

TPL121000T												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	203	123	72.6	52.9	41.9	29.8	23.4	19.4	16.6	12.9	10.7	5.55
1.70V	198	122	72.2	52.7	41.5	29.7	23.3	19.3	16.5	12.8	10.6	5.51
1.75V	184	117	71.1	52.0	41.2	29.4	23.1	19.2	16.4	12.7	10.5	5.47
1.80V	164	111	68.7	50.8	40.2	28.7	22.6	18.8	16.0	12.5	10.4	5.37
1.83V	148	105	65.9	49.2	38.9	27.9	22.0	18.3	15.7	12.3	10.1	5.24
1.85V	138	101	64.0	48.1	38.1	27.3	21.6	18.0	15.4	12.1	9.91	5.15
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	2117	1370	843	619	488	344	270	223	192	152	127	66.6
1.70V	2069	1361	837	615	487	342	268	222	190	149	124	65.6
1.75V	1944	1327	828	611	482	341	265	221	189	148	123	65.3
1.80V	1753	1261	798	598	472	334	262	217	187	147	122	65.0
1.83V	1611	1211	768	581	457	326	256	213	183	145	121	63.6
1.85V	1516	1177	748	569	447	320	252	210	181	144	120	62.6

TPL121250A												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	232	147	86.3	63.0	50.2	37.0	29.8	24.7	21.1	16.3	13.3	6.95
1.70V	220	142	84.4	61.8	49.1	36.6	29.4	24.4	20.8	15.9	13.1	6.88
1.75V	199	132	81.2	59.3	47.2	35.2	28.5	23.4	20.0	15.6	12.8	6.72
1.80V	176	121	76.7	56.4	45.1	33.8	27.2	22.7	19.5	15.1	12.5	6.56
1.83V	162	115	73.1	54.5	43.8	32.7	26.4	22.0	19.0	14.6	12.0	6.41
1.85V	153	110	70.4	52.7	42.8	31.9	25.5	21.5	18.5	14.4	11.9	6.25
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	2461	1590	946	695	557	414	335	279	238	184	150	78.9
1.70V	2344	1542	936	693	556	413	333	277	237	182	149	78.7
1.75V	2138	1456	910	681	555	407	328	270	231	180	148	77.9
1.80V	1927	1364	876	665	549	400	317	265	228	176	145	77.0
1.83V	1797	1304	844	649	538	389	310	259	224	172	142	75.8
1.85V	1705	1255	822	633	529	382	306	254	219	170	141	74.3

TPL121350A												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	250	159	93.2	68.1	54.2	39.9	32.1	26.7	22.8	17.6	14.3	7.51
1.70V	236	153	91.0	66.7	53.6	39.5	31.7	26.3	22.4	17.2	14.2	7.43
1.75V	213	144	87.2	64.7	52.7	38.4	30.8	25.3	21.6	16.9	13.8	7.26
1.80V	189	132	82.3	62.2	51.3	37.2	29.4	24.5	21.1	16.3	13.5	7.09
1.83V	174	125	79.1	60.7	49.9	35.9	28.5	23.8	20.5	15.8	13.0	6.92
1.85V	164	119	76.4	59.2	48.7	35.0	27.9	23.2	20.0	15.5	12.8	6.75
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	2658	1718	1022	751	602	447	362	301	257	198	162	85.2
1.70V	2544	1672	996	739	601	446	360	299	256	196	161	84.9
1.75V	2339	1586	958	716	587	440	354	292	249	195	160	84.1
1.80V	2095	1488	927	699	574	432	342	286	247	191	157	83.2
1.83V	1954	1387	893	684	561	420	335	280	242	186	153	81.8
1.85V	1857	1343	871	668	545	410	330	275	237	184	152	80.3

TPL121500A												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	264	174	106	77.6	62.2	45.2	36.3	30.7	26.2	20.1	16.5	8.77
1.70V	251	169	105	77.2	62.1	45.2	36.2	30.5	26.1	20.0	16.4	8.72
1.75V	223	162	101	74.5	60.0	44.3	35.5	30.1	25.8	19.9	16.3	8.67
1.80V	194	152	94.7	70.7	57.4	42.6	34.7	29.4	25.1	19.5	16.1	8.50
1.83V	172	144	89.4	67.4	55.1	41.4	33.9	28.8	24.7	18.9	15.6	8.34
1.85V	155	135	85.0	64.3	52.8	40.3	33.1	28.2	24.1	18.6	15.4	8.12
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	2672	1930	1223	897	720	529	425	358	305	237	195	104
1.70V	2582	1891	1200	884	711	521	420	357	304	236	194	103
1.75V	2354	1835	1154	856	692	517	417	356	302	234	191	102
1.80V	2113	1760	1092	821	670	505	410	353	301	233	190	101
1.83V	1870	1658	1034	784	644	488	402	339	291	226	186	99.0
1.85V	1849	1573	992	759	628	478	396	337	286	223	183	98.5



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BATTERY



Telecom Power and Long Life  
Front Access Terminal Design  
ENERGY OF INFINITY ▶

TPL series



Hitachi Chemical Energy Technology Co., Ltd.



# TPL series

TPL-series batteries. front terminal access, have the widest range of applications and longer design life in standby use. With VRLA technology, they are small, lightweight and offer a service life of up to 12 years in standby service. As with all our ISO/UL certified batteries, TPL series batteries are rechargeable, highly efficient, maintenance free, leakproof and viable in any orientation.



MH14533  
In accordance with IEC 60896-21/22:2004  
In accordance with BS6290-4

## Standard Relay Rack



• Trays designed for Front Terminal Battery

### Features and Benefits :

- Optional flame-retardant container and cover complies with UL (94-V0)-28%L.O.I.
- TPL series battery is in line with EUROBAT guide for >12 YEARS VERY LONG LIFE
- Adopts the latest separator advances with +99% efficient gas recombination
- Front terminal access for easy installation and maintenance
- Reduced internal resistance for superior performance
- 19" and 23" relay rack for telecom applications
- Flame-arresting vents for long life and safety
- Uniformed plate formation for consistent capacity
- Improved Pd-Ca-Sn alloy resists grid corrosion
- Viable in any orientation
- Low self-discharge
- No-spill design
- Maintenance-free

### Long Service Life :

- Up to 12 years of service life in floating charge conditions at 25°C(77°F).

### Reliability :

- Our batteries are 100% 2-cycle tested by computer charge and discharge System (CCDS).
- Our batteries are UL-recognized components under UL 1989. (File Number with MH 14533)
- ISO 9001/14001/18001 certified.

### Applications :

#### Standby Use

- CATV
- Telemeters
- UPS power supply
- Workstation UPS
- Emergency lighting equipment
- Fire alarm and security systems
- Precision instrument backup power
- Communications and electrical equipment
- Office computers, microcomputers and OA equipment
- Robots, control equipment and other FA equipment
- Replacement of open-type stationary lead acid batteries
- Emergency power supply in power plants and substations
- Telecom applications (Distributed power, PHS, cellular and broadband)

#### Solar Cell Power Generation

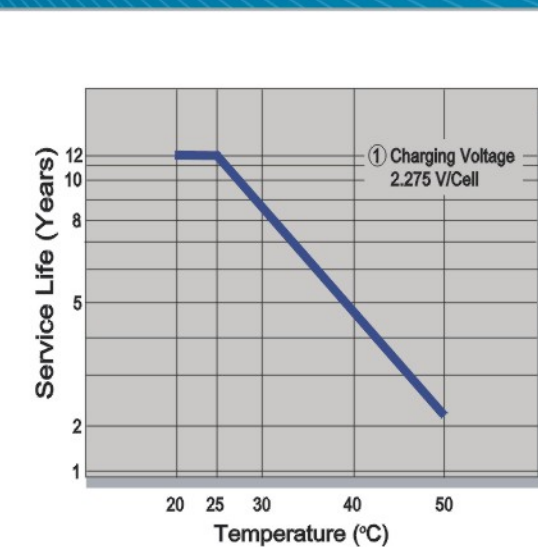
- Street lighting
- Portable power supply
- Water pumping
- Rural power systems

## Specifications

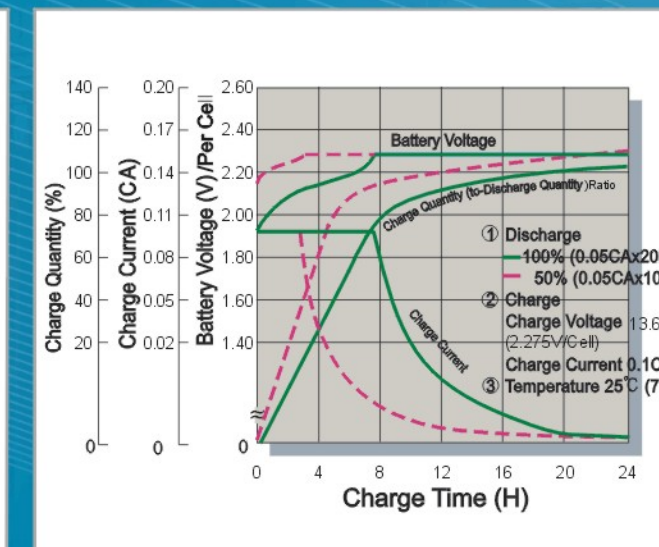
Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah)*	Weight (Approx. Kg)	Internal Resistance (mΩ)	Short Circuit Current (A)	Max. Discharge Current (5 sec)(A)	Dimensions (mm)			Terminal Type	Bolt	Max. Charge Current (A)	Max. Screw Torque Value	
							Overall Height (H)	Length(L)	Width (W)				Kgf-cm/ lbf-in	N-m
TPL12800	12	80	36.30	3.80	2216	800	225.5±2.5	511.6±2.5	110.0±1.5	I2	M6	24.0	138.6/120.3	13.58
TPL12000	12	90	36.30	3.80	2216	800	255.5±2.5	511.6±2.5	110.0±1.5	I2	M6	27.0	138.6/120.3	13.58
TPL121000	12	100	36.30	3.80	2216	800	255.5±2.5	511.6±2.5	110.0±1.5	I2	M6	30.0	138.6/120.3	13.58
TPL121000T	12	100	34.80	4.00	2132	800	280.0±2.5	360.0±2.5	105.0±1.5	I2	M6	30.0	138.6/120.3	13.58
TPL121200A	12	125	44.70	4.50	2327	800	320.2±2.5	547.0±2.5	124.8±1.5	I2	M6	37.5	138.6/120.3	13.58
TPL121900A	12	135	54.80	3.70	2593	800	320.2±2.5	547.0±2.5	124.8±1.5	I2	M6	40.5	138.6/120.3	13.58
TPL121500A	12	159	54.80	3.70	2593	800	320.2±2.5	547.0±2.5	124.8±1.5	I2	M6	45.0	138.6/120.3	13.58

\* Nominal Capacity 8hr-rate to 1.75V per cell@25°C (77°F)  
• Float Charge: 2.275±0.025 V/Cell at 25°C (77°F) ; Temp. Coefficient -3.3mV/°C

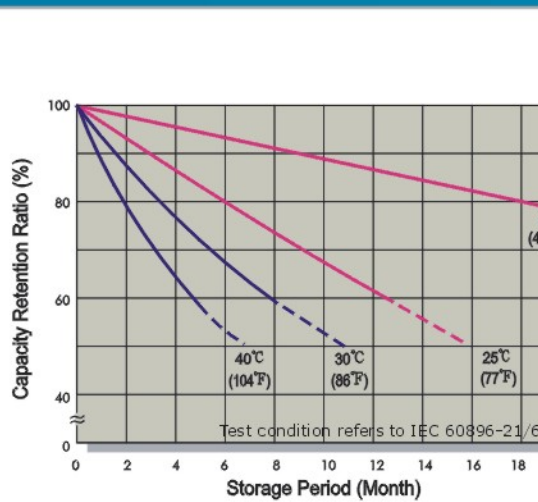
## Expected Life vs. Operating Temperature



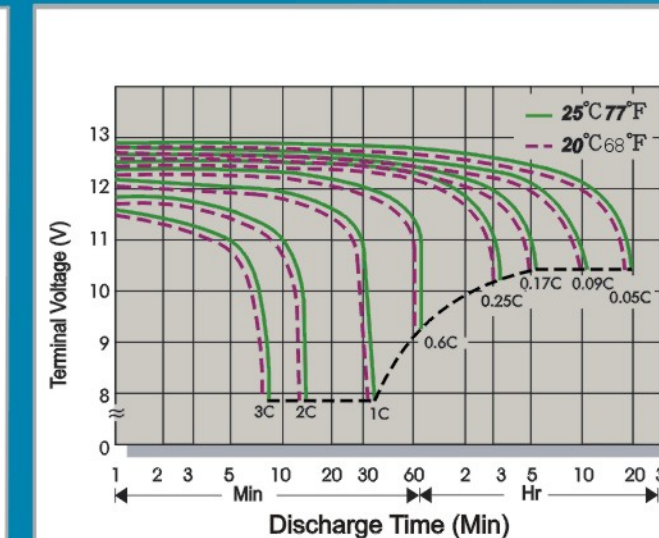
## Battery Voltage and Charge Time for Standby Use



## Capacity Retention Characteristics



## Discharge Characteristics



• The above diagrams are typical. For more detailed information please see the specific product sheets.  
• C is the capacity of 8 hour-rate while the final voltage is 1.75V per cell.  
For example, 1C discharge current of TPL12800 is: 1 x 80 = 80 (A)

### TPL12800

Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	148	94.3	55.3	40.4	32.1	23.7	19.1	15.8	13.5	10.4	8.50	4.45
1.70V	140	90.8	53.6	39.3	31.5	23.4	18.8	15.6	13.3	10.2	8.40	4.40
1.75V	126	84.0	51.1	37.8	30.3	22.8	18.3	15.0	12.8	10.0	8.20	4.30
1.80V	111	77.1	48.3	36.0	29.0	22.1	17.4	14.5	12.5	9.65	8.00	4.20
1.83V	103	72.8	46.3	34.7	28.2	21.3	16.9	14.1	12.2	9.35	7.70	4.10
1.85V	97.3	70.3	44.8	33.7	27.5	20.8	16.6	13.8	11.9	9.20	7.60	4.00

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	1575	1018	606	445	357	265	214	178	152	118	96.2	50.5
1.70V	1523	995	597	439	353	263	213	177	151	116	95.8	50.3
1.75V	1405	946	582	431	345	261	210	173	149	115	94.8	49.8
1.80V	1264	883	556	415	335	254	203	169	146	113	93.1	49.3
1.83V	1174	839	539	403	327	249	199	166	143	111	91.7	48.5
1.85V	1110	808	525	394	321	245	196	163	140	109	90.2	47.6

### TPL12900

Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	167	106	62.2	45.1	36.1	26.6	21.4	17.8	15.2	11.7	9.56	5.01
1.70V	159	102	60.4	44.4	35.7	26.3	21.2	17.5	15.0	11.5	9.45	4.95
1.75V	143	96.2	57.8	43.3	35.2	25.6	20.5	16.9	14.4	11.3	9.23	4.84
1.80V	127	88.4	54.7	41.7	34.2	24.8	19.6	16.2	14.0	10.9	9.00	4.73
1.83V	117	83.0	52.6	40.5	33.2	23.9	18.9	15.9	13.6	10.6	8.77	4.61
1.85V	110	79.5	50.6	39.0	32.5	23.3	18.4	15.5	13.3	10.4	8.55	4.50

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	1772	1145	681	497	401	298	241	201	172	132	108	56.8
1.70V	1700	1117	673	494	397	294	240	200	170	131	107	56.6
1.75V	1556	1057	649	482	389	285	235	194	166	130	106	56.1
1.80V	1397	982	623	468	378	277	228	191	164	127	105	55.5
1.83V	1300	932	603	458	369	272	222	187	161	124	102	54.6
1.85V	1239	900	586	443	362	267	218	183	158	123	101	53.5

### TPL121000

Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	186	118	69.1	50.2	40.1	29.6	23.8	19.8	16.9	13.0	10.6	5.56
1.70V	175	114	67.4	49.4	39.4	29.3	23.5	19.5	16.6	12.8	10.5	5.50
1.75V	157	106	64.0	47.3	38.0	28.4	22.8	18.8	16.0	12.5	10.3	5.38
1.80V	139	98.0	60.3	44.7	36.3	27.0	21.8	18.1	15.6	12.1	10.0	5.25
1.83V	129	92.5	58.0	43.5	35.1	26.1	21.1	17.6	15.2	11.7	9.63	5.13
1.85V	122	88.2	56.0	42.5	34.3	25.4	20.7	17.2	14.8	11.5	9.50	5.00

Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR	20HR
1.67V	1969	1272	757	554	446	331	268	223	191	147	120	63.1
1.70V	1878	1233	746	549	439	329	267	222	189	145	119	62.9
1.75V	1716	1161	723	534	428	322	261	216	185	144	118	62.3
1.80V	1549	1075	691	511	414	313	254	212	183	141	116	61.6
1.83V	1450	1025	669	502	405	305	246	207	179	138	114	60.6
1.85V	1382	994	655	496	399	299	241	203	175	136	113	59.5