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EASTMAN WORLD

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AGM VRLA BATTERY

GENERAL PURPOSE (SMART SERIES)



AGM VRLA

General Purpose (*Smart Series*)

5Ah ~ 200Ah

Certifications



Characteristics

- Capacity range: 5Ah to 200Ah
- Available in: 12V blocks.
- EUROBAT design life:
12V ≤ 28Ah: 3-5 Years, standard commercial.
12V > 28Ah: 12 Years, long life.
- Self-discharge per month: ≤ 3% at 25°C.
- Operation temperature range: - 20°C to + 50°C.
- Recommended operation temperature: 25°C.

Product Specifications

Battery Model	Nominal Voltage [V]	Rated Capacity [Ah], 25°C			Internal Resistance [mΩ]	Terminal Type	Terminal Location	Design Life [years]		Weight [kg]	Length [mm]	Width [mm]	Height [mm]	Total Height [mm]
		20Hr (10.5V)	10Hr (10.5V)	1Hr (9.60V)				JIS 25°C	EUROBAT 20°C					
		10Hr (10.8V)	3Hr (10.8V)	1Hr (10.5V)										
EM5VB	12	5	4.6	3	28.0	T1/T2	C	5	3-5	1.58±4%	90±1	70±1	101±1	107±1
EM7VB	12	7	6.5	4.2	25.0	T1/T2	F	5	3-5	2.10±4%	151±1.5	65±1	94±1	100±1
EM7.5VB	12	7.5	7	4.6	21.0	T1/T2	F	5	3-5	2.25±4%	151±1.5	65±1	94±1	100±1
EM9VB	12	9	8.4	5.4	19.0	T1/T2	F	5	3-5	2.65±4%	151±1.5	65±1	94±1	100±1
EM12VB	12	12	11	7.2	19.0	T1/T2	F	5	3-5	3.40±4%	151±1.5	98±1	95±1	101±1
EM18VB	12	18	16.8	11	15.0	T3/T12	D	5	3-5	5.20±4%	181±2	77±2	167±2	167±2
EM26VB	12	26	24	16	12.0	T4/T12	D	5	3-5	7.90±4%	166±2	175±2	125±2	125±2
EM33VB	12	33	24	19	11.0	T14/T6	C	10	10/12	10.00±4%	195±2	130±2	155±2	180±2
EM40VB	12	40	30	22	9.0	T14	D	10	10/12	12.50±3%	197±2	165±2	170±2	170±2
EM55VB	12	55	41.1	30.5	6.5	T14	C	10	10/12	17.30±3%	230±2	138±2	211±2	215±2
EM65VB	12	65	51	37	6.5	T14	C	10	10/12	20.04±3%	350±2	166±2	179±2	179±2
EM75VB	12	75	57	43	5.5	T14	C	10	10/12	23.05±3%	260±2	168±2	211±2	215±2
EM100VB	12	100	75	55	4.5	T16	C	10	10/12	29.50±3%	330±2	171±2	214±2	220±2
EM150VB	12	150	114	88	4.0	T16	C	10	10/12	41.08±3%	485±2	172±2	240±2	240±2
EM200VB	12	200	150	110	3.5	T16	E	10	10/12	59.05±3%	522±2	238±2	218±2	222±2

Introduction

Eastman Smart series batteries are designed with state-of-the-art AGM (Absorbent Glass Mat) technology, high-performance plates and electrolyte. With excellent value and characteristics, this range is suitable for all general purpose applications.

Product Features

- Stable quality & high reliability.
- Long service life.
- Maintenance-free operation.
- Heavy-duty grids.
- Low self-discharge.
- Container available in flame retardant (UL 94-V0).

Application Scenarios

Emergency light systems, Firefighting equipment, Alarm systems, UPS, Electric toys, Medical equipment, Telecommunications, IT equipment.

Technical Information

Charging & Discharging | Characteristics & Cycle Life

Charge Voltage & Charge Current

Ambient Temperature: 25°C

Usage	Standby Use				Cycle Use			
	2V Cell	4V Battery	6V Battery	12V Battery	2V Cell	4V Battery	6V Battery	12V Battery
Charge Voltage (V)	2.25-2.30	4.50-4.60	6.75-6.90	13.5-13.8	2.40-2.50	4.80-5.00	7.25-7.50	14.5-15.0
Max Charge Current (A)	0.3C*	0.3C	0.3C	0.3C	0.3C	0.3C	0.3C	0.3C
Max Charge Current HR (A)	0.08P*	0.08P	0.08P	0.08P	0.08P	0.08P	0.08P	0.08P

Discharge Voltage & Final Voltage

Ambient Temperature: 25°C

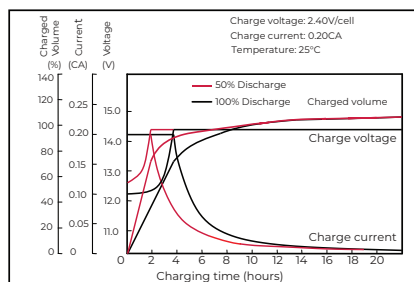
Discharge Current (A)	Final Voltage (V)			
	2V Battery	4V Battery	6V Battery	12V Battery
0.05C ₂₀	1.75	3.50	5.35	10.50
0.1C ₁₀ ~ 0.25C ₁₀	1.80	3.60	5.40	10.80
0.55C ₂₀	1.75	3.50	5.25	10.50
1C ₁₀ ~ 3C ₁₀	1.60	3.20	4.80	9.60

Notes

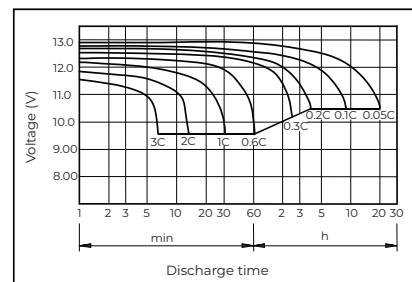
- "C" means Ah value of battery's rated capacity. "P" means watt value of battery's rated power (HR series).
- When the ambient temperature is outside of 15°C to 35°C range, use a temperature compensation factor $\pm 3 \text{ mV}/^\circ\text{C}/\text{cell}$ (standby charge) or $\pm 5 \text{ mV}/^\circ\text{C}/\text{cell}$ (cycle charge), starting from the standard centre point at 25°C.
- When charging, the ambient temperature should be in the range of -10°C to +50°C.
- End of discharge voltage should vary according to the discharge current.
- Battery voltage must be higher than its corresponding end voltage when discharge.
- Charge the batteries immediately after discharge.
- When discharging, the ambient temperature should be in the range of -15°C to +50°C.

Characteristics & Cycle Life

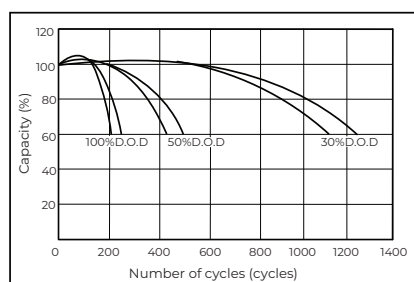
Charging Characteristics (25°C)



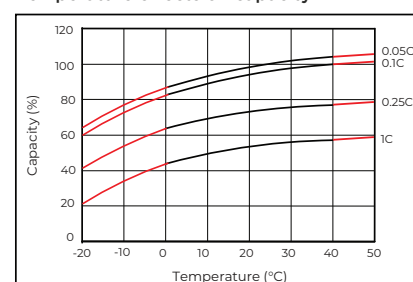
Discharge Characteristics (25°C)



Cycle Life on D.O.D (25°C)

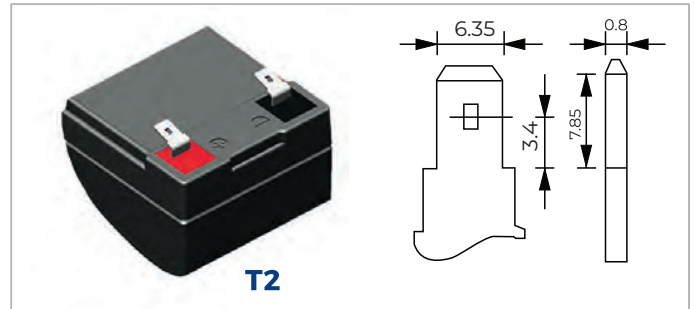
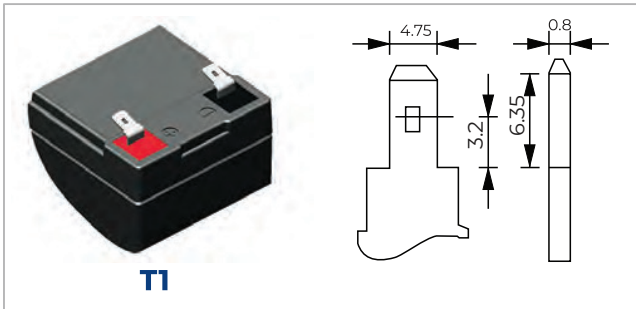


Temperature effects on capacity



Technical Information

Terminal Type & Position



Flat Terminal

Type	A (mm)	B (mm)	C (mm)	D (mm)	Material
T3	12	6	12	2	Cu
T4	14	6	14	2	Cu
T5	16	7	17	8	Pb
T6	18	8	18	7	Pb
T7	18	7	20	8	Pb
T8	24	9	24	7	Pb
T9	26	9	25	8	Pb
T10	26	9	21	7	Pb
T21	20	6	18	3	Cu
T22	22	9	23	3	Cu
T25	25	9	23	3	Cu
T64	20	6	16	3	Cu

Insert Terminal

Type	A (mm)	B (mm)	C (mm)	Material
T12	12	5	2	Cu
T14	14	6	4	Cu
T16	16	8	5	Cu
T16A	16	6	5	Cu
T18	18	8	5	Cu
T20	20	8	5	Cu

Torque specificatio	N.m
T12	3.0 ± 0.6
T14	5.1 ± 0.6
T16	12.3 ± 2.5
T16A	5.1 ± 0.6
T18	12.3 ± 2.5
T20	12.3 ± 2.5



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