

PRODUCT SPECIFICATION
ZINC-CARBON DRY BATTERY
R03(NB)

SPECIFICATION NAME		PRODUCT SPECIFICATIONS								
PRODUCT NAME		R03TYPE CARBON ZINC BATTERY								
REFERENCE		JIS C 8501, IEC 60086-1, 60086-2								
1.	I T E M	R03 (NB)								
2.	N O M I N A L V O L T A G E	1.5 Volts								
3.	A V E R A G E W E I G H T	92g								
4.	P E R F O R M A N C E	Duration should be over the value in Table-1 after the test of 9(testing method). O.C.V. and resistance to leakage should meet the Table-1 after the test of 9(testing method).								
Table-1	Test condition					JIS C 8501		MBI SPEC		
	Temp. & Humd.	load (Ω)	Discharging time /day	End point (V)	Unit	Initial	20°C	Initial	20°C	
							After 12 months & Expiry ⁽³⁾		After 12 months	After 24 months.
O.C.V	20 \pm 2°C 65 \pm 20% (RH)	—	—	—	V	Max Min	1.725 1.5	1.54 ^{+0.185} ₀	1.53 ^{+0.195} ₀	1.52 ^{+0.205} ₀
Duration	20 \pm 2°C 65 \pm 20% (RH)	3.6	15/60s cont. ⁽¹⁾	0.9	cycle	120	96	160	143	127
		5.1	4 min \times 8times ⁽²⁾	0.9	min	45	36	74	67	62
		10	1 h	0.9	h	1.4	1.1	2.4	2.1	1.9
		75	4 h	0.9	h	20	16	28.5	25.5	23.5
Resistance to Leakage	over discharge	After usual discharging test, the discharge is repeated until CCV drops for the first time below 0.6V.				There shall be neither evidence of electrolyte leakage on the surface of any battery nor deformation of the specified dimension.				
	under high temperature	45 \pm 2 °C below 70% (RH)	After storage for 30 days.				There shall be neither evidence of electrolyte leakage on the surface of any battery nor deformation of the specified dimension.			
<p>note (1) Continuously repeat the cycle of 15s On/45s Off with specified load resistance.</p> <p>(2) The cycle of 4min of beginning at hourly / 56min off, intervals for 8h per day with specified load resistance.</p> <p>(3) Expiry code is the period in which batteries satisfy duration.</p> <p>This type of batteries shall have life of 2 years after manufactured.</p>										
5.	Insulation Resistance	It should be more than 10M Ω (500V/DC) both between terminal and outer jacket, and between terminals which is not connected electrically.								
6.	Dimensions	As per attached drawings.								
7.	Terminals	(+)Cap, (-) Base There should be no rust or deformation, which will cause hindrance on use.								
8.	Appearance	There should be no stain, scratch and deformation which will cause hindrance on use.								
Date of stipulation:			Date of revision:			Stipulated	Checked	Described		
JUNE,25,1998										

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9. Testing method

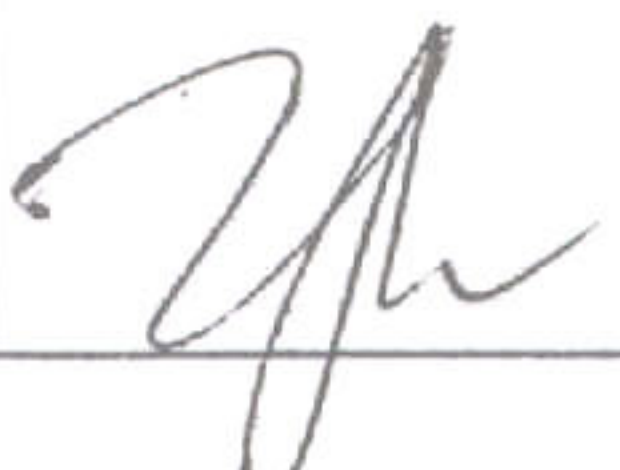
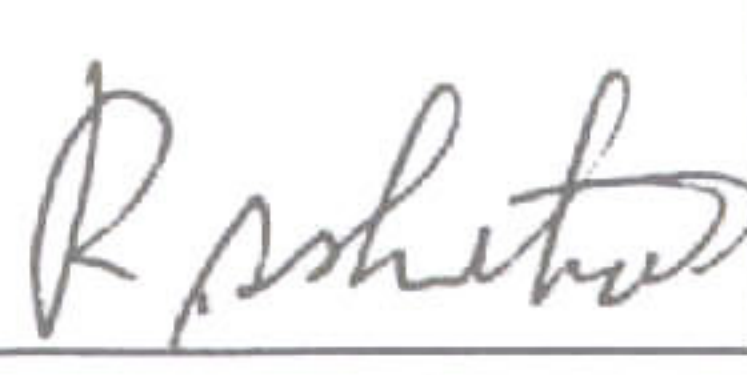
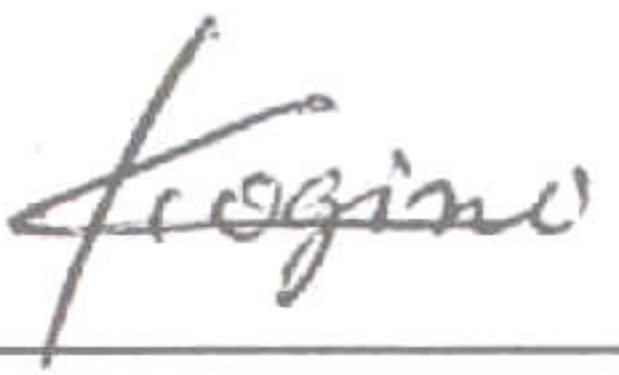
9.1 Storage condition : The temperature of 20°C storage shall be 20±2°C and the relative humidity shall be 65±20%.
However, during 3 months that it is short periods only, it may be 20±5°C.

9.2 Environmental condition : If not specified, the temperature is 20±15°C and the relative Humidity is 65±20% as normal environmental condition of JIS Z 8703.

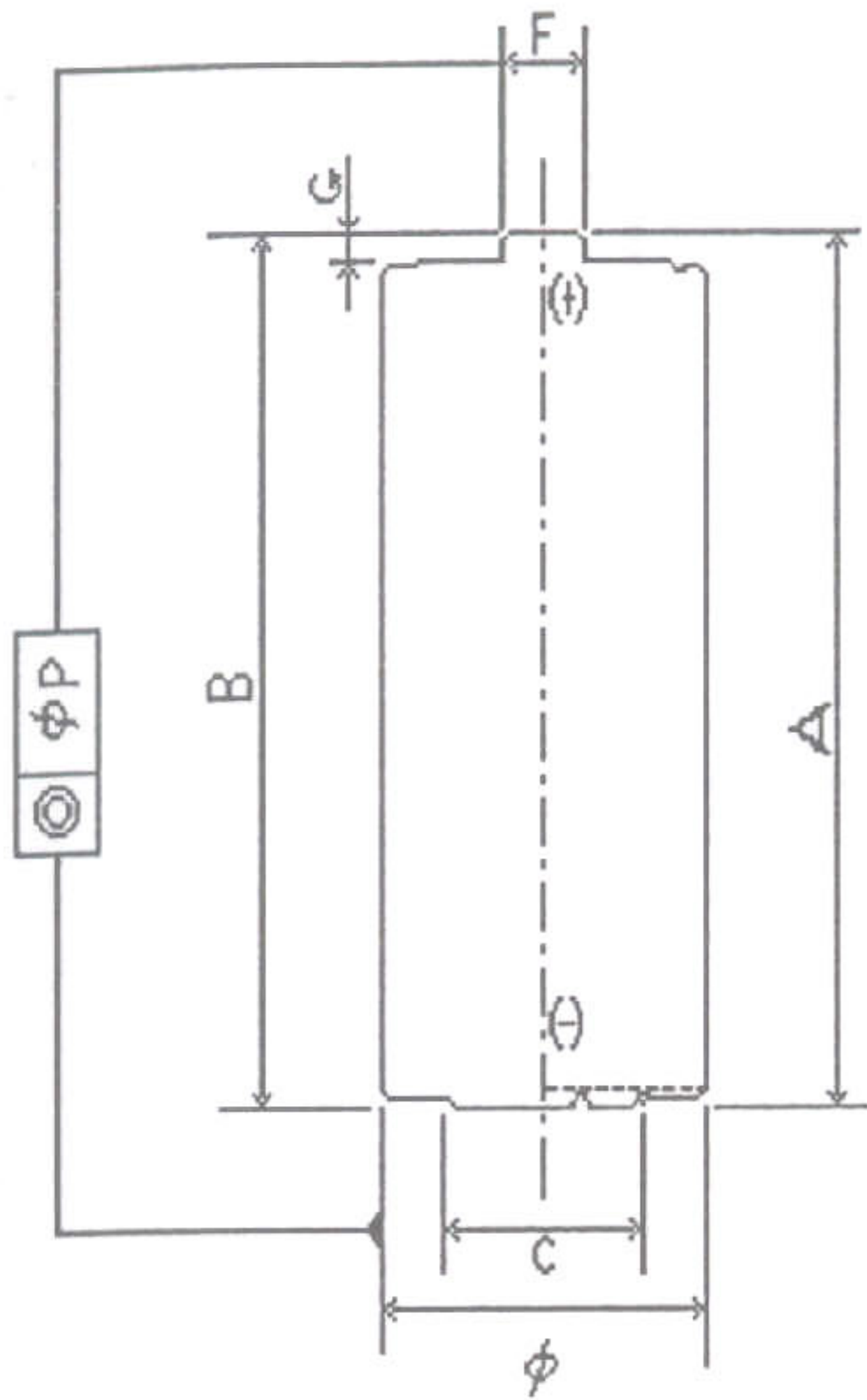
9.3 Testing condition : Refer to Table-2.

Table-2

Service Life	Battery shall be discharged as specified condition until the voltage on load drops for the first time below the specified end point. 1)Commencement :after storing more than 8 hours under the condition of Table-1. 2)Discharging method : Table-1 3)Calculation of average service life. Test nine batteries and calculate the average.
Open Circuit Voltage	After storing more than 8 hours, measure with a voltmeter mentioned below under the condition of Table-1. The accuracy of voltmeter shall be within 0.25% of the nominal voltage. The resistance shall be with minimum 1MΩ.
Resistance to Leakage at Over Discharge	Test under the condition of Table-1.
Resistance to Leakage at High Temperature	Test under the condition of Table-1.
Resistance	Equipment shall have rated voltage 500V as specified JIS C 1302, or has more accuracy.
Dimensions	Measure with a caliper which has under 200mm measuring range and 0.05mm minimum scale value as specified JIS B 7507 or an instrument which has more accuracy.
Terminal & Appearance	Inspect by visual.

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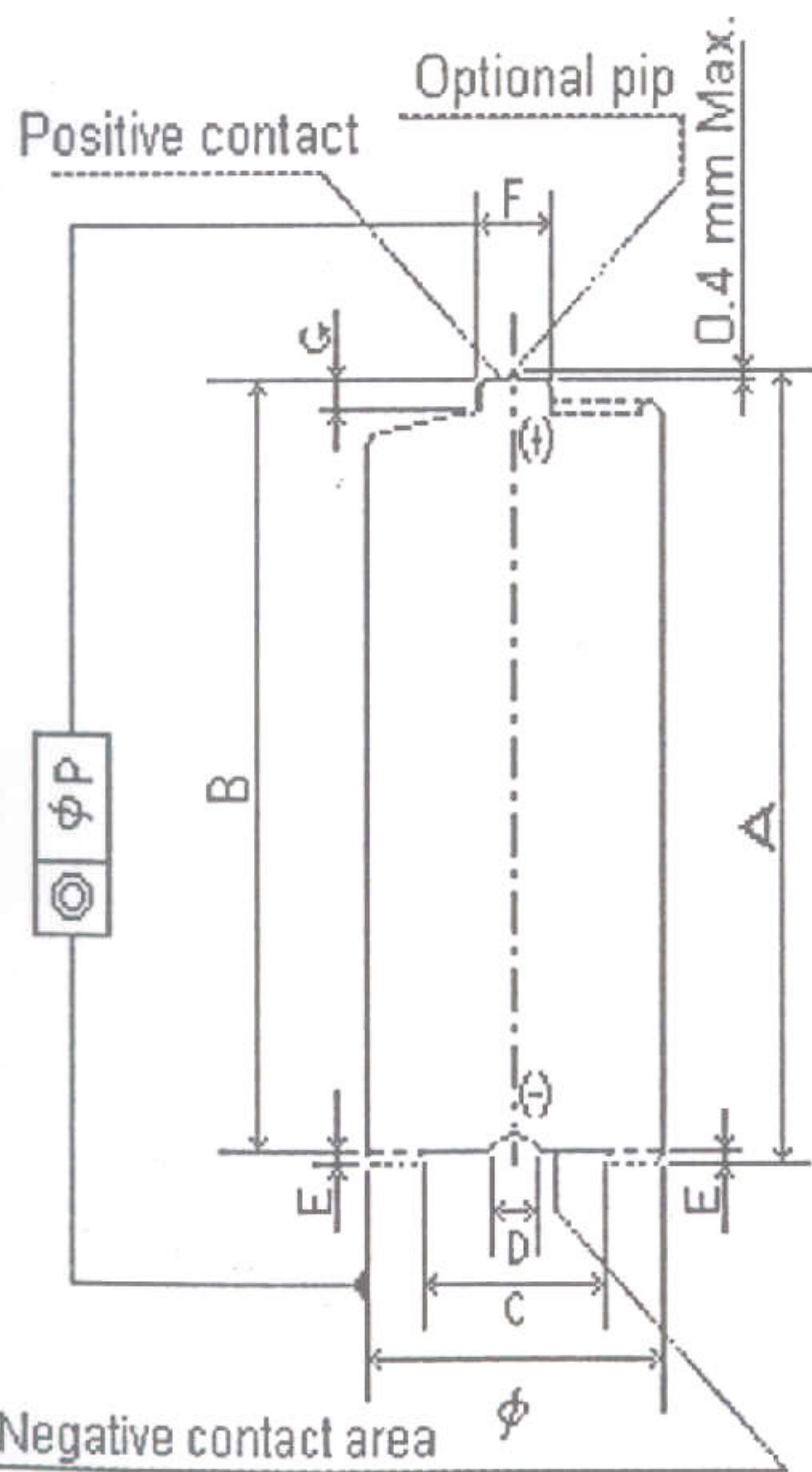
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unit : mm

A	44.5	(43.3)
B	—	43.3
C	—	4.3
D	—	—
E	0.5	—
F	3.8	(2.0)
G	—	0.8
ϕ	10.5	9.5
ϕP	0.4	—
pip	0.4	—



Reference: JIS C 8501-1998

Note 1. Numerical value in parentheses ; reference

2. The symbols of dimensions are as following.

- A = Overall height
- B = Distance between (+) and (-) terminals, excluding
- C = pip.
- D = Outer diameter of (-) flat contact surface
Diameter of concave part of central (-) terminal.
- E = This model has none of concave part.
Recess of (-) flat contact surface from
outside cover.
- F = This model has the projected (-) contact.
Diameter of the specified projection of (+)
- G = terminal.
- ϕ = Projected height of (+) contact, excluding pip.
- ϕP = Diameter of the battery
Difference in coaxiality between (+) contact
and cylindrical corner side.
- Pip = Optional projection on (+) contact.

Date of stipulation:	Date of revision	Stipulated	Checked	Described
JUNE, 25, 1998		<i>[Signature]</i>	<i>R. Ashita</i>	<i>[Signature]</i>