

A

A

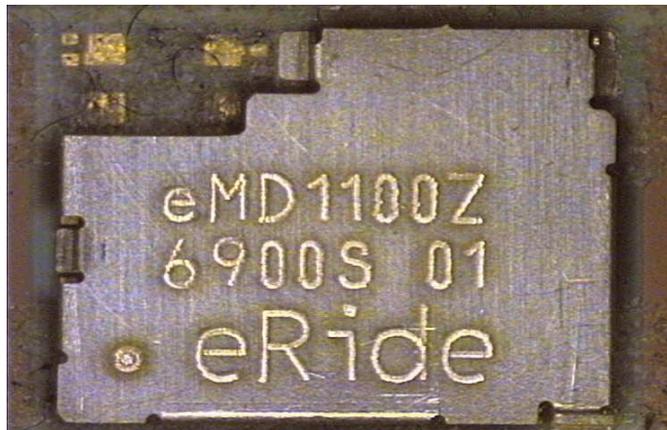
# MiniRide

## GPS/AGPS Module Data Sheet

### eMD1100Z

B

B



C

C

Rev 1.4

September 20, 2006

D

D

The above products are designed, developed and manufactured as contemplated for general use, including without limitation, ordinary industrial use, general office use, personal use, and household use. But are not designed, developed and manufactured as contemplated (1) for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could have a serious effect to the public, and could lead directly to death, personal injury, severe physical damage or other loss (i.e., nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system), or (2) for use requiring extremely high reliability (i.e., submersible repeater and artificial satellite). You shall not use the above products for the above-mentioned uses. If your equipment is likely to be used for the above-mentioned uses, please consult with our sales representative before use. Fujitsu Media Devices shall not be liable against you and/or any third party for any claims or damages arising in connection with the above-mentioned uses of the above products.

↑

E

**FUJITSU MEDIA DEVICES LIMITED**

**All specifications are preliminary which may be changed without any prior notice**

DATE	↑
------	---

						TITLE	***** Specification	
						DRAW NO.		
EDIT	DATE	DESIG.	CHECK	DESCRIPTION		Your company name	PAGE	1 / 16
DESIG.			CHECK	APPR.				

F







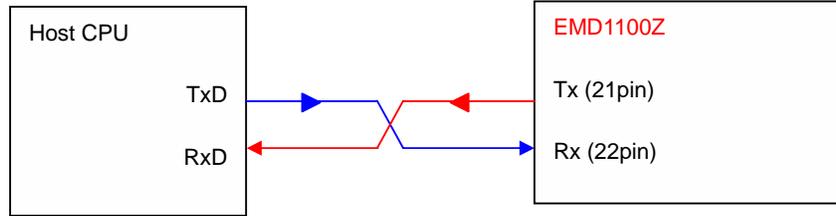


## 6. MiniRide Interface Descriptions



### 6-1. Host Connection

EMD1100Z supports the main connection to its host: 3V logic level UART.



**Figure 7-2-1: Universal Asynchronous Receiver Transmitter**

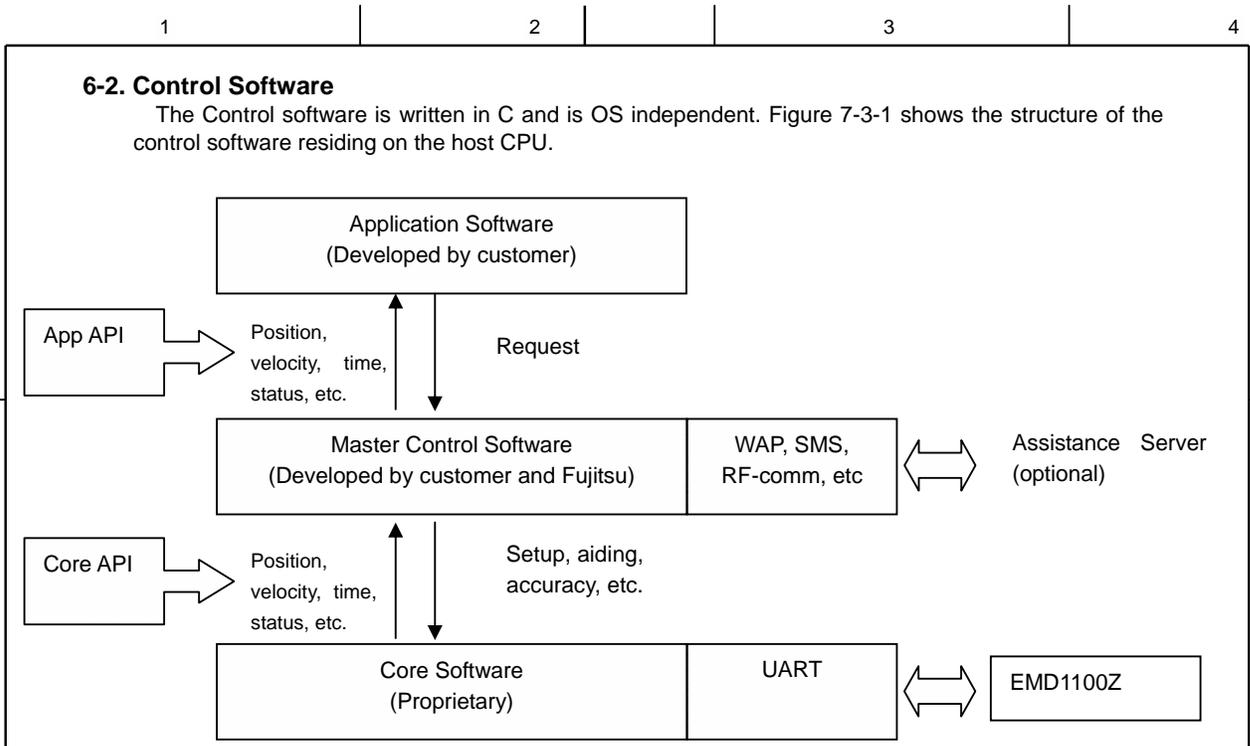
EMD1100Z is configured to use the Universal Asynchronous Receiver Transmitter (UART) transport Layer interface. The UART protocol is controlled by the GPS control software residing on the host processor. It is asynchronous and is fixed at baud rate 57600bps, 8-bits, odd-parity and 1-stop-bit.

#### Possible UART Settings

Parameter	Possible Values
Baud Rate	57600 bps
Flow Control	None
Parity	Odd
Number of Stop bits	1
Bits per channel	8

DATE	↑
------	---

					TITLE	***** Specification			
					DRAW NO.				
EDIT	DATE	DESIG.	CHECK	DESCRIPTION	Your company name			PAGE	6 / 16
DESIG.			CHECK	APPR.					



**Figure 7-3-1: Control Software Layers**

The software is run as a background process on the Host and requires no real-time interrupts, no host libraries and no RTOS. The processing power required will be dependent on the application and whether GPS-aiding is required; normally some 4-6 MIPS will be required from Host CPU.

The code footprint varies dependent on the application and efficiency of the application code. For example, an autonomous only implementation on an ARM7TDMI platform resulted in the overall software footprint requiring around 224KB ROM and 122KB RAM on the Host CPU.

The "Core API" layer includes functions to perform the basic control decisions for the receiver run mode including setup, cold/warm/hot start selection, position propagation settings. Sample applications how to use the "Core API" are provided and can be used as a base to tailor to the customer requirements, together with Fujitsu's application engineers. Details of the Control software and API layer are described in a separate document, but an introduction is included in "Core API Introduction".

Porting the Core Library to customer's specific platform is eased by having the whole code in the C programming language. eRide, FME and FMD will assist with porting and/or optimizing the Core Library to any customers CPU.

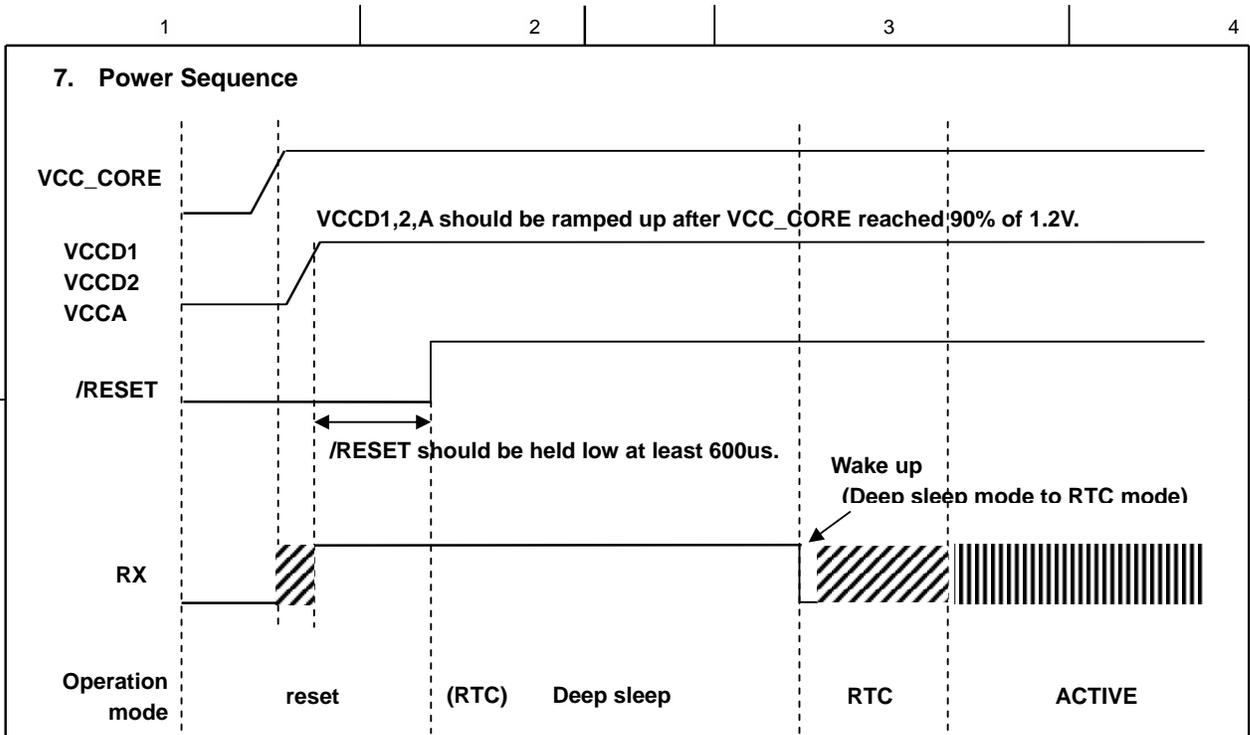
EMD1100Z performs the GPS processing and sends the measurements to the host CPU, where the control software will provide the final PVT (position, velocity, and time) results.

DATE

					TITLE	***** Specification					
					DRAW NO.						
EDIT	DATE	DESIG.	CHECK		Your company name					PAGE	7 / 16
DESIG.			CHECK		APPR.						







**7-1. Power On/Off Sequence**

Power up of EMD1100Z is relatively simple and the following power sequences are recommended.

- Power-On** VCC\_CORE (1.2V) >>>> VCCD1, VCCD2, VCCA (3.0V) >>>> Signal
- Power-Off** Signal >>>> VCCD1, VCCD2, VCCA (3.0V) >>>> VCC\_CORE (1.2V)

/RESET should be held low until all supplies are stable and TCXO is stable (running with no glitches).

If external power switching of VCCD2 (supply power to TCXO) is employed, the power up of TCXO must be enabled before VCCD1 (for Baseband).

**7-2. Power Down Sequence (Deep Sleep)**

EMD1100Z shifts to deep sleep mode after /RESET is enabled.

**7-3. Wake Up Sequence**

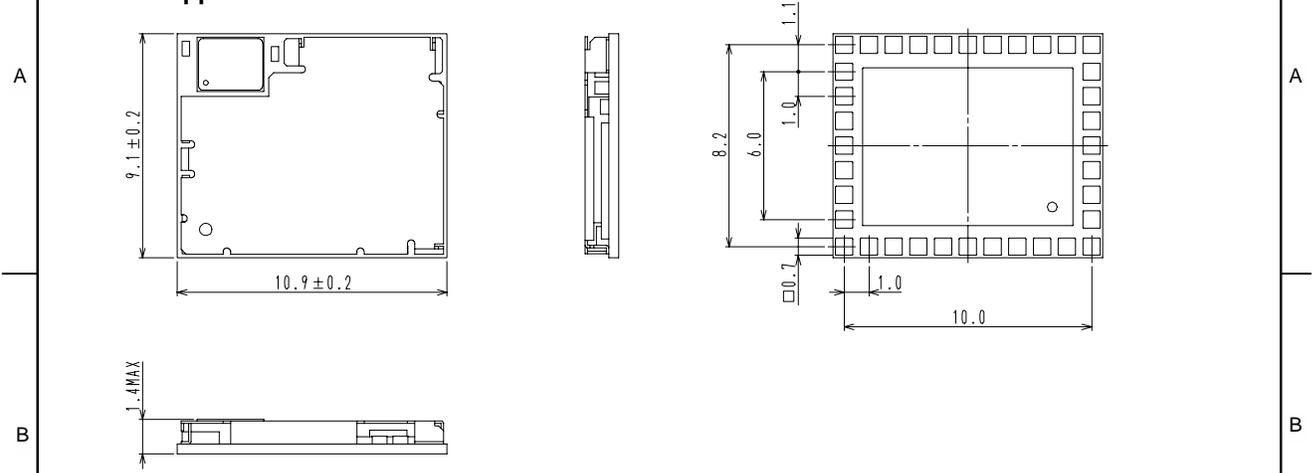
A falling edge on UART RX will trigger the wakeup sequence, then signal from Baseband will change state and this shall power-up all the power region.

During power-up the internal clock signal should be stable (running with no glitches).

DATE	
------	--

					TITLE	***** Specification		
					DRAW NO.			
EDIT	DATE	DESIG.	CHECK	DESCRIPTION	Your company name		PAGE	10 / 16
DESIG.			CHECK	APPR.				

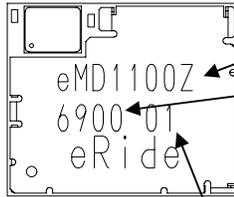
**8. Mechanical Characteristics**  
**8-1. Appearance and Dimensions**



Unit : [mm]

**8-2. Marking**

The example of marking



(1) Product code

eMD1100Z : customer part number

(2) Lot number

6 9 00 S

Sample

Serial number (00 ~ FE : Hexadecimal)

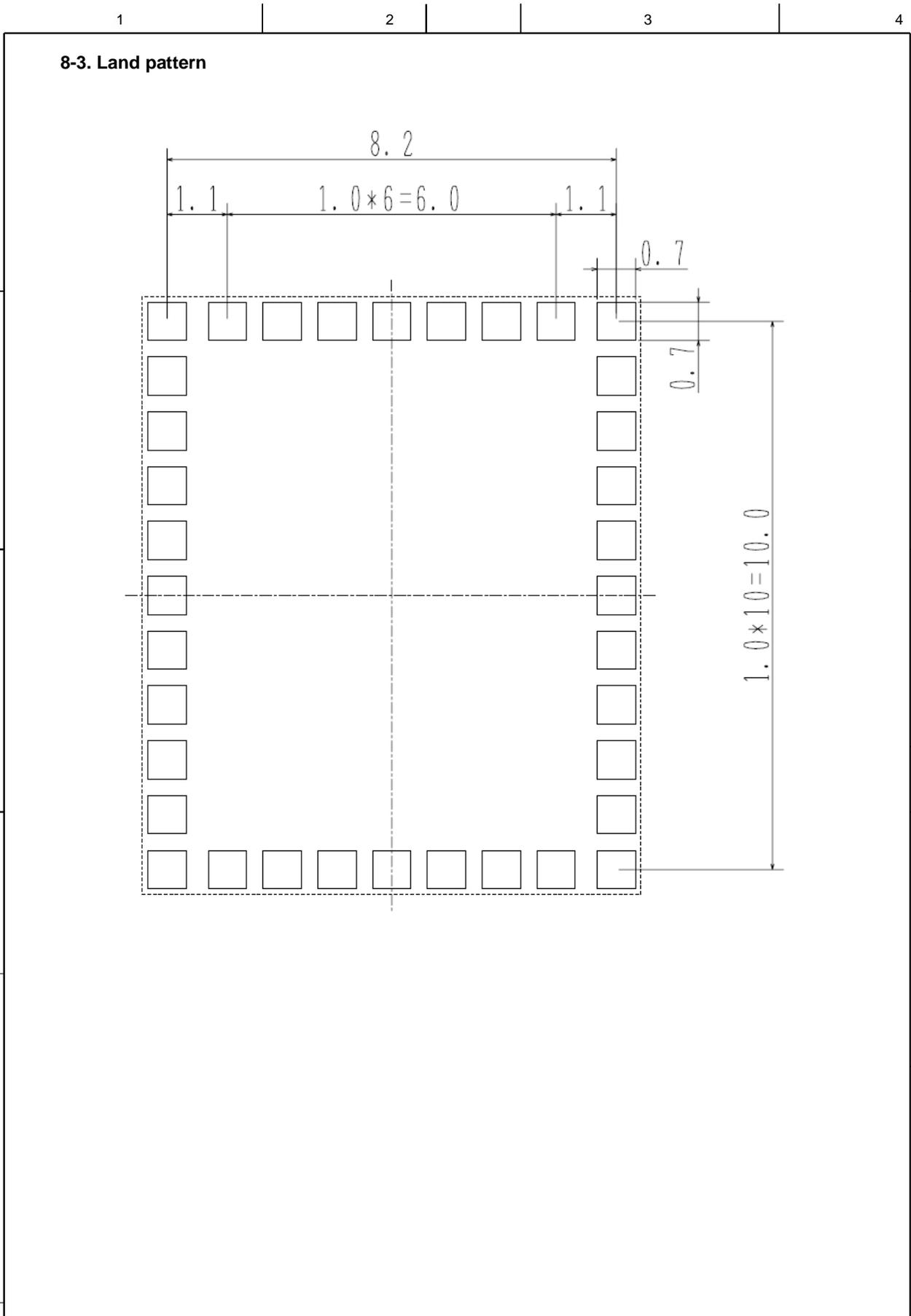
Month (Jan ~ Sep: 1 ~ 9, Oct : X, Nov : Y, Dec : Z)

Production year (the last digit of year)

(3) Revision number (01~)

DATE	↑
------	---

				TITLE ***** Specification	
				DRAW NO.	
EDIT	DATE	DESIG.	CHECK	DESCRIPTION	
DESIG.			CHECK	APPR.	
				Your company name	
				PAGE	11 / 16

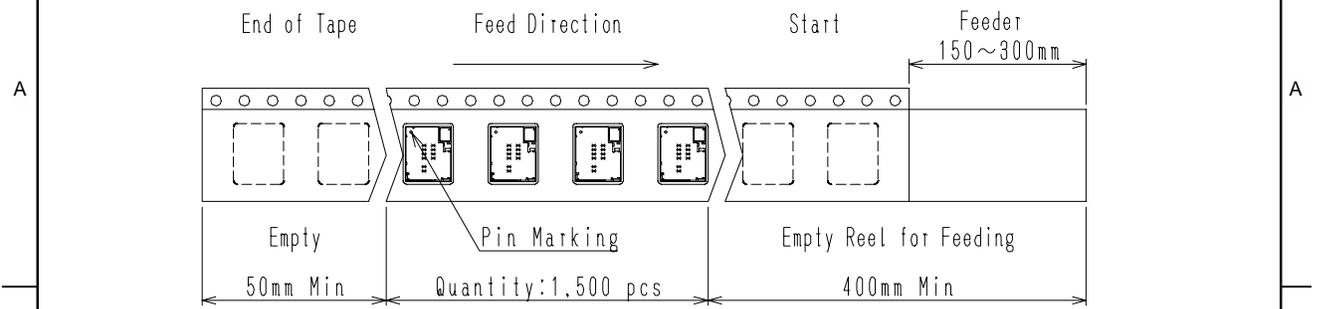


DATE	↑
------	---

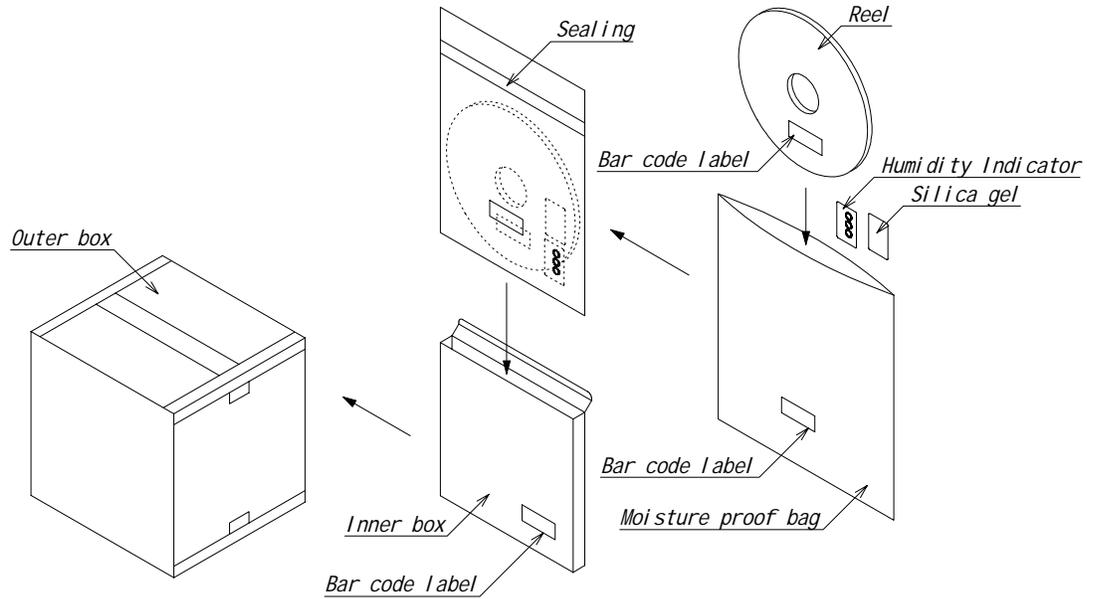
						TITLE ***** Specification
						DRAW NO.
EDIT	DATE	DESIG.	CHECK	DESCRIPTION	Your company name	
DESIG.			CHECK	APPR.	PAGE	12 / 16



### 9-2. Component orientation for tape and reel



### 9-3. Packing method



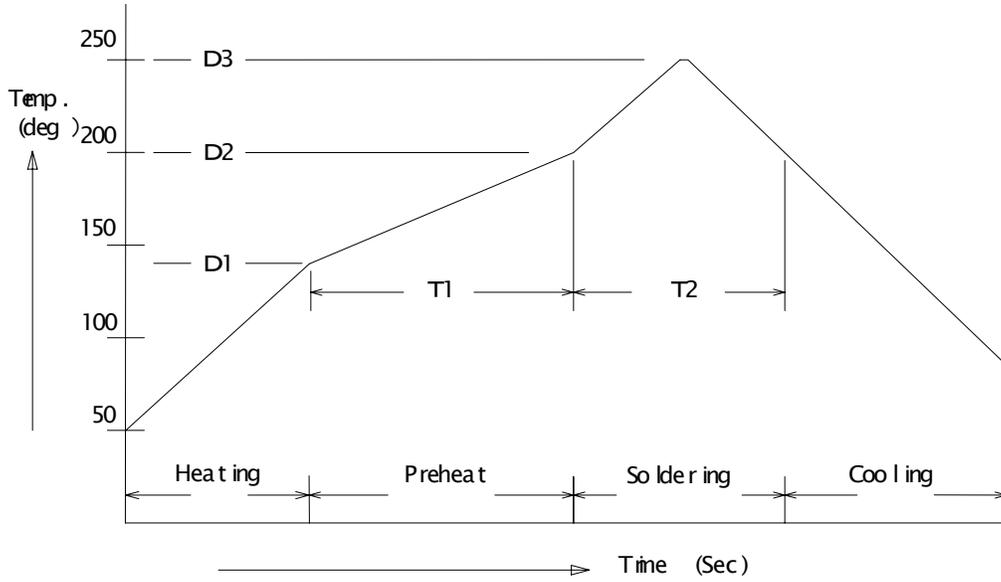
Carrier tape	Polystyrene+Styrenebutadiene
Cover tape	Polyster
Reel	Polystyrene+Carbon
Humidity Indicator	Paper
Moisture proof bag	PET/Al/PE 3Layer bag
Inner box	cardboard
Outer box	cardboard

\* maximum 10 inner boxes per outer box

DATE	↑
------	---

					TITLE	***** Specification			
					DRAW NO.				
EDIT	DATE	DESIG.	CHECK		Your company name			PAGE	14 / 16
DESIG.			CHECK	DESCRIPTION					
				APPR.					

**10. Recommended reflow soldering profile**



Note: \* Recommended maximum reflow soldering cycle is 2 times.  
 \* If your soldering conditions different from our recommendation, please contact to us.  
 \* moisture sensitivity level = \*\*\*

No.	Item	Temperature	Time (sec)
1	Pre-heat	D1 : 140 ~ D2 : 200	T1 : 60 ~ 120
2	Soldering	D2 ≥ 200 max	T2 : 80 max
3	Cooling	D3 : 250 max	

DATE	
------	--

						TITLE	***** Specification			
						DRAW NO.				
EDIT	DATE	DESIG.	CHECK	DESCRIPTION	APPR.	Your company name			PAGE	15 / 16
DESIG.			CHECK							

### 11. Version History

Version	Contents Change	Date
01	First Edition	2005.07.29
1.1	Add recommend foot print	2005.10.31
1.2	Add 8-1. Dimensional tolerance 9. Packing specifications	2005.11.22
1.21	Sensitivity value (P.3 Feature)	2006.01.11
1.22	Sensitivity (P.3 feature) add with active antenna VCCD2 => VCC_TCXO Pin description No.27(reset)	2006.01.18
1.23	Active antenna => passive antenna (P3. Feature)	2006.01.19
1.23e	For eRide (delete the logo etc)	2006.08.15
1.24e	4-4. add maximum power consumption value 10. add moisture sensitivity level 8-2. change Marking (Product code)	2006.09.19
1.25e	8-2. correct marking spec (sample code)	2006.09.20

A  
B  
C  
D

A  
B  
C  
D

DATE	↑
------	---

E  
F

				TITLE ***** Specification	
				DRAW NO.	
EDIT	DATE	DESIG.	CHECK	DESCRIPTION	Your company name
DESIG.			CHECK	APPR.	PAGE 16 / 16