

MS Series

Small-size Battery

- 100% before shipment testing, stable and reliable long-term quality
- Patented grid alloy formula and updated manufacturing technique
- Completely sealed and maintenance-free, low self-discharge
- Excellent charging and re-charging acceptance
- Cycle use 2: More than 260 cycles at 100% DOD
- Floating & standby use: 3-5 years (Design life is based on ideal conditions; actual battery lifespan may vary with usage, maintenance, and environment.)

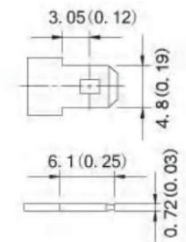
Application:

- Alarm System
- Cable Television
- Communication Equipment
- Emergency Power System
- Security System
- Medical Equipment
- UPS
- Power tools
- Control Equipment
- Toys

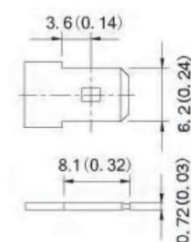


Construction:

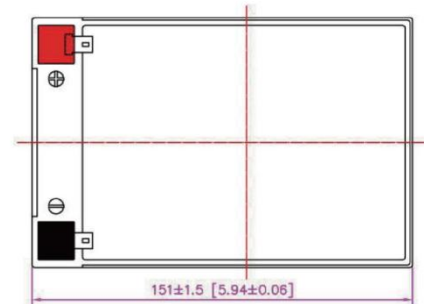
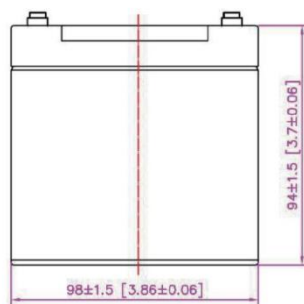
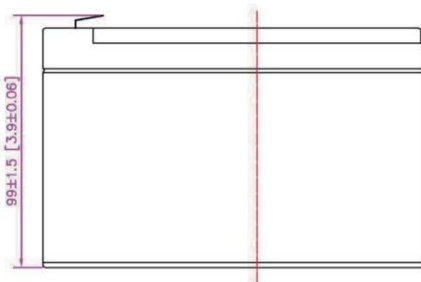
- Component.....Raw material
- Positive.....Lead dioxide
- Negative.....Lead
- Container.....UL94-HB
(Optional: UL94-V0)
- Cover.....UL94-HB
(Optional: UL94-V0)
- Sealant.....Epoxy
- Safety valve.....Rubber
- Terminal.....Copper
- Separator.....Fiber glass
- Electrolyte.....Sulfuric acid



F1 Terminal



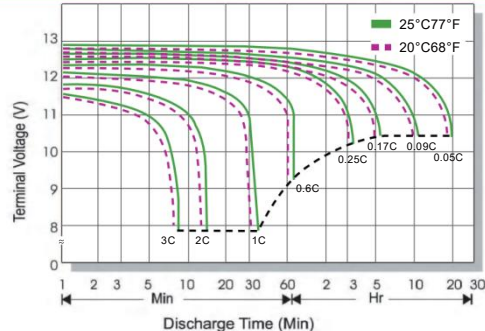
F2 Terminal



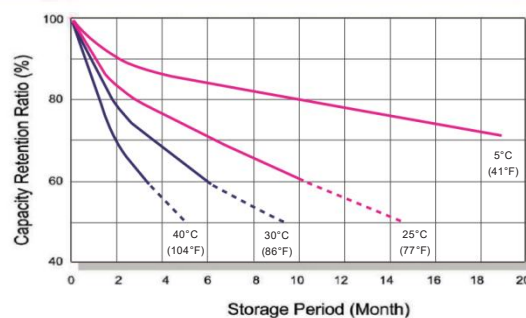
Specification:

Battery Model	MS 12-12 12V12AH			
Designed Floating Life	3~5 Year			
Capacity (25°C)	20HR(0.60A,10.5V)	10HR(1.05A,10.5V)	5HR(1.85A,10.5V)	1HR(7.30A,10.5V)
	12.00 AH	10.50 AH	9.25 AH	7.32 AH
Dimensions	Length	Width	Height	Total Height
	151 mm	98 mm	94 mm	98 mm
Approx. Weight	3.30Kg ±3%			
Internal Resistance	Full charged at 25°C : ≤19.80 mΩ			
Self Discharge	2% of capacity declined per month at (25°C)			
max discharge current	39.3A			
Capacity Affected by Temp.(20HR)	40°C	25°C	0°C	-15°C
	102%	100%	85%	65%
Charge Voltage(25oC)	Cycle use		Float use	
	14.4-15.0V(-30mV/°C), max. Current: 3.60A		13.5-13.8V (-20mV/°C)	

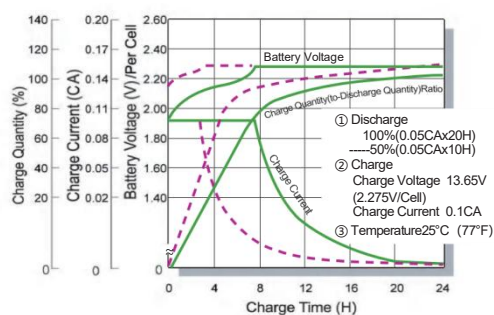
Terminal Voltage (V) and Discharge Time



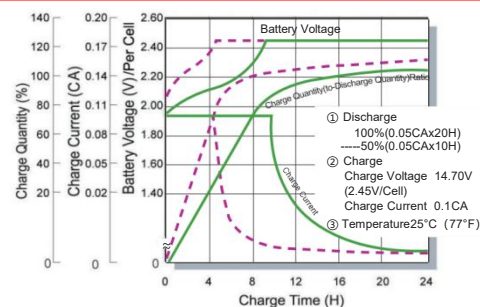
Capacity Retention Characteristic



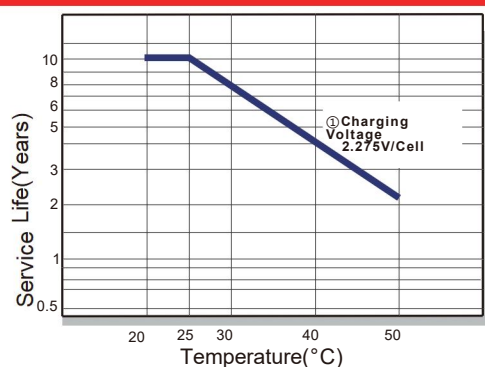
Battery Voltage and Charge Time for Standby Use



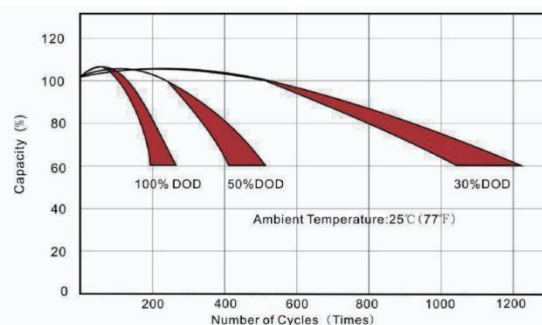
Battery Voltage and Charge Time for Cycle Use



Tickle(or Float) Service Life



Cycle Service Life



Constant Current Discharge(CC,Unit:A) at 25°C (77°F)

F.V/Time	5Min	10Min	15Min	30Min	1Hr	2Hr	3Hr	4Hr	5Hr	6Hr	10Hr	20Hr
1.80V/Cell	36.4	23.4	17.7	10.4	7.2	3.86	2.68	2.28	1.82	1.63	1.03	0.58
1.75V/Cell	37.1	23.8	18.0	10.5	7.3	3.93	2.73	2.32	1.85	1.66	1.05	0.60
1.70V/Cell	38.2	24.5	18.6	10.9	7.5	4.05	2.81	2.39	1.91	1.71	1.08	0.61
1.67V/Cell	39.7	25.5	19.3	11.3	7.8	4.21	2.92	2.48	1.98	1.77	1.12	0.64
1.60V/Cell	41.9	26.9	20.4	11.9	8.2	4.44	3.09	2.62	2.09	1.87	1.18	0.67

Constant Power Discharge (CP,Unit:W) at 25°C (77°F)

F.V/Time	5Min	10Min	15Min	30Min	1Hr	2Hr	3Hr	4Hr	5Hr	6Hr	10Hr	20Hr
1.80V/Cell	66.6	42.8	32.9	18.9	13.3	7.29	5.12	4.44	3.51	3.16	2.01	1.15
1.75V/Cell	67.9	43.6	33.5	19.3	13.6	7.43	5.22	4.53	3.57	3.22	2.05	1.17
1.70V/Cell	69.9	44.9	34.5	19.9	14.0	7.65	5.37	4.66	3.68	3.31	2.11	1.21
1.67V/Cell	72.6	46.7	35.9	20.6	14.5	7.95	5.58	4.85	3.82	3.44	2.19	1.25
1.60V/Cell	76.7	49.3	37.9	21.8	15.3	8.40	5.90	5.12	4.04	3.63	2.31	1.32