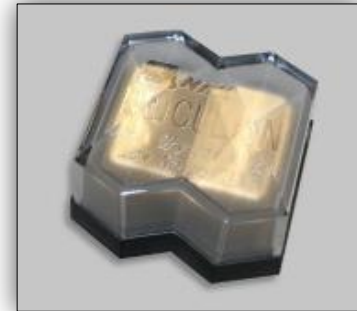


# Ultra-Low-Phase-Noise OCXO【DuCULoN<sup>®</sup>】

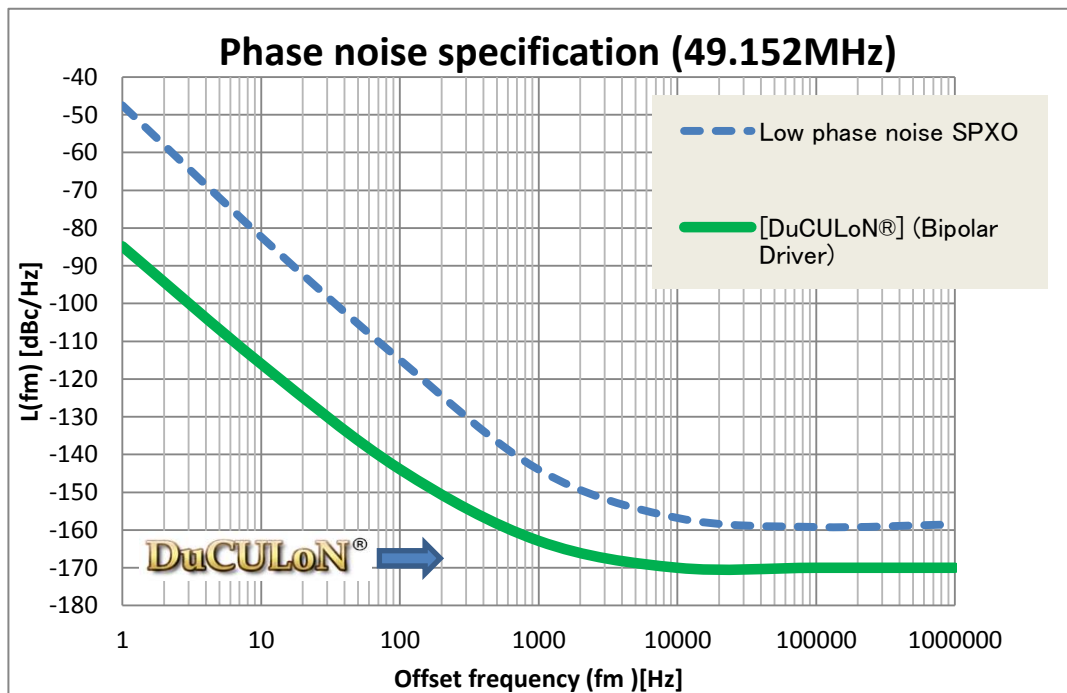
## Oven controlled “Dual Crystal Ultra Low Noise” oscillator for master clocks in digital high-end audio products

DuCULoN<sup>®</sup>\*1 – an oven-controlled crystal oscillator with ultra-low-phase-noise characteristics that dramatically improves the sound quality of high-resolution digital audio devices.



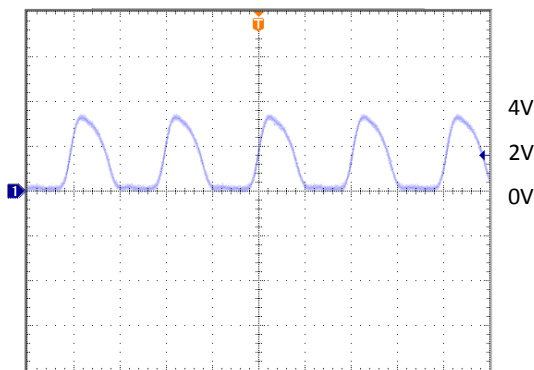
\*1: Dual Crystal Ultra Low Noise OCXO – a crystal oscillator module in which dual high-accuracy crystals are used to achieve Ultra-Low-Phase-Noise.

### \* Ultra-low-phase-noise characteristics



- The "Bipolar Driver Output(Analog Output)" version of DuCULoN<sup>®</sup> reduces phase noise and also has the ability to drive 3 DACs.
- The power supplies for the oscillation-circuit and the oven-circuit have been separated, for less modulation and noise.

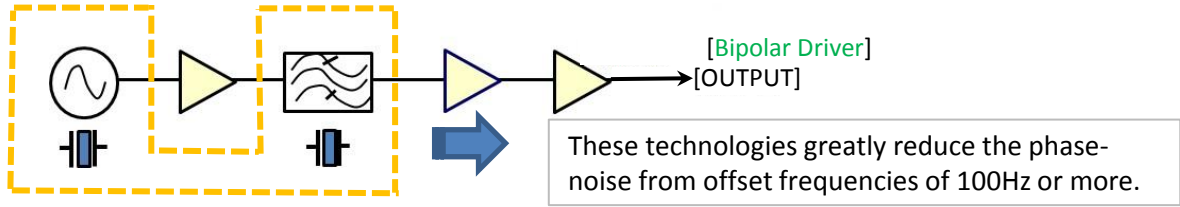
**Bipolar Driver Output wave**



# Ultra-Low-Phase-Noise OCXO【DuCULoN<sup>®</sup>】

## \* Novel noise reduction technology

\* The technologies incorporated in DuCULoN<sup>®</sup> were developed to reduce noise for satellite communication applications.



## \* Dual structure package

\* Incorporation of a new temperature fluctuation-resistant dual structure package (reduced low-frequency fluctuation noise).

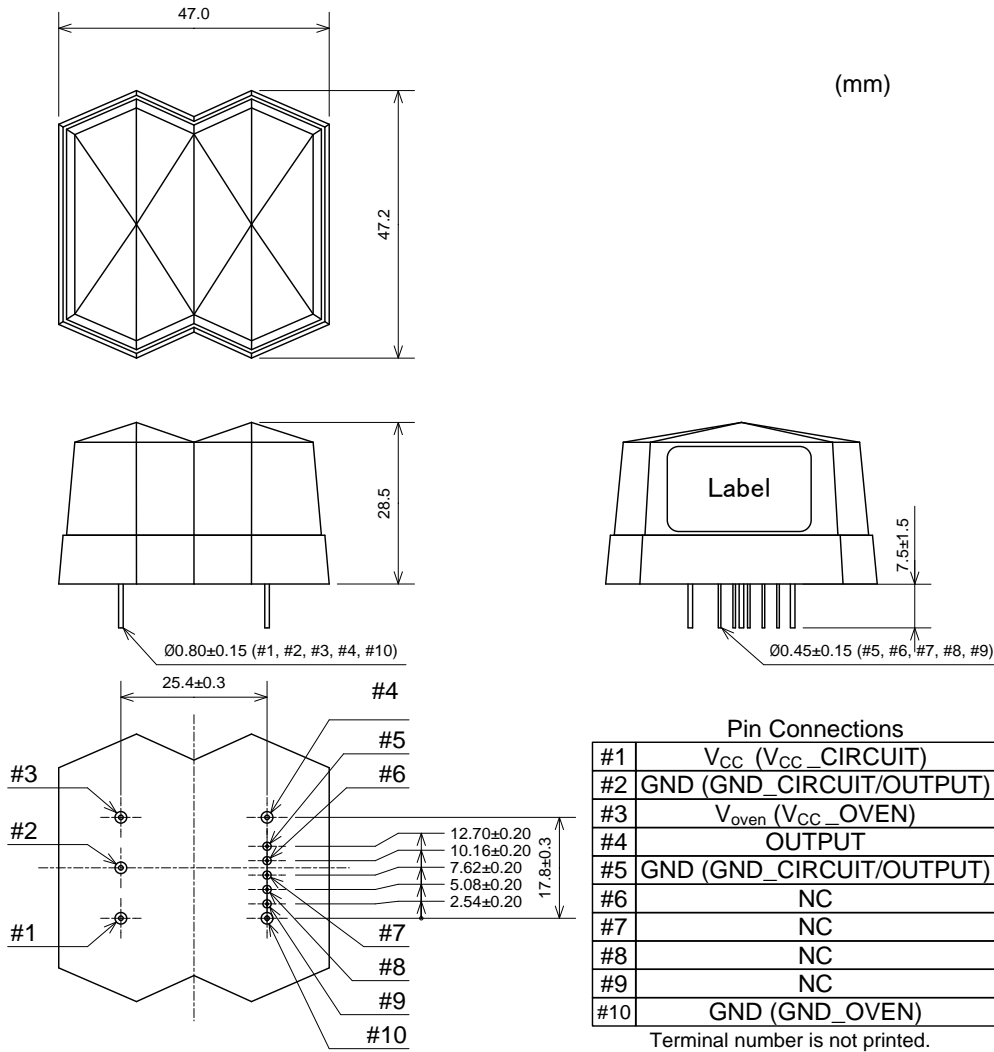
## \* Specifications

Model Name		NH47M47LA
Nominal Frequency		45.1584MHz、 49.152MHz
Supply Voltage	V <sub>CC</sub>	+5V +/- 5%
	V <sub>oven</sub>	+5V +/- 5%
Current Consumption	I <sub>CC</sub>	Max. 60 mA
	I <sub>oven</sub>	Max. 740 mA (at Start) Max. 210 mA (+25°C when Stable)
Operating Temperature Range		0°C ~ +50 °C
Overall Frequency Tolerance		Max. ±5 x 10 <sup>-6</sup>
Output (*1)		Bipolar Driver
Specification Number		NSA3647C

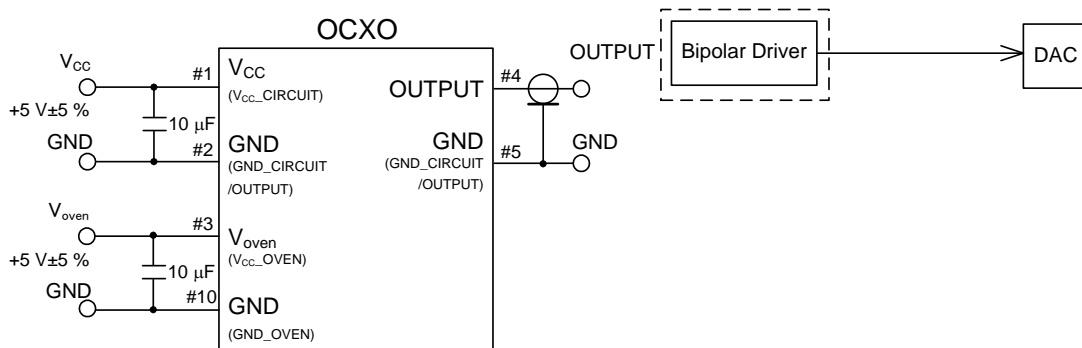
(\*1): Sine (Option)

# Ultra-Low-Phase-Noise OCXO【DuCULoN®】

## \* Dimensions



## \* Circuit connection for DuCULoN®



Concerning the Export Trade Control Order of Japan

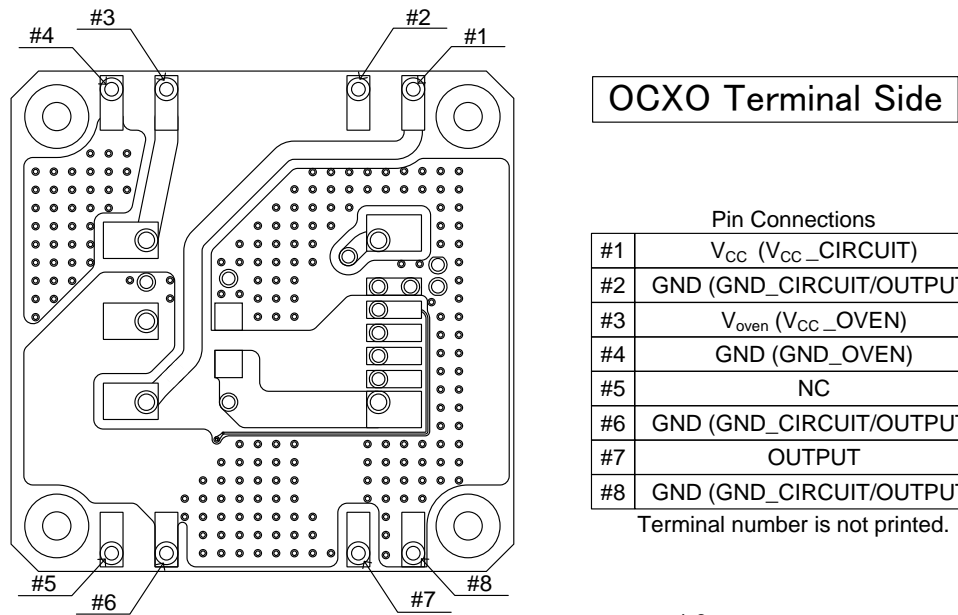
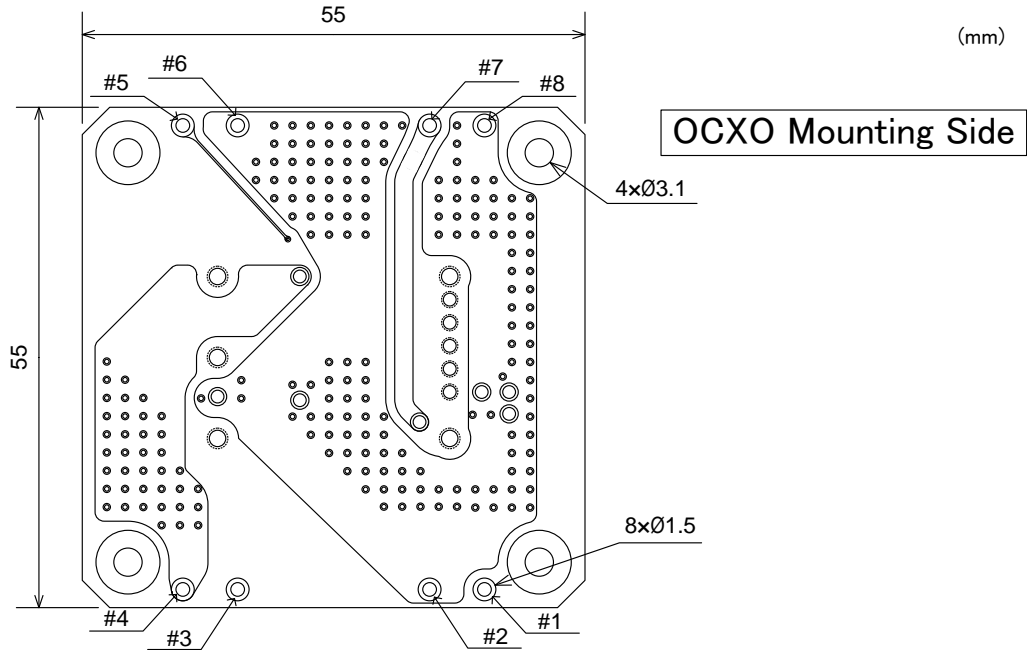
DuCULoN® (Model name: NH47M47LA) is a listed item in the attached list No.1 (Categories 7- item 2) regarding the Export Trade Control Order of Japan.

In case of export from Japan, export licenses are required in advance.

# Ultra-Low-Phase-Noise OCXO [DuCULoN<sup>®</sup>]

## \* Optional PC Board [ Specification Number : NSA3647Z ]

- \* To support immediate usability of DuCULoN<sup>®</sup>, we offer an optional PC board.
- \* Shielded cable is recommended for connections between the OUT PUT, Enable/Disable points and the nearest GND.



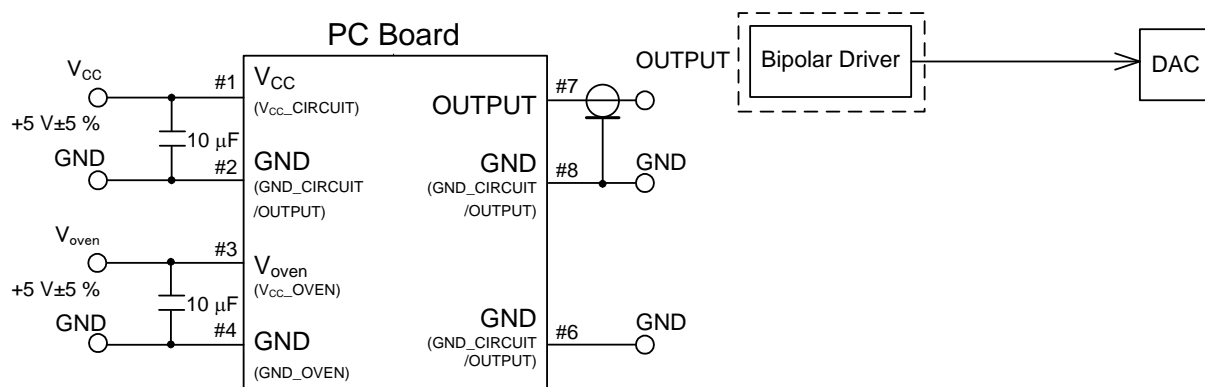
Pin Connections

#1	V <sub>CC</sub> (V <sub>CC_CIRCUIT</sub> )
#2	GND (GND_CIRCUIT/OUTPUT)
#3	V <sub>oven</sub> (V <sub>CC_OVEN</sub> )
#4	GND (GND_OVEN)
#5	NC
#6	GND (GND_CIRCUIT/OUTPUT)
#7	OUTPUT
#8	GND (GND_CIRCUIT/OUTPUT)

Terminal number is not printed.

t = 1.6 mm

## \* Circuit connection for recommended PC board

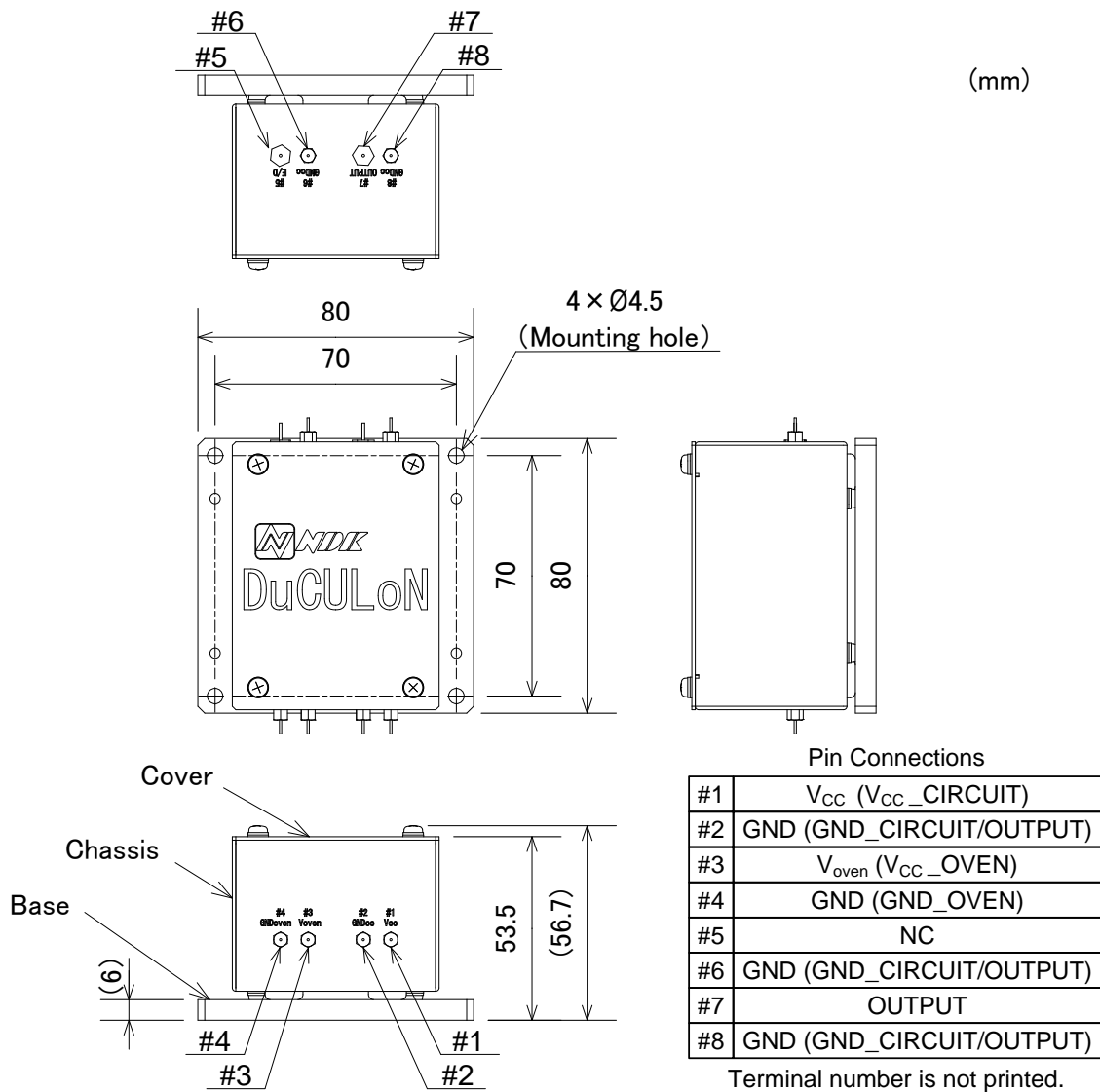


# Ultra-Low-Phase-Noise OCXO【DuCULoN<sup>®</sup>】

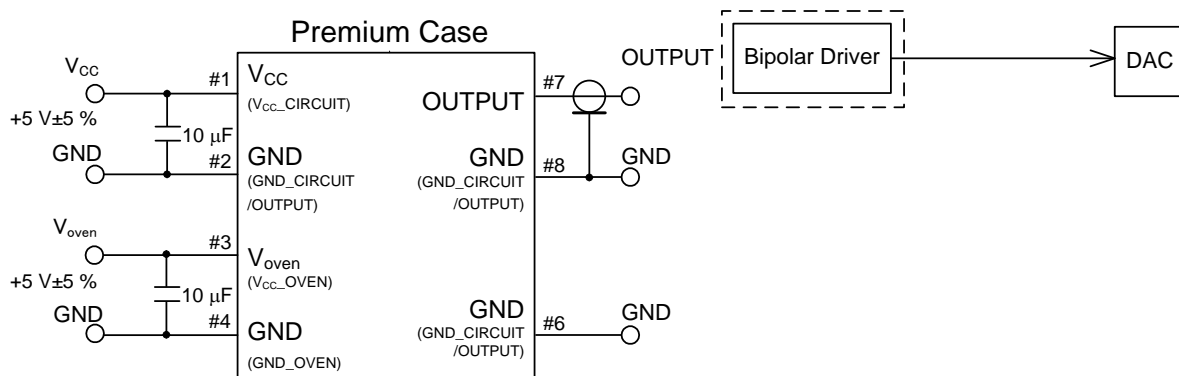
## \* Premium Case option. [ Specification Number : NSA3647Y ]

The optional "Premium Case" minimizes external noise and vibration, thereby allowing the DuCULoN<sup>®</sup> to reach its maximum performance.

- 1) The case is using an electromagnetic shield to cut the noise radiated from the external power supply.
- 2) Between the floor of the case and the DuCULoN<sup>®</sup> placed inside.  
This helps minimizing vibration from external sources.



## \* Circuit connection for Premium Case



\* Please understand some information changes will happen without any notice from this December 2015 information.