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# ***Bluetooth*<sup>®</sup> 4.0 Low Energy Module**

## **Bluetooth<sup>®</sup> 4.0 Low Energy**

### **EYSFCNZXX**

#### Data Report

The ***Bluetooth***<sup>®</sup> word mark and logos are owned by the ***Bluetooth*** SIG, Inc. and any use of such marks by TAIYO YUDEN CO., LTD. is under license.

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**Revision History**

29-Aug.-2013 > Ver.0.01 Draft  
 18-Sep.-2013 > Ver.0.02 Draft  
 11-Nov.-2013 > Ver.0.03 Draft  
 29-Nov.-2013 > Ver.1.0 Release  
 09-Jan.-2014 > Ver.1.1 Update  
 03-Feb.-2014 > Ver.1.2 Update  
 04-Feb.-2014 > Ver.1.21 Update  
 18-Feb.-2014 > Ver.1.3 Update  
 24-Feb.-2014 > Ver.1.31 Update  
 10-Mar.-2014 > Ver.1.32 Update  
 19-May.-2015 > Ver.1.4 Update  
 26-May.-2015 > Ver.1.41 Update

**EYSFCNZXX**

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Control No. HD-AG-A121277	(1/4)	Control name General Items
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**Scope**

This specification ("Specification") applies to the hybrid IC "EYSFCNZXX", a **Bluetooth**<sup>®</sup> 4.0 Low Energy module ("Product") manufactured by TAIYO YUDEN Co., Ltd. ("TAIYO YUDEN")

**1. Model: EYSFCN**

Version Code: EYSFCNZXX

Digit3: Customer Code ex) S: TAIYO YUDEN Standard

Digit8: Firmware Code ex) X: TAIYO YUDEN Standard

\*Version Code may be changed for mass production or other cases.

**2. Function:**Radio frequency module. **Bluetooth**<sup>®</sup> standard Ver 4.0 Low Energy conformity**3. Application: Health & Fitness Equipment, Sensor, Toys****4. Structure:**

Hybrid IC loaded with silicon monolithic semiconductor

Compatible with industrial standard reflow profile for Pb-free solders

Can meet with RoHS compliance (Pb, Cd, Hg, Cr<sup>+6</sup>, PBB, PBDE)**5. Outline: 12.9x 9.6 x 2.0 mm**

49-pin Land Grid Array

**6. Marking: Part number, Lot number, Japan ID, FCC ID, IC ID****7. Features:**

- Small outline by PCB substrate
- Low power consumption
- Integrated antenna
- Integrated system and sleep clock
- **Bluetooth**<sup>®</sup> 4.0 Low Energy conformity
  - Slave Role

**8. Packaging:**

Packaging method: Tape &amp; reel + aluminum moisture barrier bag

Packaging unit: 1000

\*It might be provided as tray at sample stage.

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Control No. HD-AG-A121277	(2/4)	Control name General Items
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## 9. Note:

- a. Any question arising from this Specification shall be solved through mutual discussion by the parties hereof.
- b. This Product is not designed to be radiation durable and should not be used under the circumstance of radiation.
- c. The operating conditions of this Product are as shown in this Specification. Please note that TAIYO YUDEN shall not be liable for a failure and/or abnormality which is caused by use under the conditions other than the operating conditions hereof.
- d. The Product mentioned in this Specification is manufactured for use in Health & Fitness Equipment, Sensor and Toys. Before using this Product in any special equipment (such as medical equipment, space equipment, air craft, disaster prevention equipment), where higher safety and reliability are duly required, the applicability and suitability of this Product must be fully evaluated by the customer at its sole risk to ensure correct and safe operation of these special equipments. Also, evaluation of the safety function of this Product even for use in general electronics equipment shall be thoroughly made and when necessary, a protective circuit shall be added during the design stage, all at the customer's sole risk.
- e. i) You are requested to fully check and confirm by the start of mass production of this Product that (1) no bug, defect or other failure is included in firmware incorporated in this Product ("Incorporated Software"), (2) no bug defect or other failure arising from installation of this Product in which is contained Incorporated Software into your products is included in Incorporated Software, and that Incorporated Software fully meets your intended use, although TAIYO YUDEN sufficiently inspects or verifies quality of Incorporated Software.  
ii) Please note that TAIYO YUDEN is not responsible for any failure arising out of bugs or defects in Incorporated Software.
- f. TAIYO YUDEN warrants only that this Product is in conformity with this Specification for one year after purchase and shall in no event give any other warranty.
- g. Communication between this Product and others might not be established nor maintained depending on radio environment or operating conditions of this Product and other *Bluetooth*<sup>®</sup> products.
- h. In order to test for Radio Law certification with a device incorporating this module, the Host Software must be able to put the module into test mode. Please contact TAIYO YUDEN for further details.
- i. This Product operates in the unlicensed ISM band at 2.4GHz. In case this Product is used around the other wireless devices which operate in same frequency band of this Product, there is a possibility that interference may occur between this Product and such other devices. If such interference occurs, please stop the operation of other devices or relocate this Product before using this Product or do not use this Product around the other wireless devices.
- j. Please thoroughly evaluate our module with your products before going mass production.
- k. User Code Modification Notice.  
User Code for sample modules or part numbers in this Specification are TAIYO YUDEN standard part numbers. When any modification is made to a module to meet requested specifications, the part number will be changed. Please contact TAIYO YUDEN to confirm whether your part number needs to be modified.

Please see the following examples for cases when part numbers are modified:

- for specific firmware version (our standard item firmware will be upgraded occasionally)
- for other relevant cases (specific or different setting, form, sizes, or display etc..)

Control No. HD-AG-A121277	(3/4)	Control name General Items
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- l. Alternative components may used to this module. The intended components is used within the warranty written in this document (characteristics, size, operating condition, reliability, public regulation such as radio type approval) and Taiyo Yuden confirmed there are not any problems with the replacement. The traceability of the components is secured each production lot.
- m. Caution for Export Control  
This Product may be subject to governmental approvals, consents, licenses, authorizations, declarations, filings, and registrations for export or re-export of the Product, required by Japanese Foreign Exchange and Foreign Trade Law (including related laws and regulations) and/or any other country's applicable laws or regulations related to export control.  
If you plan to export or re-export this Product, it is strongly recommended that you check and confirm, the necessary procedures to export or re-export of this Product as required by applicable laws and regulations, and if necessary, you have to obtain necessary and appropriate approvals or licenses from governmental authority at your own risk and expense.
- n. Japan Regulatory Information  
This module is approved with the specific antenna on this module.  
Please ensure that the sentence below is clearly stated on your product or product manual.  
This product has a radio system which was approved as a radio station in a low power data communication system based on the Radio Law and the Telecommunication Business Law.  
Name of the radio system: 001-A01718
- o. Canada Regulatory Information
- a) This device complies with Industry Canada license-exempt RSS standards.  
Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.  
L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.
- b) This product is certified as type of the portable device with Industry Canada.
- c) Please ensure that one of the following is clearly stated on your product.  
-Contains Transmitter module IC : 4389B-EYSFCN  
-Contains IC : 4389B-EYSFCN
- p. FCC Regulatory Information
- a) This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:  
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- b) Please ensure that one of the following is clearly stated on your product.  
-Contains Transmitter Module FCC ID: RYYEYSFCN  
-Contains FCC ID: RYYEYSFCN
- c) CAUTION: changes or modifications not expressly approved by the party responsible for compliance could void the use's authority to operate the equipment



Control No. HD-AG-A121277	(4/4)	Control name General Items
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- d) This product is certified as type of the portable device with FCC.
- q. This Product is designed for use in products which comply with *Bluetooth*<sup>®</sup> Specifications (Ver 4.0 LE) (“Bluetooth Specifications”). TAIYO YUDEN disclaims and is not responsible for any liability concerning infringement by this Product under any intellectual property right owned by third party in case the customer uses this Product in any product which does not comply with Bluetooth Specifications (the “non-complying products”). Furthermore, TAIYO YUDEN warrants only that this Product complies with this Specification and does not grant any other warranty including warranty for application of the non-complying products.

This module is still under development, thus specifications do not guarantee both the quality and reliability at the time of shipment. Since the specifications and mass production of the module are not confirmed either, the contents of the technical notes are subject to change without any prior notice.

**EYSFCNZXX**

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Control No. HD-AM-A121277	(1/1)	Control name Absolute maximum ratings
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**Absolute maximum ratings**

Symbol	Parameter	Min.	Max.	Units
VCC_NRF		-0.3	+3.6	V
GND			0	V
VIO		-0.3	VCC_NRF+ 0.3	V
Storage temperature		-40	+85	Deg-C
MSL	Moisture Sensitivity Level	2		
ESD HBM	Human Body Model		1	kV
ESD CDM	Charged Device Model		100	V
Endurance	Flash Memory Endurance	20000		write/erase cycles
Retention	Flash Memory Retention	10 years		At 40 deg-C
Number of times an address can be written between erase cycles			2	times



**EYSFCNZXX**

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Control No. HD-AE-A121277	(1/5)	Control name Electrical characteristics
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**Electrical characteristics****Recommendation operating range**

Symbol	Parameter	Min.	Typ.	Max.	Units
VCC_NRF	Supply voltage, normal mode	1.8	3.0	3.6	V
VCC_NRF	Supply voltage, normal mode, DC/DC converter output voltage 1.9 V	2.1	3.0	3.6	V
tR_VCC_NRF	Supply rise time (0V to 1.8V)			60	ms
TA	Operation temperature	-25	25	75	Deg-C

The on-chip power-on reset circuitry may not function properly for rise times outside the specified interval.

**DC Specifications**

The Specification applies for Topr.= 25 degrees C, VCC\_NRF = 3.0V

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
VIH	Input high voltage	0.7 VCC_NRF		VCC_NRF	V
VIL	Input low voltage	GND		0.3 VCC_NRF	V
VOH	Output high voltage (std. drive, 0.5 mA)	VCC_NRF-0.3		VCC_NRF	V
VOH	Output high voltage (high-drive, 5 mA)	VCC_NRF-0.3		VCC_NRF	V
VOL	Output low voltage (std. drive, 0.5 mA)	GND		0.3	V
VOL	Output low voltage (high-drive, 5 mA)	GND		0.3	V
RPU	Pull-up resistance	11	13	16	kohm
RPD	Pull-down resistance	11	13	16	kohm
ITX,+4dBm	TX only run current @ POUT =+4 dBm		16		mA
ITX,0dBm	TX only run current @ POUT = 0 dBm		10.5		mA
IRX	RX only run current		13		mA
IOFF	Current in SYSTEM-OFF, no RAM retention		0.4		uA
IOFF,8k	Current in SYSTEM-OFF mode 8 kB SRAM retention		0.6		uA
ION	SYSTEM-ON base current		2.3		uA

Internal DC/DC converter operation is not recommended due to long startup time.

Please refer to chapter 11 on "nRF51 Series Reference Manual v2.1" by Nordic Semiconductor for more information regarding DC/DC converter characteristics.

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Control No. HD-AE-A121277	(2/5)	Control name Electrical characteristics
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**UART specifications**

Symbol	Description	Note	Min.	Typ.	Max.	Units
$I_{\text{UART1M}}$	Run current @ max baud rate			230		$\mu\text{A}$
$I_{\text{UART115k}}$	Run current @ 115200 bps			220		$\mu\text{A}$
$I_{\text{UART1k2}}$	Run current @ 1200 bps			210		$\mu\text{A}$
$f_{\text{UART}}$	Baud rate for UART		1.2		921.6	kbps

## EYSFCNZXX

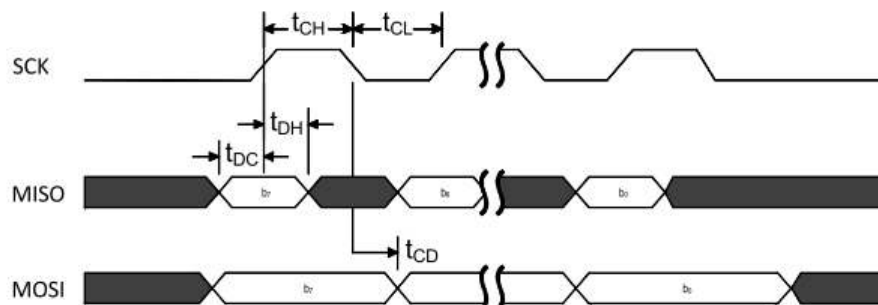
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Control No. HD-AE-A121277	(3/5)	Control name Electrical characteristics
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## SPI specifications

Symbol	Description	Min.	Typ.	Max.	Units
$I_{SPI125K}$	Run current for SPI master @ 125 kbps		180		$\mu A$
$I_{SPI8M}$	Run current for SPI master @ 8 Mbps		200		$\mu A$
$f_{SPI}$	Bit rates for SPI	0.125		8	Mbps

## SPI specifications



SPI timing diagram, one byte transmission, SPI mode 0

Symbol	Description	Note	Min.	Max.	Units
$t_{DC}$	Data to SCK setup		10		ns
$t_{DH}$	SCK to Data hold		10		ns
$t_{CD}$	SCK to Data valid	$C_{LOAD} = 0 \text{ pF}$ $C_{LOAD} = 5 \text{ pF}$ $C_{LOAD} = 10 \text{ pF}$ $C_{LOAD} = 35 \text{ pF}$		60 66 68 78	ns
$t_{CL}$	SCK Low time		40		ns
$t_{CH}$	SCK High time		40		ns
$f_{SCK}$	SCK Frequency		0.125	8	MHz
$t_R, t_F$	SCK Rise and Fall time			100	ns

## SPI timing parameters

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## EYSFCNZXX

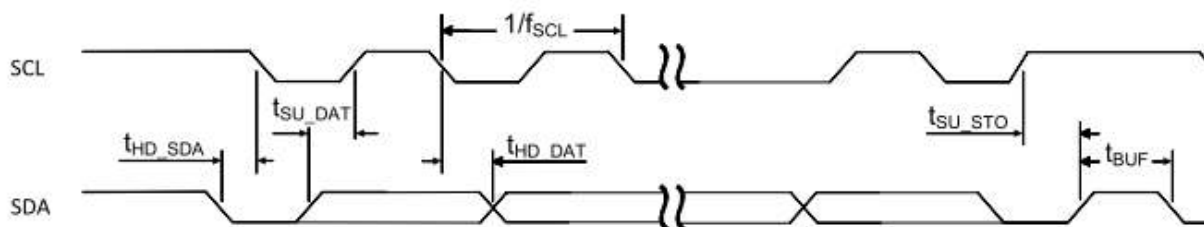
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Control No. HD-AE-A121277	(4/5)	Control name Electrical characteristics
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## TWI specifications

Symbol	Description	Min.	Typ.	Max.	Units
$I_{2W100K}$	Run current for TWI @ 100 kbps		380		$\mu\text{A}$
$I_{2W400K}$	Run current for TWI @ 400 kbps		400		$\mu\text{A}$
$f_{2W}$	Bit rates for TWI	100		400	kbps

## TWI specifications



## SCL/SDA timing

Symbol	Description	Standard		Fast		Units
		Min.	Max.	Min.	Max.	
$f_{SCL}$	SCL clock frequency		100		400	kHz
$t_{HD\_STA}$	Hold time for START and repeated START condition	5200		1300		ns
$t_{SU\_DAT}$	Data setup time before positive edge on SCL	300		300		ns
$t_{HD\_DAT}$	Data hold time after negative edge on SCL	300		300		ns
$t_{SU\_STO}$	Setup time from SCL goes high to STOP condition	5200		1300		ns
$t_{BUF}$	Bus free time between STOP and START conditions	4700		1300		ns

## TWI timing parameters

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Control No. HD-AE-A121277	(5/5)	Control name Electrical characteristics
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## GPIOTE specifications

Symbol	Description	Min.	Typ.	Max.	Units
I <sub>GPIOTE,IN</sub>	Run current with GPIOTE active in Input mode		100		μA
I <sub>GPIOTE,OUT</sub>	Run current with GPIOTE active in Output mode		0.1		μA

## RF Specifications

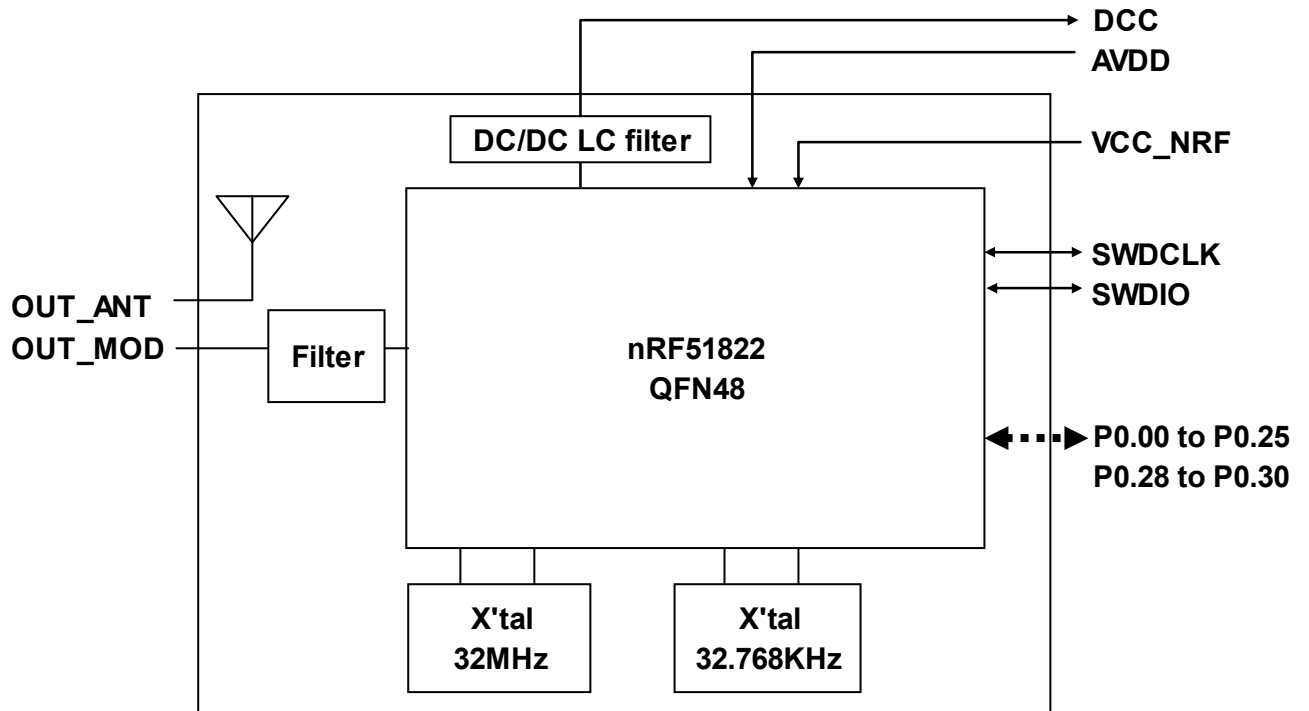
Symbol	Description	Min.	Typ.	Max.	Units
Fop	Operating frequencies	2402		2480	MHz
PLLres	PLL programming resolution		1		MHz
Df	Frequency deviation	+/-225	+/-250	+/-275	kHz
PRF	Maximum output power		4		dBm
PRFC	RF power control range	20	24		dB
PRFCR	RF power accuracy			+/-4	dB
PWHISP	RF power whisper mode		-30		dBm
PBW	20 dB bandwidth for modulated carrier		950	1100	kHz
PRF1	1st Adjacent Channel Transmit Power 1 MHz			-20	dBc
PRF2	2nd Adjacent Channel Transmit Power 2 MHz			-40	dBc
PRXMAX	Maximum received signal strength at < 0.1% PER		0		dBm
PSSENS IT	Receiver sensitivity (0.1% BER) Ideal transmitter		-93		dBm
PSSENS DT	Receiver sensitivity (0.1% BER) dirty transmitter		-91		dBm

# EYSFCNZXX

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Control No. HD-MC-A121277	(1/2)	Control name Circuit Schematic
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## Block Diagram



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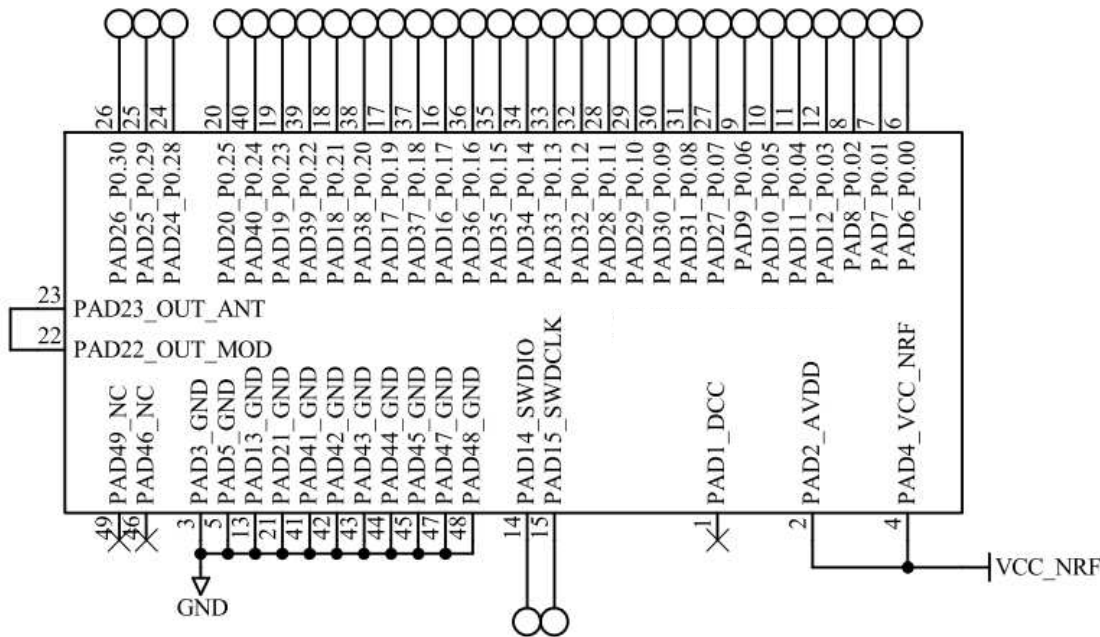
# EYSFCNZXX

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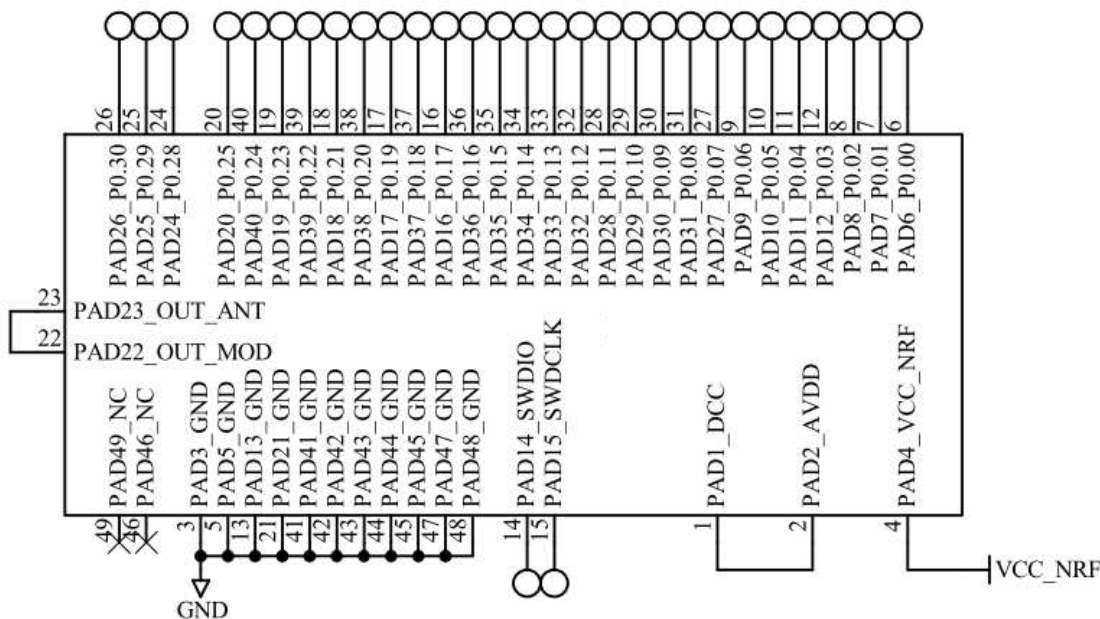
Control No. HD-MC-A121277	(2/2)	Control name Circuit Schematic
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## Sample circuits

schematic with internal LDO regulator



schematic with internal DC/DC converter



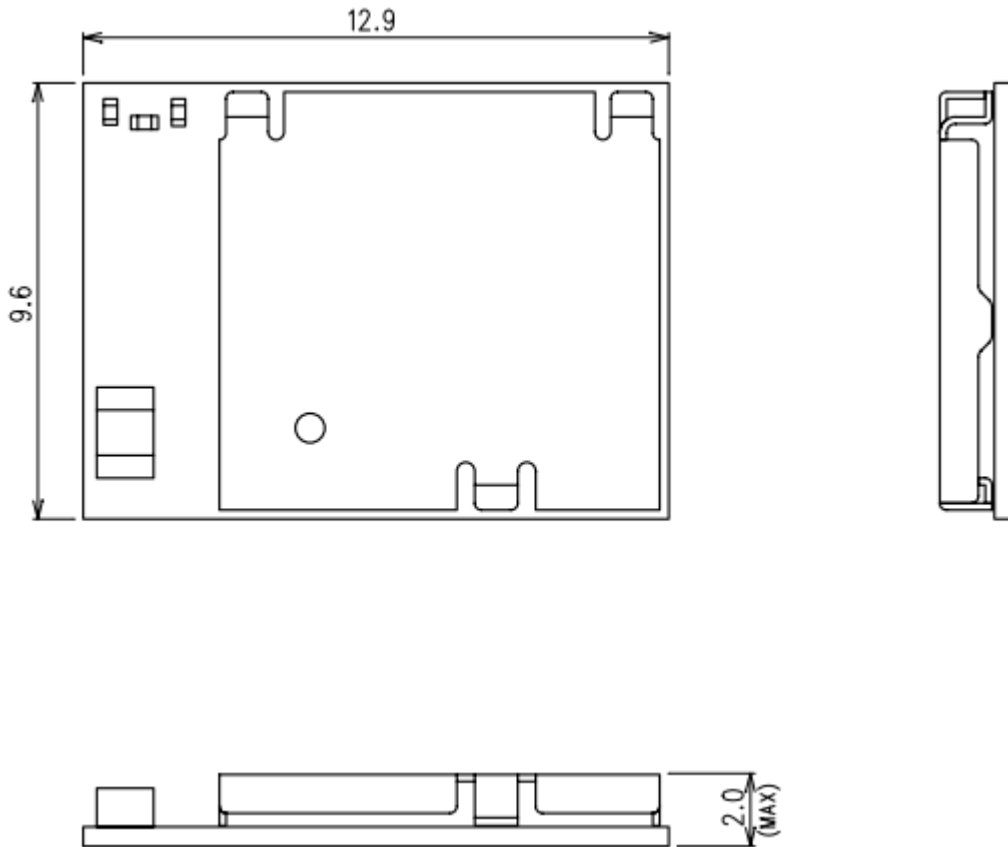
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# EYSFCNZXX

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Control No. HD-AD-A121277 (1/3)	Control name Outline/Appearance
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Tolerance: +/- 0.2mm

Unit : (mm)

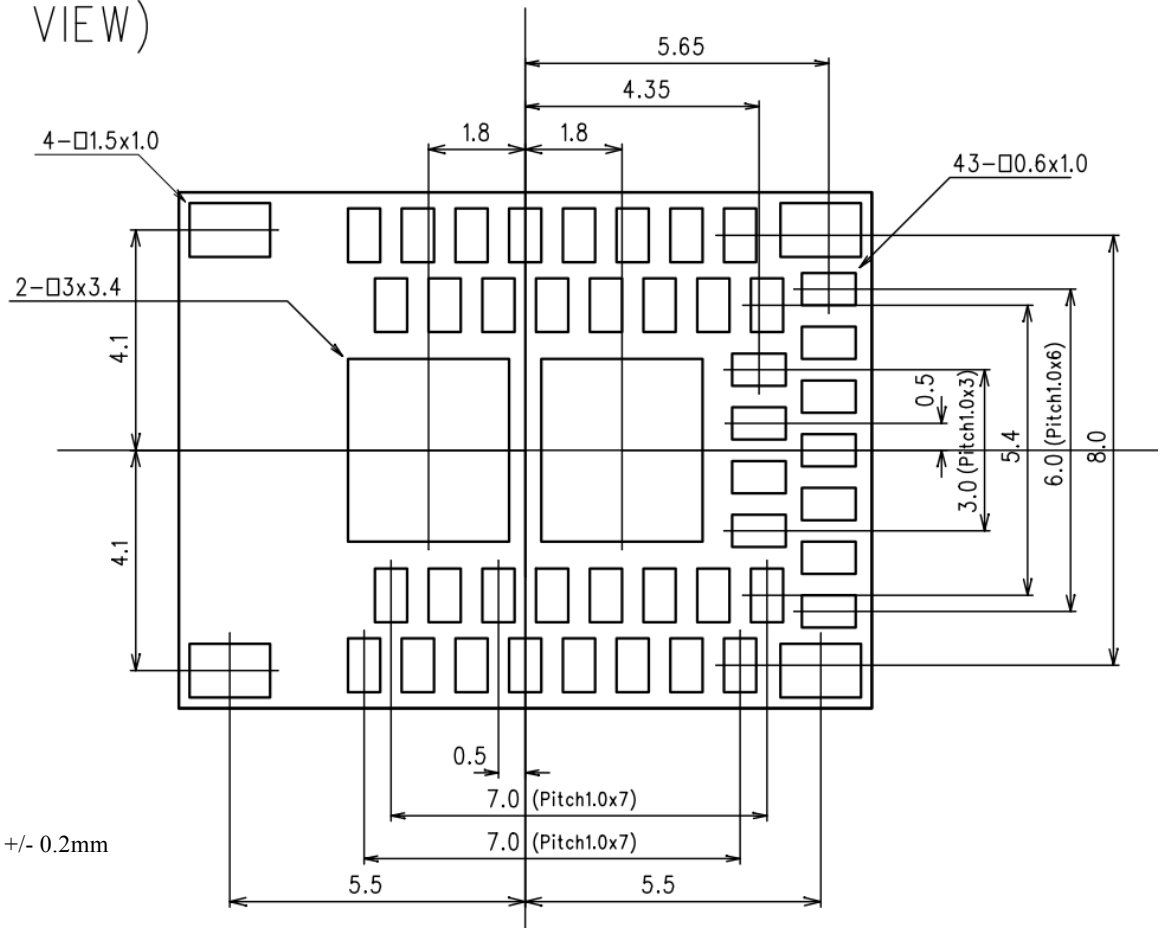
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# EYSFCNZXX

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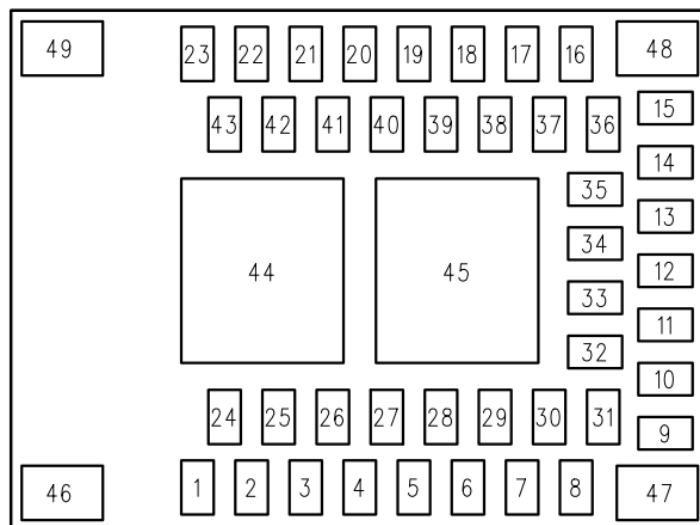
Control No. HD-AD-A121277	(2/3)	Control name Outline/Appearance
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(TOP VIEW)



Tolerance: +/- 0.2mm

Unit: mm



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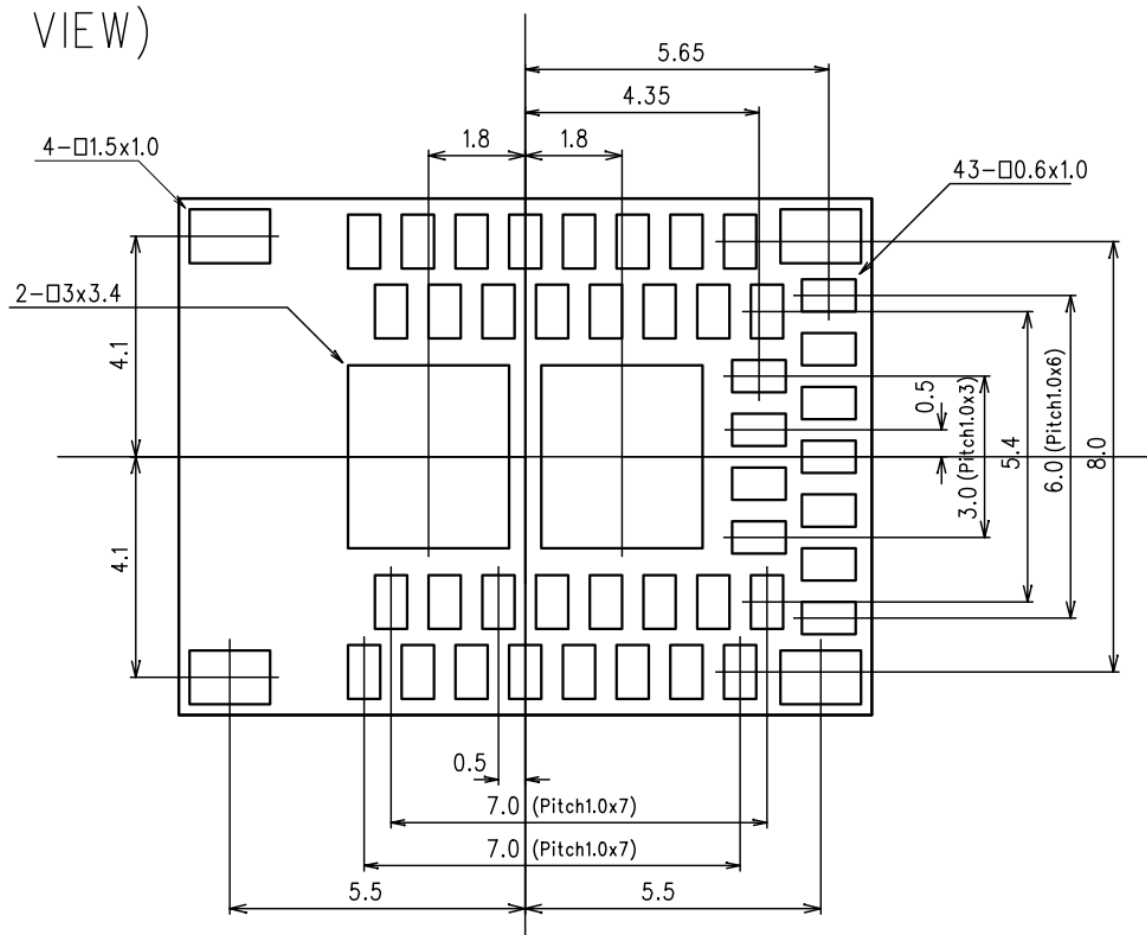
# EYSFCNZXX

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Control No. HD-AD-A121277	(3/3)	Control name Outline/Appearance
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## LAND PATTERN EXAMPLE

(TOP VIEW)



### Recommended metal mask for solder printing

Pad size	Mask opening
Signal pad 43 - 0.6 x 1.0 mm	0.5 x 0.9 mm
Corner pad 4 - 1.5 x 1.0 mm	1.0 x 0.7 mm
Center pad 2 - 3.0 x 3.4 mm	2.6 x 3.0 mm

The center of each mask opening is same as the pad center.

The metal mask thickness: t=0.1mm

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**EYSFCNZXX**

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Control No. HD-BA-A121277	(1/2)	Control name Pin Layout
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**Pin Descriptions**

Pin	Pin name	Pin function	Description
1	DCC	Power	DC/DC output (built-in LC for DC/DC)
2	AVDD	Power	Analog Power supply
3	GND	Ground	Ground (0 V)
4	VCC_NRF	Power	Power supply
5	GND	Ground	Ground (0 V)
6	P0.00	Digital I/O	General purpose I/O pin
	AREF0	Analog input	ADC Reference voltage
7	P0.01	Digital I/O	General purpose I/O pin
	AIN2	Analog input	ADC input 2
8	P0.02	Digital I/O	General purpose I/O pin
	AIN3	Analog input	ADC input 3
9	P0.06	Digital I/O	General purpose I/O pin
	AIN7	Analog input	ADC input 7
10	AREF1	Analog input	ADC Reference voltage
	P0.05	Digital I/O	General purpose I/O pin
11	AIN6	Analog input	ADC input 6
	P0.04	Digital I/O	General purpose I/O pin
12	AIN5	Analog input	ADC input 5
	P0.03	Digital I/O	General purpose I/O pin
13	AIN4	Analog input	ADC input 4
	GND	Ground	Ground (0 V)
14	SWDIO	Digital I/O	System reset (active low). Also HW debug and flash programming I/O
15	SWDCLK	Digital input	HW debug and flash programming I/O
16	P0.17	Digital I/O	General purpose I/O pin
17	P0.19	Digital I/O	General purpose I/O pin
18	P0.21	Digital I/O	General purpose I/O pin
19	P0.23	Digital I/O	General purpose I/O pin
20	P0.25	Digital I/O	General purpose I/O pin
21	GND	Ground	Ground (0 V)
22	OUT_MOD	RF In/Out	RF I/O pin. It should be connected to Pin 23 OUT_ANT for normal operation.

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**EYSFCNZXX**

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Control No. HD-BA-A121277	(2/2)	Control name Pin Layout
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Pin	Pin name	Pin function	Description
23	OUT_ANT	Antenna In/Out	Internal antenna. It should be connected to Pin 22 OUT_MOD for normal operation.
24	P0.28	Digital I/O	General purpose I/O pin
25	P0.29	Digital I/O	General purpose I/O pin
26	P0.30	Digital I/O	General purpose I/O pin
27	P0.07	Digital I/O	General purpose I/O pin
28	P0.11	Digital I/O	General purpose I/O pin
29	P0.10	Digital I/O	General purpose I/O pin
30	P0.09	Digital I/O	General purpose I/O pin
31	P0.08	Digital I/O	General purpose I/O pin
32	P0.12	Digital I/O	General purpose I/O pin
33	P0.13	Digital I/O	General purpose I/O pin
34	P0.14	Digital I/O	General purpose I/O pin
35	P0.15	Digital I/O	General purpose I/O pin
36	P0.16	Digital I/O	General purpose I/O pin
37	P0.18	Digital I/O	General purpose I/O pin
38	P0.20	Digital I/O	General purpose I/O pin
39	P0.22	Digital I/O	General purpose I/O pin
40	P0.24	Digital I/O	General purpose I/O pin
41 to 45	GND	Ground	Ground (0 V)
46	NC	Not Connected	Isolated pad on PCB for mechanical stability
47 to 48	GND	Ground	Ground (0 V)
49	NC	Not Connected	Isolated pad on PCB for mechanical stability

Control No. HQ-BA-523	(1/2)	Control name Handling Precaution
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This specification describes desire and conditions especially for mounting.

#### Desire/Conditions

##### (1) Environment conditions for use and storage

1. Store the components in an environment of < **40deg-C/90%RH** if they are in a moisture barrier bag packed by TAIYO YUDEN.
2. Keep the factory ambient conditions at < **30deg-C/60%RH**.
3. Store the components in an environment of < **25±5deg-C/10%RH** after the bag is opened.  
(The condition is also applied to a stay in the manufacture process).

##### (2) Conditions for handling of products

Make sure all of the moisture barrier bags have no holes, cracks or damages at receiving. If an abnormality is found on the bag, its moisture level must be checked in accordance with 2 in (2).

Refer to the label on the bag.

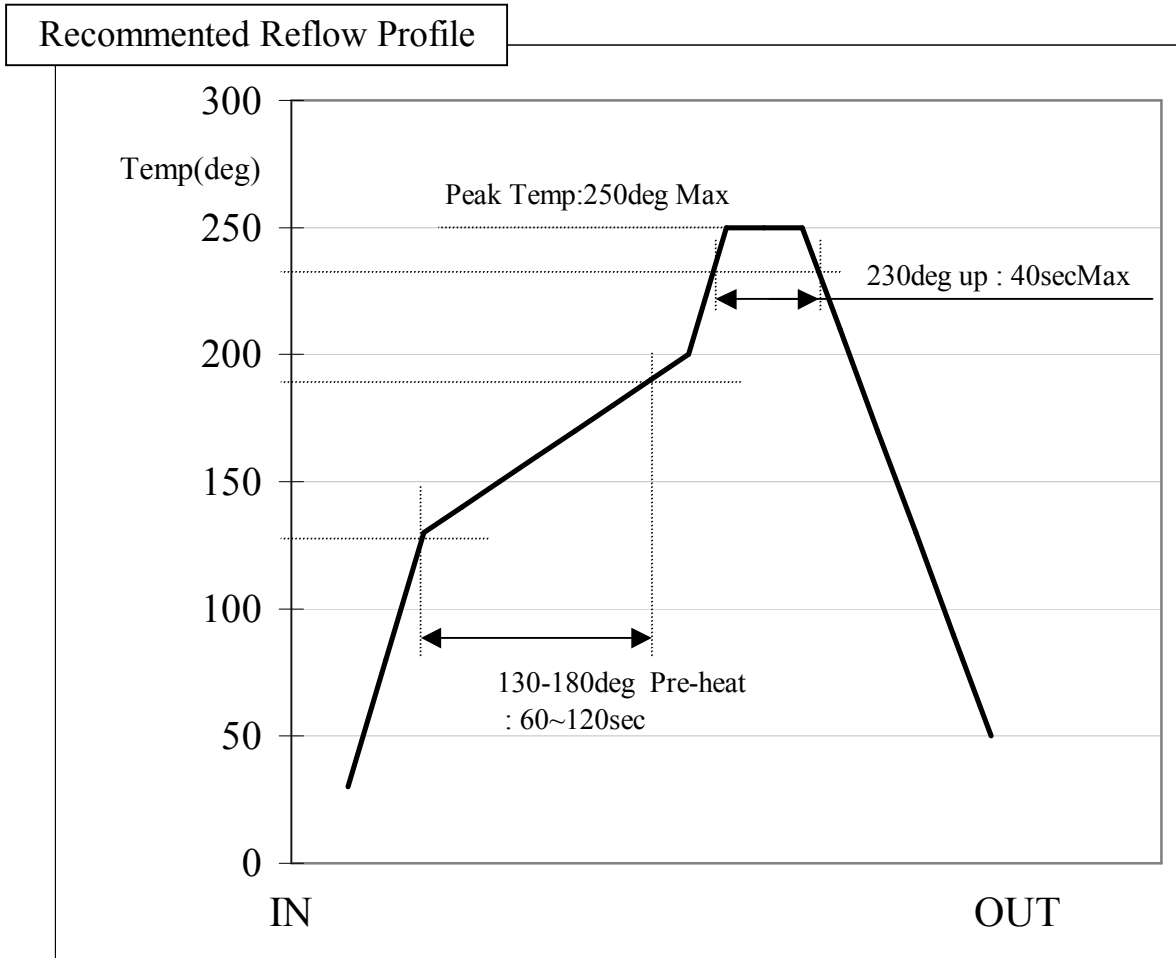
1. All of the surface mounting process (reflow process) must be completed **in 12 months** from the bag sea date.
2. Make sure humidity in the bag is less than **10%RH** immediately after open, using a humidity indicator card sealed with the components.
3. **All** of the surface mounting process (reflow process including rework process) must be completed in **168 hours** after the bag is opened (inclusive of any other processes).
4. If any conditions in (1) or condition 2 and 3 in (2) are not met, bake the components in accordance with the conditions at **125deg-C 24hours**
5. As a rule, baking the components in accordance with conditions 4 in (2) shall be once.
6. Since semi-conductors are inside of the components, they must be free from static electricity while handled.(<100V) Use ESD protective floor mats, wrist straps, ESD protective footwear, air ionizers etc. , if necessary.
7. Please make sure that there are lessen mechanical vibration and shock for this module, and do not drop it.
8. Please recognize pads of back side at surface mount.
9. Please do not wash this module.
10. Please perform temperature conditions of module at reflow within the limits of the following.

Please give the number of times of reflow as a maximum of 2 times.

# EYSFCNZXX

TAIYO YUDEN

Control No. HQ-BA-523	(2/2)	Control name Handling Precaution
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# EYSFCNZXX

TAIYO YUDEN

Control No. HD-BB-A121277	(1/3)	Control name Packaging Specification
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Packaging Specification

梱包仕様

(1) Packaging Material 梱包材料

Name 部材名	Outline 概要	Materials 材質	Note 備考
Emboss エンボス	24mm wide - 12mmPitch 24mm幅 - 12mmピッチ	Conductive PS 導電性 PS	
Cover Tape カバーテープ			
Reel リール	φ 330 mm	Conductive PS 導電性 PS	
Desiccant 乾燥剤	30g×1		
Humidity indicator card 湿度インジケータ			
Aluminum moisture barrier bag アルミ防湿袋	420×460(mm)	(AS)PET/AL/NY/PE(AS)	
Label ラベル			
Corrugated cardboard box(Inner) 個装箱	339×351×74(mm)		
Corrugated cardboard box(Outer) 外装箱	369×369×277(mm)		

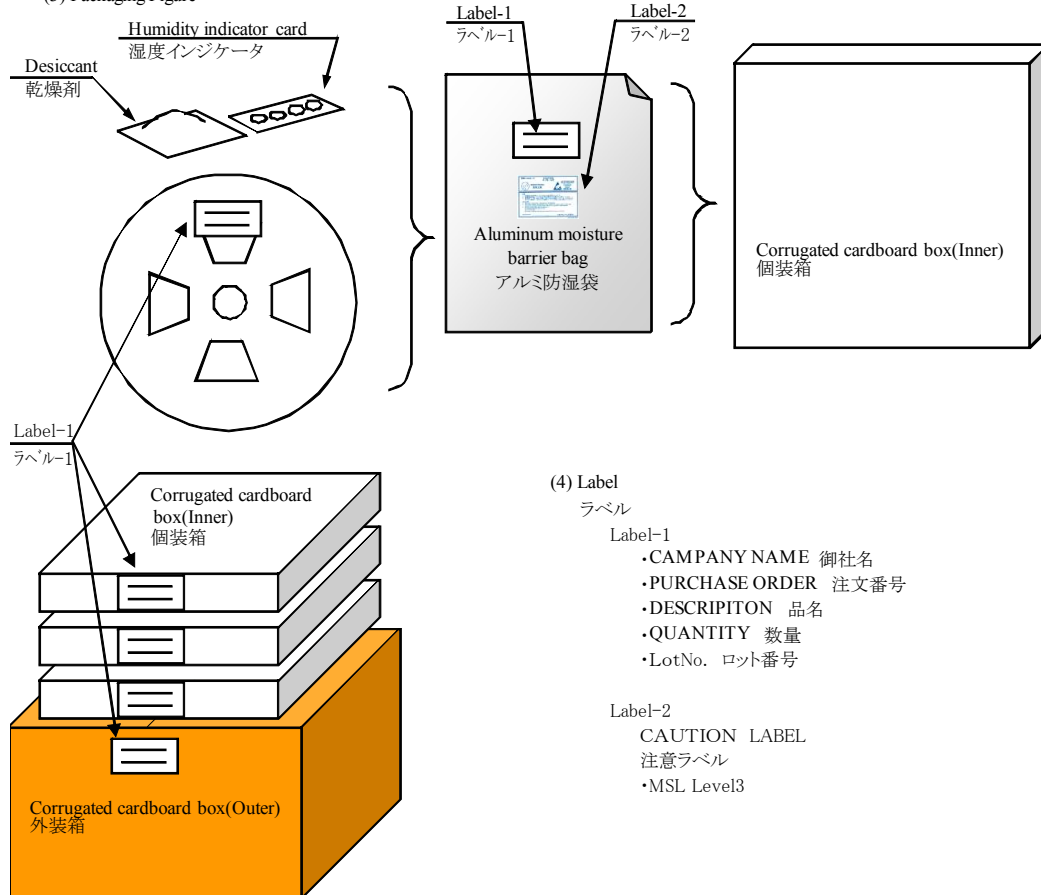
(2) Packaging Unit

梱包数量

Max 1000 pieces/Reel

Max 3000 pieces/Box(Outer)

(3) Packaging Figure



(4) Label

ラベル

Label-1

- COMPANY NAME 御社名
- PURCHASE ORDER 注文番号
- DESCRIPITON 品名
- QUANTITY 数量
- LotNo. ロット番号

Label-2

- CAUTION LABEL
- 注意ラベル
- MSL Level3

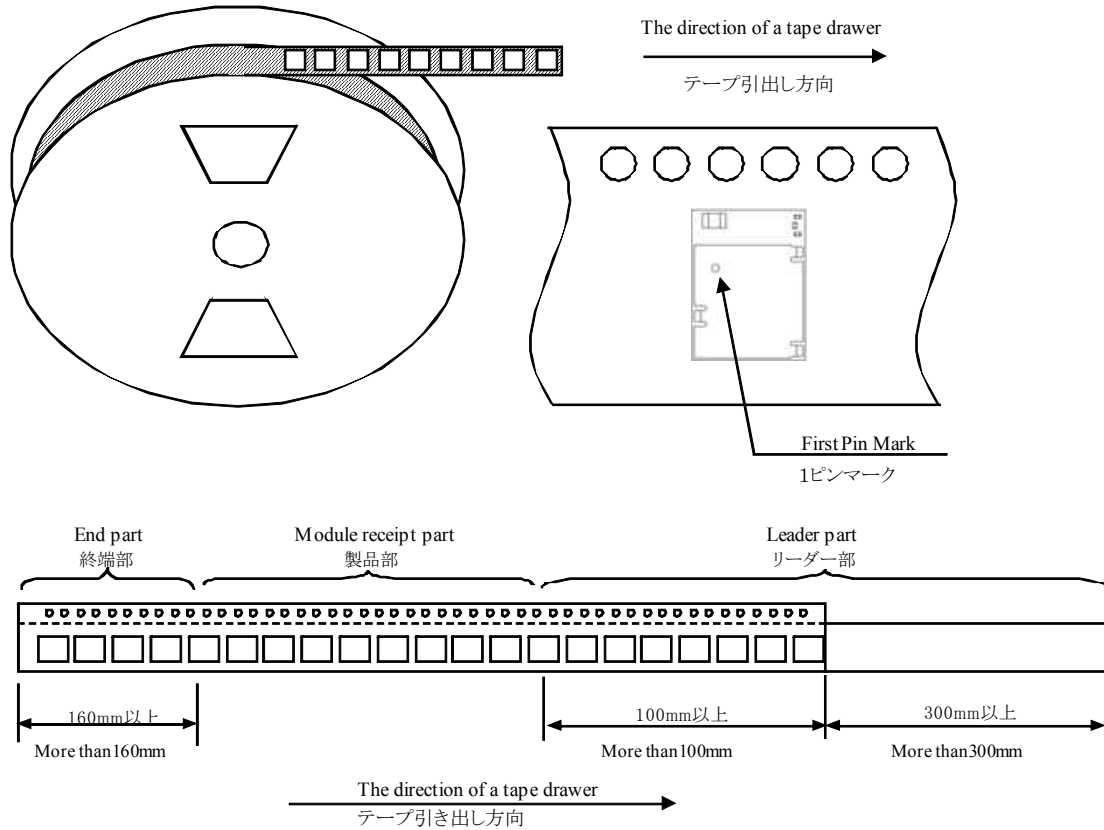
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# EYSFCNZXX

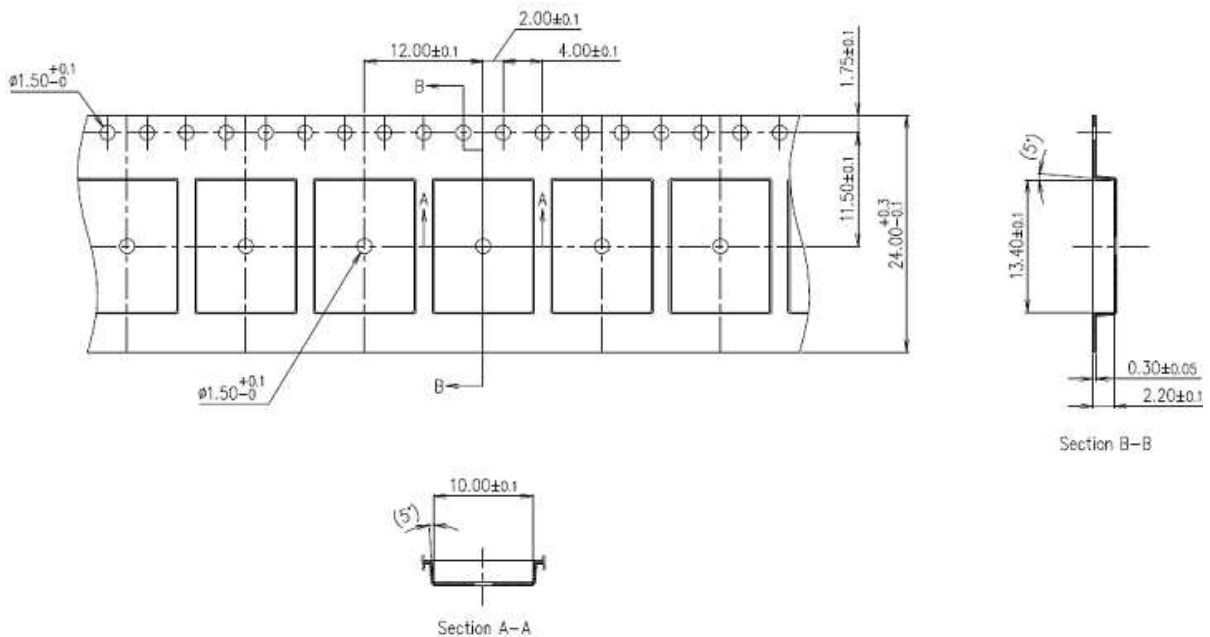
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Control No. HD-BB-A121277	(2/3)	Control name Packaging Specification
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Tape specification  
テーピング仕様



キャリアエンボス図面



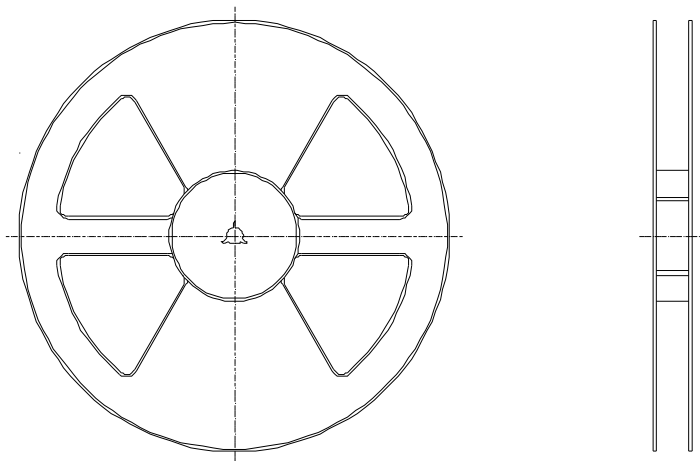
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## EYSFCNZXX

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Control No.  
HD-BB-A121277

(3/3)

Control name  
Packaging Specification

Tape wide	8mm	12mm	16mm	24mm	32mm	44mm
W	9.4mm	13.4mm	17.4mm	25.4mm	33.4mm	45.4mm

## Taping performance

テーピング性能

Both of an embossing tape top cover tape bear this, when the power of 10N is applied in the direction of a drawer.

- エンボステープ、トップカバーテープともに、引き出し方向に10Nの力を加えた場合に、これに耐えること。

The exfoliation adhesion of a top cover tape is the intensity of 0.1~1.3N.

(The angle to pull is 165~180 degrees. The speed to pull is 300 mm/min.)

- トップカバーテープの剥離強度は、角度165~180度に保ち、300mm/minのスピードでトップカバーテープを引っ張ったとき、0.1~1.3Nとする。

## Note

備考

Lack of the parts in 1 reel is with two or less pieces.

1リール中の部品の欠落は2個までとします。(ラベル表示数量と梱包数は同じです。欠落とはテープ内でのモジュール抜けが2個まで許容させていただくという意味になります。)

MSL Level 3 Under control

MSL はレベル3 で管理しています。

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**EYSFCNZXX**

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Control No. (1/1)	Control name Notes
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The evaluation board included with the Nordic Development Kit uses a 16MHz clock. Therefore the sample code from Nordic is designed to be used with a 16MHz clock. On the other hand, the EYSFCN series module uses a 32MHz system clock, making it incompatible with the Nordic sample code (i.e. sample code does not configure HFCLK: XTALFREQ register for 32MHz). To fix this issue, we need to write the value 0xFFFFFFF00 to the UICR (User Information Configuration Register) at address 0x10001008. Please note that the UICR is erased whenever you download a SoftDevice.

The UICR can be written by using the debug tools:

```
nrfjprog.exe --snr <your_jlink_debugger_serial_number> --memwr 0x10001008 --val 0xFFFFFFF00
```

Or the following code can be added to the SystemInit function in the system\_nRF51.c file, right before launching the TASK\_HFCLKSTART task:

```
if (*(uint32_t *)0x10001008 == 0xFFFFFFF00)
{
    NRF_NVMC->CONFIG = NVMC_CONFIG_WEN_Wen << NVMC_CONFIG_WEN_Pos;
    while (NRF_NVMC->READY == NVMC_READY_READY_Busy){}
    *(uint32_t *)0x10001008 = 0xFFFFFFF00;
    NRF_NVMC->CONFIG = NVMC_CONFIG_WEN_Ren << NVMC_CONFIG_WEN_Pos;
    while (NRF_NVMC->READY == NVMC_READY_READY_Busy){}
    NVIC_SystemReset();
    while (true){}
}
```