

## ATENCO POWER TECH CO., LTD

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# ATENCO BATTERY

## ● ATN1209[12V9.0AH/20HR]

ATN General Series VRLA batteries are designed with AGM (Absorbent Glass Mat) technology, High performance plates and electrolyte to give extra power output for common power backup system. GP Series Batteries are the general purpose batteries with 5 years floating design life at 25°C, Meet with IEC,BS,JIS and Eurobat standard,UL(MH62092),CE approved.

## ● Application

- \* Emergency Power System
- \* Communication equipment
- \* Telecommunication systems
- \* Uninterruptible power supplies
- \* Electric toy car and wheelchairs, etc.
- \* Power tools
- \* Alarm system
- \* Marine equipment
- \* Medical equipment
- \* Fire and Security System



## ● General Features

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

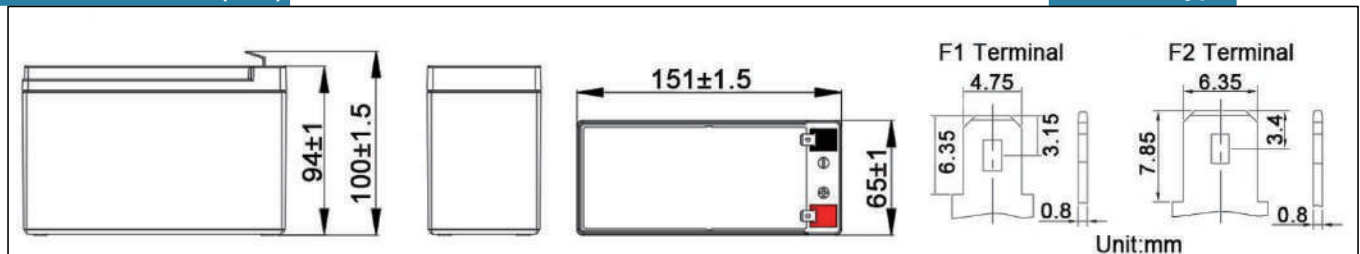
## ● Construction

- \* Positive . . . . . Lead dioxide
- \* Electrolyte . . . . Sulfuric acid
- \* Separator . . . . . Fiber glass
- \* Container . . . . . ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative . . . . . Lead
- \* Safety Valve . . . . EPDR
- \* Terminal . . . . . Copper

## ● Specification

Battery Model	Nominal Voltage		12V (6 cells per unit)	
	Rated capacity (20 Hour rate)		9.0Ah	
Dimension	Length	Width	Height	Total Height
	151mm (5.94 inches)	65mm (2.56 inches)	94mm (3.70 inches)	100mm (3.94 inches)
Approx Weight	2.35kg(5.18 lbs) ± 3%			
Internal Resistance	Full charged at 25°C(77°F):Approx 14.5mΩ			
Maximum Charge Current	2.70A			
Max.discharge current	135A (5Sec.)			
Operating Temperature Range	Nominal Operating Temperature	Discharge	Charge	Storage
	25°C(77°F)	-15°C~ 50°C(5°F~122°F)	-15°C~ 40°C(5°F~104°F)	-15°C~ 40°C(5°F~104°F)
Capacity @ 25°C (77°F)	20 hour rate(0.45A,10.5V)	10 hour rate(0.83A,10.5V)	5 hour rate(1.48A,10.5V)	1 hour rate(5.77A,9.6V)
	9.00Ah	8.30Ah	7.4Ah	5.80Ah
Capacity affected by Temp.(20HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Charge method	Float Charging Voltage		Equalization Charging Voltage	
	13.5 ~ 13.8 VDC/Unit at 25°C(77°F)		14.4 ~ 15.0 VDC/Unit at 25°C(77°F)	

## ● Outer dimension (mm)

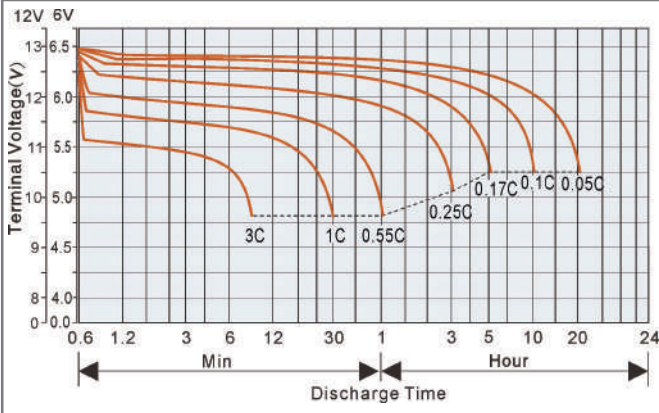


## ● Terminal Type

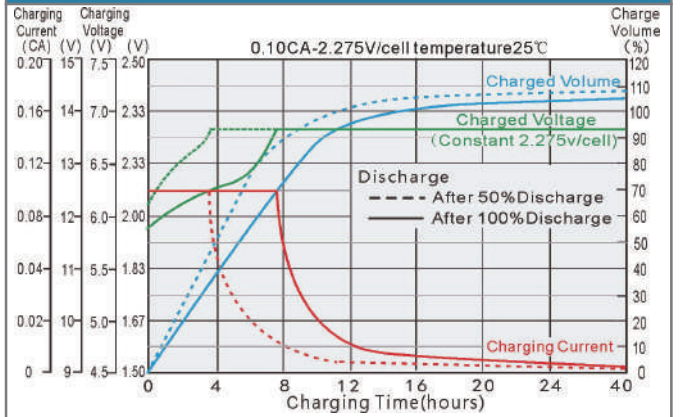
## ● Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

F.V/Time		5min	10min	15min	20min	30min	1h	2h	3h	5h	8h	10h	20h
1.85V/cell	A	29.0	19.7	15.1	12.4	9.10	5.40	3.10	2.20	1.46	1.00	0.81	0.440
	W	55.0	37.5	29.0	23.9	17.80	10.60	6.11	4.35	2.89	1.98	1.63	0.891
1.80V/cell	A	30.5	20.6	15.7	12.8	9.30	5.48	3.14	2.22	1.46	1.01	0.82	0.447
	W	57.5	39.0	30.3	24.6	18.20	10.75	6.17	4.39	2.92	2.00	1.65	0.895
1.75V/cell	A	32.0	21.5	16.3	13.1	9.50	5.56	3.18	2.25	1.48	1.02	0.83	0.450
	W	60.1	40.5	31.4	25.2	18.50	10.88	6.22	4.43	2.94	2.02	1.66	0.898
1.70V/cell	A	33.5	22.2	16.8	13.4	9.70	5.63	3.21	2.28	1.50	1.03	0.84	0.453
	W	62.2	41.7	32.3	25.6	18.80	10.98	6.27	4.47	2.96	2.03	1.67	0.901
1.67V/cell	A	34.5	22.8	17.2	13.6	9.80	5.68	3.24	2.30	1.51	1.04	0.85	0.455
	W	63.5	42.7	33.0	25.9	18.90	11.05	6.30	4.49	2.97	2.04	1.68	0.904
1.60V/cell	A	36.5	23.5	18.0	13.9	9.90	5.77	3.28	2.32	1.53	1.05	0.86	0.460
	W	66.5	44.0	34.0	26.5	19.00	11.17	6.36	4.52	2.99	2.06	1.69	0.910

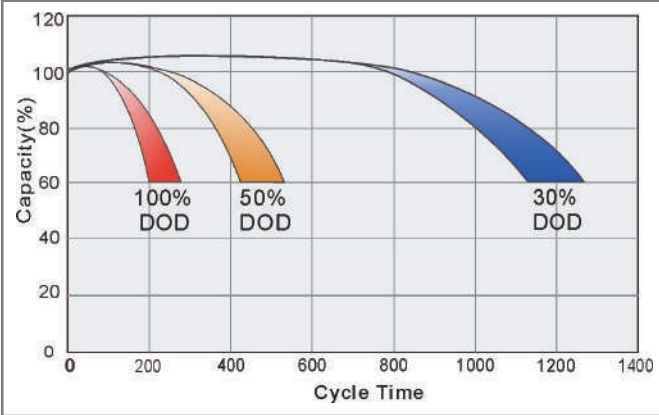
## Discharge characteristic curve (25°C/77°F)



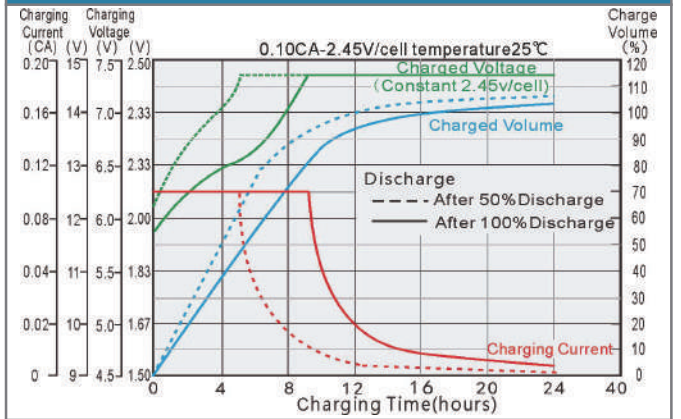
## Charging characteristic curve of floating charge (25°C/77°F)



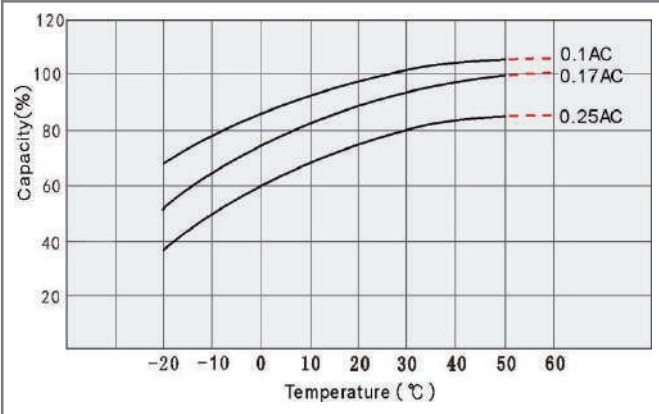
## Cycle service life in relation to depth of discharge



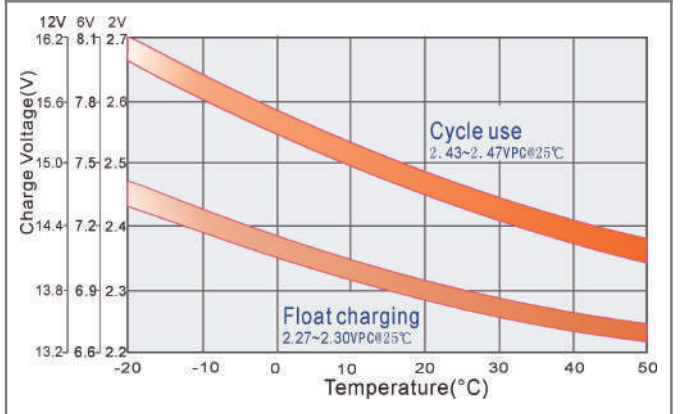
## Cyclic charging characteristic curve (25°C/77°F)



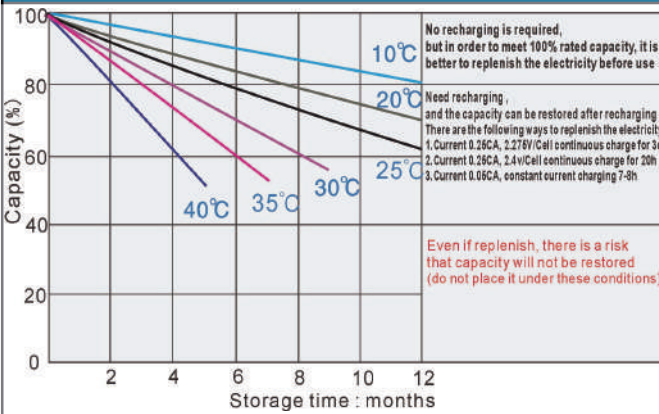
## Relationship between temperature and capacity



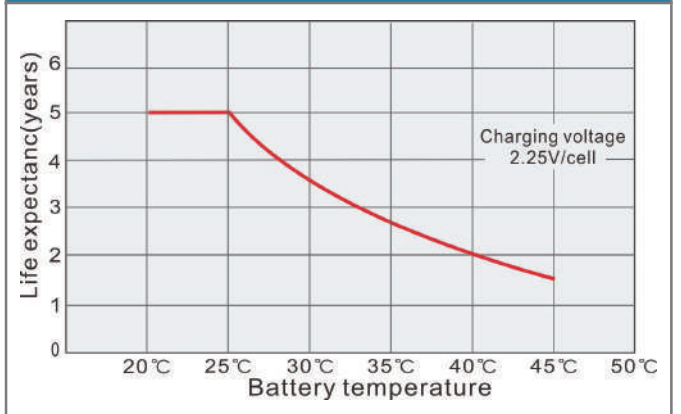
## Relationship between charging voltage and temperature



## Self discharge characteristics



## Temperature vs Float Life



## ● ATN1218[12V18AH/20HR]

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## ● Application

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- \* Power tools
- \* Alarm system
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- \* Fire and Security System



## ● General Features

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

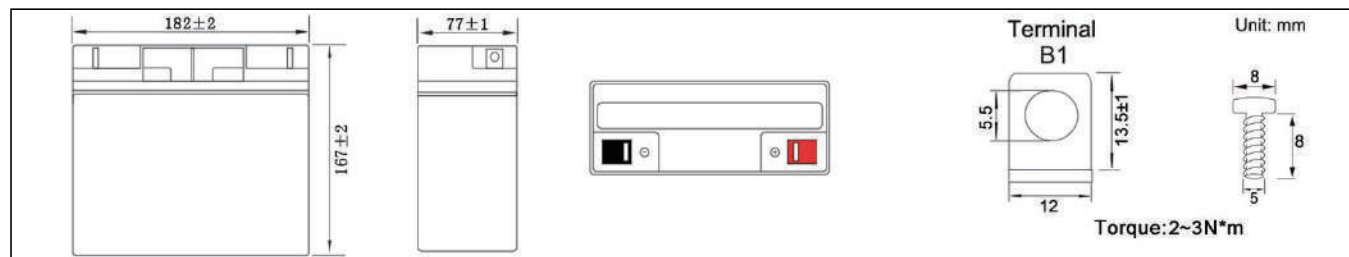
## ● Construction

- \* Positive . . . . . Lead dioxide
- \* Electrolyte . . . . . Sulfuric acid
- \* Separator . . . . . Fiber glass
- \* Container . . . . . ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative . . . . . Lead
- \* Safety Valve . . . . . EPDR
- \* Terminal . . . . . Copper

## ● Specification

Battery Model	Nominal Voltage		12V (6 cells per unit)	
	Rated capacity (20 Hour rate)		18Ah	
Dimension	Length	Width	Height	Total Height
	181mm (7.13 inches)	77mm (3.03 inches)	167mm (6.57 inches)	167mm (6.57 inches)
Approx Weight	5.04kg(11.11 lbs) ± 3%			
Internal Resistance	Full charged at 25°C(77°F):Approx 12.5mΩ			
Maximum Charge Current	5.4A			
Max.discharge current	270A (5Sec.)			
Operating Temperature Range	Nominal Operating Temperature	Discharge	Charge	Storage
	25°C(77°F)	-15°C~ 50°C(5°F~122°F)	-15°C~ 40°C(5°F~104°F)	-15°C~ 40°C(5°F~104°F)
Capacity @ 25°C (77°F)	20 hour rate(0.92A,10.5V)	10 hour rate(1.68A,10.5V)	5 hour rate(3.11A,10.5V)	1 hour rate(12.0A,9.6V)
	18.4Ah	16.8Ah	15.55Ah	12.0Ah
Capacity affected by Temp.(20HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Charge method	Float Charging Voltage		Equalization Charging Voltage	
	13.5 ~ 13.8 VDC/Unit at 25°C(77°F)		14.4~ 15.0 VDC/Unit at 25°C(77°F)	

## ● Outer dimension (mm)



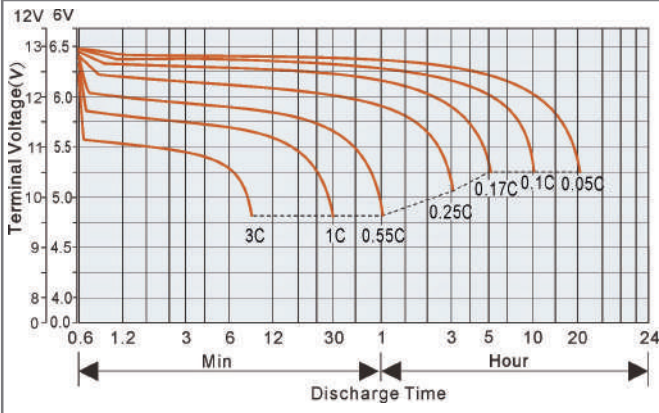
## ● Terminal Type

## ● Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

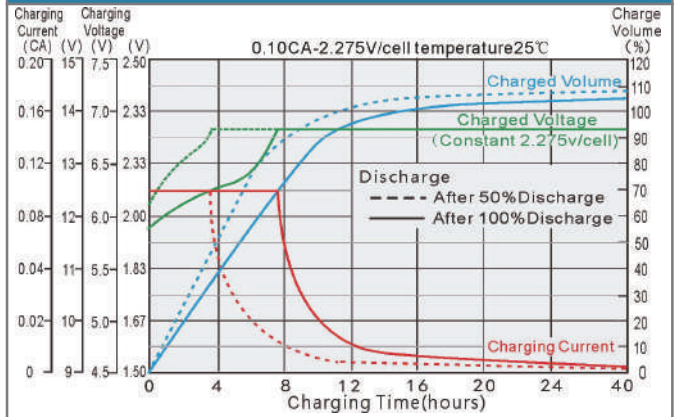
F.V/Time		5min	10min	15min	20min	30min	1h	2h	3h	5h	8h	10h	20h
1.85V/cell	A	51	35.0	27.1	22.3	17.5	10.8	6.41	4.62	2.99	2.05	1.64	0.90
	W	96	67.0	52.0	43.0	33.8	21.1	12.61	9.11	5.92	4.11	3.32	1.84
1.80V/cell	A	55	37.9	28.6	23.5	18.3	11.1	6.56	4.74	3.05	2.09	1.66	0.91
	W	104	72.1	54.6	45.2	35.3	21.6	12.81	9.27	6.03	4.18	3.35	1.86
1.75V/cell	A	59	40.2	30.2	24.6	19.0	11.3	6.70	4.84	3.11	2.12	1.68	0.92
	W	111	75.6	57.5	47.4	36.6	21.9	12.99	9.42	6.14	4.24	3.38	1.87
1.70V/cell	A	63	42.2	31.6	25.8	19.7	11.5	6.82	4.92	3.17	2.16	1.69	0.93
	W	118	79.0	60.2	49.5	37.6	22.2	13.18	9.55	6.25	4.29	3.40	1.88
1.67V/cell	A	66	43.1	32.8	26.5	20.0	11.7	6.89	4.97	3.20	2.18	1.70	0.94
	W	123	80.5	62.0	50.2	38.1	22.6	13.31	9.62	6.30	4.32	3.43	1.89
1.60V/cell	A	70	45.0	34.5	27.4	20.5	12.0	7.01	5.05	3.26	2.21	1.74	0.95
	W	130	84.0	65.0	51.8	39.0	23.1	13.52	9.75	6.41	4.37	3.47	1.91



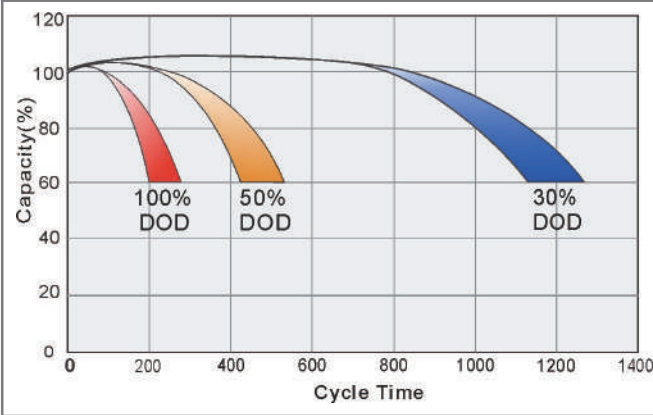
## Discharge characteristic curve (25°C/77°F)



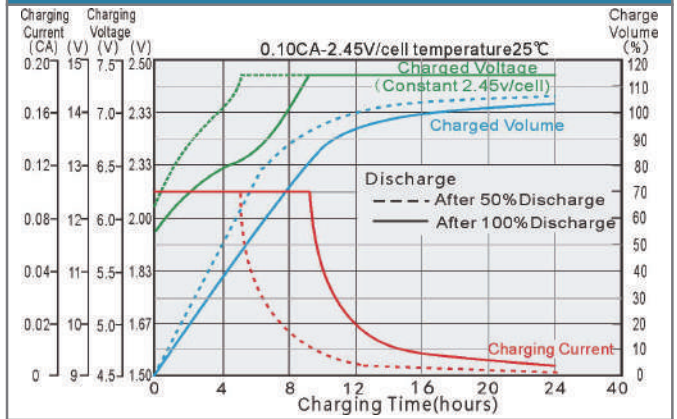
## Charging characteristic curve of floating charge (25°C/77°F)



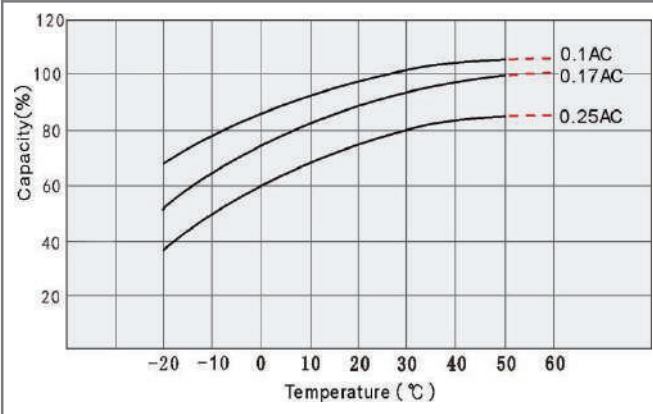
## Cycle service life in relation to depth of discharge



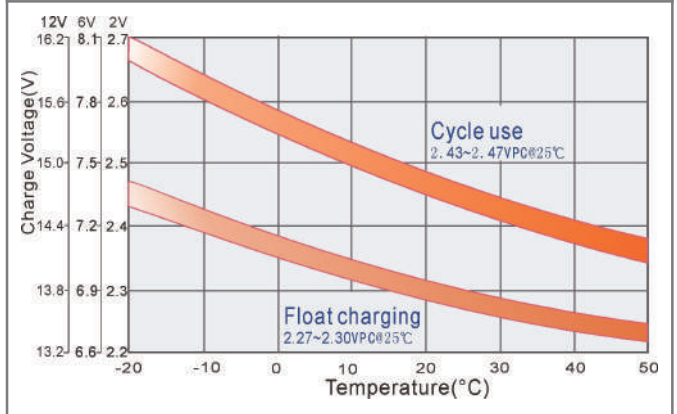
## Cyclic charging characteristic curve (25°C/77°F)



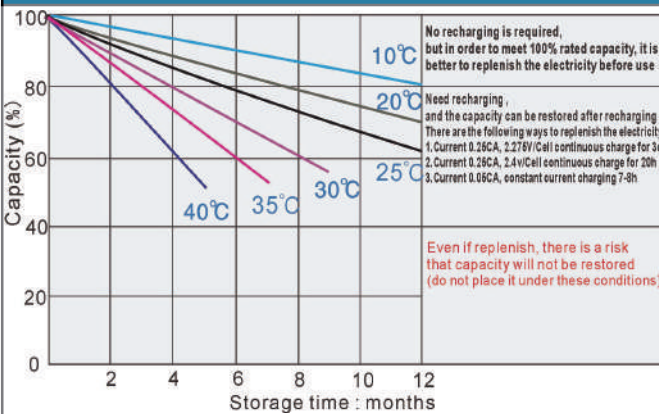
## Relationship between temperature and capacity



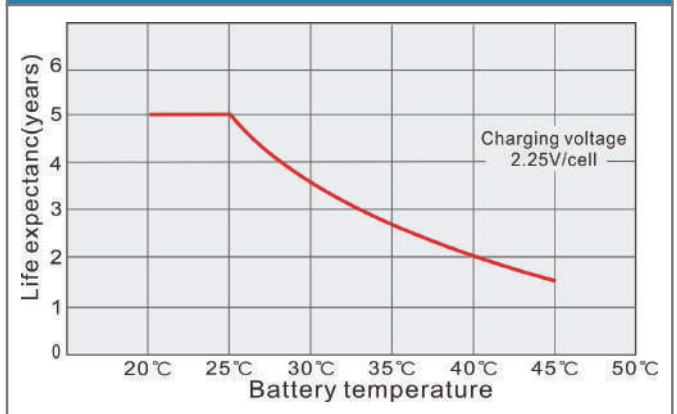
## Relationship between charging voltage and temperature



## Self discharge characteristics



## Temperature vs Float Life



**● ATN1226[12V26AH/20HR]**

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**● Application**

- \* Emergency Power System
- \* Communication equipment
- \* Telecommunication systems
- \* Uninterruptible power supplies
- \* Electric toy car and wheelchairs, etc.
- \* Power tools
- \* Alarm system
- \* Marine equipment
- \* Medical equipment
- \* Fire and Security System



**● General Features**

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

**● Construction**

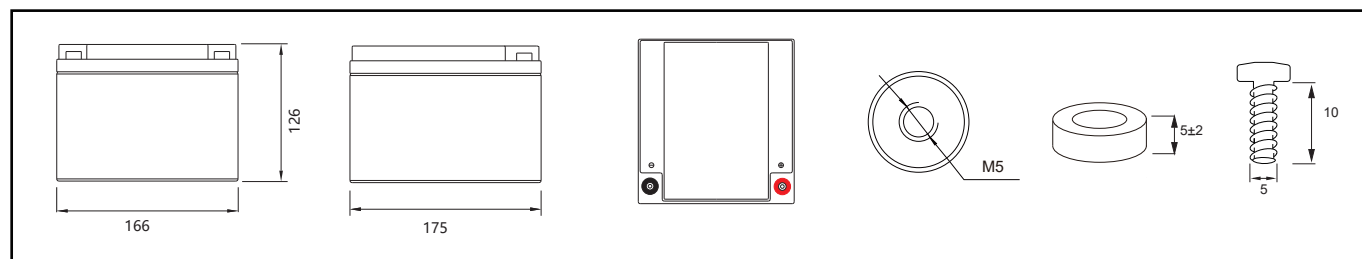
- \* Positive . . . . . Lead dioxide
- \* Electrolyte . . . . Sulfuric acid
- \* Separator . . . . . Fiber glass
- \* Container . . . . . ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative . . . . . Lead
- \* Safety Valve . . . . EPDR
- \* Terminal . . . . . Copper

**● Specification**

Battery Model	Nominal Voltage		12V	
	Rated capacity (20 Hour rate)		26Ah	
	Cells Per battery		6	
Dimension	Length	Width	Height	Total Height
	175mm (6.88 inches)	166mm (6.53 inches)	126mm (4.96 inches)	126mm (4.96 inches)
Approx Weight	7.40kg (16.31lbs) ± 3%			
Capacity @ 25°C (77°F)	20 hour rate(1.34A,10.5V)	10 hour rate(2.60A,10.5V)	5 hour rate(4.449A,10.5V)	1 hour rate(14.4A,9.6V)
	26.8Ah	26Ah	22.245Ah	14.4Ah
Max.discharge current	360A (5 Sec.)			
Internal Resistance	Full charged at 25°C: Approx 13.5mΩ			
Capacity affected by Temp.(20 HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Self Discharge @25°C (77°F)	After 3 months storage		After 6 months storage	After 12 months storage
	91%		82%	64%
Charge method @25°C (77°F)	Cycle Use		Float Use	
	14.4-14.7V (Initial charging current less than 7.8A)		13.50-13.80V	

**● Outer dimension (mm)**

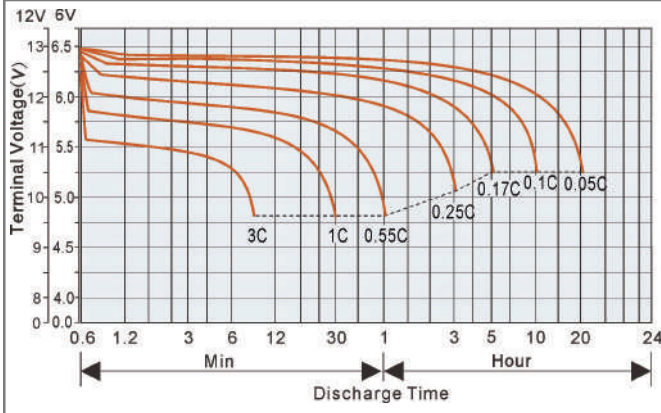
**● Terminal Type**



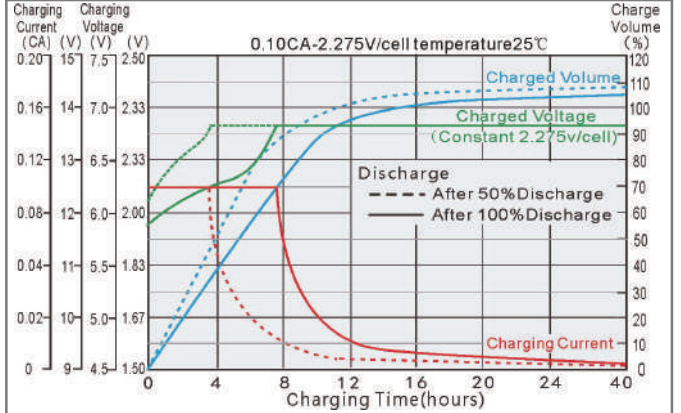
**● Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)**

F.V/time	5MIN	10MIN	15MIN	30MIN	60MIN	90MIN	2HR	3HR	5HR	8HR	10HR	20HR
1.60V	91.000	58.436	44.200	26.000	14.400	10.539	9.254	6.592	4.499	3.313	2.698	1.473
	168.308	111.552	85.306	51.792	28.728	21.043	18.517	13.190	9.001	6.629	5.398	2.946
1.67V	80.788	54.532	41.904	25.444	14.296	10.435	9.208	6.558	4.474	3.285	2.656	1.399
	149.397	104.090	80.938	50.711	28.522	20.840	18.440	13.144	8.968	6.586	5.325	2.805
1.70V	76.476	52.581	40.871	25.222	14.191	10.424	9.185	6.541	4.473	3.252	2.622	1.362
	141.455	100.429	79.003	50.269	28.348	20.828	18.401	13.115	8.968	6.524	5.261	2.731
1.75V	69.214	49.481	39.149	24.778	13.983	10.289	9.128	6.500	4.449	3.243	2.600	1.340
	128.028	94.530	75.752	49.420	28.000	20.577	18.283	13.039	8.925	6.510	5.220	2.690
1.80V	61.839	46.152	37.541	24.222	13.878	10.216	9.070	6.465	4.437	3.215	2.558	1.296
	114.412	88.202	72.755	48.333	27.826	20.482	18.171	12.976	8.905	6.459	5.139	2.603
1.85V	54.464	42.822	35.590	23.556	13.670	10.101	8.989	6.408	4.412	3.173	2.516	1.252
	100.796	81.874	69.044	47.037	27.448	20.303	18.017	12.873	8.864	6.381	5.060	2.517

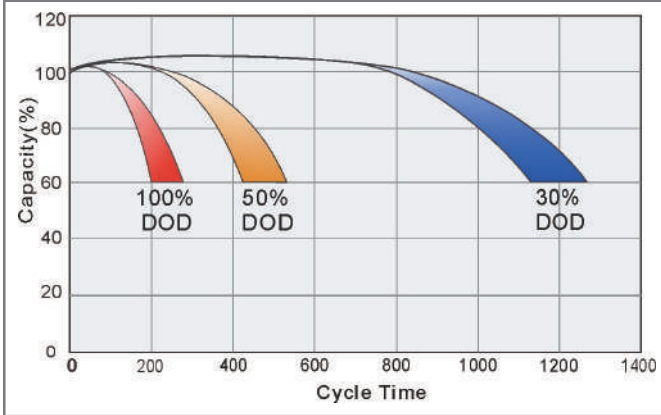
## Discharge characteristic curve (25°C/77°F)



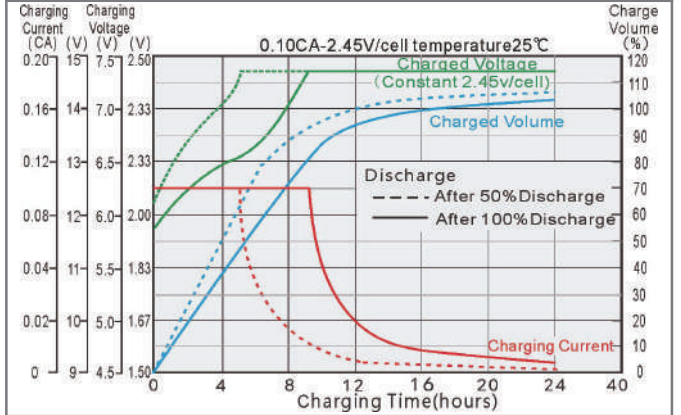
## Charging characteristic curve of floating charge (25°C/77°F)



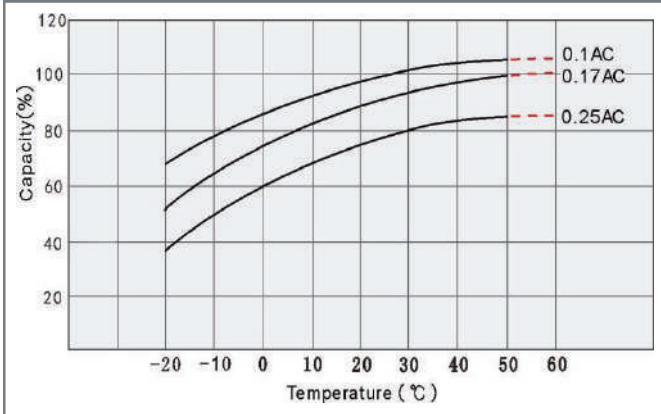
## Cycle service life in relation to depth of discharge



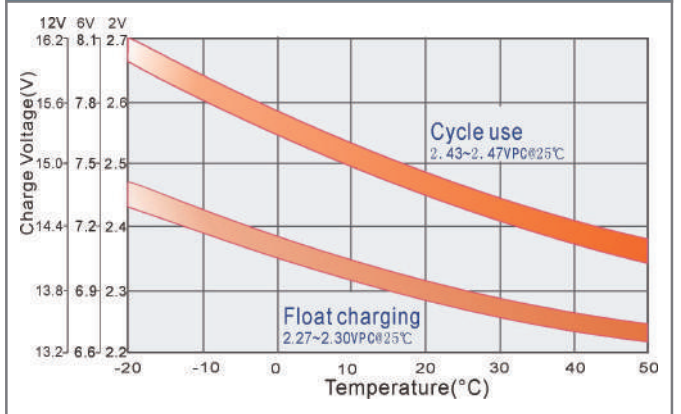
## Cyclic charging characteristic curve (25°C/77°F)



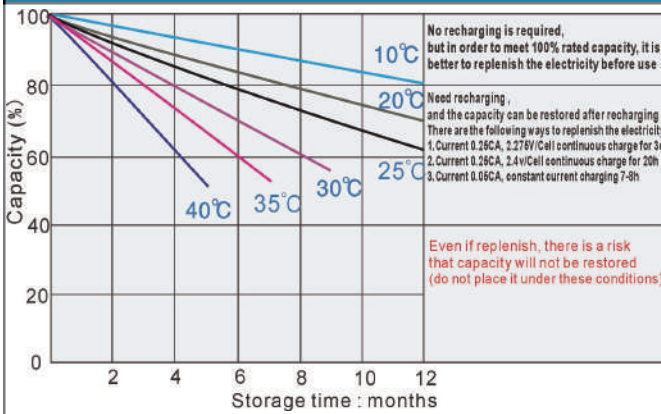
## Relationship between temperature and capacity



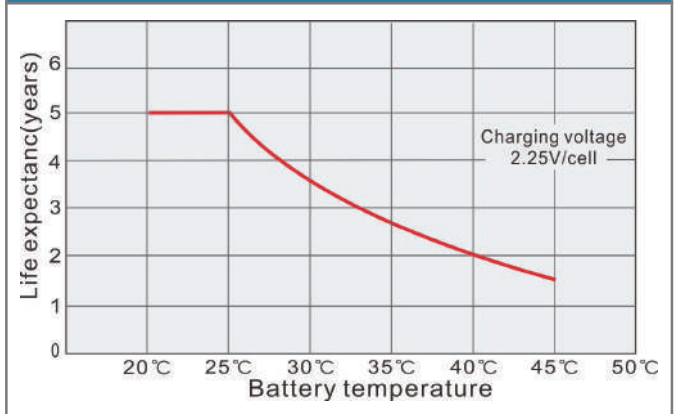
## Relationship between charging voltage and temperature



## Self discharge characteristics



## Temperature vs Float Life





## ATN1240[12V40AH/10HR]

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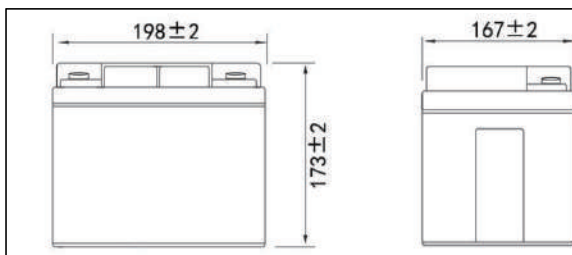
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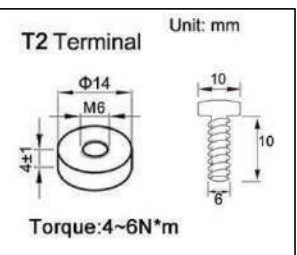
### Specification

Battery Model	Nominal Voltage		12V (6 cells per unit)	
	Rated capacity (10 Hour rate)		40Ah	
Dimension	Length	Width	Height	Total Height
	198mm (7.79 inches)	167mm (6.57 inches)	173mm (6.81 inches)	173mm (6.81 inches)
Approx Weight	11.80kg(26.01 lbs) ± 3%			
Internal Resistance	Full charged at 25°C(77°F):Approx 8.35mΩ			
Maximum Charge Current	12A			
Max.discharge current	600A (5Sec.)			
Operating Temperature Range	Nominal Operating Temperature	Discharge	Charge	Storage
	25°C(77°F)	-15°C~ 50°C (5°F~122°F)	-15°C~ 40°C (5°F~104°F)	-15°C~ 40°C (5°F~104°F)
Capacity @ 25°C (77°F)	20 hour rate(2.15A,10.5V)	10 hour rate(4.0A,10.5V)	5 hour rate(7.17A,10.5V)	1 hour rate(27.5A,9.6V)
	43.0Ah	40.0Ah	35.85Ah	27.5Ah
Capacity affected by Temp.(10HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Charge method	Float Charging Voltage		Equalization Charging Voltage	
	13.5 ~ 13.8 VDC/Unit at 25°C (77°F)		14.4~ 15.0 VDC/Unit at 25°C (77°F)	

### Outer dimension (mm)



### Terminal Type

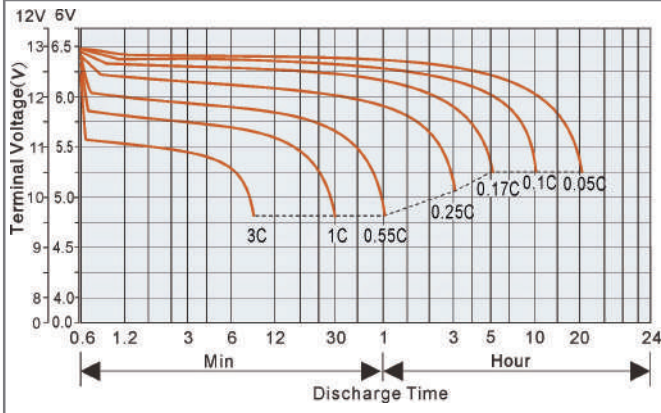


### Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

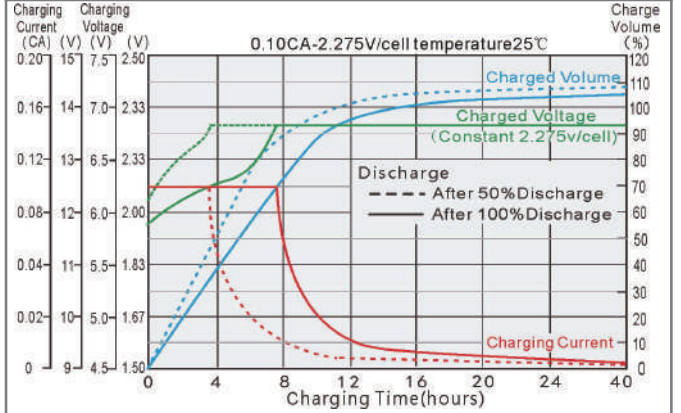
F.V/Time		5min	10min	15min	20min	30min	1h	2h	3h	5h	8h	10h	20h
1.85V/cell	A	114	82.9	65.0	54.7	41.5	24.00	14.50	10.30	6.95	4.77	3.88	2.10
	W	213	155.8	122.8	104.0	80.0	46.50	28.26	20.21	13.70	9.46	7.76	4.25
1.80V/cell	A	124	88.3	68.6	57.5	43.1	24.85	14.88	10.49	7.07	4.83	3.95	2.13
	W	229	165.1	128.2	108.6	82.4	47.88	28.95	20.58	13.93	9.57	7.85	4.29
1.75V/cell	A	132	92.9	71.7	59.9	44.5	25.63	15.21	10.66	7.17	4.89	4.00	2.15
	W	244	173.3	132.7	112.1	84.6	49.09	29.55	20.89	14.12	9.66	7.93	4.32
1.70V/cell	A	140	97.3	74.8	61.8	45.9	26.31	15.55	10.81	7.27	4.94	4.03	2.17
	W	257	180.6	137.0	115.1	86.8	50.19	30.11	21.16	14.31	9.75	8.01	4.34
1.67V/cell	A	146	100.9	76.8	63.1	46.8	26.75	15.78	10.94	7.35	4.98	4.05	2.18
	W	264	185.3	140.0	116.9	88.1	50.88	30.45	21.35	14.44	9.82	8.05	4.35
1.60V/cell	A	156	107.3	80.5	65.8	48.3	27.50	16.15	11.15	7.48	5.05	4.10	2.20
	W	279	193.1	146.3	121.1	90.4	52.20	31.06	21.61	14.60	9.92	8.12	4.38



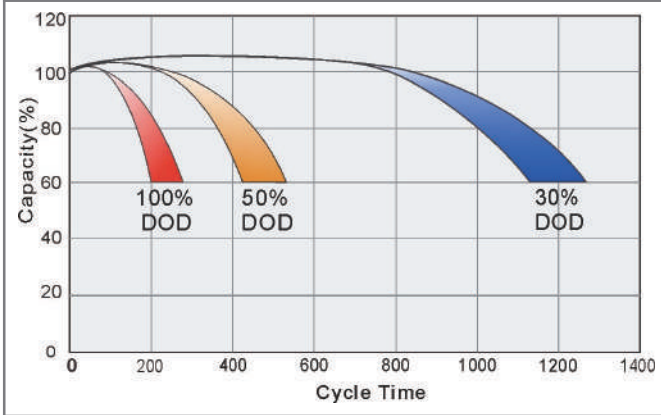
### Discharge characteristic curve (25°C/77°F)



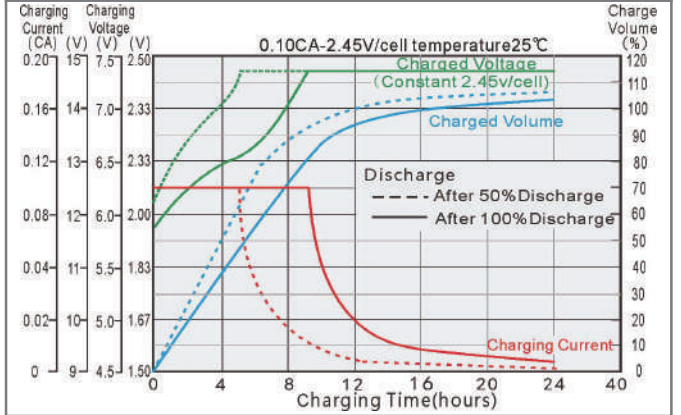
### Charging characteristic curve of floating charge (25°C/77°F)



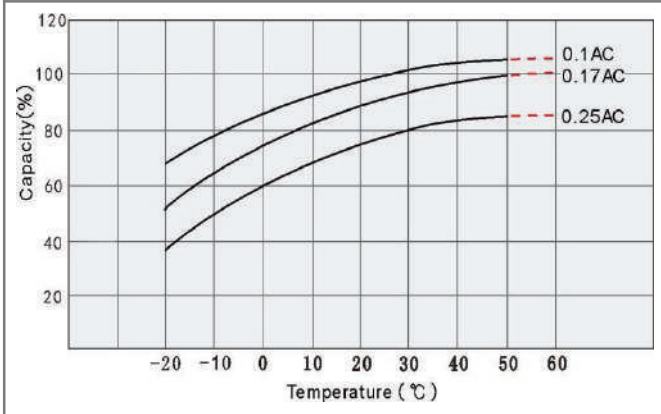
### Cycle service life in relation to depth of discharge



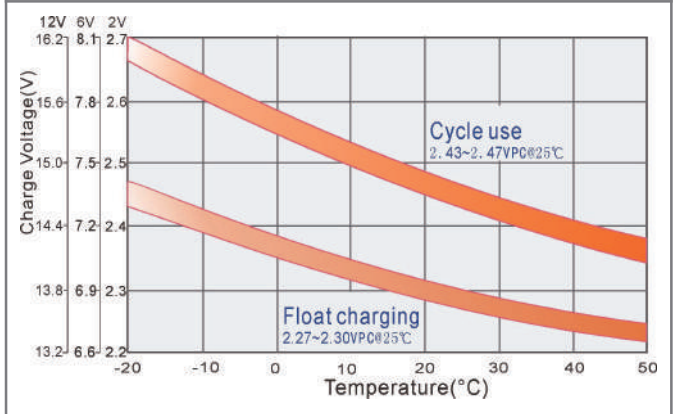
### Cyclic charging characteristic curve (25°C/77°F)



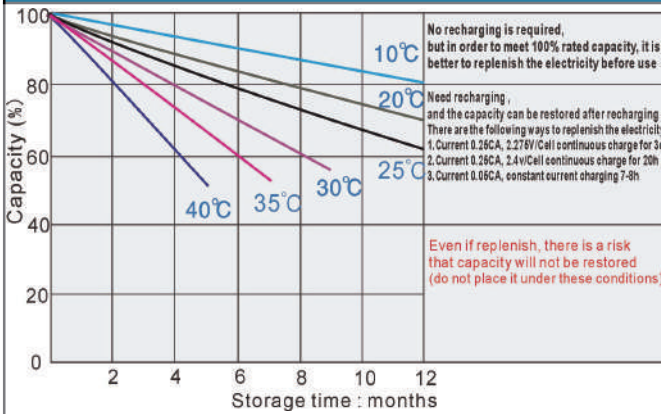
### Relationship between temperature and capacity



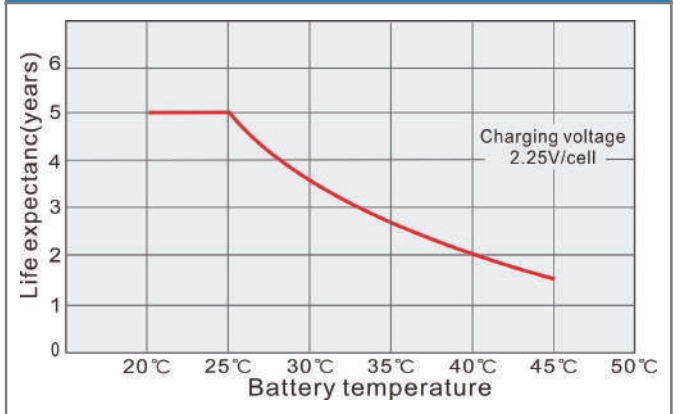
### Relationship between charging voltage and temperature



### Self discharge characteristics



### Temperature vs Float Life



## ● ATN1260[12V60AH/10HR]

ATN General Series VRLA batteries are designed with AGM (Absorbent Glass Mat) technology, High performance plates and electrolyte to give extra power output for common power backup system. GP Series Batteries are the general purpose batteries with 5 years floating design life at 25°C, Meet with IEC,BS,JIS and Eurobat standard,UL(MH62092),CE approved.

## ● Application

- \* Emergency Power System
- \* Communication equipment
- \* Telecommunication systems
- \* Uninterruptible power supplies
- \* Electric toy car and wheelchairs, etc.
- \* Power tools
- \* Alarm system
- \* Marine equipment
- \* Medical equipment
- \* Fire and Security System



## ● General Features

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

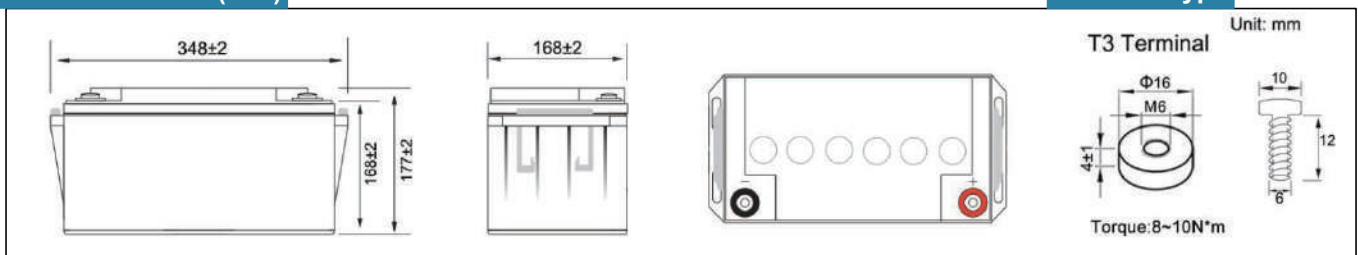
## ● Construction

- \* Positive ····· Lead dioxide
- \* Electrolyte ··· Sulfuric acid
- \* Separator ···· Fiber glass
- \* Container ···· ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative ····· Lead
- \* Safety Valve ··· EPDR
- \* Terminal ····· Copper

## ● Specification

Battery Model	Nominal Voltage		12V (6 cells per unit)	
	Rated capacity (10 Hour rate)		60Ah	
Dimension	Length	Width	Height	Total Height
	348mm (13.70 inches)	168mm (6.61 inches)	177mm (6.97 inches)	177mm (6.97 inches)
Approx Weight	18.4kg(40.56lbs) ± 3%			
Internal Resistance	Full charged at 25°C(77°F):Approx7.50mΩ			
Maximum Charge Current	18.0A			
Max.discharge current	600A (5Sec.)			
Operating Temperature Range	Nominal Operating Temperature	Discharge	Charge	Storage
	25°C(77°F)	-15°C~ 50°C (5°F~122°F)	-15°C~ 40°C (5°F~104°F)	-15°C~ 40°C (5°F~104°F)
Capacity @ 25°C (77°F)	10 hour rate(6.33A,10.5V)	5 hour rate(10.49A,10.5V)	3 hour rate(15.69A,10.2V)	1 hour rate(36.0A,9.6V)
	63.3Ah	52.45Ah	47.07Ah	36.0Ah
Capacity affected by Temp.(10HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Charge method	Float Charging Voltage		Equalization Charging Voltage	
	13.5 ~ 13.8 VDC/Unit at 25°C (77°F)		14.4~ 15.0 VDC/Unit at 25°C (77°F)	

## ● Outer dimension (mm)



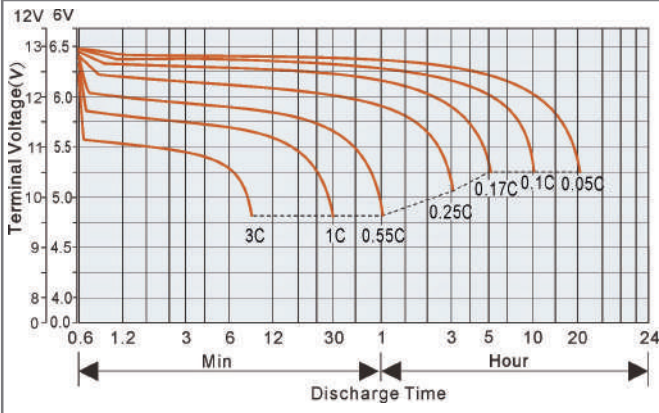
## ● Terminal Type

## ● Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

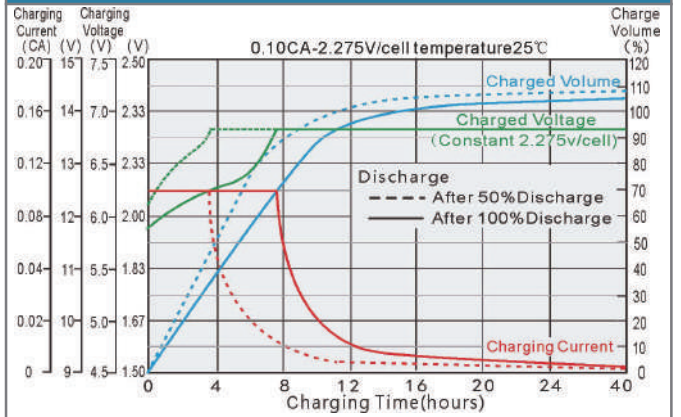
F.V/Time		5min	10min	15min	20min	30min	1h	2h	3h	5h	8h	10h	20h
1.85V/cell	A	130.0	98.0	80.0	63.5	51.0	32.00	20.20	15.00	10.20	7.60	6.20	3.29
	W	231.5	180.8	149.1	120.7	98.1	62.31	39.32	29.29	20.05	14.91	12.37	6.62
1.80V/cell	A	142.0	103.0	84.5	67.4	53.1	32.90	20.52	15.22	10.34	7.70	6.26	3.32
	W	251.5	189.8	156.8	126.8	101.8	63.40	39.70	29.54	20.17	15.03	12.41	6.65
1.75V/cell	A	155.0	112.0	90.0	71.5	55.3	33.85	20.86	15.46	10.49	7.80	6.33	3.36
	W	273.9	205.0	165.8	132.9	104.6	64.41	39.77	29.78	20.34	15.23	12.53	6.69
1.70V/cell	A	167.0	121.0	95.0	75.4	57.5	34.80	21.19	15.69	10.63	7.89	6.39	3.39
	W	294.4	221.3	174.9	139.2	107.8	65.34	40.09	29.99	20.52	15.40	12.62	6.73
1.67V/cell	A	173.0	126.0	98.0	77.3	58.5	35.20	21.35	15.81	10.69	7.93	6.41	3.40
	W	304.4	228.8	179.9	142.6	108.9	65.72	40.26	30.18	20.65	15.50	12.63	6.72
1.60V/cell	A	188.0	137.0	105.0	82.0	60.5	36.00	21.60	16.00	10.80	8.00	6.45	3.42
	W	330.0	248.9	192.0	150.9	112.3	67.01	40.53	30.26	20.80	15.66	12.68	6.74



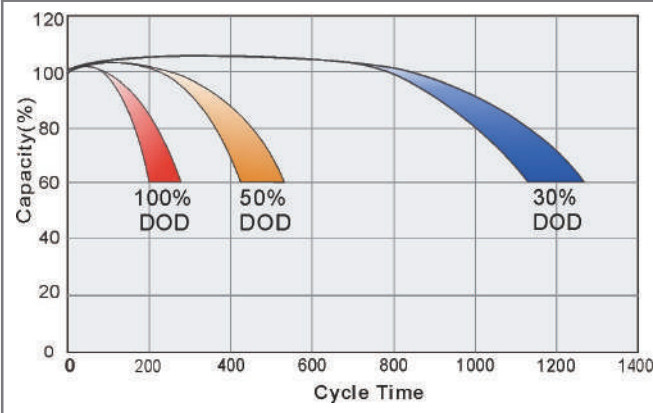
### Discharge characteristic curve (25°C/77°F)



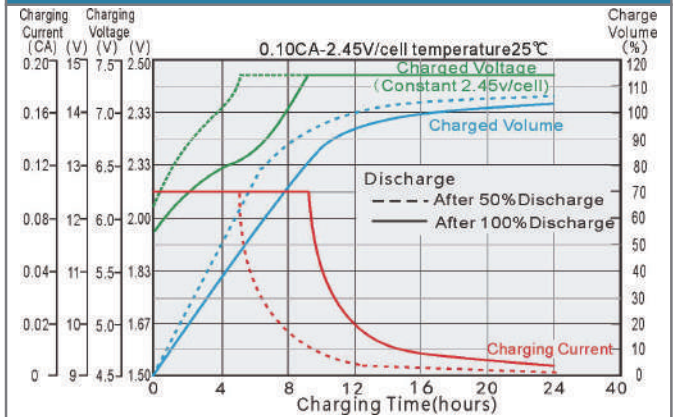
### Charging characteristic curve of floating charge (25°C/77°F)



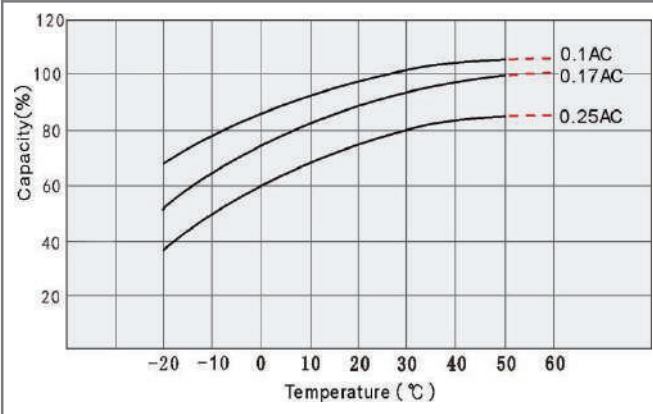
### Cycle service life in relation to depth of discharge



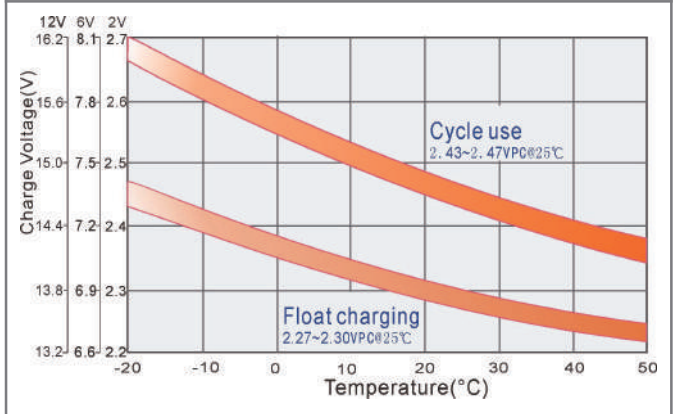
### Cyclic charging characteristic curve (25°C/77°F)



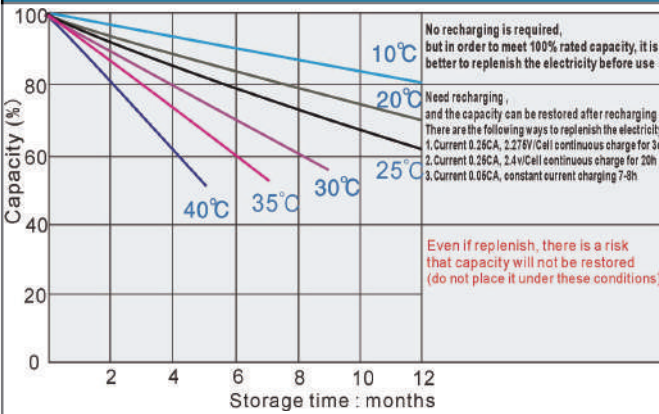
### Relationship between temperature and capacity



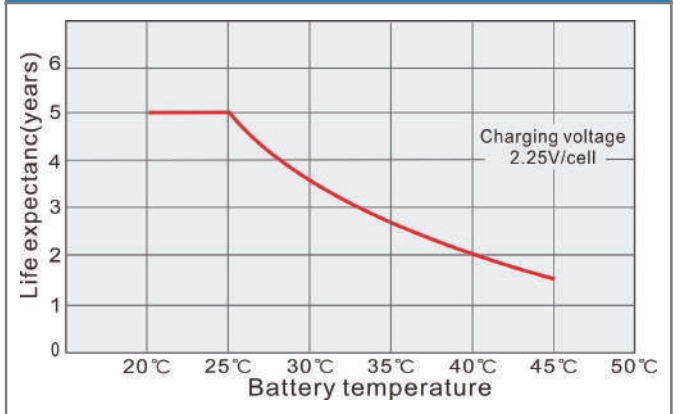
### Relationship between charging voltage and temperature



### Self discharge characteristics



### Temperature vs Float Life





**● ATN1280[12V80AH/10HR]**

ATN General Series VRLA batteries are designed with AGM (Absorbent Glass Mat) technology, High performance plates and electrolyte to give extra power output for common power backup system. GP Series Batteries are the general purpose batteries with 5 years floating design life at 25°C, Meet with IEC,BS,JIS and Eurobat standard,UL(MH62092),CE approved.

**● Application**

- \* Emergency Power System
- \* Communication equipment
- \* Telecommunication systems
- \* Uninterruptible power supplies
- \* Electric toy car and wheelchairs, etc.
- \* Power tools
- \* Alarm system
- \* Marine equipment
- \* Medical equipment
- \* Fire and Security System



**● General Features**

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

**● Construction**

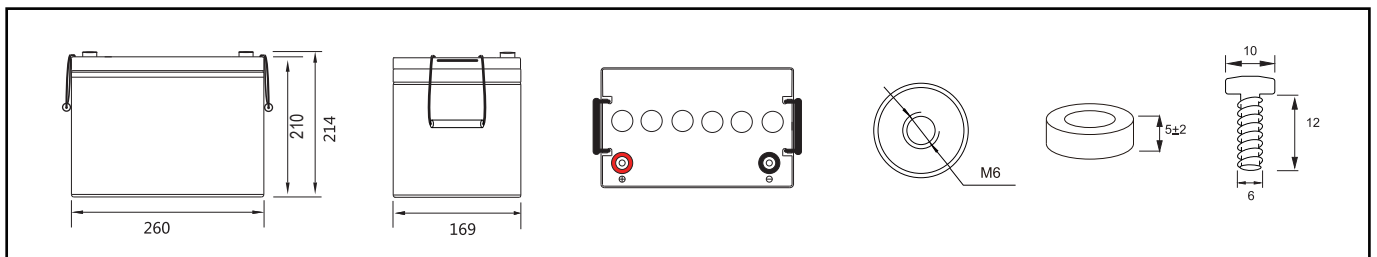
- \* Positive . . . . . Lead dioxide
- \* Electrolyte . . . . . Sulfuric acid
- \* Separator . . . . . Fiber glass
- \* Container . . . . . ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative . . . . . Lead
- \* Safety Valve . . . . . EPDR
- \* Terminal . . . . . Copper

**● Specification**

Battery Model	Nominal Voltage		12V	
	Rated capacity (10 Hour rate)		80Ah	
	Cells Per battery		6	
Dimension	Length	Width	Height	Total Height
	260mm (10.24 inches)	169mm (6.65 inches)	210mm (8.26 inches)	214mm (8.42 inches)
Approx Weight	20.8kg(45.85lbs) ± 3%			
Capacity @ 25°C (77°F)	10 hour rate(7.5A,10.5V)	5 hour rate(14.23A,10.5V)	3 hour rate(20.68A,10.8V)	1 hour rate(41.6A,9.6V)
	80Ah	71.15Ah	62.04Ah	41.6Ah
Max.discharge current	800A (5 Sec.)			
Internal Resistance	Full charged at 25°C (77°F) : Approx 5.8mΩ			
Capacity affected by Temp.(10 HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Self Discharge @25°C (77°F)	After 3 months storage		After 6 months storage	After 12 months storage
	91%		82%	64%
Charge method @25°C (77°F)	Cycle Use		Float Use	
	14.40-14.70V (Initial charging current less than 24A)		13.50-13.80V	

**● Outer dimension (mm)**

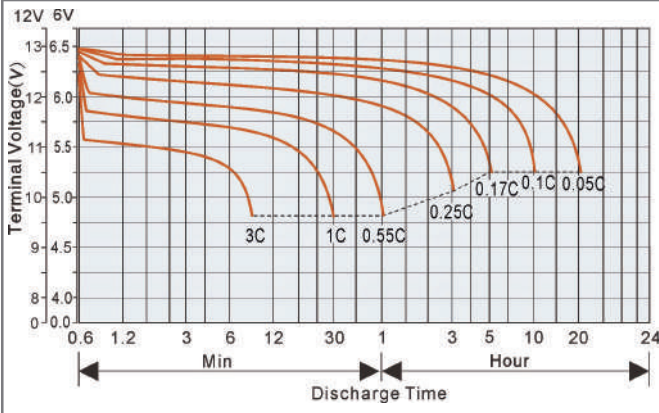
**● Terminal Type**



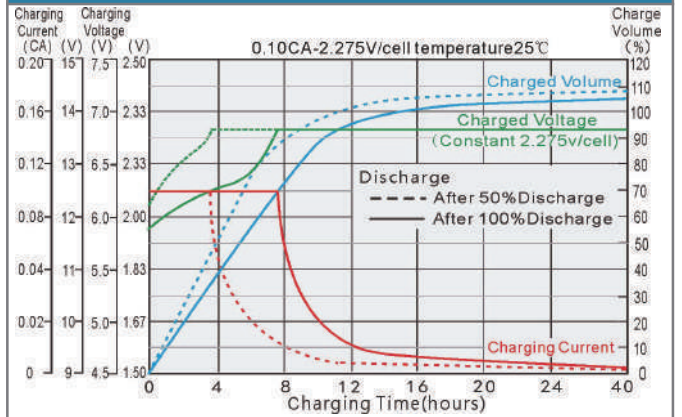
**● Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)**

F.V/time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	5HR	8HR	10HR	20HR
1.60V	136.000	81.000	41.600	30.446	29.614	21.095	14.396	10.194	8.301	4.527
	262.480	161.352	82.992	60.792	59.253	42.208	28.804	20.396	16.609	9.059
1.67V	128.935	79.269	41.299	30.145	29.467	20.984	14.317	10.108	8.172	4.301
	249.039	157.984	82.396	60.205	59.007	42.062	28.697	20.266	16.385	8.624
1.70V	125.756	78.577	40.997	30.115	29.393	20.931	14.313	10.006	8.069	4.186
	243.086	156.609	81.894	60.169	58.884	41.967	28.698	20.073	16.186	8.398
1.75V	120.457	77.192	40.394	29.723	29.209	20.800	14.238	9.978	8.000	4.120
	233.085	153.961	80.889	59.446	58.505	41.725	28.561	20.032	16.060	8.271
1.80V	115.512	75.462	40.093	29.512	29.024	20.689	14.198	9.892	7.871	3.984
	223.862	150.577	80.386	59.171	58.147	41.524	28.495	19.874	15.813	8.004
1.85V	109.506	73.385	39.490	29.180	28.766	20.505	14.119	9.763	7.742	3.848
	212.443	146.538	79.296	58.652	57.655	41.194	28.364	19.634	15.569	7.739

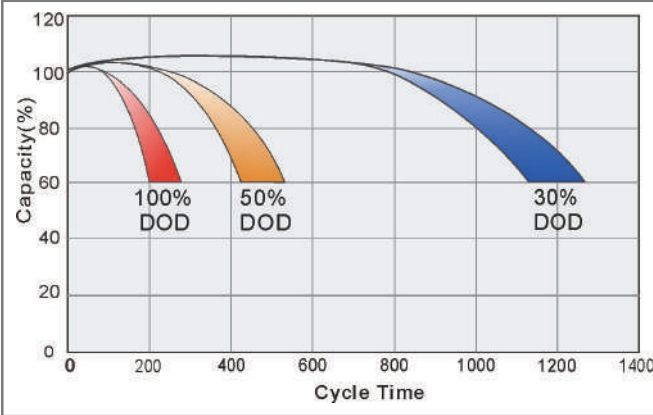
## Discharge characteristic curve (25°C/77°F)



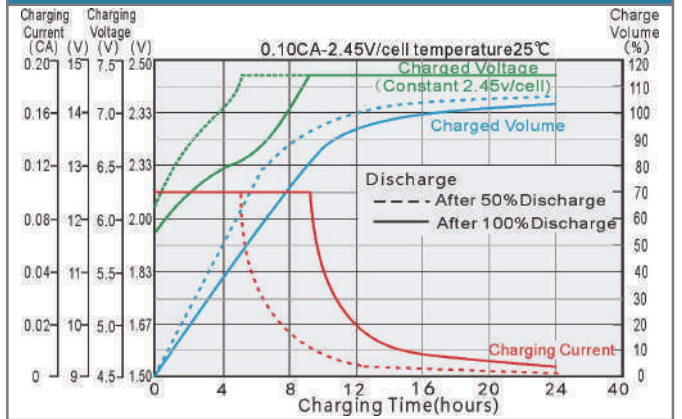
## Charging characteristic curve of floating charge (25°C/77°F)



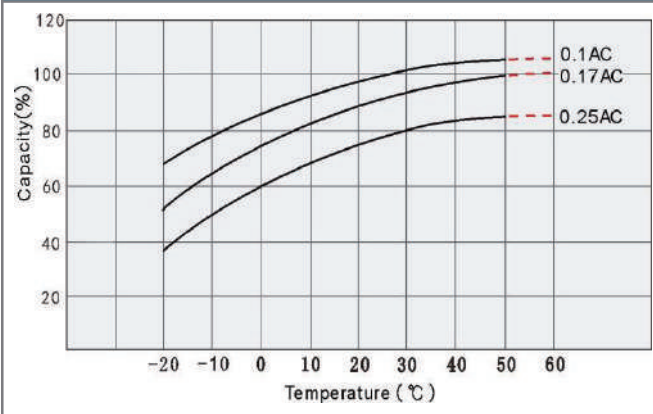
## Cycle service life in relation to depth of discharge



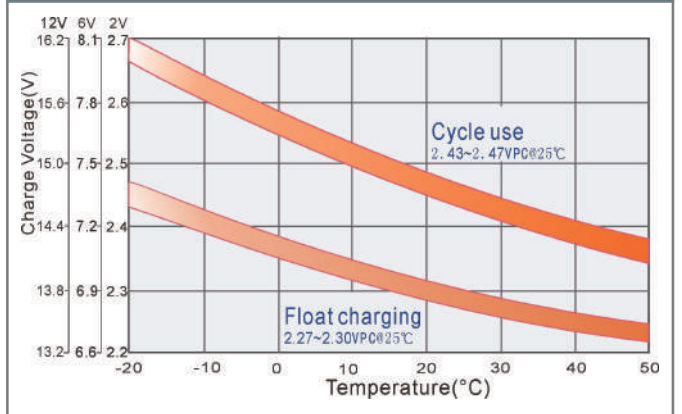
## Cyclic charging characteristic curve (25°C/77°F)



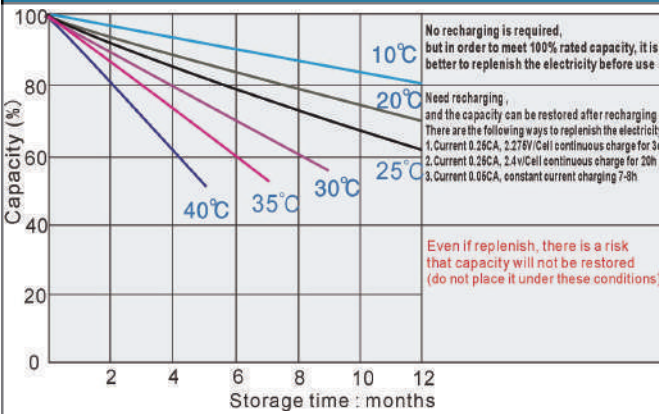
## Relationship between temperature and capacity



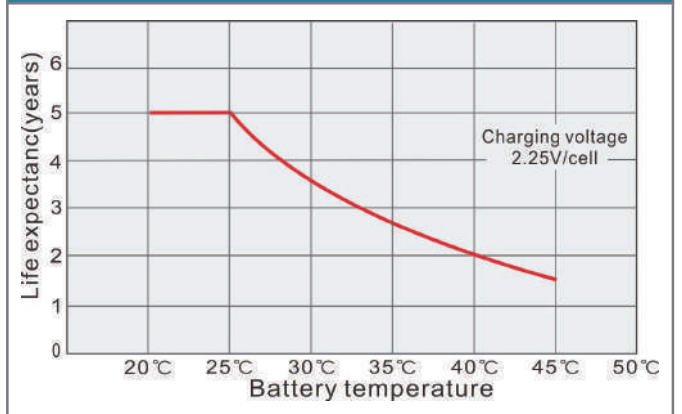
## Relationship between charging voltage and temperature



## Self discharge characteristics



## Temperature vs Float Life



**ATN12100[12V100AH/10HR]**

ATN General Series VRLA batteries are designed with AGM (Absorbent Glass Mat) technology, High performance plates and electrolyte to give extra power output for common power backup system. GP Series Batteries are the general purpose batteries with 5 years floating design life at 25°C, Meet with IEC,BS,JIS and Eurobat standard,UL(MH62092),CE approved.

**Application**

- \* Emergency Power System
- \* Communication equipment
- \* Telecommunication systems
- \* Uninterruptible power supplies
- \* Electric toy car and wheelchairs, etc.
- \* Power tools
- \* Alarm system
- \* Marine equipment
- \* Medical equipment
- \* Fire and Security System

**General Features**

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

**Construction**

- \* Positive . . . . . Lead dioxide
- \* Electrolyte . . . . . Sulfuric acid
- \* Separator . . . . . Fiber glass
- \* Container . . . . . ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative . . . . . Lead
- \* Safety Valve . . . . . EPDR
- \* Terminal . . . . . Copper

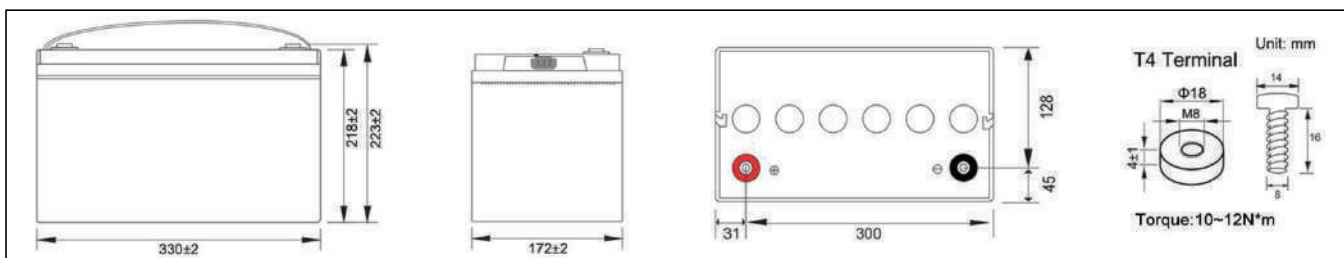


**Specification**

Battery Model	Nominal Voltage		12V (6 cells per unit)	
	Rated capacity (10 Hour rate)		100Ah	
Dimension	Length	Width	Height	Total Height
	330mm (12.99 inches)	172mm (6.77 inches)	218mm (8.58 inches)	223mm (8.78 inches)
Approx Weight	27.9kg(61.50lbs) ± 3%			
Internal Resistance	Full charged at 25°C(77°F):Approx 3.80mΩ			
Maximum Charge Current	30A			
Max.discharge current	1000A (5Sec.)			
Operating Temperature Range	Nominal Operating Temperature	Discharge	Charge	Storage
	25°C(77°F)	-15°C~ 50°C (5°F~122°F)	-15°C~ 40°C (5°F~104°F)	-15°C~ 40°C (5°F~104°F)
Capacity @ 25°C (77°F)	10 hour rate(10.09A,10.5V)	5 hour rate(17.55A,10.5V)	3 hour rate(25.8A,10.2V)	1 hour rate(61A,9.6V)
	100.9Ah	87.75Ah	77.4Ah	61.0Ah
Capacity affected by Temp.(10HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Charge method	Float Charging Voltage		Equalization Charging Voltage	
	13.5 ~ 13.8 VDC/Unit at 25°C (77°F)		14.4~ 15.0 VDC/Unit at 25°C (77°F)	

**Outer dimension (mm)**

**Terminal Type**

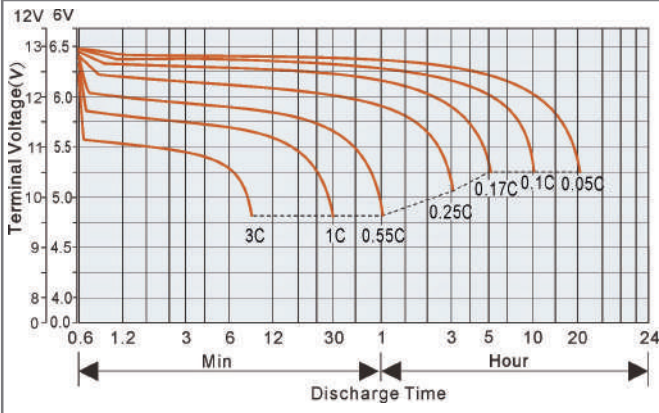


**Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)**

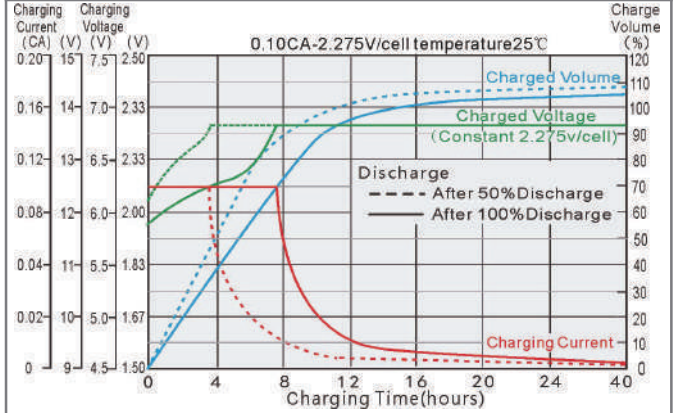
F.V/Time		5min	10min	15min	20min	30min	1h	2h	3h	5h	8h	10h	20h
1.85V/cell	A	250	178	149.0	128.0	92.5	56.0	34.50	24.50	17.00	11.50	9.80	5.30
	W	475	339	285.0	246.0	179.0	109.0	67.63	48.21	33.67	22.92	19.72	10.77
1.80V/cell	A	266	196	158.0	133.5	95.3	57.1	35.20	25.00	17.27	11.68	9.95	5.35
	W	500	371	299.0	255.0	184.0	110.4	68.64	48.97	34.13	23.14	19.98	10.81
1.75V/cell	A	292	212	168.0	139.0	98.0	58.3	35.80	25.40	17.55	11.86	10.09	5.40
	W	543	398	315.0	264.0	187.0	111.9	69.61	49.46	34.61	23.40	20.18	10.87
1.70V/cell	A	319	228	177.5	144.5	100.8	59.4	36.60	25.80	17.82	12.03	10.23	5.45
	W	581	425	333.0	272.0	191.0	112.9	70.96	50.10	35.07	23.67	20.43	10.94
1.67V/cell	A	332	236	182.0	147.0	102.2	59.9	36.90	26.00	17.95	12.11	10.30	5.47
	W	602	434	339.0	276.0	193.0	113.8	71.03	50.35	35.17	23.82	20.53	10.96
1.60V/cell	A	360	253	193.0	153.0	105.0	61.0	37.40	26.40	18.20	12.25	10.40	5.50
	W	649	460	357.0	286.0	197.0	115.8	71.51	50.85	35.44	24.02	20.69	10.99



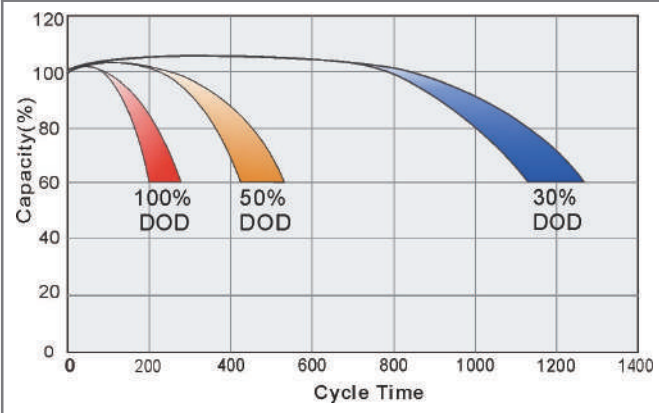
### Discharge characteristic curve (25°C/77°F)



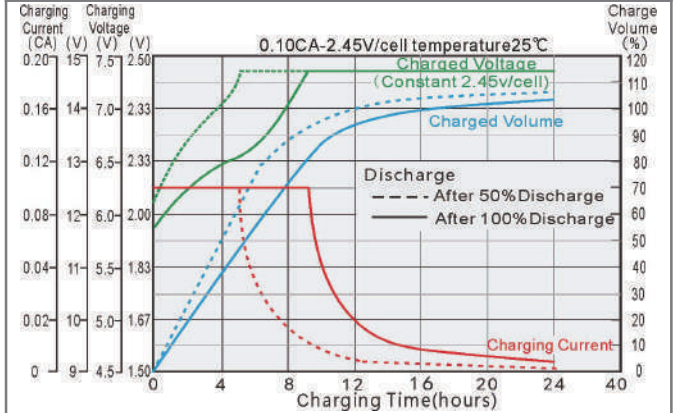
### Charging characteristic curve of floating charge (25°C/77°F)



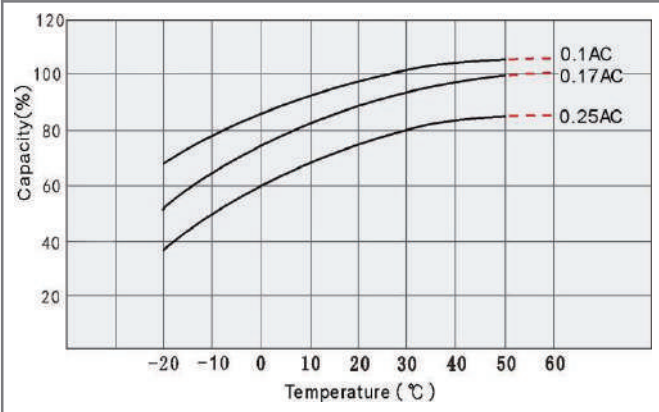
### Cycle service life in relation to depth of discharge



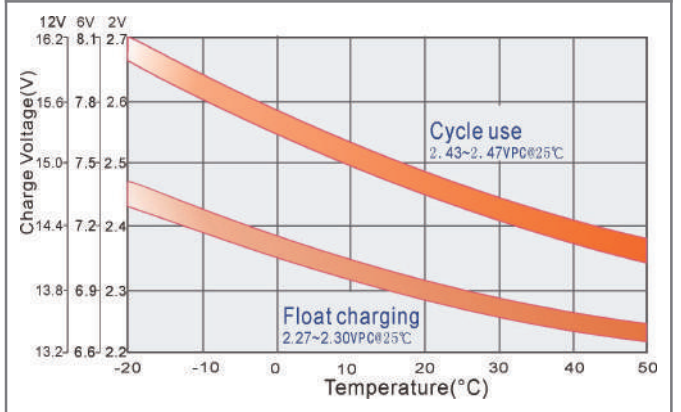
### Cyclic charging characteristic curve (25°C/77°F)



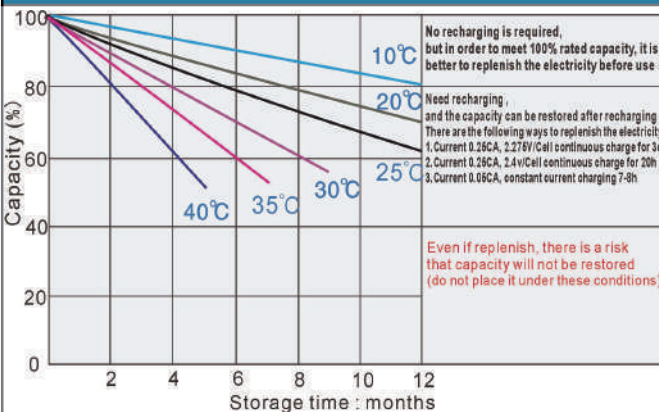
### Relationship between temperature and capacity



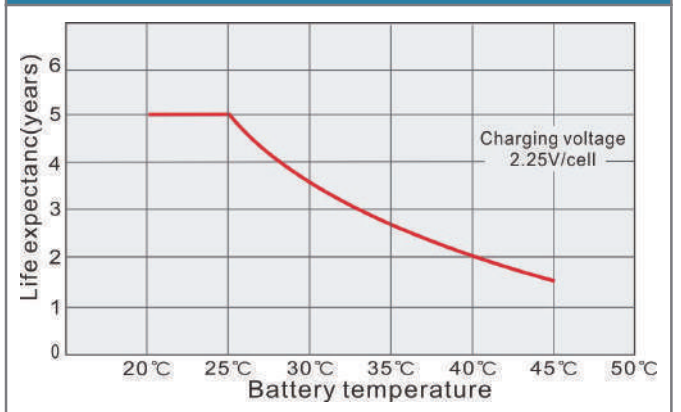
### Relationship between charging voltage and temperature



### Self discharge characteristics



### Temperature vs Float Life



## ● ATN12120[12V120AH/10HR]

ATN General Series VRLA batteries are designed with AGM (Absorbent Glass Mat) technology, High performance plates and electrolyte to give extra power output for common power backup system. GP Series Batteries are the general purpose batteries with 5 years floating design life at 25°C, Meet with IEC,BS,JIS and Eurobat standard,UL(MH62092),CE approved.

## ● Application

- \* Emergency Power System
- \* Communication equipment
- \* Telecommunication systems
- \* Uninterruptible power supplies
- \* Electric toy car and wheelchairs, etc.
- \* Power tools
- \* Alarm system
- \* Marine equipment
- \* Medical equipment
- \* Fire and Security System



## ● General Features

- \* Heavy Duty Grid
- \* Mechanized assembly
- \* Non-spillable construction
- \* High Reliability and Stability
- \* Sealed and Maintenance-free
- \* Long Life and low self-discharge design

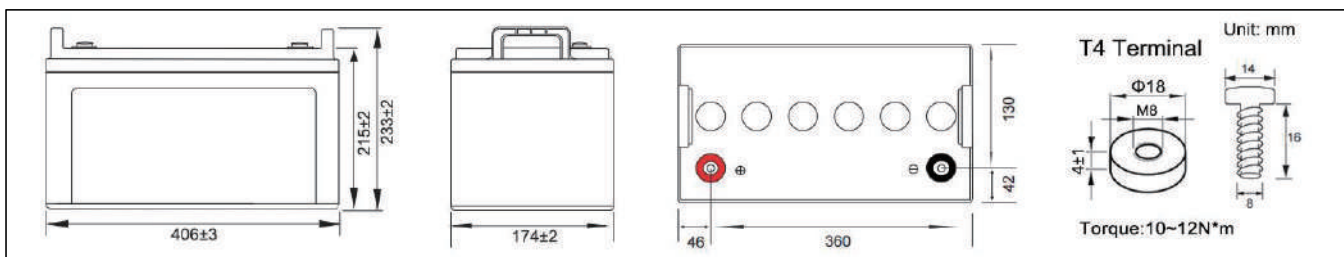
## ● Construction

- \* Positive . . . . . Lead dioxide
- \* Electrolyte . . . . . Sulfuric acid
- \* Separator . . . . . Fiber glass
- \* Container . . . . . ABS(UL94-HB)/Flame Retardant ABS (UL94-V0)
- \* Negative . . . . . Lead
- \* Safety Valve . . . . . EPDR
- \* Terminal . . . . . Copper

## ● Specification

Battery Model	Nominal Voltage		12V (6 cells per unit)	
	Rated capacity (10 Hour rate)		120Ah	
Dimension	Length	Width	Height	Total Height
	406mm (15.98 inches)	174mm (6.85 inches)	215mm (8.46 inches)	233mm (9.17 inches)
Approx Weight	32.8kg(72.31lbs) ± 3%			
Internal Resistance	Full charged at 25°C(77°F): Approx 3.90mΩ			
Maximum Charge Current	45A			
Max.discharge current	1200A (5Sec.)			
Operating Temperature Range	Nominal Operating Temperature	Discharge	Charge	Storage
	25°C(77°F)	-15°C~ 50°C (5°F~122°F)	-15°C~ 40°C (5°F~104°F)	-15°C~ 40°C (5°F~104°F)
Capacity @ 25°C (77°F)	10 hour rate(12.1A,10.5V)	5 hour rate(21.5A,10.5V)	3 hour rate(32.7A,10.2V)	1 hour rate(75.1A,9.6V)
	121.0Ah	107.5Ah	98.1Ah	75.1Ah
Capacity affected by Temp.(10HR)	40°C (104°F)	25°C (77°F)	0°C (32°F)	-15°C (5°F)
	102%	100%	85%	65%
Charge method	Float Charging Voltage		Equalization Charging Voltage	
	13.5 ~ 13.8 VDC/Unit at 25°C (77°F)		14.4~ 15.0 VDC/Unit at 25°C (77°F)	

## ● Outer dimension (mm)



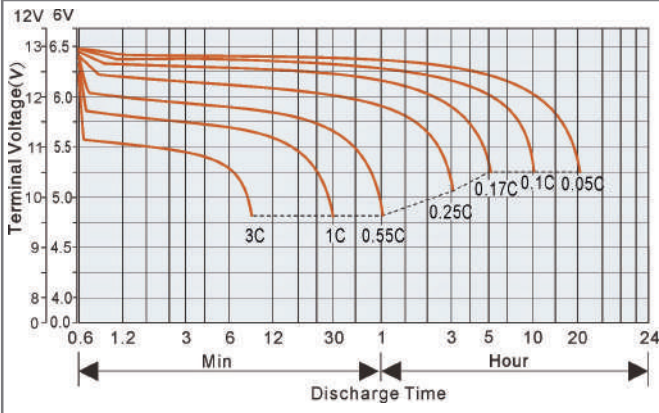
## ● Terminal Type

## ● Constant Current(Amp) and Constant Power(Watt) Discharge Table at 25°C(77°F)

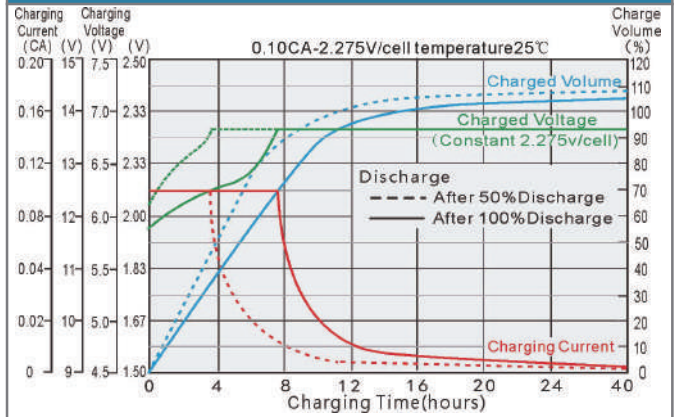
F.V/Time		5min	10min	15min	20min	30min	1h	2h	3h	5h	8h	10h	20h
1.85V/cell	A	245	202	174	148	109	65.1	41.2	31.0	20.9	14.20	11.78	6.37
	W	466	386	333	284	211	126.7	80.7	61.0	41.4	28.30	23.71	12.95
1.80V/cell	A	267	215	182	153	113	67.5	42.2	31.6	21.2	14.46	11.95	6.44
	W	503	405	345	293	218	130.5	82.4	61.9	41.9	28.65	24.00	13.01
1.75V/cell	A	289	226	191	158	118	69.9	43.1	32.2	21.5	14.70	12.10	6.50
	W	536	424	358	300	226	134.1	83.8	62.7	42.4	29.00	24.20	13.08
1.70V/cell	A	312	237	198	163	122	72.2	44.0	32.7	21.9	14.90	12.22	6.56
	W	568	442	371	307	231	137.3	85.2	63.5	43.1	29.32	24.41	13.17
1.67V/cell	A	326	246	204	167	124	73.3	44.7	33.1	22.2	14.99	12.30	6.59
	W	591	453	380	313	234	139.2	86.1	64.1	43.5	29.48	24.52	13.21
1.60V/cell	A	349	262	212	173	128	75.1	45.8	33.8	22.7	15.20	12.44	6.65
	W	629	476	392	324	240	142.6	87.6	65.1	44.2	29.80	24.75	13.29



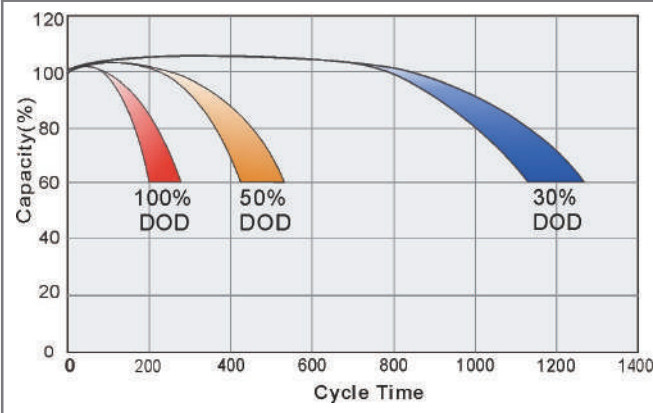
## Discharge characteristic curve (25°C/77°F)



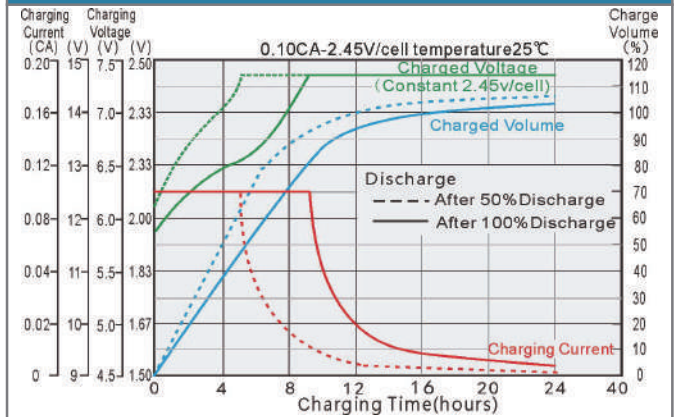
## Charging characteristic curve of floating charge (25°C/77°F)



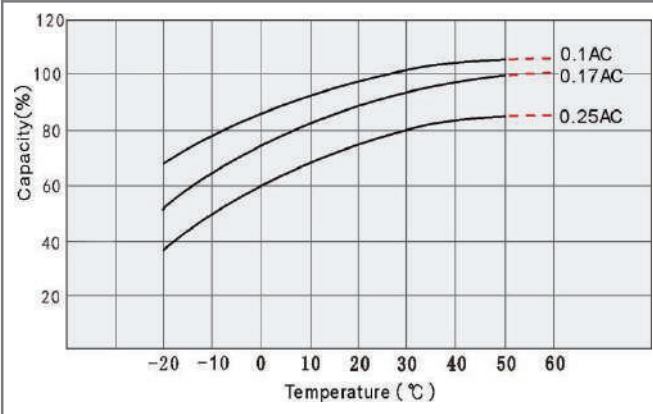
## Cycle service life in relation to depth of discharge



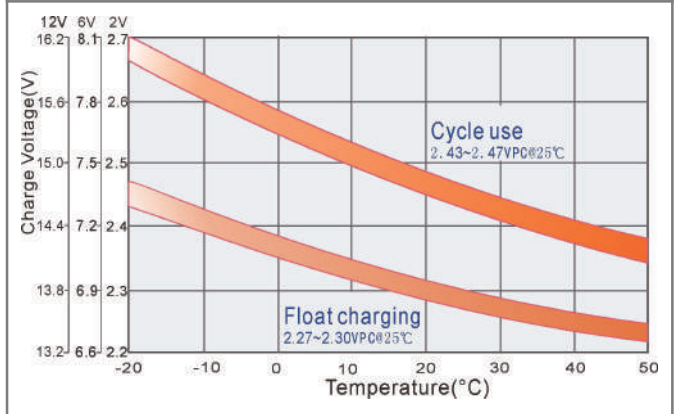
## Cyclic charging characteristic curve (25°C/77°F)



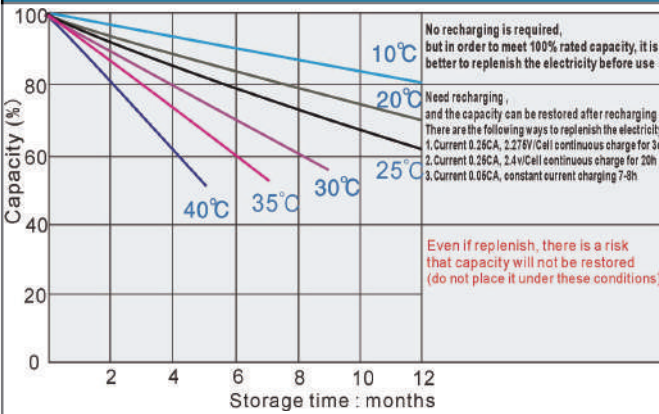
## Relationship between temperature and capacity



## Relationship between charging voltage and temperature



## Self discharge characteristics



## Temperature vs Float Life

