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SINCE 1959
EIC
Egyptian International Company
For Green Energy Solutions

Eastman®
ENERGY. UNLIMITED.

EM5VB - 12V5Ah

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY
EM5VB - 12V 5Ah

SMART SERIES

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C,77°F)

F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	19.1	12.1	9.45	5.33	3.28	1.79	1.24	1.03	0.87	0.47	0.25
9.90V	18.5	11.7	9.22	5.22	3.23	1.78	1.23	1.02	0.87	0.47	0.25
10.2V	17.8	11.3	8.88	5.06	3.14	1.77	1.22	1.01	0.86	0.47	0.25
10.5V	17.0	10.8	8.58	4.94	3.08	1.74	1.22	1.01	0.86	0.47	0.25
10.8V	16.0	10.2	8.13	4.76	2.99	1.69	1.18	0.97	0.83	0.46	0.25

Constant power discharge characteristics unit:Watt/Block (at 25°C,77°F)

F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	213	136	108	61.0	37.9	21.0	14.7	12.2	10.4	5.68	3.05
9.90V	207	132	105	59.8	37.4	20.8	14.6	12.1	10.4	5.66	3.03
10.2V	198	127	101	58.0	36.4	20.7	14.5	12.1	10.3	5.63	3.02
10.5V	190	121	97.8	56.6	35.7	20.3	14.4	12.0	10.2	5.60	3.00
10.8V	179	115	92.6	54.5	34.6	19.8	14.0	11.6	9.9	5.49	2.94

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

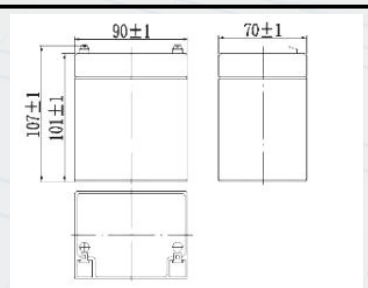
Characteristics

Capacity (25°C)	20HR (10.5V)	5Ah
	10HR (10.5V)	4.6Ah
	1HR (9.60V)	3Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 28mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		1.5A
Maximum discharge current		75A (5 sec.)
Design life		5 years for floating (25°C)
		Eurobat (20°C): 3-5 years, standard commercial.

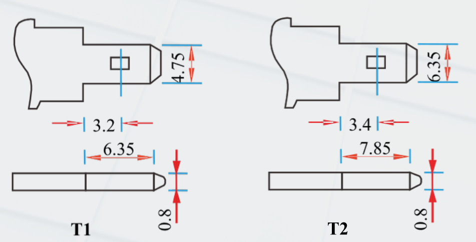
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		5Ah/10.5V
Dimensions	Length	90±1mm (3.54inch)
	Width	70±1mm (2.76inch)
	Height	101±1mm (3.98inch)
	Total height	107±1mm (4.21inch)
Approx. weight		1.58kg (3.48lbs)±4%

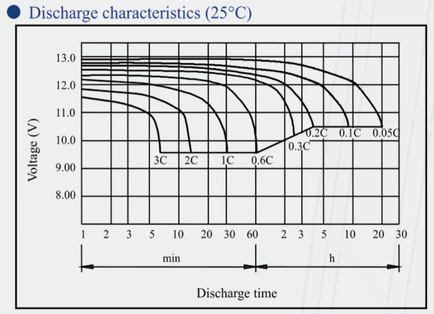
Outer dimensions (mm)



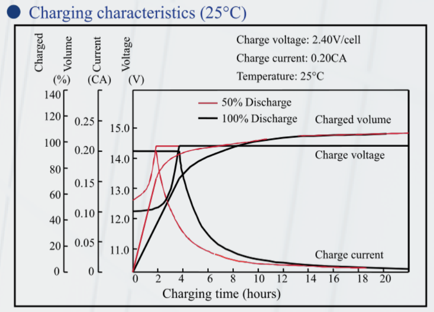
Terminal type (mm)



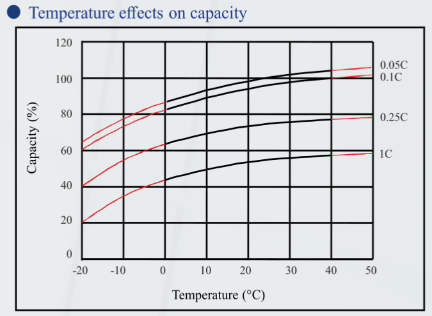
● Discharge characteristics (25°C)



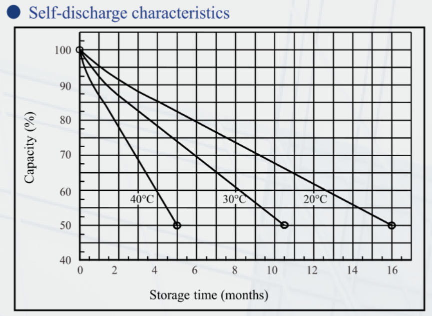
● Charging characteristics (25°C)



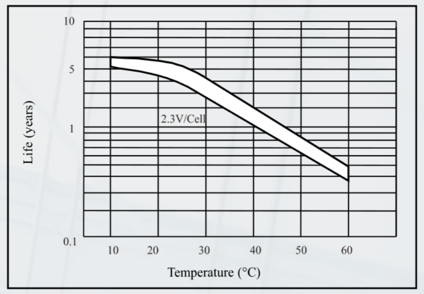
● Temperature effects on capacity



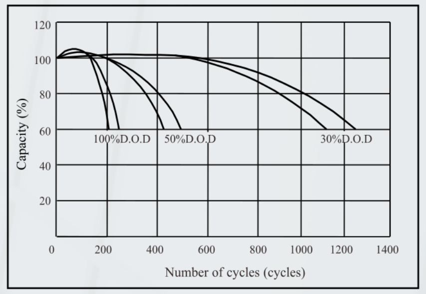
● Self-discharge characteristics



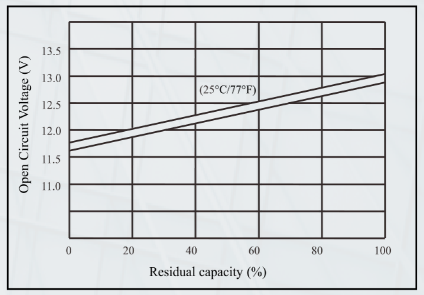
● Floating life on temperature



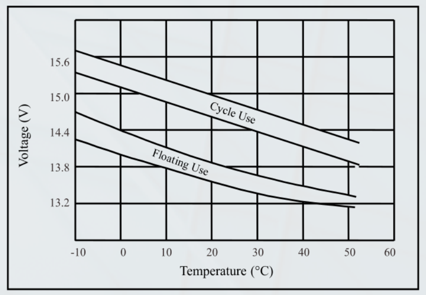
● Cycle life on D.O.D (25°C)



● Relationship for OCV and capacity (25°C)



● Relationship for charging voltage and temperature



Certification

EM 7VB - 12V7Ah

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY
EM7VB - 12V 7Ah

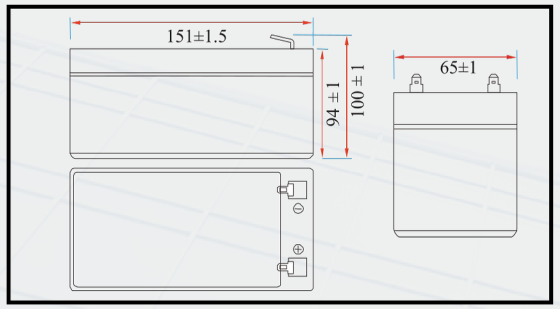
Characteristics

Capacity (25°C)	20HR (10.5V)	7Ah
	10HR (10.5V)	6.5Ah
	1HR (9.60V)	4.2Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 25mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		2.1A
Maximum discharge current		105A (5 sec.)
Design life	5 years for floating (25°C)	
	Eurobat (20°C): 3-5 years, standard commercial.	

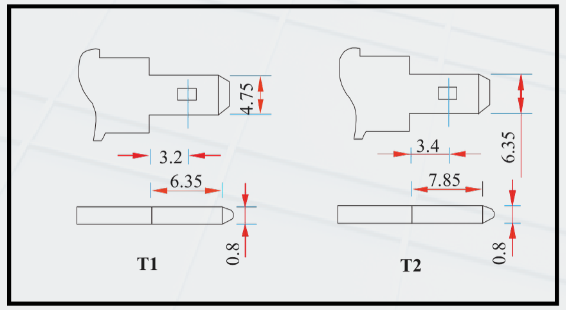
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		7Ah/10.5V
Dimensions	Length	151±1.5mm (5.94inch)
	Width	65±1mm (2.56inch)
	Height	94±1mm (3.70inch)
	Total height	100±1mm (3.94inch)
Approx. weight		2.10kg (4.63lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



T2

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C,77°F)

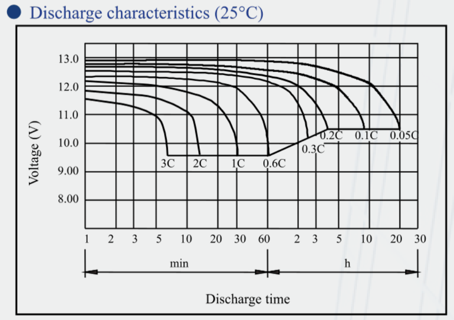
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	26.7	16.9	13.2	7.46	4.59	2.51	1.74	1.44	1.22	0.66	0.36
9.90V	25.9	16.4	12.9	7.31	4.52	2.49	1.72	1.43	1.21	0.66	0.35
10.2V	24.9	15.8	12.4	7.08	4.40	2.47	1.71	1.42	1.21	0.66	0.35
10.5V	23.8	15.1	12.0	6.91	4.31	2.43	1.70	1.41	1.20	0.65	0.35
10.8V	22.5	14.2	11.4	6.66	4.18	2.37	1.65	1.36	1.16	0.64	0.34

Constant power discharge characteristics unit:Watt/Block (at 25°C,77°F)

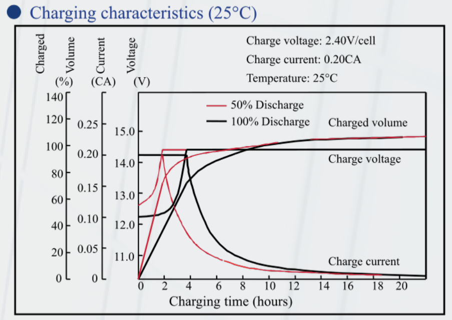
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	298	191	151	85.4	53.1	29.3	20.6	17.1	14.6	7.95	4.26
9.90V	289	185	147	83.7	52.3	29.2	20.5	17.0	14.5	7.92	4.25
10.2V	278	178	142	81.2	51.0	28.9	20.3	16.9	14.4	7.88	4.23
10.5V	266	170	137	79.2	50.0	28.5	20.2	16.8	14.3	7.84	4.20
10.8V	251	161	130	76.3	48.4	27.8	19.6	16.3	13.9	7.68	4.12

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

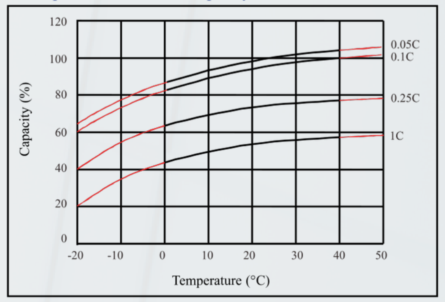
Discharge characteristics (25°C)



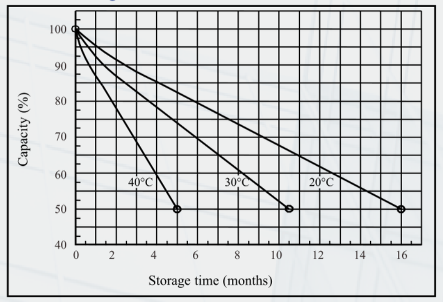
Charging characteristics (25°C)



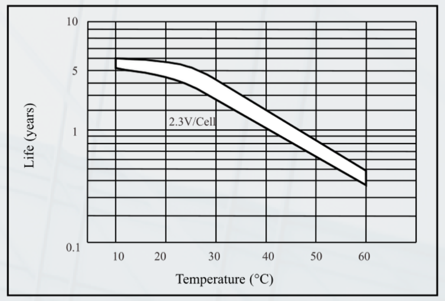
Temperature effects on capacity



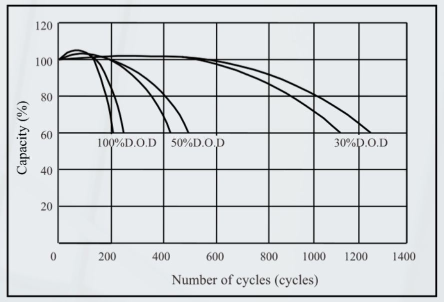
Self-discharge characteristics



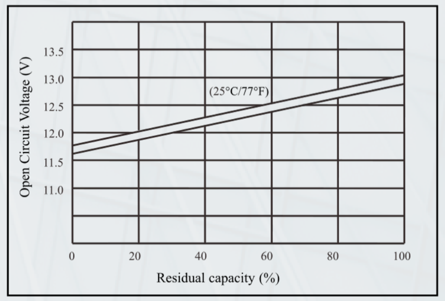
Floating life on temperature



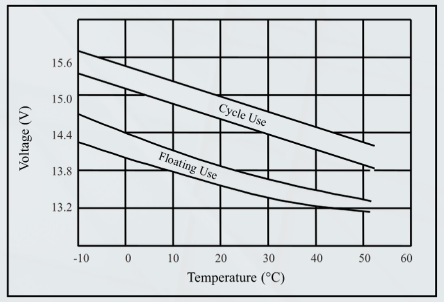
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

EM7.5VB - 12V7.5Ah

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY

EM7.5VB - 12V 7.5Ah

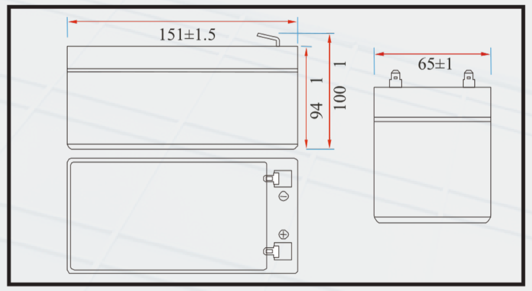
Characteristics

Capacity (25°C)	20HR (10.5V)	7.5Ah
	10HR (10.5V)	7Ah
	1HR (9.60V)	4.6Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 21mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		2.25A
Maximum discharge current		112.5A (5 sec.)
Design life		5 years for floating (25°C)
		Eurobat (20°C): 3-5 years, standard commercial.

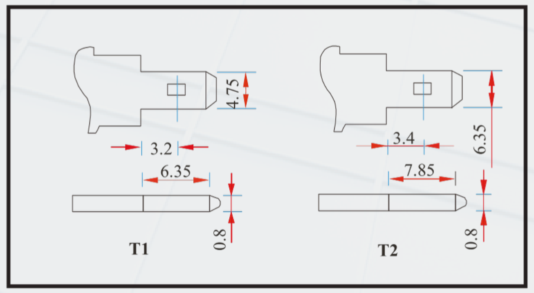
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		7.5Ah/10.5V
Dimensions	Length	151±1.5mm (5.94inch)
	Width	65±1mm (2.56inch)
	Height	94±1mm (3.70inch)
	Total height	100±1mm (3.94inch)
Approx. weight		2.25kg (4.96lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



T2

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant Current Discharge Characteristics Unit: Ampere/Block (at 25°C,77°F)

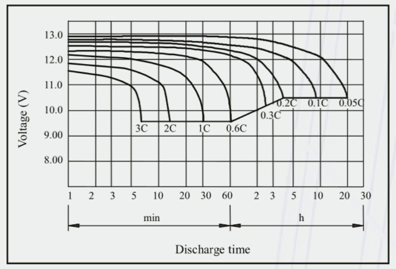
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	28.7	18.2	14.2	7.99	4.91	2.69	1.86	1.54	1.31	0.71	0.38
9.90V	27.8	17.6	13.8	7.83	4.84	2.67	1.85	1.53	1.30	0.71	0.38
10.2V	26.6	16.9	13.3	7.59	4.72	2.65	1.84	1.52	1.29	0.70	0.38
10.5V	25.5	16.2	12.9	7.40	4.62	2.61	1.82	1.51	1.28	0.70	0.38
10.8V	24.1	15.2	12.2	7.13	4.48	2.54	1.77	1.46	1.24	0.69	0.37

Constant Power Discharge Characteristics Unit: Watt/Block (at25°C,77°F)

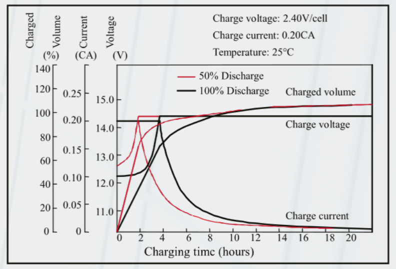
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	320	205	162	91.5	56.9	31.4	22.1	18.3	15.6	8.52	4.57
9.90V	310	199	158	89.7	56.0	31.3	22.0	18.2	15.5	8.49	4.55
10.2V	297	190	152	87.0	54.6	31.0	21.8	18.1	15.4	8.45	4.53
10.5V	285	182	147	84.9	53.5	30.5	21.7	18.0	15.3	8.40	4.50
10.8V	269	172	139	81.7	51.9	29.7	21.0	17.4	14.9	8.23	4.41

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

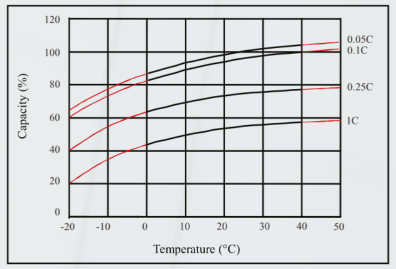
Discharge characteristics (25°C)



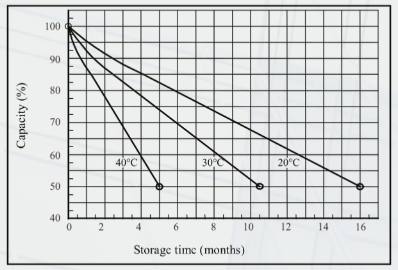
Charging characteristics (25°C)



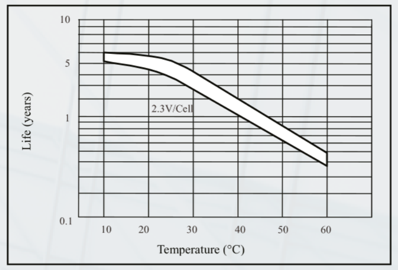
Temperature effects on capacity



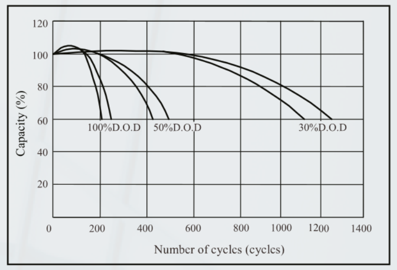
Self-discharge characteristics



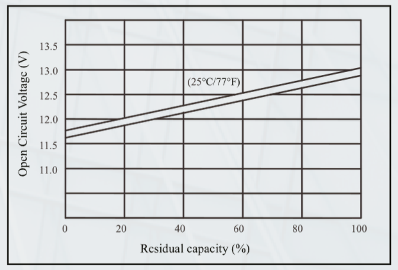
Floating life on temperature



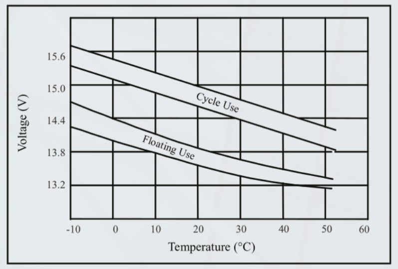
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY
EM9VB - 12V 9Ah

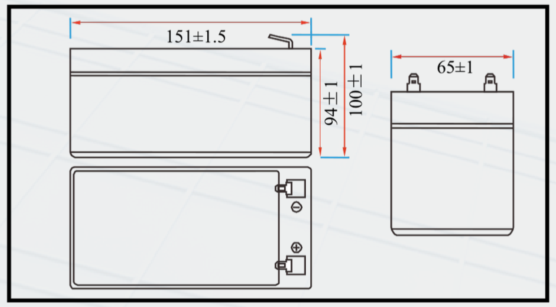
Characteristics

Capacity (25°C)	20HR (10.5V)	9Ah
	10HR (10.5V)	8.4Ah
	1HR (9.60V)	5.4Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 19mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		2.7A
Maximum discharge current		135A (5 sec.)
Design life	5 years for floating (25°C)	
	Eurobat (20°C): 3-5 years, standard commercial.	

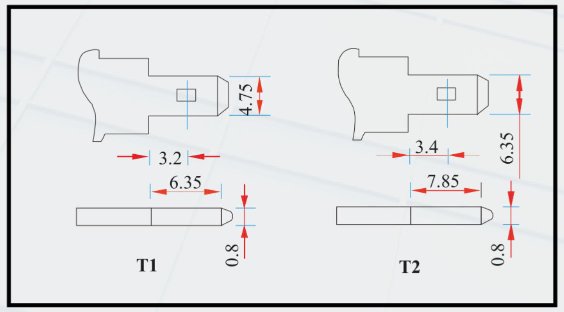
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		9Ah/10.5V
Dimensions	Length	151±1.5mm (5.94inch)
	Width	65±1mm (2.56inch)
	Height	94±1mm (3.70inch)
	Total height	100±1mm (3.94inch)
Approx. weight		2.65kg (5.842bs)±4%

Outer dimensions (mm)



Terminal type (mm)



T2

EM 9VB - 12V9Ah

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

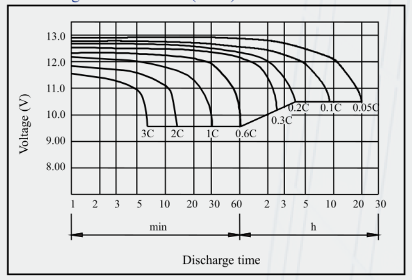
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	34.4	21.8	17.0	9.59	5.90	3.22	2.23	1.85	1.57	0.85	0.46
9.90V	33.3	21.1	16.6	9.39	5.81	3.21	2.22	1.83	1.56	0.85	0.45
10.2V	32.0	20.3	16.0	9.11	5.66	3.18	2.20	1.82	1.55	0.84	0.45
10.5V	30.6	19.4	15.4	8.89	5.55	3.13	2.19	1.81	1.54	0.84	0.45
10.8V	28.9	18.3	14.6	8.56	5.38	3.05	2.12	1.75	1.49	0.82	0.44

Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

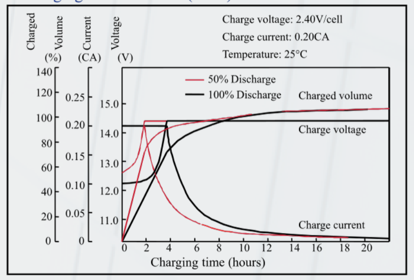
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	384	246	194	110	68.3	37.7	26.5	22.0	18.7	10.2	5.48
9.90V	372	238	189	108	67.2	37.5	26.3	21.8	18.6	10.2	5.46
10.2V	357	228	182	104	65.5	37.2	26.2	21.7	18.5	10.1	5.43
10.5V	341	219	176	102	64.2	36.6	26.0	21.5	18.4	10.1	5.40
10.8V	322	206	167	98.1	62.3	35.7	25.2	20.9	17.8	9.87	5.29

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

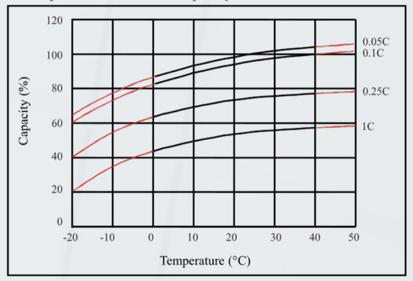
Discharge characteristics (25°C)



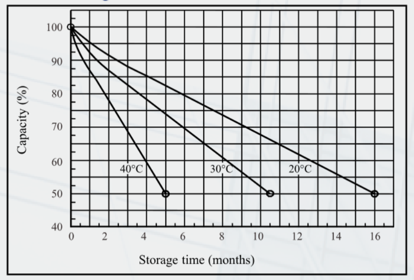
Charging characteristics (25°C)



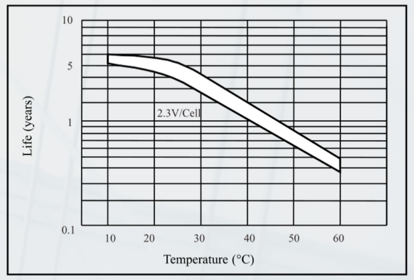
Temperature effects on capacity



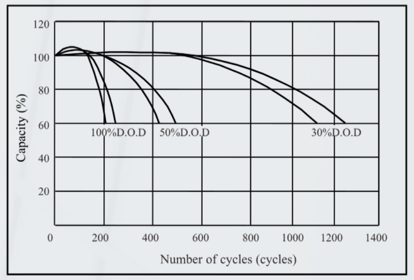
Self-discharge characteristics



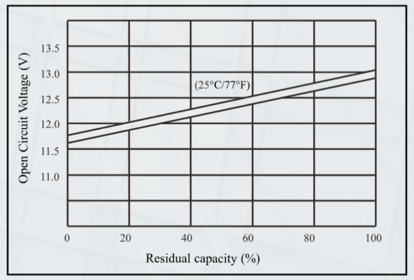
Floating life on temperature



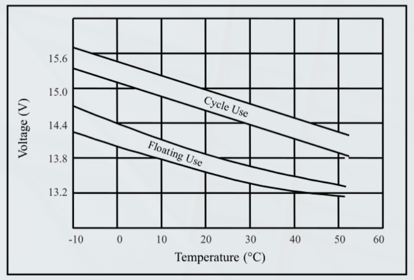
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

EM 12VB - 12V12Ah

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY

EM 12VB - 12V 12Ah

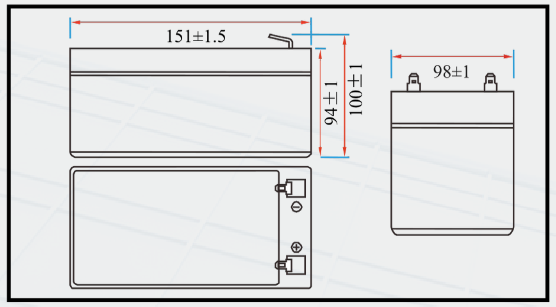
Characteristics

Capacity (25°C)	20HR (10.5V)	12Ah
	10HR (10.5V)	11Ah
	1HR (9.60V)	7.2Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 19mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		3.6A
Maximum discharge current		180A (5 sec.)
Design life	5 years for floating (25°C)	
	Eurobat (20°C): 3-5 years, standard commercial.	

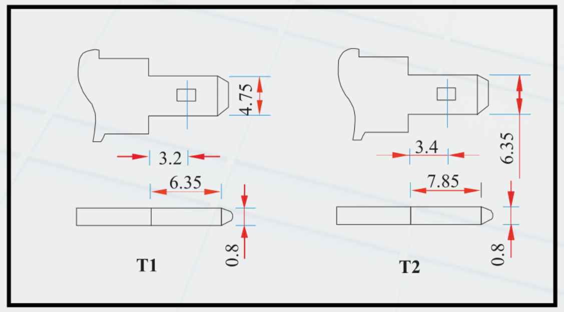
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		12Ah/10.5V
Dimensions	Length	151±1.5mm (5.94inch)
	Width	98±1mm (3.86inch)
	Height	95±1mm (3.74inch)
	Total height	100 ±1mm (3.98inch)
Approx. weight		3.40kg (7.51lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



T2

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

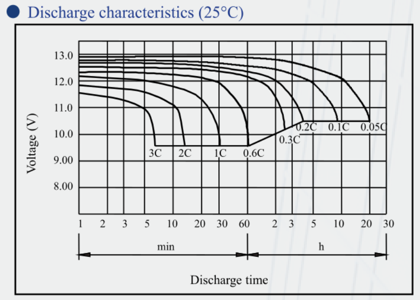
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	45.8	29.0	22.7	12.8	7.86	4.30	2.97	2.46	2.09	1.14	0.61
9.90V	44.5	28.2	22.1	12.5	7.74	4.27	2.96	2.45	2.08	1.13	0.61
10.2V	42.6	27.0	21.3	12.1	7.55	4.24	2.94	2.43	2.07	1.13	0.60
10.5V	40.8	25.8	20.6	11.8	7.40	4.17	2.92	2.41	2.05	1.12	0.60
10.8V	38.5	24.4	19.5	11.4	7.17	4.07	2.83	2.34	1.99	1.10	0.59

Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

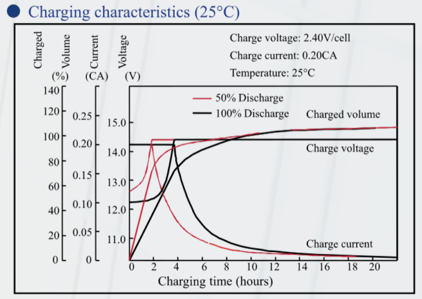
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	512	328	259	146	91.0	50.3	35.3	29.3	25.0	13.6	7.31
9.90V	496	318	252	144	89.7	50.0	35.1	29.1	24.8	13.6	7.28
10.2V	476	305	243	139	87.4	49.6	34.9	28.9	24.7	13.5	7.24
10.5V	455	292	235	136	85.6	48.8	34.6	28.7	24.5	13.4	7.20
10.8V	430	275	222	131	83.0	47.6	33.6	27.9	23.8	13.2	7.06

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

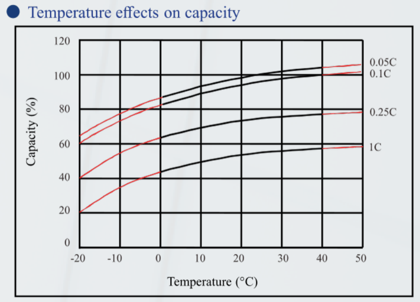
Discharge characteristics (25°C)



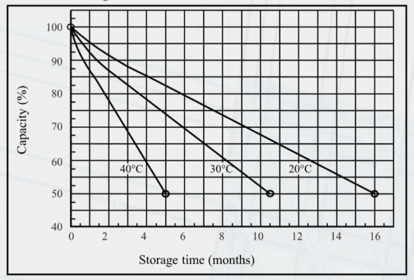
Charging characteristics (25°C)



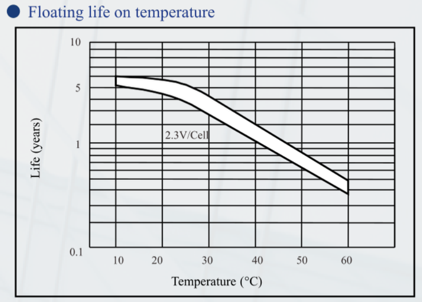
Temperature effects on capacity



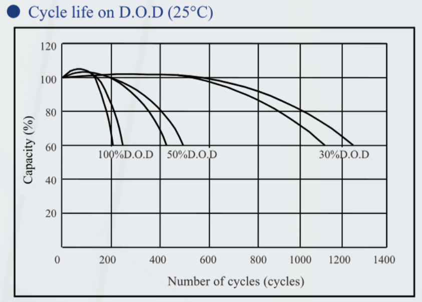
Self-discharge characteristics



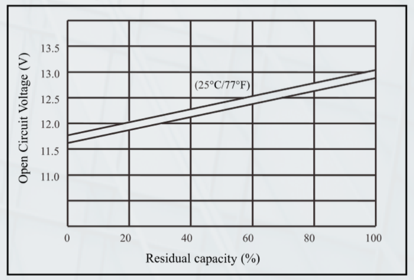
Floating life on temperature



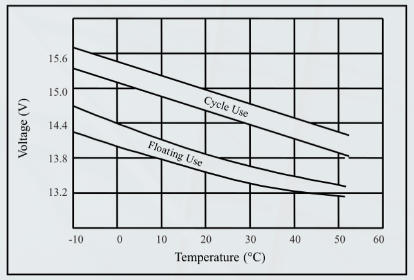
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

SEALED MAINTENANCE FREE VALVE REGULATED LEAD ACID BATTERY

EM 18VB - 12V18Ah

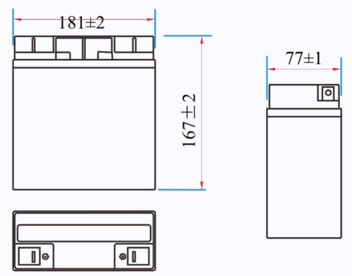
Characteristics

Capacity (25°C)	20HR (10.5V)	12Ah
	10HR (10.5V)	11Ah
	1HR (9.60V)	7.2Ah
Terminal type		T1/T2
Internal resistance (Fully charged, 25°C)		Approx. 19mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		3.6A
Maximum discharge current		180A (5 sec.)
Design life		5 years for floating (25°C)
		Eurobat (20°C): 3-5 years, standard commercial.

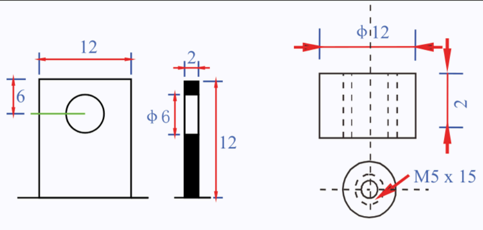
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		18Ah/10.5V
Dimensions	Length	181±2mm (7.13inch)
	Width	77±1mm (3.03inch)
	Height	167±2mm (6.57inch)
	Total height	167±2mm (6.57inch)
Approx. weight		5.20kg (11.46lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



T3 (suit M5 bolt and nut)

T12
Torque: 3.0±0.6N.m

T2

EM 18VB - 12V18Ah

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

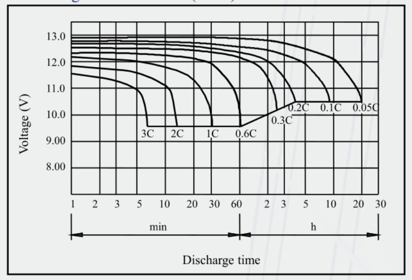
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	68.8	43.6	34	19.2	11.8	6.45	4.46	3.69	3.14	1.70	0.91
9.90V	66.7	42.3	33.2	18.8	11.6	6.41	4.44	3.67	3.12	1.70	0.91
10.2V	63.9	40.5	32.0	18.2	11.3	6.35	4.40	3.64	3.10	1.69	0.91
10.5V	61.2	38.8	30.9	17.8	11.1	6.26	4.37	3.62	3.08	1.68	0.90
10.8V	57.8	36.6	29.3	17.1	10.8	6.10	4.24	3.51	2.99	1.65	0.88

Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

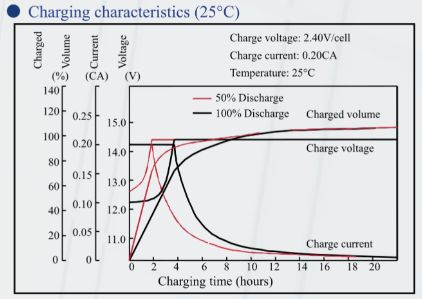
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	767	491	388	220	137	75.5	53.0	44.0	37.5	20.5	11.0
9.90V	744	477	379	215	134	75.0	52.7	43.7	37.3	20.4	10.9
10.2V	714	457	365	209	131	74.3	52.3	43.4	37.0	20.3	10.9
10.5V	683	437	352	204	128	73.2	52.0	43.1	36.8	20.2	10.8
10.8V	645	413	334	196	125	71.4	50.4	41.8	35.6	19.7	10.6

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

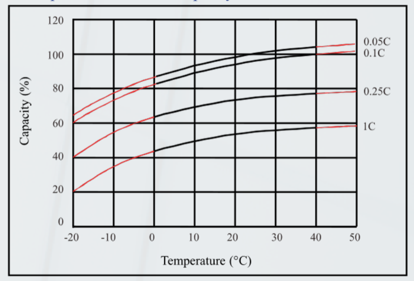
Discharge characteristics (25°C)



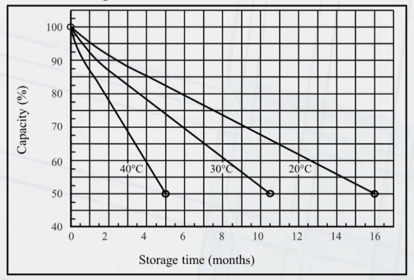
Charging characteristics (25°C)



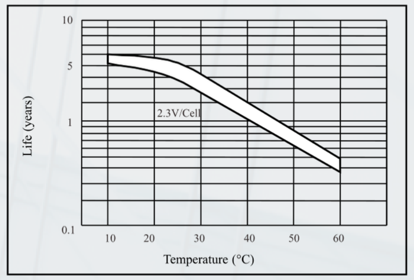
Temperature effects on capacity



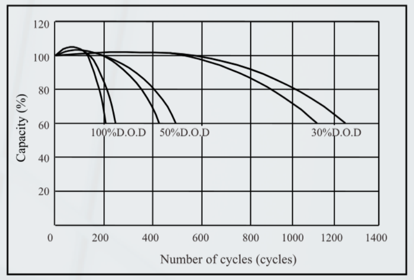
Self-discharge characteristics



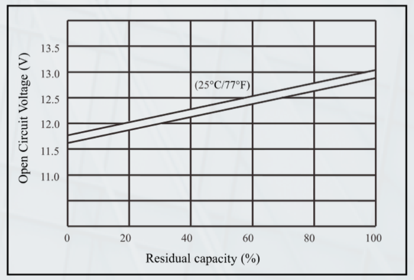
Floating life on temperature



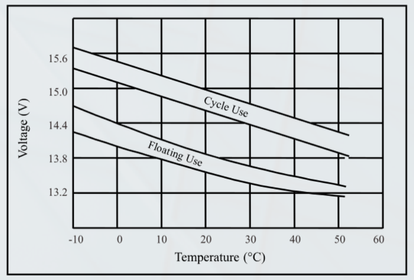
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY

EM26VB - 12V 26AH

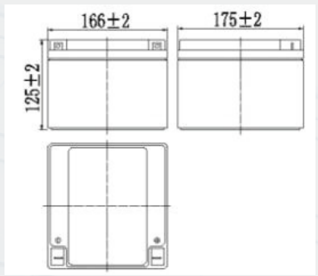
Characteristics

Capacity (25°C)	20HR (10.5V)	26Ah
	10HR (10.5V)	24Ah
	1HR (9.60V)	16Ah
Terminal type		T4/T12
Internal resistance (Fully charged, 25°C)		Approx. 12mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.60 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		7.8A
Maximum discharge current		360A (5 sec.)
Design life		8 years for floating (25°C)
		Eurobat (20°C): 6-9 years, general purpose

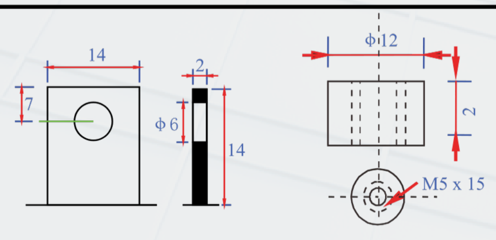
Specifications

Nominal voltage		12V (6 cells per unit)
Rated capacity (20HR)		26Ah/10.5V
Dimensions	Length	166±2mm (6.54inch)
	Width	175±2mm (6.89inch)
	Height	125±2mm (4.92inch)
	Total height	125±2mm (4.92inch)
Approx. weight		8.05kg (17.75lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



T4 (suit M5 bolt and nut)

T12
Torque: 3.0±0.6N.m

T2

EM 26VB - 12V26Ah

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

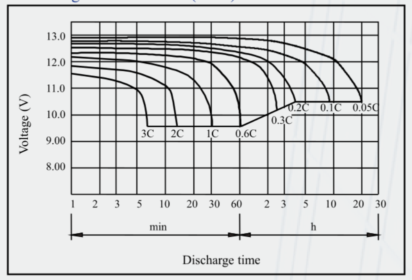
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	97.3	61.7	48.2	27.1	16.7	9.32	6.44	5.33	4.53	2.46	1.32
9.90V	94.4	59.8	47.0	26.6	16.4	9.26	6.41	5.30	4.51	2.45	1.31
10.2V	90.5	57.3	45.3	25.8	16.0	9.18	6.36	5.26	4.48	2.44	1.31
10.5V	86.6	54.9	43.7	25.2	15.7	9.04	6.32	5.23	4.45	2.43	1.30
10.8V	81.8	51.8	41.4	24.2	15.2	8.81	6.13	5.07	4.31	2.38	1.27

Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

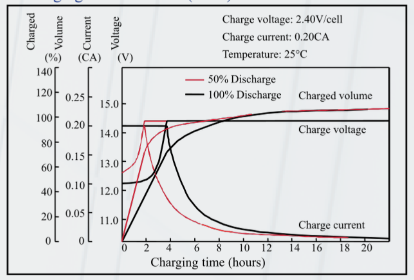
F.V/Time	5min	10min	15min	30min	60min	2h	3h	4h	5h	10h	20h
9.60V	1086	696	549	311	193	109	76.6	63.5	54.1	29.5	15.8
9.90V	1054	675	536	305	190	108	76.1	63.1	53.8	29.4	15.8
10.2V	1010	647	516	295	186	107	75.6	62.7	53.5	29.3	15.7
10.5V	967	619	498	288	182	106	75.1	62.2	53.1	29.1	15.6
10.8V	912	584	472	278	176	103	72.8	60.4	51.5	28.5	15.3

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

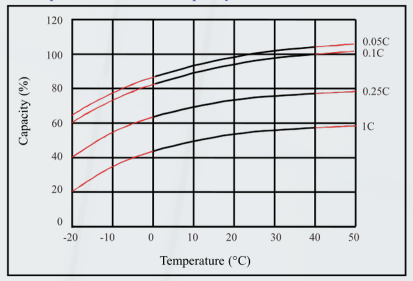
Discharge characteristics (25°C)



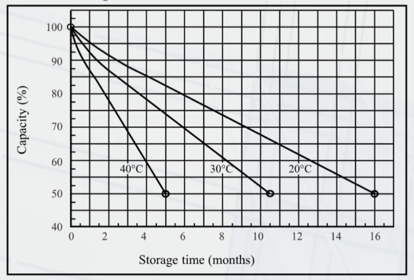
Charging characteristics (25°C)



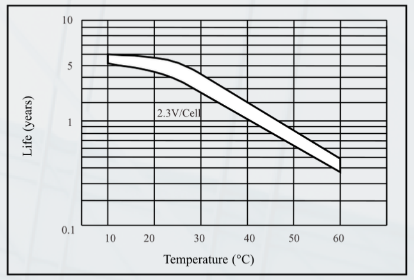
Temperature effects on capacity



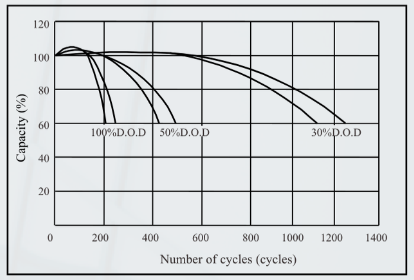
Self-discharge characteristics



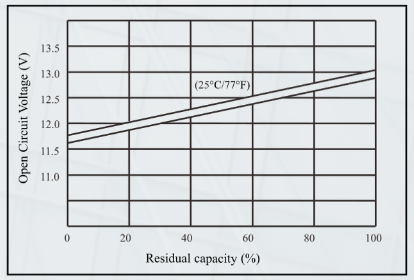
Floating life on temperature



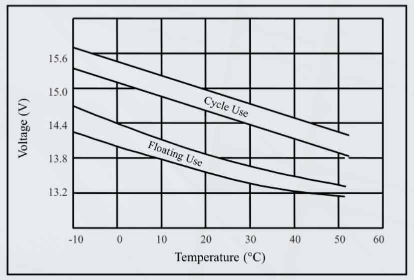
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

EM33VB - 12V33Ah

SEALED MAINTENANCE FREE VALVE REGULATED LEAD ACID BATTERY

EM33VB - 12V 33Ah

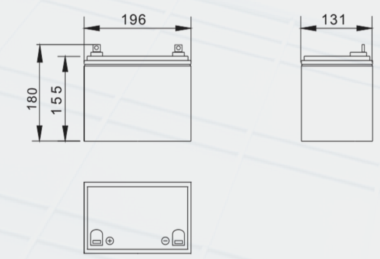
Characteristics

Capacity (25℃)	10HR(10.8V)	33Ah
	3HR(10.8V)	24Ah
	1HR(10.5V)	19Ah
Terminal type		T14/T6
Internal resistance (Fully charged,25℃)		Approx.11mΩ
Capacity affected by temperature (10HR)	40℃	102%
	25℃	100%
	0℃	85%
	-15℃	65%
Self-discharge (25℃)	3month	Remaining Capacity:91%
	6month	Remaining Capacity:82%
	12month	Remaining Capacity:65%
Nominal operating temperature		25℃±3℃(77℉±5℉)
Operating temperature range	Discharge	-15℃~50℃(5℉~122℉)
	Charge	-10℃~50℃(14℉~122℉)
	Storage	-20℃~50℃(-4℉~122℉)
Float charging voltage(25℃)		13.50 to 13.80V Temperature compensation: -18mV/℃
Cyclic charging voltage(25℃)		14.50 to 15.00V Temperature compensation: -30mV/℃
Maximum charging current		9.9A
Terminal material		Copper/Lead
Maximum discharge current		330A(5 sec.)
Designed floating life(20℃)		10years

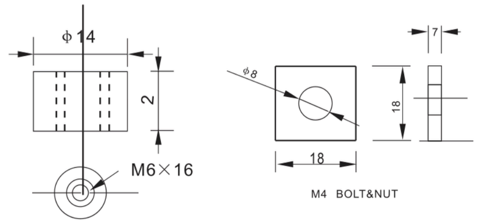
Specifications

Nominal Voltage		12V
Rated capacity (10 hour rate)		33Ah
Dimensions	Length	195±2mm(7.68inch)
	Width	130±2mm(5.12inch)
	Height	155±2mm6.10inch)
	Total Height	T14:167±2mm(6.57inch) T6:180±2mm(7.09inch)
Approx. Weight		10kg(22.0lbs)±4%

Outer dimensions (mm)



Terminal type (mm)



Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper / lead

Constant Current Discharge Characteristics Unit: A(25ºC,77ºF)

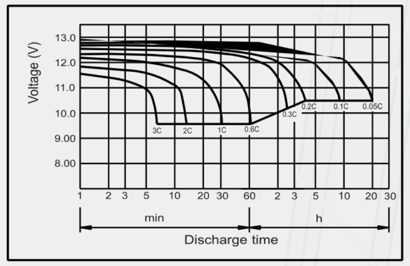
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	71.9	55.4	33.2	20.4	12.1	8.68	6.93	5.92	4.07	3.36	1.78
9.90V	69.8	54.1	32.5	20.1	12.0	8.63	6.89	5.89	4.05	3.35	1.78
10.2V	66.9	52.1	31.5	19.6	11.9	8.57	6.85	5.85	4.02	3.34	1.77
10.5V	64.0	50.3	30.7	19.0	11.7	8.51	6.80	5.81	3.99	3.32	1.76
10.8V	60.4	47.7	29.6	18.4	11.4	8.26	6.59	5.63	3.87	3.30	1.75

Constant Power Discharge Characteristics Unit: W(25ºC,77ºF)

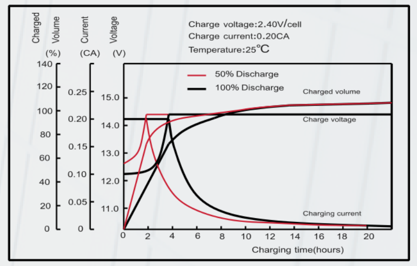
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	777	609	372	232	140	102	81.5	70.0	48.4	40.1	21.4
9.90V	754	594	365	229	139	102	81.1	69.6	48.1	40.0	21.3
10.2V	723	572	354	223	138	101	80.5	69.1	47.8	39.9	21.3
10.5V	691	553	345	216	136	100	79.9	68.7	47.4	39.7	21.1
10.8V	653	524	332	209	132	97.1	77.5	66.6	46.0	39.4	21.0

Note: The above characteristics data can be obtained within three charge or discharge cycles.

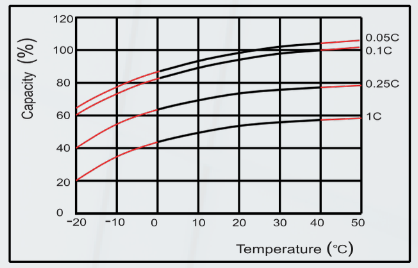
Discharge characteristics (25°C)



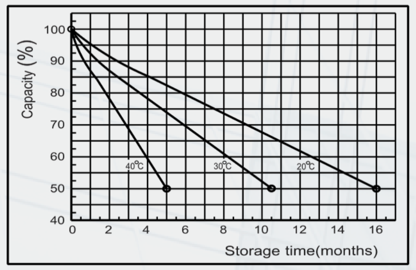
Charging characteristics (25°C)



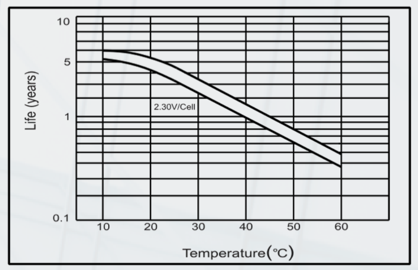
Temperature effects on capacity



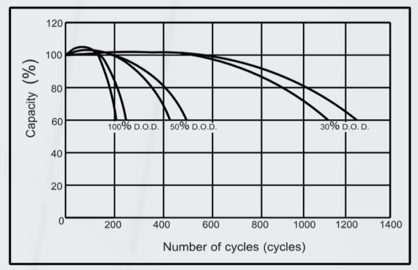
Self-discharge characteristics



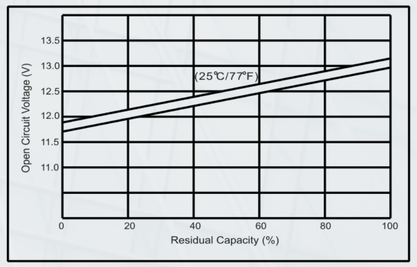
Floating life on temperature



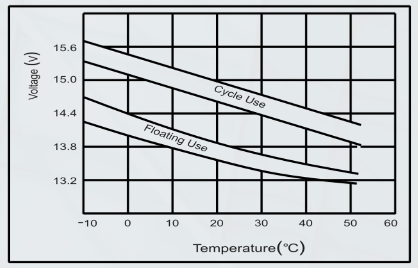
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)

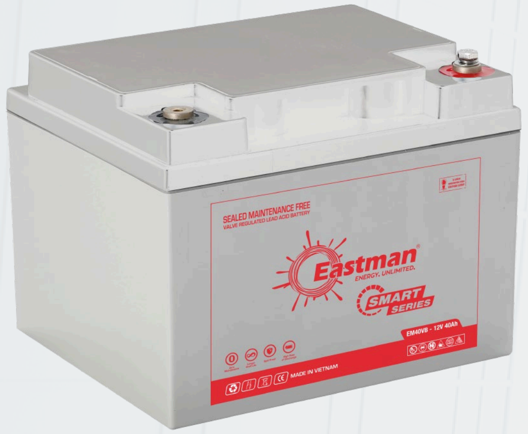


Relationship for charging voltage and temperature



Certification

EM 40VB - 12V40Ah



SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY
EM40VB - 12V 40Ah

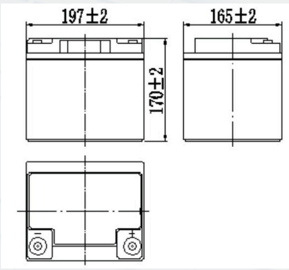
Characteristics

Capacity (25°C)	10HR (10.8V)	40Ah
	3HR (10.8V)	30Ah
	1HR (10.5V)	22Ah
Terminal type		T14
Internal resistance (Fully charged, 25°C)		Approx. 9mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 months	Remaining capacity: 91%
	6 months	Remaining capacity: 82%
	12 months	Remaining capacity: 65%
Nominal operating temperature		25°C± 3°C (77°F± 5°F)
Operating temperature range	Discharge	- 15°C~ 50°C (5°F ~ 122°F)
	Charge	- 10°C~ 50°C (14°F ~ 122°F)
	Storage	- 20°C~ 50°C (-4°F ~ 122°F)
Float charging voltage (25°C)		13.50 to 13.80V Temperature compensation: -18mV/°C/Block
Cyclic charging voltage (25°C)		14.50 to 15.00V Temperature compensation: -30mV/°C/Block
Maximum charging current		12A
Maximum discharge current		400A (5 sec.)
Design life		10 years for floating (25°C)
		Eurobat (20°C): 10-12 years, long life.

Specifications

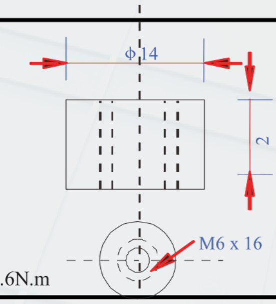
Nominal voltage		12V (6 cells per unit)
Rated capacity (10HR)		40Ah/10.8V
Dimensions	Length	197±2mm (7.76inch)
	Width	165±2mm (6.50inch)
	Height	170±2mm (6.69inch)
	Total height	170±2mm (6.69inch)
Approx. weight		12.50kg (27.60lbs)±3%

Outer dimensions (mm)



Terminal type (mm)

T14



Torque: 5.1±0.6N.m

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant current discharge characteristics unit: Ampere/Block (at 25°C, 77°F)

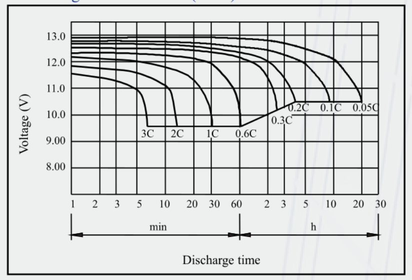
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	87.2	67.2	40.2	24.7	14.6	10.5	8.40	7.18	4.94	4.07	2.16
9.90V	84.6	65.6	39.4	24.3	14.5	10.5	8.36	7.14	4.91	4.06	2.15
10.2V	81.1	63.2	38.2	23.7	14.4	10.4	8.30	7.09	4.87	4.05	2.15
10.5V	77.6	61.0	37.3	23.0	14.2	10.3	8.24	7.04	4.84	4.03	2.13
10.8V	73.2	57.8	35.9	22.2	13.8	10.0	7.99	6.83	4.69	4.00	2.12

Constant power discharge characteristics unit: Watt/Block (at 25°C, 77°F)

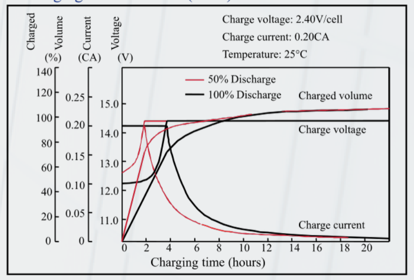
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	10h	20h
9.60V	942	738	451	282	169	124	98.8	84.9	58.6	48.6	25.9
9.90V	914	720	442	278	168	123	98.3	84.4	58.3	48.5	25.8
10.2V	876	694	428	271	167	122	97.6	83.8	57.9	48.4	25.8
10.5V	838	670	418	262	164	121	96.9	83.2	57.5	48.1	25.6
10.8V	791	635	403	254	160	118	94.0	80.7	55.8	47.8	25.4

Note 1: Above characteristics data can be obtained within three charge and discharge cycles.

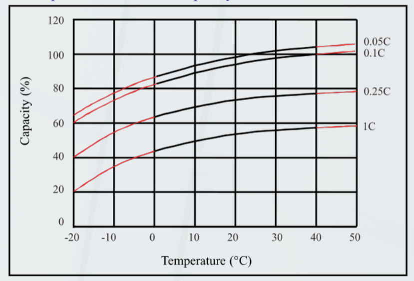
Discharge characteristics (25°C)



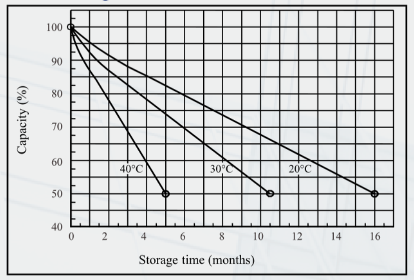
Charging characteristics (25°C)



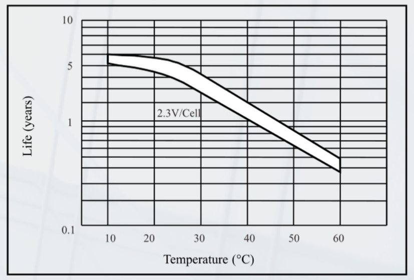
Temperature effects on capacity



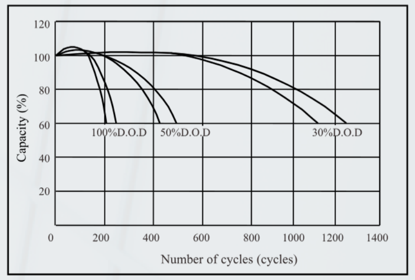
Self-discharge characteristics



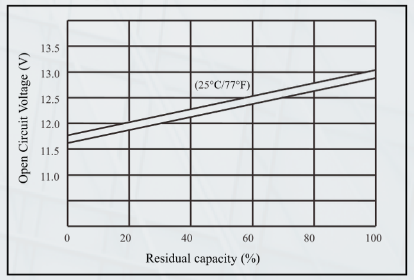
Floating life on temperature



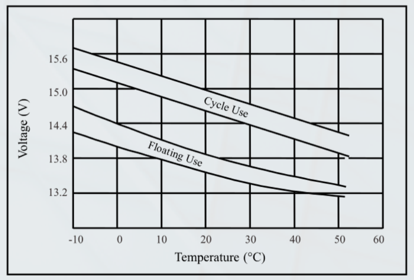
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification

EM55VB - 12V55Ah

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY
EM55VB - 12V 55Ah

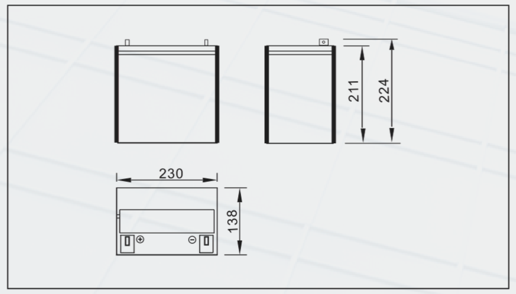
Characteristics

Capacity (25℃)	10HR(10.8V)	55Ah
	3HR(10.8V)	41.1Ah
	1HR(10.5V)	30.5Ah
Terminal type		T14
Internal resistance (Fully charged,25℃)		Approx.6.5mΩ
Capacity affected by temperature (10HR)	40℃	102%
	25℃	100%
	0℃	85%
	-15℃	65%
Self-discharge (25℃)	3month	Remaining Capacity:91%
	6month	Remaining Capacity:82%
	12month	Remaining Capacity:65%
Nominal operating temperature		25℃±3℃(77℉±5℉)
Operating temperature range	Discharge	-15℃~50℃(5℉~122℉)
	Charge	-10℃~50℃(14℉~122℉)
	Storage	-20℃~50℃(-4℉~122℉)
Float charging voltage(25℃)		13.50 to 13.80V Temperature compensation: -18mV/℃
Cyclic charging voltage(25℃)		14.50 to 15.00V Temperature compensation: -30mV/℃
Maximum charging current		16.5A
Terminal material		Copper
Maximum discharge current		550A(5 sec.)
Designed floating life(20℃)		10years

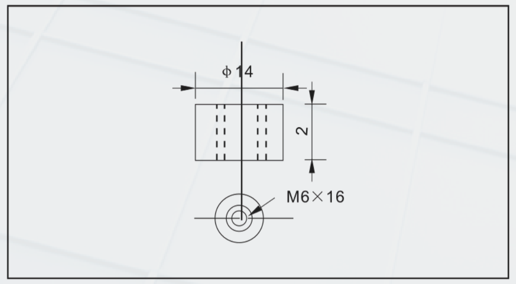
Specifications

Nominal Voltage		12V
Rated capacity (10 hour rate)		55Ah
Dimensions	Length	230±2mm(9.06inch)
	Width	138±2mm(5.43inch)
	Height	211±2mm(8.31inch)
	Total Height	215±2mm(8.46inch)
Approx. Weight		17.3kg(38.1lbs)±3%

Outer dimensions (mm)



Terminal type (mm)



EM55VB - 12V55Ah

Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant Current Discharge Characteristics Unit: A(25℃,77℉)

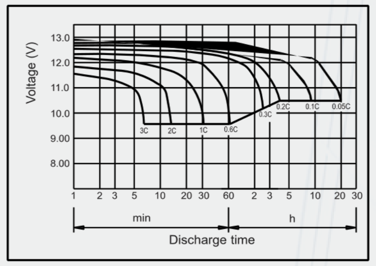
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	120	92.4	55.3	34.0	20.1	14.5	11.6	9.87	6.79	5.60	2.97
9.90V	116	90.2	54.2	33.5	20.0	14.4	11.5	9.82	6.75	5.59	2.96
10.2V	112	86.9	52.5	32.6	19.8	14.3	11.4	9.75	6.70	5.57	2.95
10.5V	107	83.9	51.2	31.6	19.5	14.2	11.3	9.68	6.66	5.54	2.94
10.8V	101	79.5	49.4	30.6	19.0	13.8	11.0	9.39	6.46	5.50	2.92

Constant Power Discharge Characteristics Unit: W(25℃,77℉)

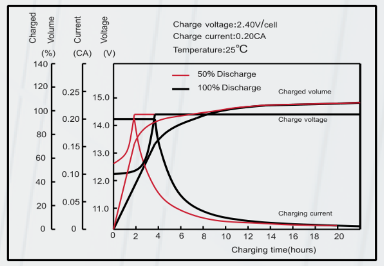
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	1295	1015	620	387	233	170	136	117	80.6	66.9	35.6
9.90V	1256	990	608	382	231	169	135	116	80.2	66.7	35.5
10.2V	1204	954	589	372	229	168	134	115	79.6	66.5	35.4
10.5V	1152	921	575	360	226	167	133	114	79.1	66.1	35.2
10.8V	1088	873	554	349	220	162	129	111	76.7	65.7	35.0

Note: The above characteristics data can be obtained within three charge or discharge cycles.

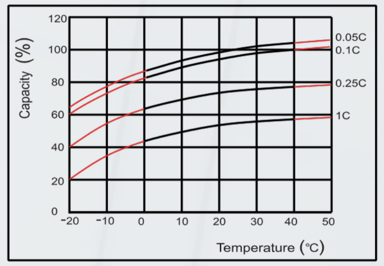
Discharge characteristics (25°C)



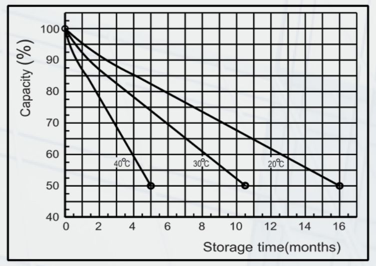
Charging characteristics (25°C)



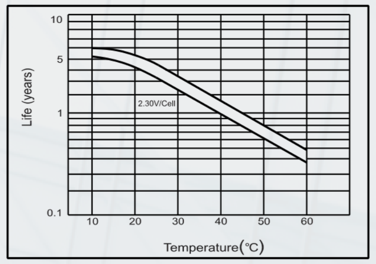
Temperature effects on capacity



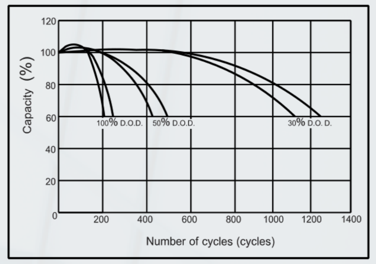
Self-discharge characteristics



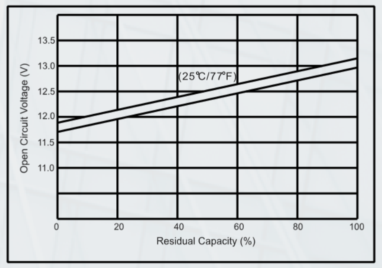
Floating life on temperature



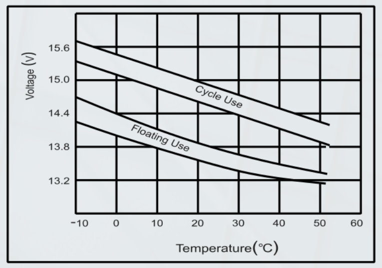
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



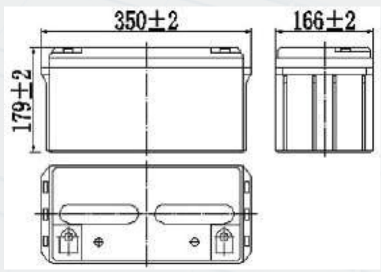
Certification

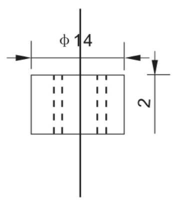
EM65VB - 12V65Ah

SEALED MAINTENANCE FREE
VALVE REGULATED LEAD ACID BATTERY

EM65VB - 12V 65Ah

Nominal Voltage		12V
Rated capacity (10 hour rate)		65Ah
Dimensions	Length	350±2mm(13.78inch)
	Width	166±2mm(6.54inch)
	Height	179±2mm(7.05inch)
	Total Height	179±2mm(7.05inch)
Approx. Weight		21kg(46.3lbs)±3%





Capacity (25℃)	10HR(10.8V)	65Ah
	3HR(10.8V)	51Ah
	1HR(10.5V)	37Ah
Terminal type		T14
Internal resistance (Fully charged,25℃)		Approx.6.5m Ω
Capacity affected by temperature (10HR)	40℃	102%
	25℃	100%
	0℃	85%
	-15℃	65%
Self-discharge (25℃)	3 months	Remaining Capacity:91%
	6 months	Remaining Capacity:82%
	12 months	Remaining Capacity:65%
Nominal operating temperature		25℃ ±3℃(77℉ ±5℉)
Operating temperature range	Discharge	-15℃~50℃(5℉~122℉)
	Charge	-10℃~50℃(14℉~122℉)
	Storage	-20℃~50℃(-4℉~122℉)
Float charging voltage(25℃)		13.50 to 13.80V Temperature compensation -18mV/℃
Cyclic charging voltage(25℃)		14.50 to 15.00V Temperature compensation -30mV/℃
Maximum charging current		19.5A
Maximum discharge current		650A(5 sec.)
Designed floating life(20℃)		10years

● Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

● Constant Current Discharge Characteristics Unit: A(25ºC,77ºF)

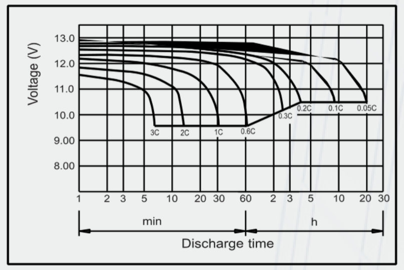
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	148	114	68.3	42.0	24.8	17.9	14.3	12.2	8.39	6.92	3.67
9.90V	144	111	67.0	41.4	24.7	17.8	14.2	12.1	8.34	6.91	3.66
10.2V	138	107	64.9	40.3	24.5	17.7	14.1	12.1	8.29	6.89	3.65
10.5V	132	104	63.4	39.1	24.1	17.5	14.0	12.0	8.23	6.85	3.63
10.8V	125	98.2	61.0	37.8	23.5	17.0	13.6	11.6	7.98	6.80	3.60

● Constant Power Discharge Characteristics Unit: W(25ºC,77ºF)

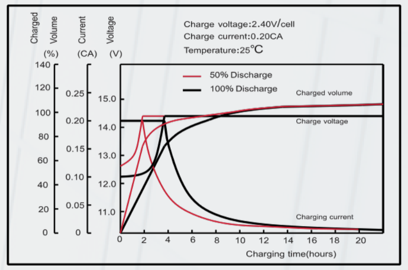
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	1601	1254	767	479	288	210	168	144	99.7	82.7	44.0
9.90V	1553	1224	751	472	286	209	167	143	99.1	82.5	43.9
10.2V	1489	1179	728	460	283	208	166	142	98.4	82.2	43.8
10.5V	1425	1139	711	446	279	206	165	141	97.7	81.8	43.6
10.8V	1345	1079	685	431	272	200	160	137	94.8	81.2	43.2

Note: The above characteristics data can be obtained within three charge or discharge cycles.

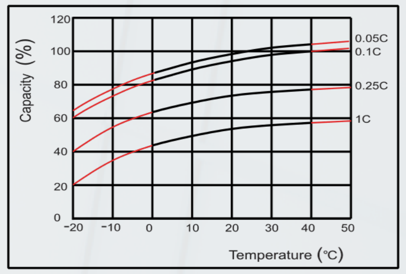
● Discharge characteristics (25°C)



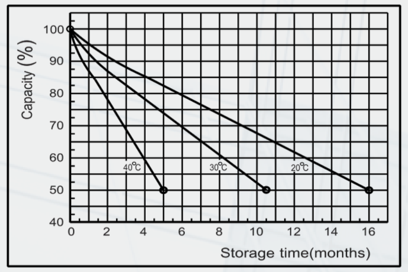
● Charging characteristics (25°C)



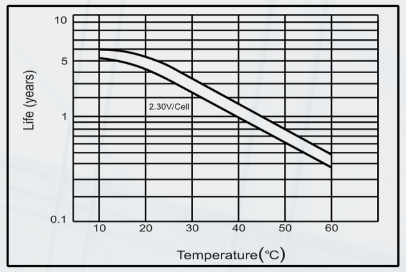
● Temperature effects on capacity



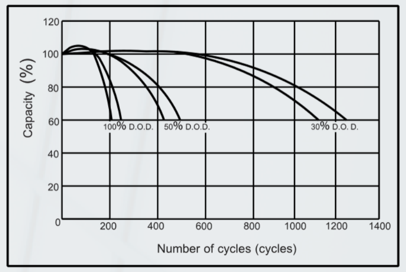
● Self-discharge characteristics



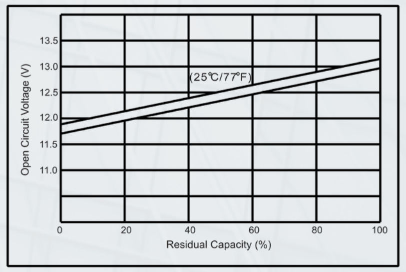
● Floating life on temperature



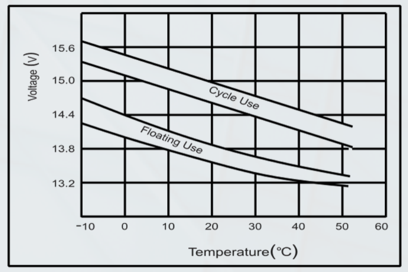
● Cycle life on D.O.D (25°C)



● Relationship for OCV and capacity (25°C)



● Relationship for charging voltage and temperature



Certification

EM75VB - 12V75Ah

SEALED MAINTENANCE FREE VALVE REGULATED LEAD ACID BATTERY

EM75VB - 12V 75Ah

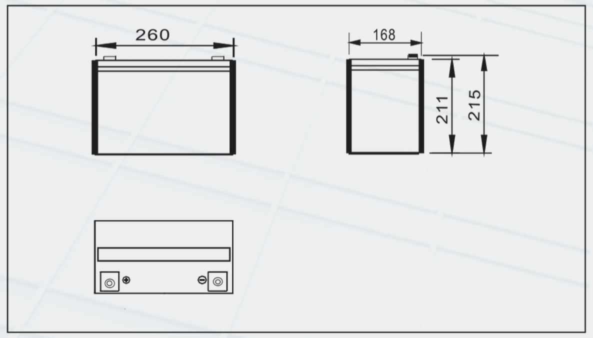
Characteristics

Capacity (25℃)	10HR(10.8V)	75Ah
	3HR(10.8V)	57Ah
	1HR(10.5V)	43Ah
Terminal type		T14
Internal resistance (Fully charged,25℃)		Approx.5.5m Ω
Capacity affected by temperature (10HR)	40℃	102%
	25℃	100%
	0℃	85%
	-15℃	65%
Self-discharge (25℃)	3 months	Remaining Capacity:91%
	6 months	Remaining Capacity:82%
	12 months	Remaining Capacity:65%
Nominal operating temperature		25℃ ±3℃(77℉ ±5℉)
Operating temperature range	Discharge	-15℃~50℃(5℉~122℉)
	Charge	-10℃~50℃(14℉~122℉)
	Storage	-20℃~50℃(-4℉~122℉)
Float charging voltage(25℃)		13.50 to 13.80V Temperature compensation: -18mV/℃
Cyclic charging voltage(25℃)		14.50 to 15.00V Temperature compensation: -30mV/℃
Maximum charging current		22.5A
Maximum discharge current		700A(5 sec.)
Designed floating life(20℃)		10years

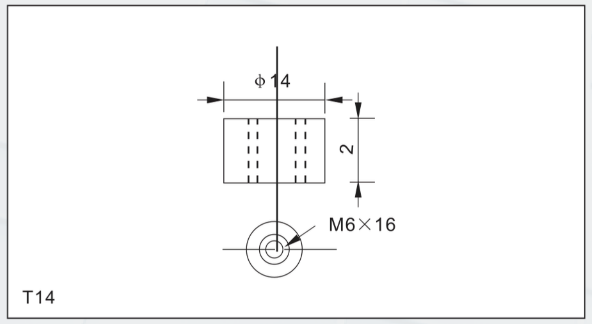
Specifications

Nominal Voltage		12V
Rated capacity (10 hour rate)		75Ah
Dimensions	Length	260±2mm(10.24inch)
	Width	168±2mm(6.61inch)
	Height	211±2mm(8.31inch)
	Total Height	215±2mm(8.46inch)
Approx. Weight		24.2kg(53.3lbs)±3%

Outer dimensions (mm)



Terminal type (mm)



Construction

Component	Positive plate	Negative plate	Container	Cover	Separator	Electrolyte	Safety valve	Terminal
Raw material	Lead dioxide	Lead	ABS	ABS	AGM	Sulfuric acid	Rubber	Copper

Constant Current Discharge Characteristics Unit: A(25ºC,77ºF)

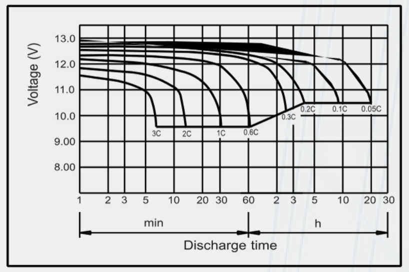
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	170	131	78.4	48.2	28.5	20.5	16.4	14.0	9.63	7.94	4.21
9.90V	165	128	76.8	47.5	28.3	20.4	16.3	13.9	9.57	7.92	4.20
10.2V	158	123	74.5	46.3	28.1	20.3	16.2	13.8	9.50	7.90	4.19
10.5V	151	119	72.7	44.8	27.7	20.1	16.1	13.7	9.44	7.85	4.16
10.8V	143	113	70.0	43.4	27.0	19.5	15.6	13.3	9.15	7.80	4.13

Constant Power Discharge Characteristics Unit: W(25ºC,77ºF)

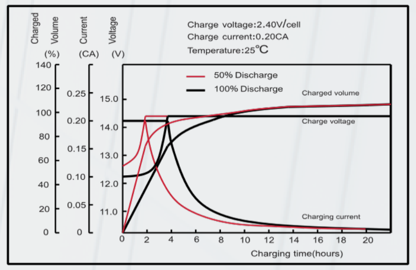
F.V/Time	10min	15min	30min	60min	2h	3h	4h	5h	8h	@C10	@C20
9.60V	1836	1439	880	550	330	241	193	166	114	94.8	50.5
9.90V	1781	1404	862	541	328	240	192	165	114	94.6	50.4
10.2V	1708	1352	836	528	325	238	190	163	113	84.3	50.3
10.5V	1634	1306	815	511	320	237	189	162	112	93.8	50.0
10.8V	1543	1237	785	495	312	230	183	157	109	93.1	49.6

Note: The above characteristics data can be obtained within three charge or discharge cycles.

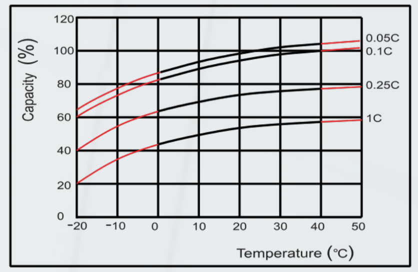
Discharge characteristics (25°C)



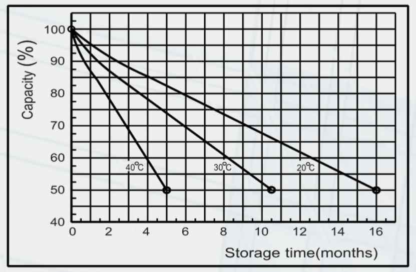
Charging characteristics (25°C)



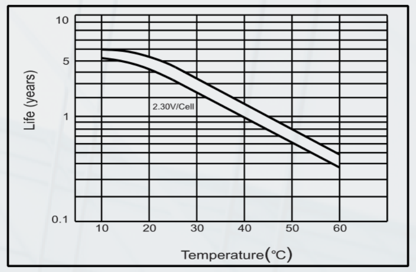
Temperature effects on capacity



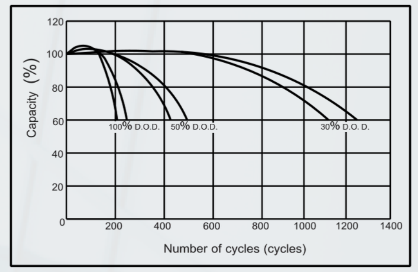
Self-discharge characteristics



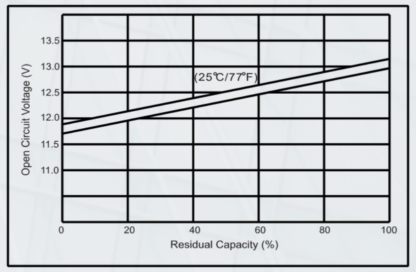
Floating life on temperature



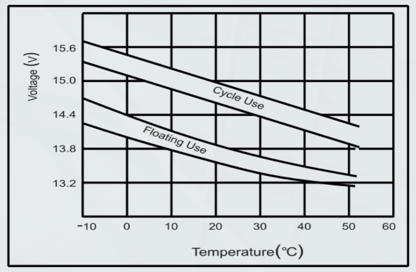
Cycle life on D.O.D (25°C)



Relationship for OCV and capacity (25°C)



Relationship for charging voltage and temperature



Certification