



FM series is a general purpose battery with 6~8 years design life in float service. It meets with IEC, JIS, BS and YDT standards. With advanced AGM valve regulated technology and high purity raw material, the FM series battery maintains high consistency for better performance and reliable standby service life. It is suitable for UPS/EPS, Telecom, power grid, medical equipment, emergency light and security system applications.



MH60689



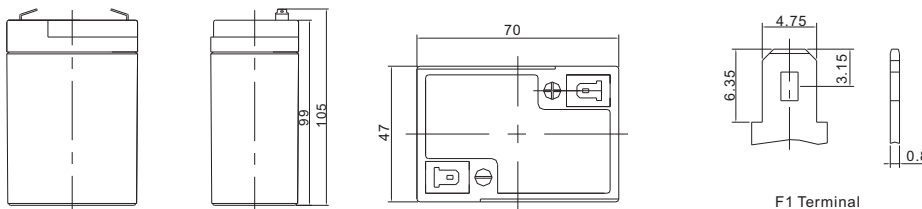
ED131130285E

Specification

3FM4.5(6V4.5Ah)

Cells Per Unit	3
Voltage Per Unit	6
Nominal Capacity	4.5Ah@20hour-rate to 1.75V per cell @25°C
Weight	Approx. 0.72 Kg (Tolerance ±5.0%)
Internal Resistance	Approx. 23 mΩ
Terminal	F1
Max. Discharge Current	45A (5 sec)
Short Circuit Current	234A
Design Life	6~8 years (Float charging)
Recommended Maximum Charging Current	1.35 A
Reference Capacity	C3 3.49AH C5 3.94AH C10 4.23AH C20 4.54AH
Standby Use Voltage	6.85 V~6.95 V @ 25°C Temperature Compensation: -3mV/°C/Cell
Cycle Use Voltage	7.30 V~7.40 V @ 25°C Temperature Compensation: -4mV/°C/Cell
Operating Temperature Range	Discharge: -20°C~60°C Charge: 0°C~50°C Storage: -20°C~60°C
Normal Operating Temperature Range	25°C ±5°C
Self Discharge	Westar Valve Regulated Lead Acid (VRLA) batteries can be stored for up to 6 months at 25°C and then recharging is recommended. Monthly Self-discharge ratio is less than 3% at 25°C. Please charge batteries before using.
Container Material	A.B.S. UL94-HB, UL94-V0 Optional.

Dimensions



Length	70±1.5mm (2.76 inches)
Width	47±1.5mm (1.85 inches)
Height	99±1.5mm (3.90 inches)
Total Height	105±1.5mm (4.13 inches)
Terminal	Value
M5	6~7 N*m
M6	8~10 N*m
M8	10~12 N*m

Unit: mm

Constant Current Discharge Characteristics : A (25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	17.84	11.64	8.584	4.968	2.870	1.694	1.231	0.980	0.828	0.553	0.450	0.234
1.65V	17.20	11.29	8.359	4.859	2.817	1.669	1.215	0.968	0.818	0.547	0.446	0.232
1.70V	16.36	10.83	8.063	4.714	2.747	1.636	1.193	0.952	0.805	0.540	0.440	0.230
1.75V	15.28	10.25	7.678	4.526	2.654	1.592	1.164	0.930	0.788	0.530	0.433	0.227
1.80V	13.92	9.494	7.183	4.281	2.533	1.535	1.126	0.902	0.766	0.517	0.423	0.222
1.85V	12.25	8.553	6.558	3.968	2.378	1.460	1.076	0.865	0.737	0.500	0.409	0.216

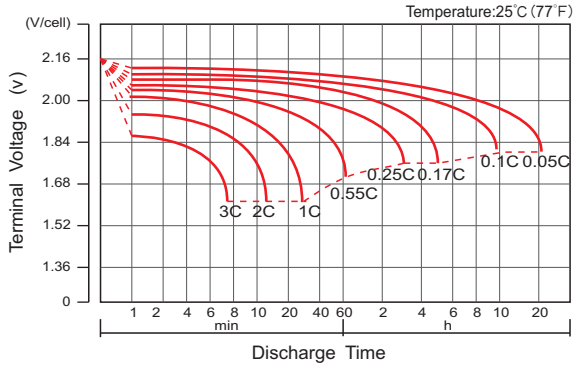
Constant Power Discharge Characteristics : WPC (25°C)

F.V/Time	5MIN	10MIN	15MIN	30MIN	1HR	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	30.71	20.08	15.23	9.16	5.45	3.26	2.39	1.91	1.62	1.10	0.90	0.47
1.65V	30.39	19.99	15.14	9.09	5.40	3.23	2.37	1.90	1.61	1.09	0.89	0.47
1.70V	29.23	19.40	14.74	8.87	5.29	3.18	2.33	1.87	1.59	1.08	0.88	0.46
1.75V	27.79	18.68	14.24	8.60	5.13	3.11	2.29	1.83	1.56	1.06	0.87	0.45
1.80V	25.76	17.61	13.51	8.22	4.92	3.01	2.22	1.78	1.52	1.03	0.85	0.45
1.85V	23.08	16.15	12.51	7.70	4.65	2.88	2.13	1.72	1.47	1.00	0.82	0.44

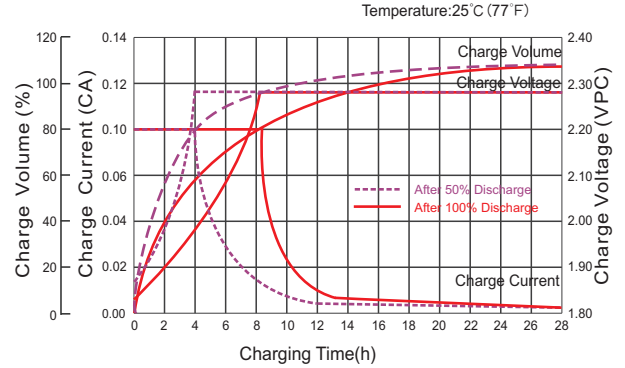
(Note) The above characteristics data are average values obtained within three charge/discharge cycle not the minimum values.

3FM4.5(6V4.5Ah)

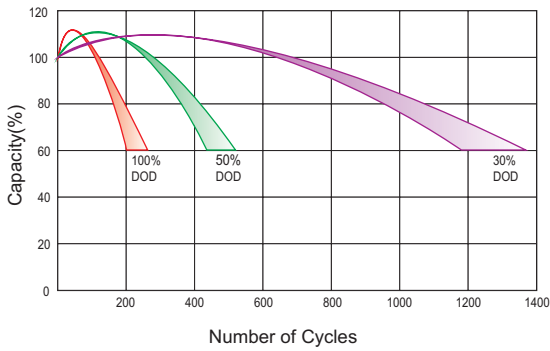
Discharge Characteristics Curve



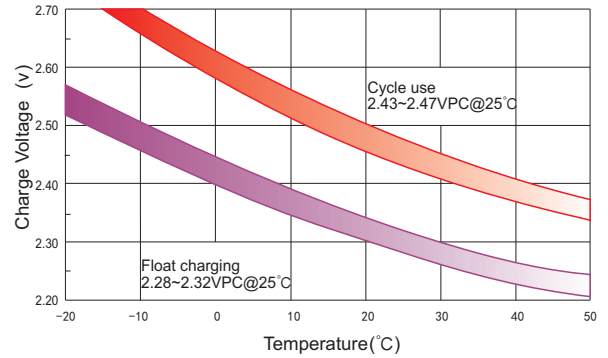
Charge Characteristic Curve For Standby Use



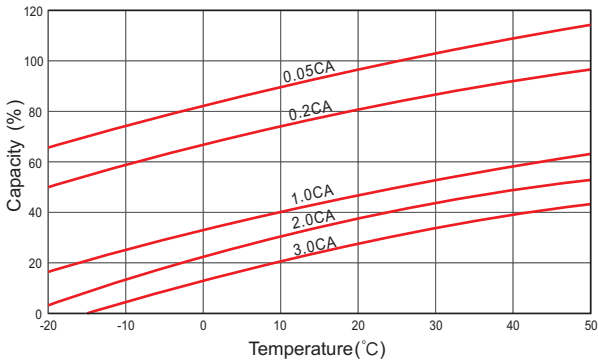
Cycle Life In Relation To Depth Of Discharge



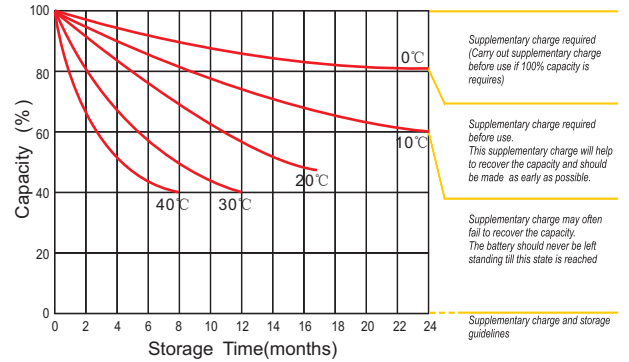
Relationship Between Charging Voltage And Temperature



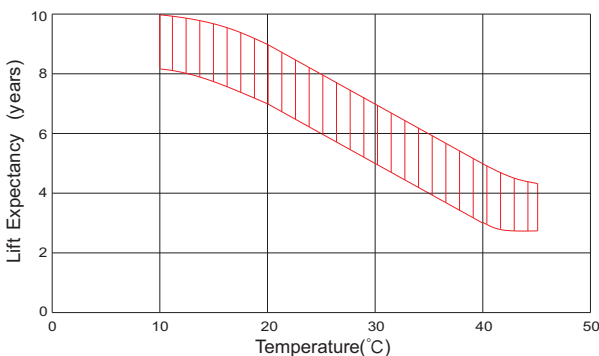
Temperature Effects On Capacity



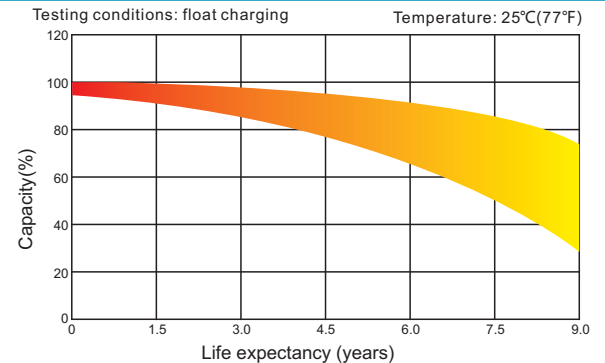
Storage Characteristics



Effect Of Temperature On Long Term Life



Life Characteristics Of Standby Use



(Note) All above information shall be changed without prior notice, Westar reserves the right to explain and update the latest information