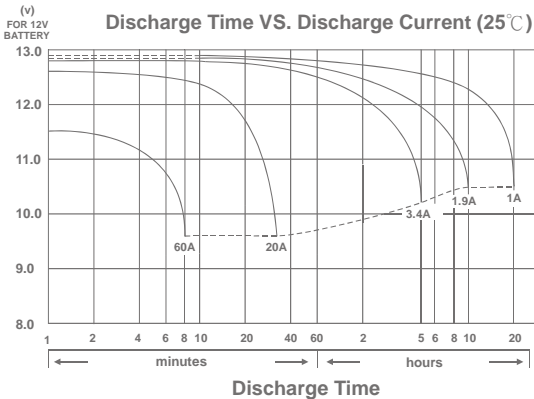
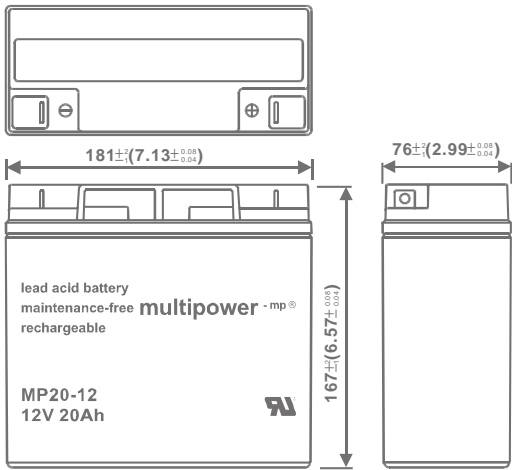
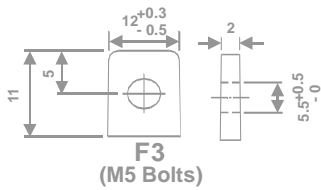


**RECHARGEABLE SEALED LEAD ACID BATTERY**

**SPECIFICATION**



**MP20-12**

**Nominal Voltage(V)** 12V

**Nominal Capacity**

20 hour rate	(1A to 10.50V)	20Ah
10 hour rate	(1.9A to 10.50V)	19Ah
5 hour rate	(3.4A to 10.20V)	17Ah
1 C	(20A to 9.60V)	11.33Ah
3 C	(60A to 9.60V)	8Ah

**Weight** 5.95kg(13.09Lbs.) With ±5%

**Internal Resistance (at 1KHz) Approx.** 10 mΩ

**Maximum Discharge Current for**

**5 seconds:** 300A

**Charging Methods at 25°C(77°F)**

<b>Cycle use:</b>	
Charging Voltage	14.7 to 14.8V
Coefficient	-5.0mV/°C/cell
Maximum Charging Current:	6A
<b>Standby use:</b>	
Float Charging Voltage	13.5 to 13.8V
Coefficient	-3.0mV/°C/cell

**Operating Temperature Range**

Charge	-15°C(5°F) to 40°C(104°F)
Discharge	-15°C(5°F) to 50°C(122°F)
Storage	-15°C(5°F) to 40°C(104°F)

**Charge Retention (shelf life) at 20°C(68°F)**

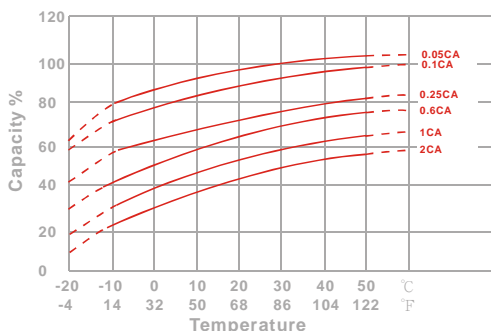
1 month	92%
3 month	90%
6 month	80%

**Case Material** ABS UL94 HB

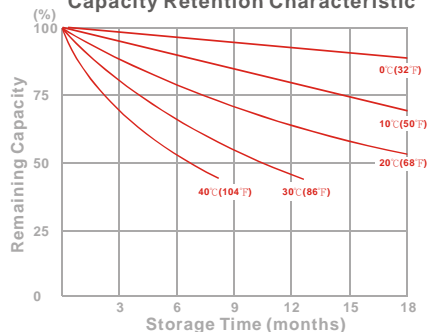
**Terminal** F3

## CHARACTERISTIC & PERFORMANCE DATA

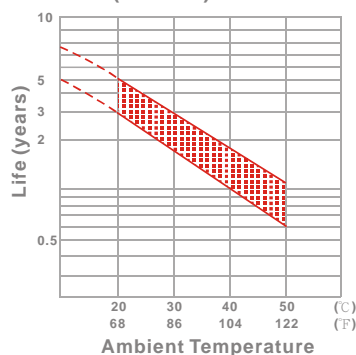
Effect of Temperature on Capacity 25°C(77°F)



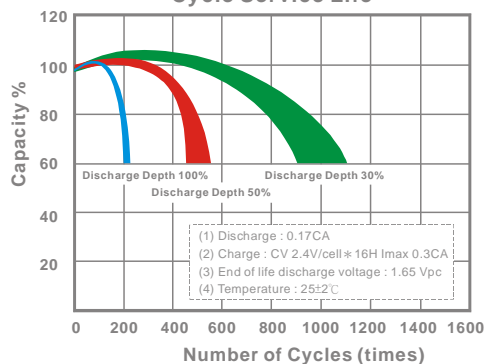
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



### - PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25°C(77°F)

Time	End Voltage							
	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V	
5	min	110	128	139	146	148	150	152
10	min	78.7	88.8	96.2	101	102	103	105
15	min	68.2	75.5	80.4	83.5	84.3	85.2	85.9
30	min	35.5	37.9	40.6	42.2	42.7	43.1	43.6
60	min	22.2	23.2	24.0	24.7	24.8	25.2	25.5
120	min	12.2	12.7	13.0	13.5	13.6	13.7	13.8
180	min	9.53	9.88	10.1	10.3	10.4	10.5	10.6
240	min	7.63	7.93	8.12	8.27	8.32	8.38	8.46
300	min	6.65	6.88	7.00	7.10	7.13	7.18	7.24
600	min	3.87	3.98	4.07	4.13	4.15	4.19	4.22
1200	min	2.05	2.12	2.17	2.20	2.22	2.23	2.25

### - Discharge Rates in Amperes to Various End Voltages at 25°C(77°F)

Time	End Voltage							
	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V	
5	min	69.6	75.4	79.1	82.3	83.7	85.1	87.6
10	min	46.7	49.9	52.4	54.6	55.5	56.5	58.2
15	min	35.4	38.1	39.8	41.3	41.9	42.6	43.5
30	min	18.9	20.4	21.5	22.4	22.7	23.1	23.6
60	min	11.1	11.7	12.2	12.6	12.7	12.9	13.1
120	min	6.25	6.47	6.61	6.73	6.77	6.82	6.89
180	min	4.73	4.90	5.00	5.08	5.11	5.15	5.21
240	min	3.88	3.97	4.04	4.09	4.11	4.14	4.17
300	min	3.41	3.48	3.53	3.57	3.58	3.60	3.62
600	min	1.97	2.00	2.02	2.04	2.05	2.06	2.07
1200	min	1.00	1.03	1.05	1.07	1.08	1.09	1.10

All data on the spec. sheet is an average value:

The tolerance range :  $X < 6\text{min}$ (+15%~-15%),  $6\text{min} \leq X < 10\text{min}$ (+12%~-12%),  $10\text{min} \leq X < 60\text{min}$ (+8%~-8%),  $X \geq 60\text{min}$ (+5%~-5%)