

RoHS Compliant
Directive 2002/95/EC

SPECIFICATION

Customer: _____

Item: _____ CRYSTAL OSCILLATOR _____
 Type: _____ NAC3015B _____
 Customer's Spec. No.: _____
 NDK Spec. No.: _____ NAC3015B _____

Receipt

Charge:

Sales	NDK-I	Tel. +39-02-96702920	Approved	T.Uchida
Engineer	6th ENGINEERING DEPT2 F.Okutsu	Tel. +81-4-2900-6616	Checked	M.Fukuda
			Drawn	F.Okutsu

Revision Record

Rev.	Rev. Date	Items	Contents	Remarks
----	28.Feb.2006	Issue		
A	13.Mar.2006	11	11 Soldering method add	

Specifications
NAC3015B

1. Type
2. Customer's parts number
3. Dimensions & Marking

According to ETD14B-00907
Marking :

 1. Model Number
 2. Frequency
 3. Year & Week Code
 4. Manufacture's Symbol

4. Rating

	Item	Symbol	Condition	Rating Value	Unit
4.1	Nominal Frequency	f_0	-	10	MHz
4.2	Supply Voltage	V_{CC}	-	DC+3.3±5%	V
4.4	Load	C_L	-	5//1	pF//kΩ
4.5	Operating Temp. Range	T_{OPR}	-	0 to +75	°C
4.6	Operable Temp. Range	T_{OPB}	-	-25 to +85	°C
4.7	Storage Temp. Range	T_{OPR}	-	-40 to +85	°C

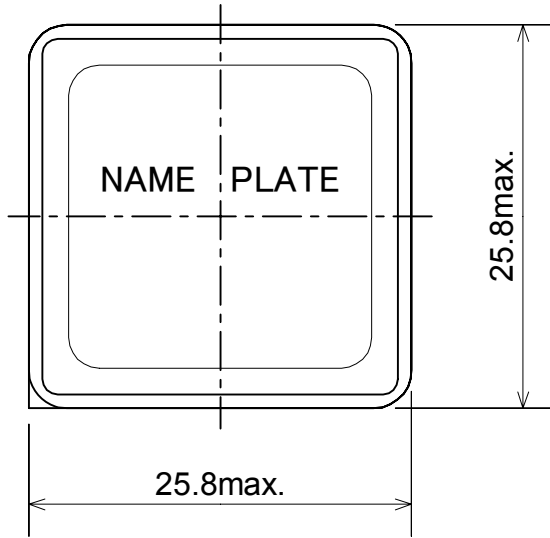
5. Electrical Characteristics

Unless otherwise specified, meaning condition. $T=+25^{\circ}\text{C}$, $V_{CC}=+3.3\text{V}$, $C_L=5\text{pF//}1\text{k}\Omega$

	Item	Symbol	Condition	Spec. Value		Unit		
				Min.	Max.			
5.1	Power							
	5.1.1	Warming State	I_{CC}	at +25°C		700	mA	
	5.1.2	Steady State	I_{CC}	at +25°C		350	mA	
I_{CC}			at 0°C		430	mA		
5.2	Frequency Stability							
	5.2.1	vs. Temp. Range	$\Delta f/f$	0 to +75°C (*1)	-0.1	+0.1	ppm	
	5.2.2	vs. Tolerance	$\Delta f/f_0$	R=4.75 kΩ(*2) (after warm-up)	-0.5	+0.5	ppm	
	5.2.3	vs. Supply Voltage	$\Delta f/f$	DC+3.3V±5% (*1)	-20	+20	ppb	
	5.2.4	vs. Load Variation	$\Delta f/f$	5pF±5%/1kΩ±5%(*1)	-20	+20	ppb	
	5.2.5	Short Term Stability	$\Delta f/f$	1 to 10 sec	-1	+1	ppb	
	5.2.6	Aging	(a)	$\Delta f/f$	/ day, after 24h	-1	+1	ppb
				$\Delta f/f$	/year, after 24h (First year)	-0.3	+0.3	ppm
$\Delta f/f$				/year, after 24h(Following Year)	-0.2	+0.2	ppm	
5.2.7	Warm-up time		at +25°C	$\Delta f/f_0 \leq \pm 0.5\text{ppm}$		5	min.	
			at 0°C	$\Delta f/f_0 \leq \pm 0.5\text{ppm}$		10	min.	
5.3	Frequency Adjustment Range	$\Delta f/f$	External 10 kΩ trimmer	±2	±10	ppm		
5.4	Output Characteristics							
	5.4.1	Output Voltage	V_{OL}	-		0.4	V	
			V_{OH}	-	2.4		V	
	5.4.2	Rise & Fall Time	t_r, t_f			4	ns	
	5.4.3	Duty Cycle	-	at 1/2V _{DD}	40	60	%	
5.4.4	Phase Noise		@ 10 Hz			-95	dBc/Hz	
			@ 100 Hz			-120	dBc/Hz	
			@ 1 kHz			-125	dBc/Hz	
			@ 10 kHz			-130	dBc/Hz	

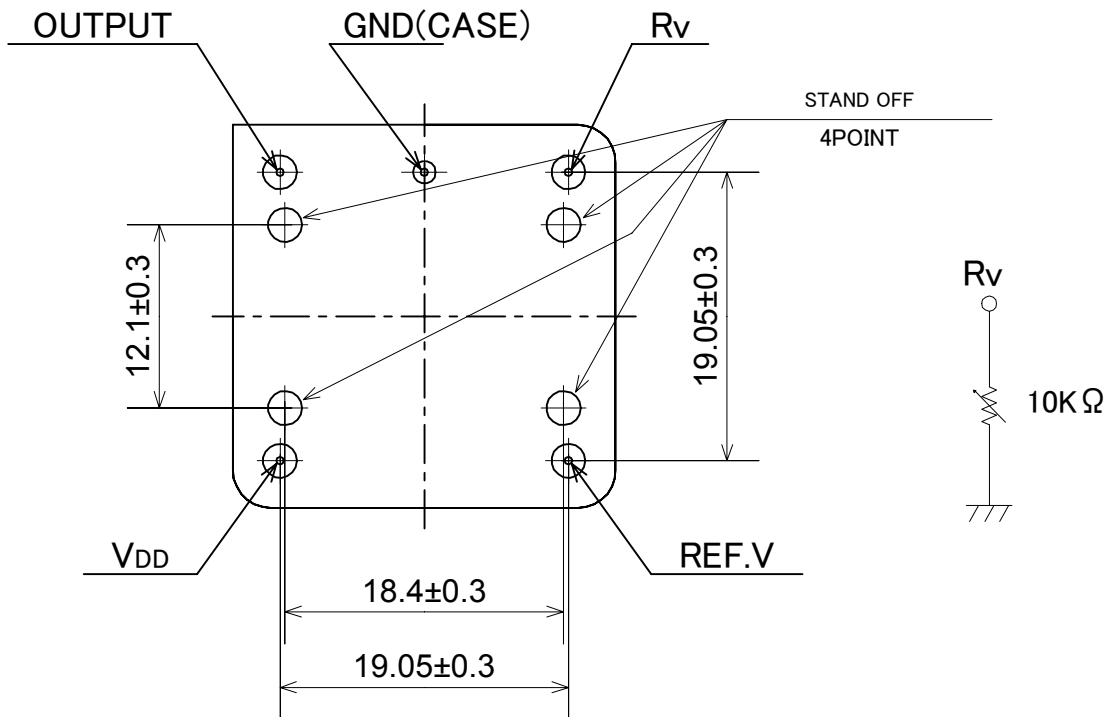
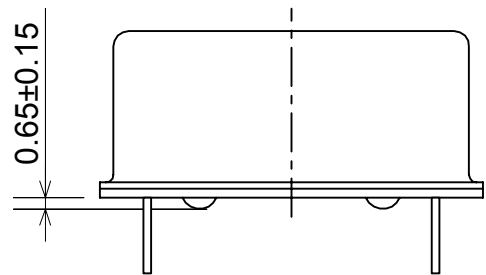
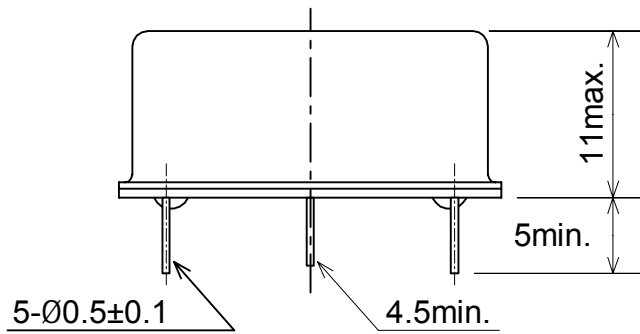
(*1) $\Delta f/f$: Frequency shift from the reference frequency.
at $T=+25^{\circ}\text{C}$, $V_{CC}=\text{DC}+3.3\text{V}$, $C_L=15\text{pF//}1\text{k}\Omega$

(*2) $\Delta f/f_0$: Frequency shift at $T=+25^{\circ}\text{C}$, $V_{CC}=\text{DC}+3.3\text{V}$, $C_L=5\text{pF//}1\text{k}\Omega$ from nominal frequency.



NAME PLATE

- 1.MODEL
- 2.FREQUENCY
- 3.DATE CODE
YEAR AND WEEK
- 4.MANUFACTURE 'S
SYMBOL



Date of Revise		Charge	Approved	Reason	
Drawn	28.Feb.2006	F.Okutsu	Third Angle Projection Dimension:mm	Tolerance ±1.0	
Designed	28.Feb.2006	F.Okutsu	Title External Dimension	Drawing No. ETD14B-00907	
Checked	28.Feb.2006	M.Fukuda			Rev.
Approved	28.Feb.2006	T.Uchida			

NIHON DEMPA KOGYO CO., LTD.