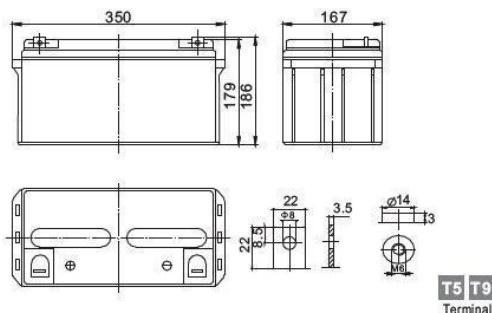


Standard Series

12V80Ah

Dimension



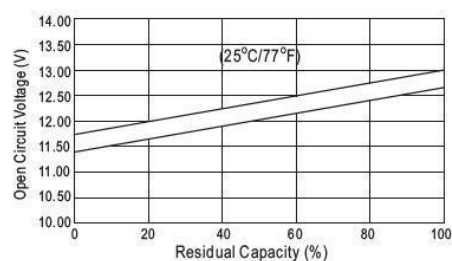
Specification

Nominal Voltage		12 V
Capacity(10HR, 25°C)		80Ah
Dimension	Length	350mm (13.8inch)
	Width	167mm (6.6inch)
	Height	179mm (7.0inch)
	Total Height(T5/T9)	186mm (7.3inch)/179mm (7.1inch)
Approx. Weight		24.0kg (52.9lbs)

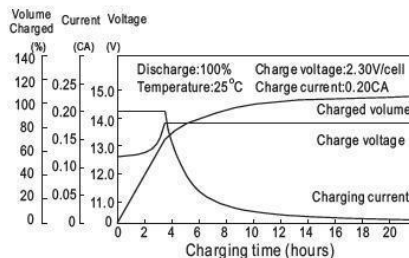
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	84.6Ah
	10 hour rate	80Ah
	5 hour rate	72Ah
	1 hour rate	49.9Ah
	15 min rate	32.5Ah
Internal resistance(Fully charged, 25°C)		Approx.5.4m Ω
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C(77°F ±5°F)
Operating temperature range		-15°C~50°C(5°F~122°F)
Float charging voltage(25°C)		13.50 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		24A
Terminal material		Copper
Maximum discharge current		800A(5 Sec.)

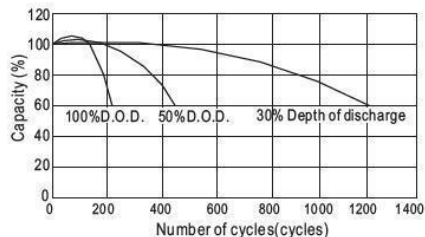
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	256	175	135	84.0	52.0	20.3	14.6	8.12	4.26
10.2V	243	166	130	80.6	49.9	20.0	14.4	8.08	4.23
10.8V	229	156	123	76.6	47.4	19.6	14.1	8.00	4.20

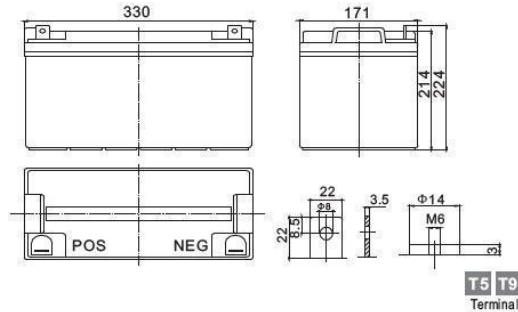
Constant Power Discharge Characteristics (Watt, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	2688	1890	1482	942	593	239	173	97.0	51.1
10.2V	2554	1796	1423	905	569	235	170	96.5	50.8
10.8V	2400	1688	1352	860	541	230	167	95.5	50.4

Standard Series

12V100Ah

Dimension(mm)



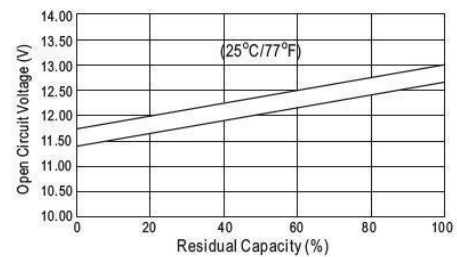
Specification

Nominal Voltage		12 V
Capacity(10HR, 25°C)		100 Ah
Dimension	Length	330mm (13.0inch)
	Width	171mm (6.7inch)
	Height	214mm (8.4inch)
	Total Height(T5/T9)	224mm (8.8inch)/220mm (8.7inch)
Approx. Weight		30.5kg (67.1lbs)

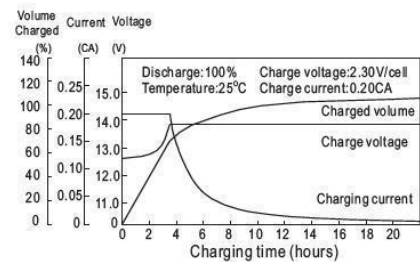
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	107Ah
	10 hour rate	100Ah
	5 hour rate	91Ah
	1 hour rate	62.4Ah
	15 min rate	42Ah
Internal resistance(Fully charged, 25°C)		Approx. 4.5mΩ
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C (77°F ±5°F)
Operating temperature range		-15°C ~50°C (5°F ~122°F)
Float charging voltage(25°C)		13.50 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		30A
Terminal material		Copper
Maximum discharge current		800A(5 Sec.)

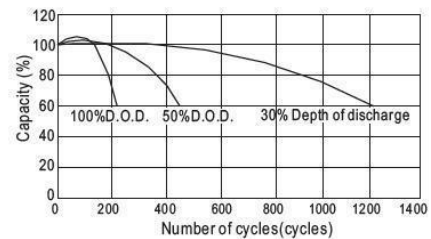
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	320	220	175	108	65.0	26.4	18.5	10.3	5.35
10.2V	304	209	168	104	62.4	26.0	18.2	10.2	5.35
10.8V	286	196	160	98.8	59.3	25.5	17.8	10.0	5.30

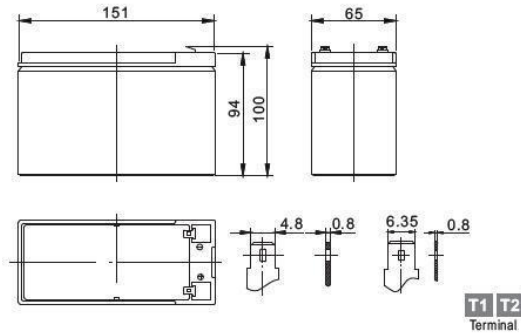
Constant Power Discharge Characteristics (Watt, 25°C)

	5min	10min	15min	30min	60min	3h	5h	10h	20h
3360	2376	1922	1212	741	310	219	123	64.2	
3192	2257	1845	1167	711	306	215	122	64.2	
3003	2117	1757	1109	676	300	210	119	63.6	

Standard Series

12V7.0Ah

Dimension



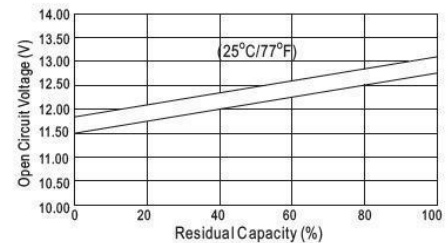
Specification

Nominal Voltage		12 V
Capacity(20HR, 25°C)		7Ah
Dimension	Length	151mm (5.94inch)
	Width	65mm (2.56inch)
	Height	94mm (3.70inch)
	Total Height	100mm (3.94inch)
Approx. Weight		2.25kg (4.97lbs)

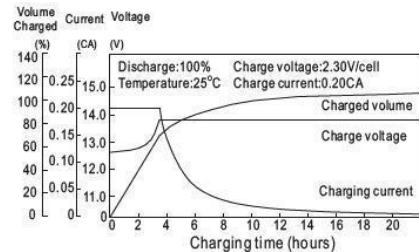
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	7.0Ah
	10 hour rate	7Ah
	5 hour rate	5.65Ah
	1 hour rate	4.55Ah
	15 min rate	3.35Ah
Internal resistance(Fully charged, 25°C)		Approx. 25mΩ
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ± 3°C (77°F ± 5°F)
Operating temperature range		-15°C ~ 50°C (5°F ~ 122°F)
Float charging voltage(25°C)		13.60 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		2.1A
Terminal material		Copper
Maximum discharge current		105A(5 Sec.)

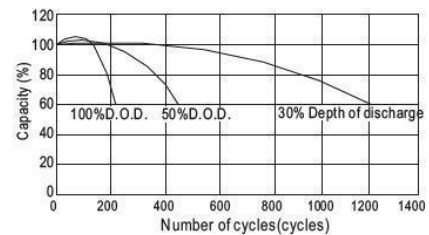
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	27.0	18.0	14.0	8.00	4.70	1.73	1.15	0.71	0.37
10.2V	25.7	17.1	13.4	7.66	4.55	1.70	1.13	0.70	0.36
10.8V	24.2	16.1	12.7	7.26	4.35	1.65	1.10	0.68	0.35

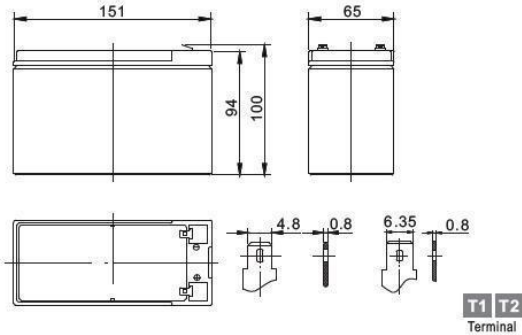
Constant Power Discharge Characteristics (Watt, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
301	203	160	91.7	54.4	20.6	13.8	8.52	4.43	
287	191	153	87.8	52.7	20.2	13.6	8.40	4.33	
270	180	145	83.2	50.4	19.6	13.2	8.17	4.21	

Standard Series

12V9.0Ah

Dimension(mm)



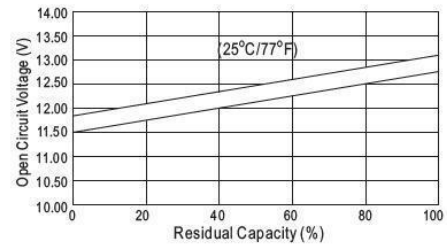
Specification

Nominal Voltage		12 V
Capacity(20HR, 25°C)		9 Ah
Dimension	Length	151mm (5.94inch)
	Width	65mm (2.56inch)
	Height	94mm (3.70inch)
	Total Height(T1/T2)	100mm (3.94inch)
Approx. Weight		2.65kg (5.83lbs)

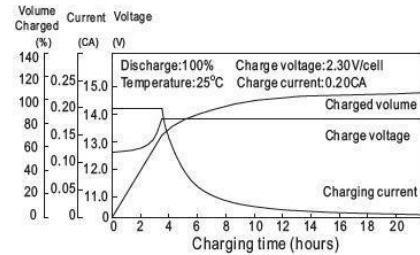
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	9Ah
	10 hour rate	8.1Ah
	5 hour rate	7.45Ah
	1 hour rate	5.57Ah
	15 min rate	4.53Ah
Internal resistance(Fully charged, 25°C)		Approx. 19mΩ
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C (77°F ±5°F)
Operating temperature range		-15°C ~50°C (5°F ~122°F)
Float charging voltage(25°C)		13.60 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		2.7A
Terminal material		Copper
Maximum discharge current		135A(5 Sec.)

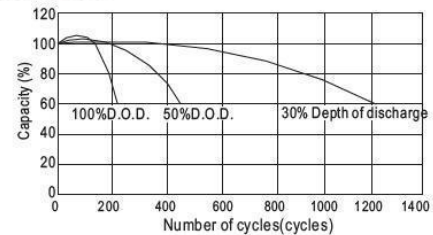
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	39.0	25.7	19.0	10.6	5.80	2.18	1.51	0.81	0.45
10.2V	37.1	24.2	18.1	10.2	5.57	2.15	1.49	0.81	0.45
10.8V	34.8	23.0	17.3	9.7	5.29	2.11	1.46	0.80	0.44

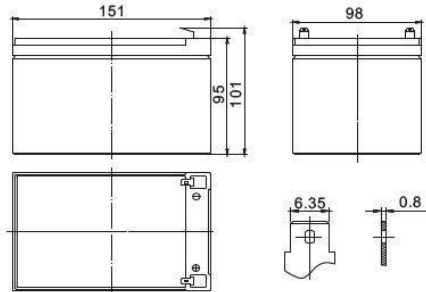
Constant Power Discharge Characteristics (Watt, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
435	290	217	121	67.2	25.9	18.0	9.72	5.40	
414	273	206	117	64.5	25.5	17.8	9.72	5.40	
388	259	197	111	61.3	25.1	17.4	9.60	5.28	

Standard Series

12V12Ah

Dimension(mm)



T2
Terminal



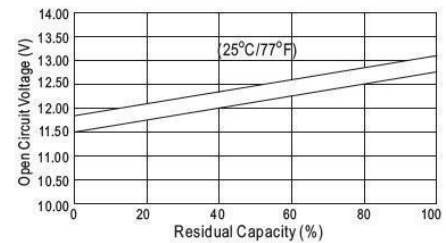
Specification

Nominal Voltage		12 V
Capacity(20HR, 25°C)		12Ah
Dimension	Length	151mm (5.94inch)
	Width	98mm (3.86inch)
	Height	95mm (3.74inch)
	Total Height	101mm (3.98inch)
Approx. Weight		3.60kg (8.14lbs)

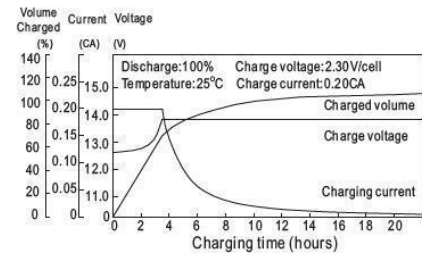
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	12Ah
	10 hour rate	11.1Ah
	5 hour rate	10.3Ah
	1 hour rate	7.49Ah
	15 min rate	5.87Ah
Internal resistance(Fully charged, 25°C)		Approx. 19mΩ
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C (77°F ±5°F)
Operating temperature range		-15°C ~50°C (5°F ~122°F)
Float charging voltage(25°C)		13.60 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		3.6A
Terminal material		Copper
Maximum discharge current		180A(5 Sec.)

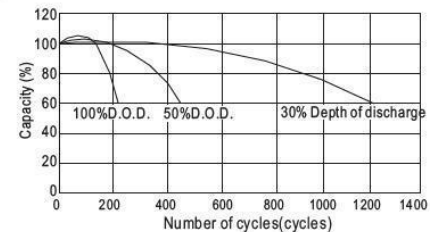
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	46.0	31.0	24.5	13.5	7.80	3.17	2.08	1.12	0.60
10.2V	43.7	29.5	23.5	13.0	7.49	3.12	2.05	1.11	0.59
10.8V	41.0	27.7	22.3	12.3	7.11	3.06	2.01	1.10	0.59

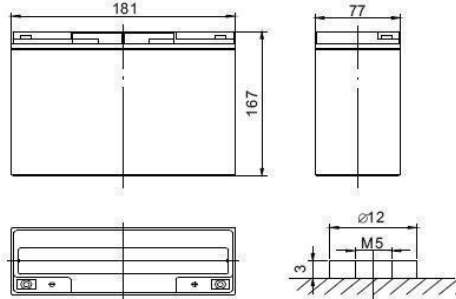
Constant Power Discharge Characteristics (Watt, 25°C)

	5min	10min	15min	30min	60min	3h	5h	10h	20h
513	350	279	155	90.3	37.6	25.0	13.4	7.20	
488	332	268	149	86.7	37.1	24.5	13.3	7.10	
458	312	255	141	82.4	36.3	24.0	13.3	7.10	

Standard Series

12V17Ah

Dimension



Specification

Nominal Voltage		12 V
Capacity(20HR, 25°C)		17Ah
Dimension	Length	181mm (7.13inch)
	Width	77mm (3.03inch)
	Height	167mm (6.57inch)
	Total Height	167mm (6.57inch)
Approx. Weight		5.2kg (11.5lbs)

Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	17Ah
	10 hour rate	15.4Ah
	5 hour rate	13.6Ah
	1 hour rate	9.82Ah
	15 min rate	7.12Ah
Internal resistance(Fully charged, 25°C)		Approx. 17mΩ
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C(77°F ±5°F)
Operating temperature range		-15°C~50°C(5°F~122°F)
Float charging voltage(25°C)		13.60 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		5.1A
Terminal material		Copper
Maximum discharge current		255A(5 secretary.)

Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	59.5	37.4	29.8	17.9	10.2	4.14	2.76	1.55	0.86
10.2V	56.6	35.5	28.5	17.1	9.82	4.08	2.72	1.54	0.86
10.8V	53.2	33.4	27.1	16.2	9.30	4.00	2.66	1.53	0.85

Constant Power Discharge Characteristics (Watt, 25°C)

5min	10min	15min	30min	60min	3h	5h	10h	20h
664	422	339	205	118	49.2	33.0	18.6	10.4
631	400	326	196	113	48.5	32.5	18.5	10.3
593	377	309	187	108	47.5	31.8	18.5	10.2



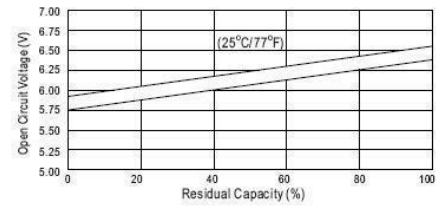
Features

- Nonspillable
- Solid Copper Terminals
- Long Service Life
- Low Self-discharge
- Absorbent glass mat technology
- Flame retardant ABS container (UL94V-0/94V-2)

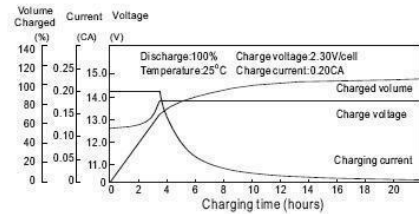
Application:

- Telecommunication equipments
- Emergency lighting
- Electronic instruments
- Fire alarm and security devices
- UPS Systems

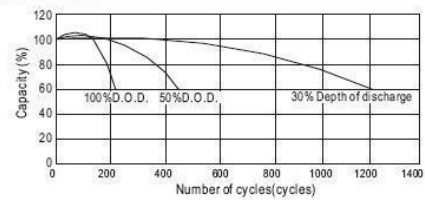
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



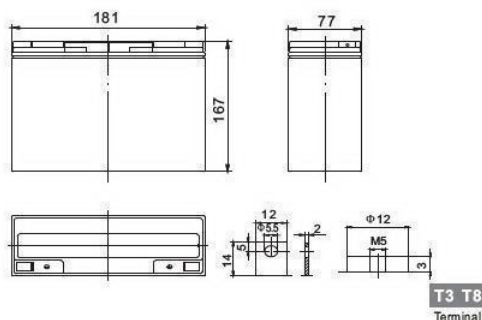
Cycle Life(25°C)



Standard Series

12V18Ah

Dimension(mm)



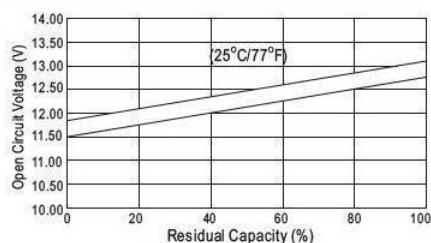
Specification

Nominal Voltage		12 V
Capacity(20HR, 25°C)		18Ah
Dimension	Length	181mm (7.13inch)
	Width	77mm (3.03inch)
	Height	167mm (6.57inch)
	Total Height(T3/T8)	167mm(6.57inch)/167mm(6.57inch)
Approx. Weight		5.4kg (11.9lbs)

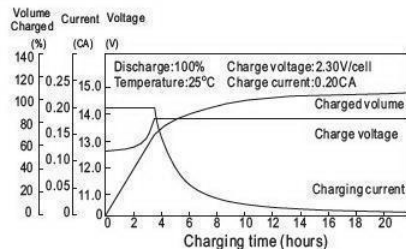
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	18Ah
	10 hour rate	16.3Ah
	5 hour rate	14.4Ah
	1 hour rate	10.4Ah
	15 min rate	7.55Ah
Internal resistance(Fully charged, 25°C)		Approx. 17m Ω
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C (77°F ±5°F)
Operating temperature range		-15°C~50°C(5°F~122°F)
Float charging voltage(25°C)		13.60 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		5.4A
Terminal material		Copper
Maximum discharge current		270A(5 Sec.)

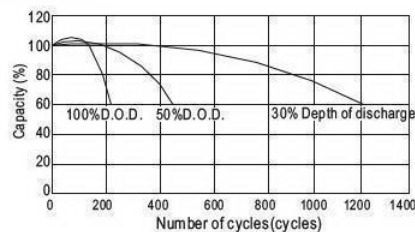
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	63.0	39.6	31.5	18.9	10.8	4.38	2.92	1.64	0.91
10.2V	59.9	37.6	30.2	18.1	10.4	4.32	2.88	1.63	0.91
10.8V	56.3	35.4	28.7	17.2	9.85	4.23	2.82	1.62	0.90

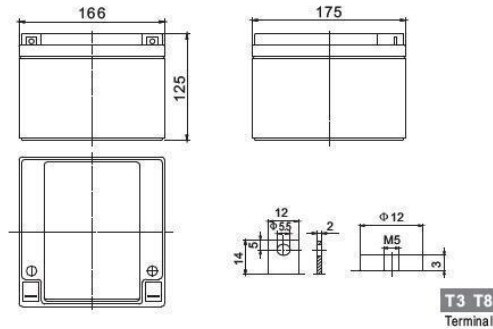
Constant Power Discharge Characteristics (Watt, 25°C)

	5min	10min	15min	30min	60min	3h	5h	10h	20h
703	447	359	217	125	52.1	34.9	19.7	11.0	
668	424	345	208	120	51.3	34.4	19.6	10.9	
628	399	327	198	114	50.3	33.7	19.6	10.8	

Standard Series

12V24Ah

Dimension(mm)



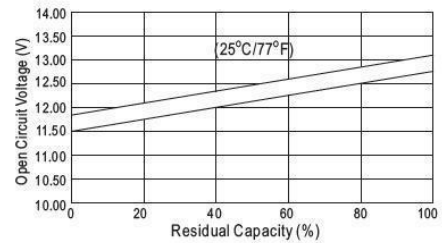
Specification

Nominal Voltage		12 V
Capacity(20HR, 25°C)		24Ah
Dimension	Length	166mm (6.54inch)
	Width	175mm (6.89inch)
	Height	125mm (4.92inch)
	Total Height(T3/T8)	125mm(4.92inch)/125mm(4.92inch)
Approx. Weight		8.0kg (17.6lbs)

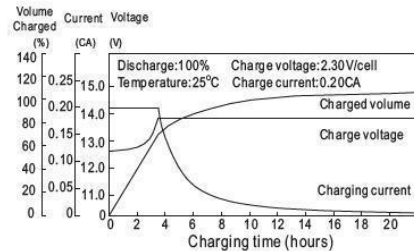
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	24Ah
	10 hour rate	21.7Ah
	5 hour rate	19.2Ah
	1 hour rate	13.8Ah
	15 min rate	10.0Ah
Internal resistance(Fully charged, 25°C)		Approx. 12m Ω
Capacity affected by temperature (20HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ±3°C (77°F ±5°F)
Operating temperature range		-15°C~50°C(5°F~122°F)
Float charging voltage(25°C)		13.60 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		7.9A
Terminal material		Copper
Maximum discharge current		360A(5 Sec.)

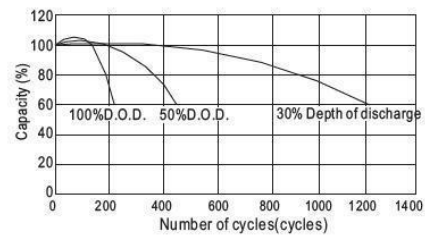
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	84.0	52.8	42.0	25.2	14.4	5.85	3.90	2.19	1.22
10.2V	79.8	50.2	40.3	24.2	13.8	5.76	3.84	2.17	1.21
10.8V	75.0	47.2	38.3	23.0	13.1	5.64	3.76	2.16	1.20

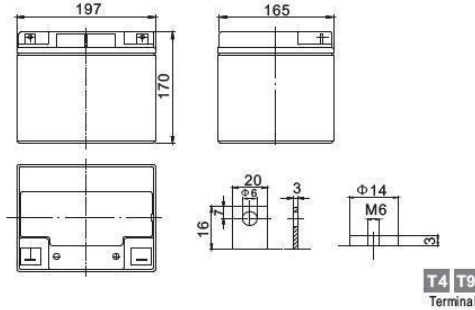
Constant Power Discharge Characteristics (Watt, 25°C)

	5min	10min	15min	30min	60min	3h	5h	10h	20h
937	596	479	289	167	69.5	46.5	26.3	14.6	
891	566	460	277	160	68.4	45.8	26.1	14.5	
837	532	437	263	152	67.1	44.9	26.1	14.4	

Standard Series

12V40Ah

Dimension(mm)



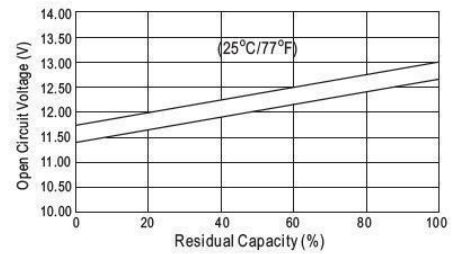
Specification

Nominal Voltage		12 V
Capacity(10HR, 25°C)		40Ah
Dimension	Length	197mm (7.8inch)
	Width	165mm (6.5inch)
	Height	170mm (6.7inch)
	Total Height(T4/T9)	170mm (6.7inch)/170mm (6.7inch)
Approx. Weight		13.3kg (29.3lbs)

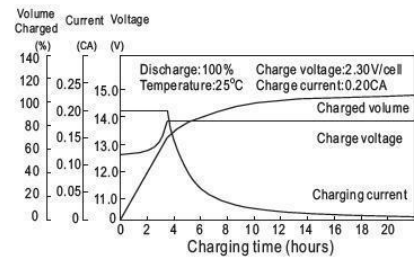
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	42Ah
	10 hour rate	40Ah
	5 hour rate	36Ah
	1 hour rate	25Ah
	15 min rate	16.3Ah
Internal resistance(Fully charged, 25°C)		Approx.9.5m Ω
Capacity affected by temperature (10HR)	40°C	102%
	25°C	100%
	0°C	85%
	-15°C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25°C ± 3°C (77°F ± 5°F)
Operating temperature range		-15°C ~50°C (5°F ~122°F)
Float charging voltage(25°C)		13.50 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		12A
Terminal material		Copper
Maximum discharge current		400A(5 Sec.)

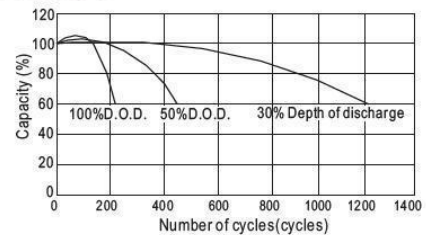
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	122	81.0	68.0	40.0	26.0	10.4	7.31	4.06	2.10
10.2V	116	77.0	65.3	38.4	25.0	10.2	7.20	4.02	2.10
10.8V	109	72.3	62.0	36.5	23.7	10.0	7.06	4.00	2.05

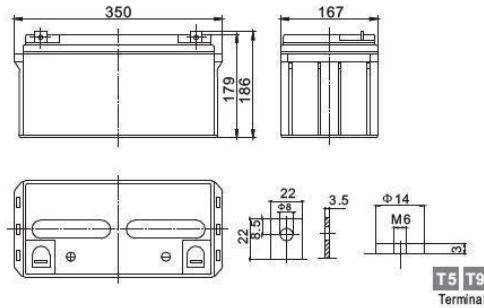
Constant Power Discharge Characteristics (Watt, 25°C)

5min	10min	15min	30min	60min	3h	5h	10h	20h
1281	875	747	449	296	122	86.4	48.5	25.2
1217	831	717	431	285	120	85.1	48.0	25.2
1144	781	681	409	270	118	83.4	48.0	24.6

Standard Series

12V65Ah

Dimension(mm)



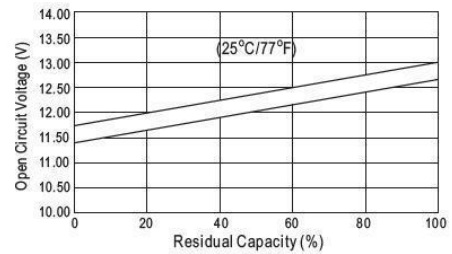
Specification

Nominal Voltage		12 V
Capacity(10HR, 25°C)		65 Ah
Dimension	Length	350mm (13.8inch)
	Width	167mm (6.6inch)
	Height	179mm (7.0inch)
	Total Height(T5/T9)	186mm (7.3inch)/179mm (7.1inch)
Approx. Weight		21.2 kg (46.6lbs)

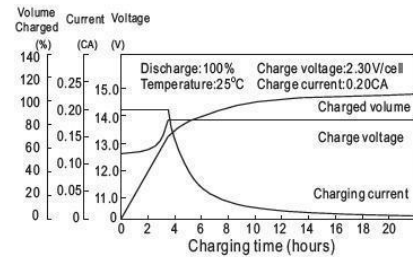
Characteristics

Capacity 20°C (68°F) To 1.70V/Cell	20 hour rate	69Ah
	10 hour rate	65Ah
	5 hour rate	57.5Ah
	1 hour rate	39.4Ah
	15 min rate	26.5Ah
Internal resistance(Fully charged, 25°C)		Approx.6m Ω
Capacity affected by temperature (10HR)	40 °C	102%
	25 °C	100%
	0 °C	85%
	-15 °C	65%
Self-discharge (25°C)	3 month	Remaining Capacity: 91%
	6 month	Remaining Capacity: 82%
	12 month	Remaining Capacity: 65%
Nominal operating temperature		25 °C ±3°C (77°F ± 5°F)
Operating temperature range		-15°C ~50°C (5°F ~122°F)
Float charging voltage(25°C)		13.50 to 13.80V
Cyclic charging voltage(25°C)		14.50 to 14.90V
Maximum charging current		19.5A
Terminal material		Copper
Maximum discharge current		650A(5 Sec.)

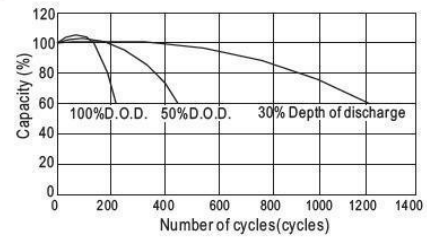
The Relationship for Open Circuit Voltage and Residual Capacity (25°C)



Charging Characteristics(25°C)



Cycle Life(25°C)



Constant Current Discharge Characteristics (A, 25°C)

F.V/TIME	5min	10min	15min	30min	60min	3h	5h	10h	20h
9.60V	205	143	110	67.0	41.0	16.7	11.7	6.65	3.45
10.2V	195	136	106	64.3	39.4	16.5	11.5	6.60	3.45
10.8V	183	128	100	61.1	37.4	16.2	11.3	6.50	3.40

Constant Power Discharge Characteristics (Watt, 25°C)

	5min	10min	15min	30min	60min	3h	5h	10h	20h
2153	1544	1208	752	467	196	138	79.4	41.4	
2045	1467	1159	722	449	194	136	78.8	41.4	
1922	1379	1102	686	426	191	134	77.6	40.8	