GP Batteries

Product Specifications

Model No. :
GPPVA9VAU/GPVA9VAU/GP1604AU

1. APPLICABILITY

This specification is applicable to GP Ultra Alkaline grade batteries (model no.: GPPVA9VAU/GPVA9VAU/ GP1604AU).

2. TYPE

2.1. Six layers built alkaline manganese batteries.
2.2. Nominal weight : 45.2 +/- 2.0 g

3. NOMINAL VOLTAGE

9 Volts.

4. TERMINALS

Nickel-plated miniature snap fasteners.

5. SHELL

Printed metal jacket.

6. IDENTIFICATION

Expiry code of 6 digits (MM-YYYY) will be printed on the bottom of each battery.

7. QUALITY REQUIREMENT

7.1 Conventions:

n = Number of batteries to be tested , c = Permissible number of defects.
k = Actual number of defects, x = Average of (n-k) good result.
N0 = Test within 3 months of ex-factory,
N12 = Test within 12 months of manufacture code.
N18 = Test within 18 months of manufacture code.
N36 = Test within 36 months of manufacture code.
N60 = Test within 60 months of manufacture code.

7.2 Test conditions:

7.2.1 All tests (Voltage, Storage, Service life etc) shall be performed at ambient temperature of 20 ±2°C and relative humidity of 55 ±20% RH. During short periods only, the storage temperature may deviate from these limits without exceeding 20 ±5°C.

7.2.2 Voltmeter shall has a resolution of ± 0.01 V and with internal impedance of 1 MΩ mininum.

7.2.3 Unless otherwise stated, samples for acceptance testing shall be selected per ANSI/ASQZ1.4, Special inspection levels S-4.

7.3 Shelf life : 5 years as below conditions,

7.3.1 Open circuit voltage [OCV]

	Minimum voltage (V)	AQL
N0	9.55	0.65%
N12	9.30	0.65%
N36	9.10	0.65%
N60	8.90	0.65%

7.3.2 Closed circuit voltage [CCV] (Load 47 Ω for 0.3 seconds).

	Minimum voltage (V)	AQL
N0	8.20	0.65%
N12	8.00	0.65%
N36	7.70	0.65%
N60	7.30	0.65%

7.3.3 Service life (Batteries tested shall comply with either one of the following requirements)

7.3.3.1 Requirements

Resistance	Discharge duration	End Voltage	SPECIFICATIONS (Hrs), MAD			
			N0	N12	N36	N60
270 Ω	1 h/d	5.40V	Min 21 hrs each battery	18.9	16.8	14.7
620 Ω	2 h/d	5.40V	48.5	43.6	38.8	33.9
10 kΩ background 24 h/d, 620 Ω 1 s/h pulse		7.50V	SPECIFICATIONS (days), MAD			
			19.5	17.6	15.6	13.6

7.3.3.2 n=4. In calculating minimum average, no one battery can be lower than 15% of the specified minumum average and the calculated average shall be equal to or greater than the specified minimum average. Only one retest is allowed for each lot tested.

7.4 Visual External Leakage

7.4.1.1 No leakage when CCV drops by 40% of nominal voltage for the first time.

7.4.1.2 No leakage during storage for 30 days under 45±2°C, 85%RH, sample size : 10 pcs.

7.4.2 For undischarged batteries.

	AQL
N0	0.65%
N12	0.65%
N18	0.65%

7.5 Appearance

	AQL
Major defects	0.65%
Minor defects	0.65%

Major defects
1) Loose or damaged terminals
2) Incorrect polarity.
3) Visible rust on metal parts.

Minor defects
1) Substandard appearance.
2) Heavy scratches.
3) Serious deformation.
4) Serious displacement of artworks.

7.6 Safety

IEC 60086-5 (Primary batteries - Part 5 : Safety of batteries with aqueous electrolyte)

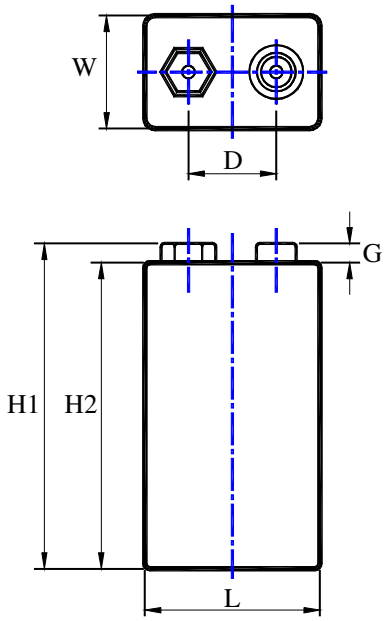
8. MERCURY FREE AND CADMIUM FREE

8.1 Mercury - 1 ppm maximum per battery weight.

8.2 Cadmium - 3 ppm maximum per battery weight.

9. BATTERY DIMENSIONS

Dimensions



UNIT : mm
L: 25.5 ± 1.0
W: 16.5 ± 1.0
H1: 47.5 ± 1.0
H2: 44.7 ± 1.5
D: 12.7 ± 0.25
G: 1.78mm (Min.)

Dimensions shown are IEC/ANSI Standard.

10. RECOMMENDED STORAGE AND OPERATING TEMPERATURE

10.1 Operating Temperature : -20 °C ~ 60 °C, 75 % RH Max.

10.2 Storage Temperature : Batteries shall be stored in well-ventilated, dry and cool conditions. High temperature or high humidity may cause deterioration of the battery performance or surface corrosion.