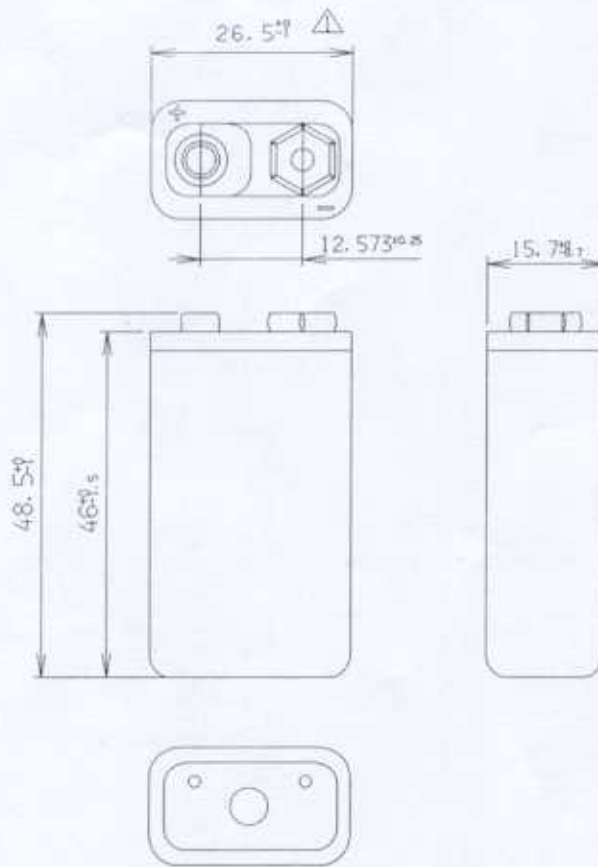




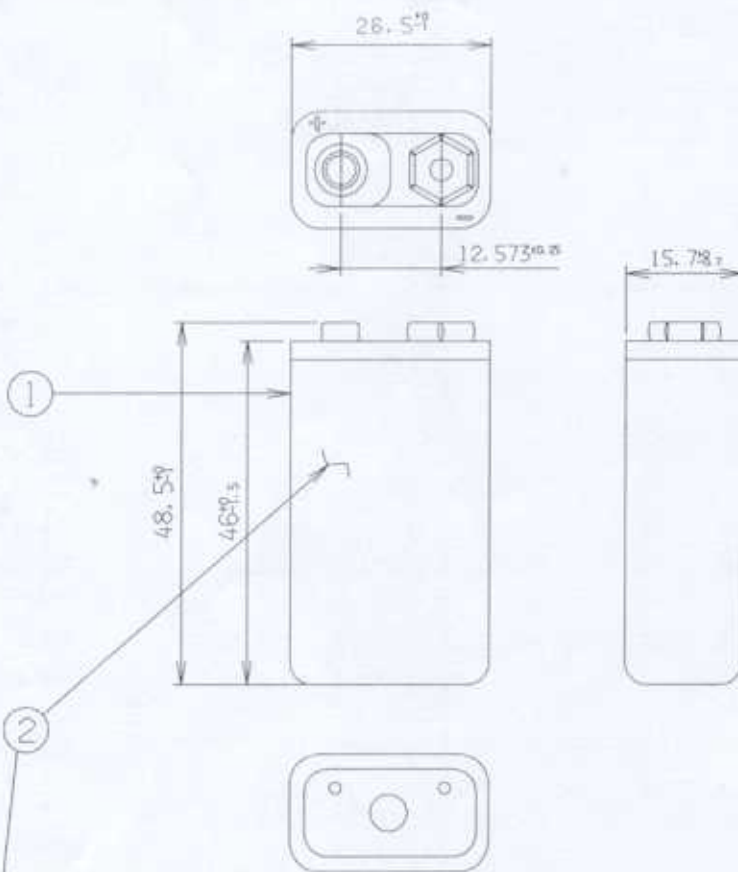
Commercial Tolerance	Sym.	Date	Revision	Drawn	Checked	Approved
	△	11-05-05	Add Dimension	TATANG	<i>Aluis</i>	<i>[Signature]</i>



NOMINAL VOLTAGE : 8.4 V  
 NOMINAL CAPACITY : 170 mAh  
 AVERAGE CAPACITY : 175 mAh  
 APPROX WEIGHT : 32 g

1	CELL	Ni-MH	1	CHARGED	
Sym.	Item or Code No.	Material & Size	qt.	Process	Remark
			Part No.	GP17R8H	
			Name	DIMENSION SKETCH	
Scale	Designed	Drawn	Checked	Approved	
1/1	DONNY	DONNY	DWI	R. HAMASAKI	
	28 JUN. 04	28 JUN. 04		No.	04062804

Commercial Tolerance	Sym.	Date	Revision	Drawn	Checked	Approved
	△					



NOMINAL VOLTAGE : 8.4 V  
 NOMINAL CAPACITY : 170 mAh  
 AVERAGE CAPACITY : 175 mAh  
 APPROX WEIGHT : 32 g

2	LABEL	Polyester film t=50µm	1		
1	CELL	GP17R8H	1	CHARGED	
Sym.	Item or Code No.	Material & Size	qt.	Process	Remark
			Model No.	HHR-9SGE/BA1	
			Name	DIMENSION SKETCH	
Scale	Designed	Drawn	Checked	Approved	No.
1/1	TATANG M	TATANG M	<i>Dany</i>	<i>Belin</i>	05042702
	27. APR. 05	27. APR. 05			



4-2-2. Capacity :

Following a 16hour charge period at 17 mA, the cell shall be stored for a period of 1hour. The discharge duration shall exceed 5 hour(s) 0 min(s) when discharged at 34 mA down to a terminal voltage of 1.0 V. The capacity returned may not initially attain the specified value following the first charge - discharge cycle. In this event, the test may be repeated a further two or three times to attain the specified value.

4-2-3. Open circuit voltage : (O.C.V.)

Following a 16hour charge period at 17 mA, the open circuit voltage of the cell or battery shall be checked within 1hour. The O.C.V. shall exceed 1.20 V per cell or 8.4 per pack

4-2-4. Closed circuit voltage : (C.C.V.)

Following a 16hour charge period at 17 mA, the closed circuit voltage of the cell or battery shall be checked with a 50 Ω per cell load within 1hour. The C.C.V. shall exceed 1.2 V per cell within 1sec.

4-2-5. Internal impedance :

Following a 16hour charge period at 17 mA, the Internal impedance of the cell or battery shall be checked at 1000 Hz within 1hour. The internal impedance shall be less than 1500 mΩ per pack.

4-2-6. High rate discharge :

Following a 16hour charge period at 17 mA, the cell or battery shall be stored for a period of 1hour. The discharge duration shall exceed 48 min(s) when discharged at 170 mA.

4-2-7. Low temperature discharge :

Following a 16hour charge period at 17 mA, the cell or battery shall be stored for a period of 6hours at -10 °C. The discharge duration shall exceed 3 hour(s) 00 min(s) when discharged at 34 mA at ambient temperature of -10 °C.

4-2-8. Self discharge :

Following a 16hour charge period at 17 mA, the cell or battery shall be stored on open circuit for a period of 28 days. The subsequent discharge duration shall exceed 3 hour(s) 00 min(s) when discharged at 34 mA.

4-2-9. Storage :

The cell shall be stored on open circuit for a period of 12months at discharged state. Following completion of the storage period, the cell shall be charged for 16hours at 17 mA. The subsequent discharge duration shall exceed 4 hour(s) 16 min(s) when discharged at 34 mA. The test may be repeated a further two or three times to reach the specified capacity.

4-2-10. Life time (Based on IEC) :

Based on 50 charge -discharge cycles as outlined in the table below, the discharge time of the 50th, 100th, 150th, 200th, 250th, 300th, 350th, 400th, 450th and 500th shall exceed 3 hour(s) 0 min(s). (Ambient temperature is 20 °C± 5 °C)

Test condition :

Cycle number	Charge	Rest	Discharge
1	17 mA for 16 hours	none	42 mA for 2.33hours
2~48	42 mA for 3.17hours	none	42 mA for 2.33hours
49	42 mA for 3.17hours	none	42 mA to 1.0 V per cell
50	17 mA for 16 hours	1-4h	34 mA to 1.0 V per cell

## 4-2-11. Humidity :

No leakage of electrolyte in liquid form shall be observed during 14days of storage under the following storage conditions :  
 33 °C± 3 °C (91.4 °F± 5.4 °F) Relative humidity of 80 %± 5 %. (Salting is permitted)

## 4-2-12. Vibration :

Following vibration tests over an amplitude of 1.5 mm (0.1575 inches) at a frequency of 50 Hz ( 3000 cycles per minute) and repeated through any axes during 60mins, the change of voltage shall not exceed 0.07 V, the change of internal impedance shall not exceed 35 mohm

## 4-2-13. Free falling : (Drop)

Following a drop test from 450 mm( 17.717 inches) on to a hard-wood board in a vertical axis 2 times on each of 2 mutually perpendicular axes, the change of voltage shall not exceed 0.07 V, the change of internal impedance shall not exceed 35 mohm and the battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed.

## 4-2-14. Short :

The cell or battery shall not explode during or at the end of a 1hour short-circuit test. However, leakage of electrolyte, external deformation is permitted.

## 4-2-15. Incorrect polarity charging :

The cell or battery shall not explode during or at the end of a 1hour period of incorrect polarity charging at 170 mA. However, leakage of electrolyte, external deformation is permitted.

## 4-2-16. Over charge # 2 :

The cell or battery shall not explode during or at the end of a 5hour charging period at 170 mA. However, leakage of electrolyte, external deformation is permitted.

5. OTHERS

## 5-1. Cut-off voltage :

- We recommend a cut-off voltage of 7.0 to 7.7 V.
- If the cut-off voltage is above 7.7 V, the battery may be underutilized resulting in insufficient use of the available capacity.
- If the cell voltage drops below 7.0 V, the battery may become over discharged or reverse charged.
- \* In case of over 2It mA discharge a cut-off voltage should be 5.6 V per cell.

Specification can be changed upon mutual agreement between  
PBSE

and Matsushita Battery Industrial Co., Ltd.

## 5.2 Production Factory.

Cell and Pack manufacturing

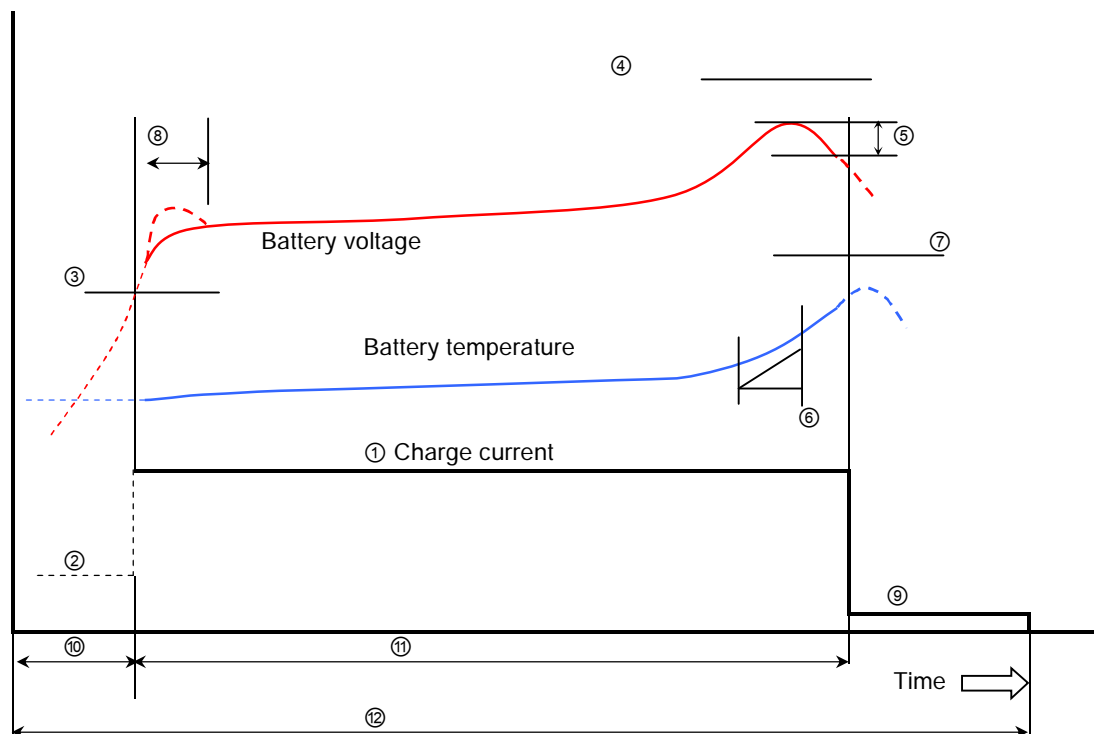
Manufactured in China, Quality responsible by Matsushita Battery Industrial

Finishing Battery Pack at Batam Island in Indonesia, Panasonic Battery Batam

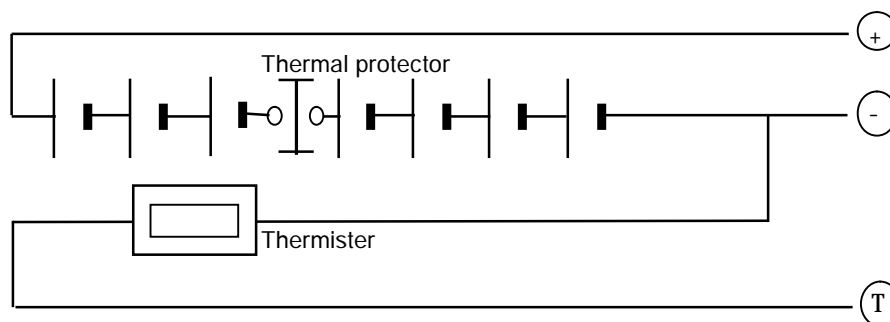
## Ni-MH Battery : Example on rapid charge system

### 1. Basic charge system

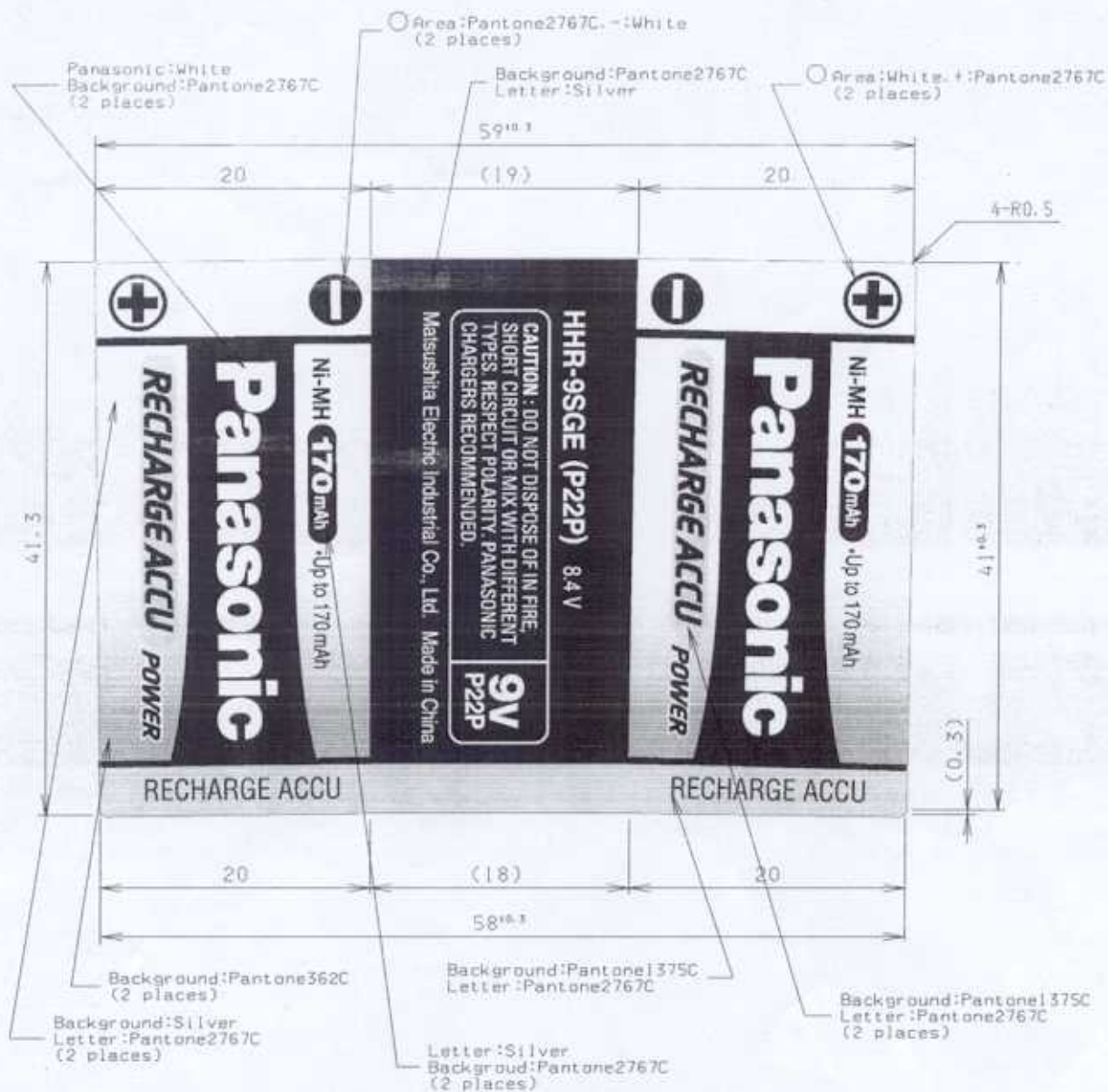
- |   |                        |
|---|------------------------|
| ① Rapid charge current                              | : 0.5It to 1.0It mA    |
| ② Charge current to voltage for rapid charge        | : 0.2It to 0.3It mA    |
| ③ Start voltage of rapid charge                     | : above 0.8 V per cell |
| ④ Upper limit voltage (to trickle charge)           | : 1.8 V per cell       |
| ⑤ Value of minus delta V (-ΔV)                      | : 5 to 10 mV per cell  |
| ⑥ Temperature increase rate (dT/dt)                 | : 1 to 2 °C/min        |
| ⑦ Upper limit temperature (Tco)                     | : 50 °C                |
| ⑧ Initial non-detection timer of minus delta V(-ΔV) | : 5 to 10 min          |
| ⑨ Trickle charge current                            | : 1/20It to 1/30It mA  |
| ⑩ Transfer timer to rapid charge                    | : 60 min               |
| ⑪ Total rapid charge timer                          | : 1.5 h                |
| ⑫ Total charge timer                                | : 10 to 20 h           |
| ⑬ Ambient temperature for rapid charge              | : 0 to 40 °C           |



### 2. Basic pack circuit



Commercial Tolerance	Sym.	Date	Revision	Drawn	Checked	Approved
±0.5	△					



#### NOTE

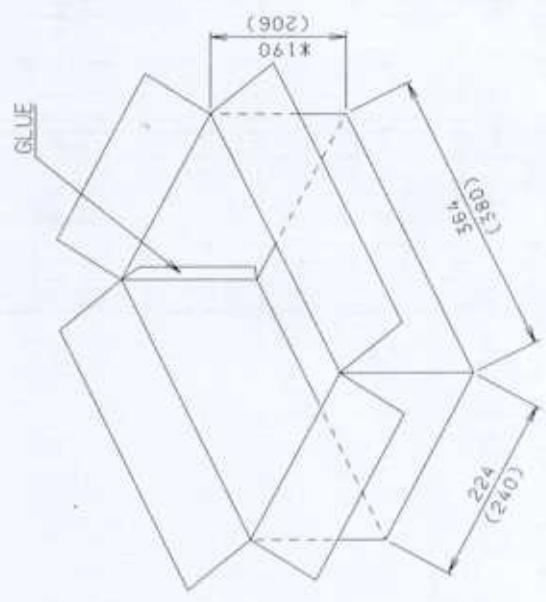
1. Printing plate should be made by the specified data, only after approval.
2. Mass production should be started only after approval for sample.
3. Dimensions are as printed state.
4. There must be no incomplete print (such as vagueness, blot, crack).
5. A broken line shows bend outside.

#### PARTS SPECIFICATION

Material : Polyester film t=50 $\mu$ m  
 Surface : Pet coating t=16 $\mu$ m  
 Glue : t=20 $\mu$ m (x2)  
 Printing Color: Blue(PANTONE 2767C), Green(PANTONE 362C), Orange(PANTONE 1375C-Base White)  
 Silver, White

LABEL		Polyester film t=50 $\mu$ m		(total t=0.106mm)	
Sym.	Item or Code No.	Material & Size	qt.	Process	Remark
			Part No.	BAB6AA00382A	
			Name	LABEL HHR-9SGE/BA1	
Scale	Designed	Drawn	Checked	Approved	
2:1	MBI	TATANG	<i>Dmy</i>	<i>Olivia</i>	
		27.APR.05			No. 05042703

Commercial Tolerance	Sign	Date	Revision	Drawn	Checked	Approved
± 5	△					

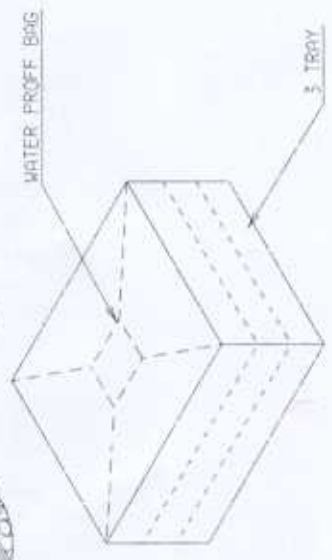
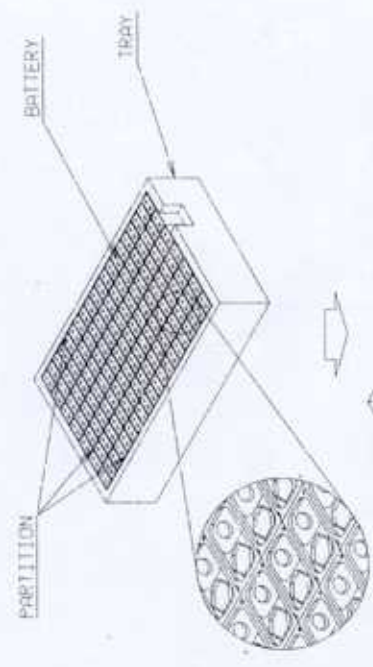
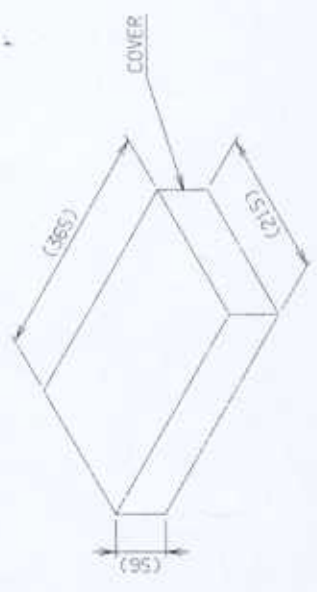


NOTES:  
 1. DIMENSION INDICATE INSIDE DIMENSION  
 2. DIMENSION IN PARANTHESE INDICATE OUTSIDE DIMENSION FOR REFERENCE  
 3. DIMENSION WITH \* MARK INDICATE CREASE LINE TO CREASE LINE DIMENSION

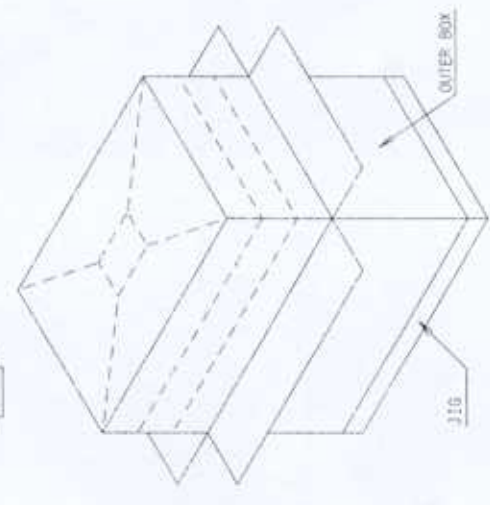
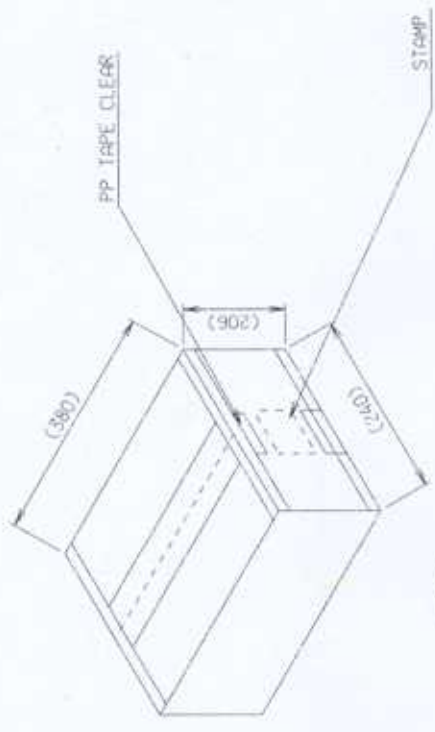
OUTER BOX	8B-FLUTE (X175x175)	1	Process	Remark
Item or Code No.	Material & Size	mt.		
Scale	Drawn	Checked	Approved	Model No.
FREE	TATANG			NAME
	19. MAY 05 09:49:05			No.
				05050901
				BAB7R004004
				OUTER BOX (H&R-FSGE/061)

Commercial Tolerance	Sym	Date	Revision	Drawn	Checked	Approved
±3	△					

**TRAY**  
(140 PACKS)



**OUTER BOX**  
(420 PACKS)



Part No	HHR-9SGE/BA1
QTY	8200 343 26213
Lot No	07Y420 PCS
C/No	MADE IN CHINA

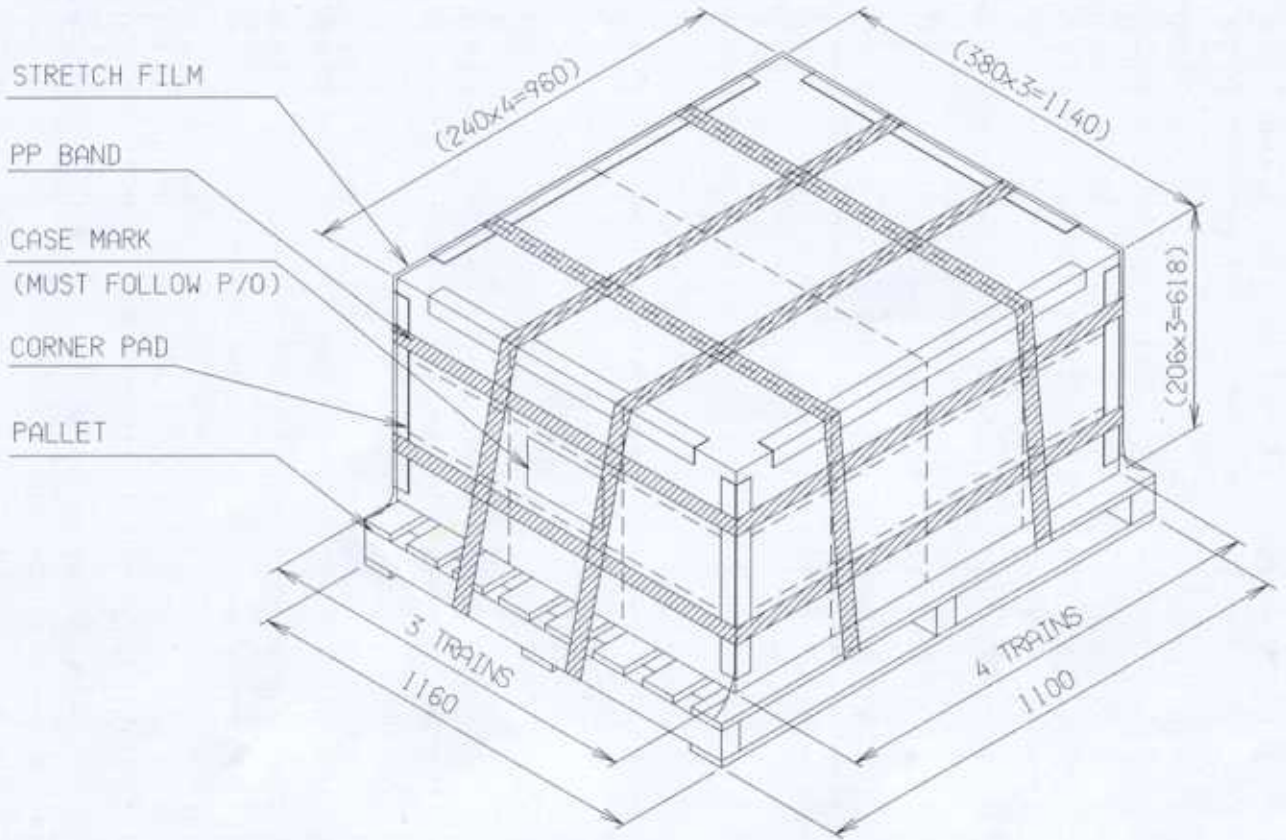
Lot No Ex : 0504  
Year Month  
C/No Ex : 1-UP

**NOTE :**

1. Tape : clear tape, "H" style
2. All label from GP is close with "Brown Label"
3. Net Weight : 13.64 kg.
4. Gross Weight : 14.34 kg.

Item or Code No.	Material & Size	Process	Remark
		HHR-9SGE/BA1	
Model No.	Name		
			PACKAGING SPECIFICATION
No.			05042901

Commercial Tolerance	Sym.	Date	Revision	Drawn	Checked	Approved



NOTES :

NET. WEIGHT : 483.84 kg.

GROSS WEIGHT: 541.24 kg.

Sym.	Item or Code No.	Material & Size	qt.	Process	Remark
				Model No.	HHR-9SGE/BA1
				Name	PALLET SPECIFICATION
				No.	05042902
Scale	Designed	Drawn	Checked	Approved	
FREE	TATANG 29. APR. 05	TATANG 29. APR. 05	<i>Day</i>	<i>Puni</i>	