



**TPL** series

**Telecom Power and Long Life  
Front Access Terminal Design  
Stability, Dependability and Reliability  
19" and 23" Relay Rack Configuration**

**ENERGY OF INFINITY** ▼



**Confidence & Creativity  
Service & Sincerity  
Belief & Bravery**

# TPL

TPL121000													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	186	118	69.1	50.2	40.1	29.6	23.8	19.8	16.9	14.7	13.0	10.6	5.56
1.70V	175	114	67.4	49.4	39.4	29.3	23.5	19.5	16.6	14.5	12.8	10.5	5.50
1.75V	157	106	64.0	47.3	38.0	28.4	22.8	18.8	16.0	14.0	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	13.6	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	13.2	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	12.9	11.5	9.50	5.00
1.90V	105	78.6	51.4	39.4	32.1	23.6	18.8	15.6	13.3	11.8	10.5	8.69	4.63
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	1,969	1,272	757	554	446	331	268	223	191	166	147	120	63.1
1.70V	1,878	1,233	746	549	439	329	267	222	189	165	145	119	62.9
1.75V	1,716	1,161	723	534	428	322	261	216	185	162	144	118	62.3
1.80V	1,549	1,075	691	511	414	313	254	212	183	159	141	116	61.6
1.83V	1,450	1,025	669	502	405	305	246	207	179	155	138	114	60.6
1.85V	1,382	994	655	496	399	299	241	203	175	153	136	113	59.5
1.90V	1,208	913	606	466	381	282	225	187	175	141	126	104	55.7

TPL121250A													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	232	147	86.3	63.0	50.2	37.0	29.8	24.7	21.1	18.4	16.3	13.3	6.95
1.70V	220	142	84.4	61.8	49.1	36.6	29.4	24.4	20.8	18.1	15.9	13.1	6.88
1.75V	199	132	81.2	59.3	47.2	35.2	28.5	23.4	20.0	17.5	15.6	12.8	6.72
1.80V	176	121	76.7	56.4	45.1	33.8	27.2	22.7	19.5	17.0	15.1	12.5	6.56
1.83V	162	115	73.1	54.5	43.8	32.7	26.4	22.0	19.0	16.5	14.6	12.0	6.41
1.85V	153	110	70.4	52.7	42.8	31.9	25.5	21.5	18.5	16.2	14.4	11.9	6.25
1.90V	131	98.2	64.3	49.1	40.1	29.5	23.4	19.5	16.6	14.7	13.1	10.9	5.78
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	2461	1590	946	695	557	414	335	279	238	208	184	150	78.9
1.70V	2344	1542	936	693	556	413	333	277	237	207	182	149	78.7
1.75V	2138	1456	910	681	555	407	328	270	231	202	180	148	77.9
1.80V	1927	1364	876	665	549	400	317	265	228	198	176	145	77.0
1.83V	1797	1304	844	649	538	389	310	259	224	194	172	142	75.8
1.85V	1705	1255	822	633	529	382	306	254	219	192	170	141	74.3
1.90V	1510	1142	757	581	477	353	281	234	200	176	158	131	69.6

TPL121350A													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	250	159	93.2	68.1	54.2	39.9	32.1	26.7	22.8	19.8	17.6	14.3	7.51
1.70V	236	153	91.0	66.7	53.6	39.5	31.7	26.3	22.4	19.6	17.2	14.2	7.43
1.75V	213	144	87.2	64.7	52.7	38.4	30.8	25.3	21.6	18.9	16.9	13.8	7.26
1.80V	189	132	82.3	62.2	51.3	37.2	29.4	24.5	21.1	18.3	16.3	13.5	7.09
1.83V	174	125	79.1	60.7	49.9	35.9	28.5	23.8	20.5	17.8	15.8	13.0	6.92
1.85V	164	119	76.4	59.2	48.7	35.0	27.9	23.2	20.0	17.5	15.5	12.8	6.75
1.90V	142	106	69.4	56.4	43.3	31.9	25.3	21.1	18.0	15.9	14.2	11.7	6.24
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	2,658	1,718	1,022	751	602	447	362	301	257	224	198	162	85.2
1.70V	2,544	1,672	996	739	601	446	360	299	256	223	196	161	84.9
1.75V	2,339	1,586	958	716	587	440	354	292	249	218	195	160	84.1
1.80V	2,095	1,488	927	699	574	432	342	286	247	214	191	157	83.2
1.83V	1,954	1,387	893	684	561	420	335	280	242	210	186	153	81.8
1.85V	1,857	1,343	871	668	545	410	330	275	237	207	184	152	80.3
1.90V	1,631	1,233	818	628	515	381	303	253	216	190	170	141	75.2

TPL121500A													
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	278	177	104	76.4	60.2	44.3	35.7	29.6	25.3	22.0	19.5	15.9	8.34
1.70V	263	170	100	74.3	59.5	43.9	35.3	29.3	24.9	21.8	19.1	15.8	8.25
1.75V	238	158	95.5	72.1	57.9	42.7	34.2	28.1	24.0	21.0	18.8	15.4	8.06
1.80V	211	146	90.2	68.1	55.6	41.3	32.6	27.2	23.4	20.3	18.1	15.0	7.88
1.83V	195	138	85.0	65.2	53.3	39.8	31.7	26.4	22.8	19.8	17.5	14.4	7.69
1.85V	184	133	82.9	63.7	52.1	38.9	31.0	25.8	22.2	19.4	17.3	14.3	7.50
1.90V	158	118	77.2	62.6	48.1	35.4	28.1	23.4	20.0	17.6	15.8	13.0	6.94
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)													
F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	2,954	1,909	1,135	843	669	497	402	334	286	249	221	180	94.7
1.70V	2,821	1,855	1,122	833	667	496	400	333	284	248	218	179	94.4
1.75V	2,575	1,747	1,084	824	666	489	394	324	277	243	217	178	93.4
1.80V	2,322	1,627	1,033	785	646	480	380	318	274	238	212	175	92.5
1.83V	2,164	1,545	1,002	768	628	467	372	311	268	233	207	170	90.9
1.85V	2,057	1,495	977	753	618	459	367	305	263	230	204	169	89.2
1.90V	1,812	1,370	909	693	572	423	337	281	240	212	189	157	83.5

# TPL series

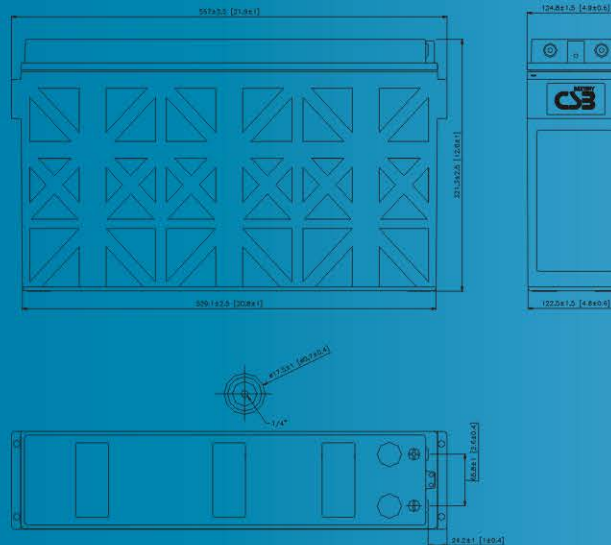
TPL -series batteries use the latest Valve Regulated Lead-Acid (VRLA) technology, yielding an expected life of 12 years under normal float charge. Front Terminal Access gives the battery more flexible installation and maintenance in 19" & 23" relay rack and cabinet enclosures. These batteries feature high performance & long life and they do not leak. They are also small, light and maintenance-free. Like all other CSB batteries, they are rechargeable and highly efficient, with ISO/UL recognition.



CSB-manufactured VRLA (Absorbent Glass Mat type) batteries are UL-recognized components under UL1959. CSB is also certified by ISO 9001 and ISO 14001 and TL 9000 Certified.

## Standard Relay Rack

- Trays designed for Front Terminal Battery



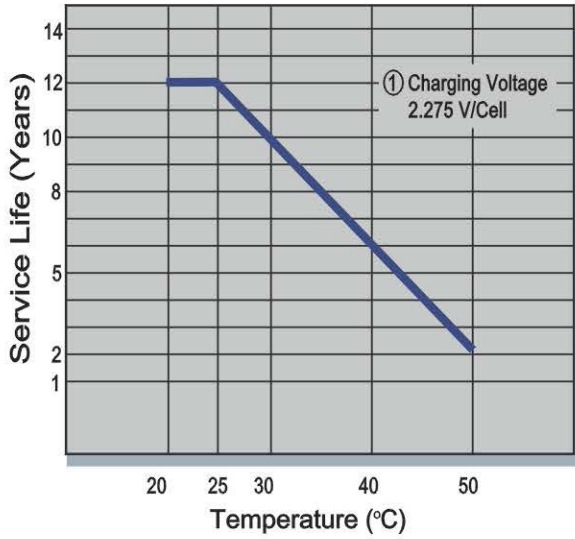
### Features

- Flame-retardant container and cover compliance with UL94 V-0.28% L.O.I.
- Front terminal access for easy installation and maintenance.
- 19" and 23" relay rack for telecom applications.
- Flame-arresting vents for long life and safety.
- Improved new Pd-Ca-Sn alloy for corrosion resistance.
- Special designed container to maintain structural integrity in high operating temperatures.
- Advanced separator offers gas recombination that is over 99% efficient.
- Lower internal resistance
- Superior rate discharge characteristics.

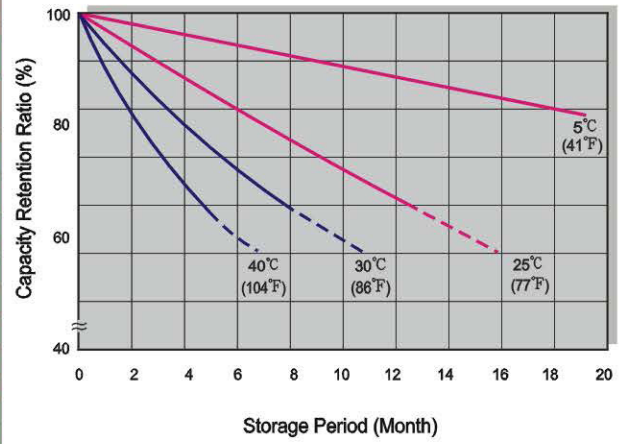
### Applications

- Telecom Applications (Distributed Power, PHS, Cellular and Broadband).
- Uninterruptible Power Supply Systems.
- Power Plants and Substations (Signaling and Communication).
- Emergency Lighting.
- Fire Alarms and Security Systems.
- Replacement of Open-Type Stationary Lead Acid Batteries.

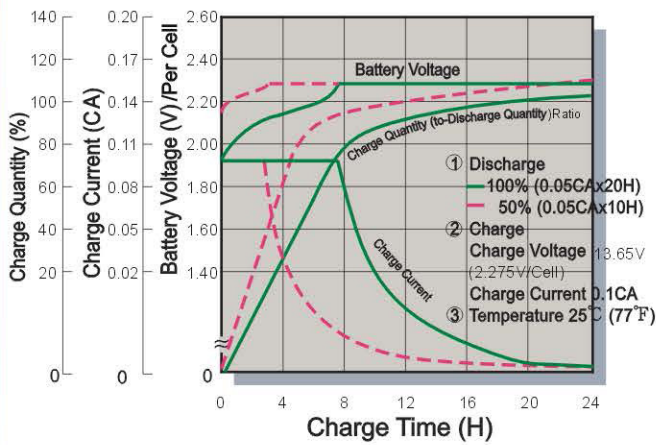
## Trickle (or Float) Service Life



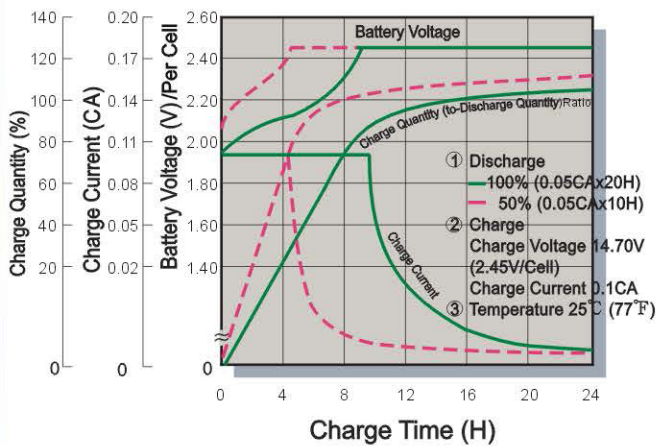
## Capacity Retention Characteristic



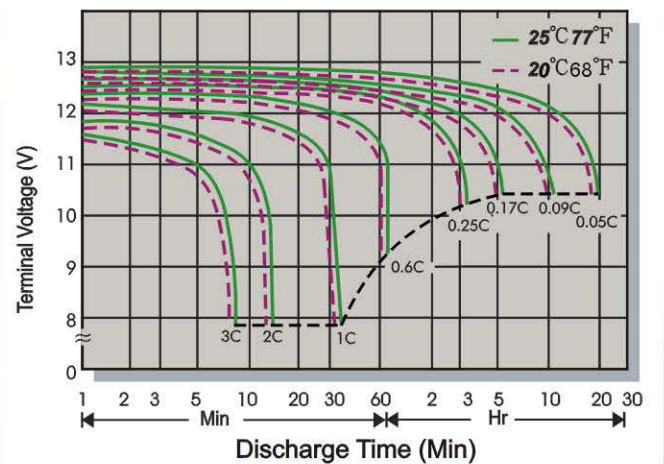
## Battery Voltage and Charge Time for Standby Use



## Battery Voltage and Charge Time for Cycle Use



## Terminal Voltage (V) and Discharge Time



## Specifications

Battery Type	Nominal Voltage (V)	Nominal Capacity (8Hr) (Ah)	Weight (Approx. Kg)	Energy Density (Wh/l)	Specific Energy (Wh/kg)	Internal Resistance Approx (mΩ)	Max. Discharge Current 5 sec (A)	Dimensions (mm)			Terminal Position	Terminal Type	Max. Charging Current (A)	Max. Screw Torque value	
								Overall Height (H)	Length (L)	Width (W)				Kgf-cm / lbf-in	N-m
TPL12800	12	80	36.30	64.8	26.45	4.50	800	256.7±2.5	512±2.5	112.8±1.5	e	I2	24.00	138.5/120	13.58
TPL12900	12	90	36.30	72.8	29.75	4.50	800	256.7±2.5	512±2.5	112.8±1.5	e	I2	27.00	138.5/120	13.58
TPL121000	12	100	36.30	80.9	33.06	4.50	800	256.7±2.5	512±2.5	112.8±1.5	e	I2	30.00	138.5/120	13.58
TPL121000T	12	100	32.70	104.7	36.70	5.00	800	280±2.5	390±2.5	105.0±1.5	e	I2	30.00	138.5/120	13.58
TPL121250A	12	125	44.70	66.2	33.56	6.50	800	323±2.5	547±2.5	125.6±1.5	e	I2	37.50	138.5/120	13.58
TPL121350A	12	135	53.60	71.5	30.22	6.50	800	323±2.5	547±2.5	125.6±1.5	e	I2	40.50	138.5/120	13.58
TPL121500A	12	150	53.60	79.5	33.58	6.50	800	323±2.5	547±2.5	125.6±1.5	e	I2	45.00	138.5/120	13.58

**Charging(V)** : • Standby Use : 2.275V±0.025/CELL AT 25°C (77°F) Temp Coefficient -3.3mV/CELL°C

• Cycle Use : 2.45V±0.05V/CELL AT 25°C (77°F) Temp Coefficient -5mV/CELL°C

### TPL12800

#### Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	148	94.3	55.3	40.4	32.1	23.7	19.1	15.8	13.5	11.8	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	11.6	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	11.2	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	10.9	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	10.6	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	10.4	9.20	7.60	4.00
1.90V	84.1	62.9	41.2	31.4	25.7	18.9	15.0	12.5	10.7	9.40	8.40	6.95	3.70

#### Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	1,575	1,018	606	445	357	265	214	178	152	133	118	96.2	50.5
1.70V	1,523	995	597	439	353	263	213	177	151	132	116	95.8	50.3
1.75V	1,405	946	582	431	345	261	210	173	149	129	115	94.8	49.8
1.80V	1,264	883	556	415	335	254	203	169	146	127	113	93.1	49.3
1.83V	1,174	839	539	403	327	249	199	166	143	124	111	91.7	48.5
1.85V	1,110	808	525	394	321	245	196	163	140	123	109	90.2	47.6
1.90V	967	731	485	372	305	226	180	150	128	113	101	83.5	44.5

### TPL12900

#### Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	167	106	62.2	45.1	36.1	26.6	21.4	17.8	15.2	13.2	11.7	9.56	5.01
1.70V	159	102	60.4	44.4	35.7	26.3	21.2	17.5	15.0	13.1	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	12.6	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	12.2	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	11.9	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	11.6	10.4	8.55	4.50
1.90V	94.6	70.7	46.3	35.3	28.9	21.3	16.9	14.1	12.0	10.6	9.45	7.82	4.16

#### Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	6HR	7HR	8HR	10HR	20HR
1.67V	1,772	1,145	681	497	401	298	241	201	172	149	132	108	56.8
1.70V	1,700	1,117	673	494	397	294	240	200	170	148	131	107	56.6
1.75V	1,556	1,057	649	482	389	285	235	194	166	146	130	106	56.1
1.80V	1,397	982	623	468	378	277	228	191	164	143	127	105	55.5
1.83V	1,300	932	603	456	369	272	222	187	161	140	124	102	54.6
1.85V	1,239	900	586	443	362	267	218	183	158	138	123	101	53.5
1.90V	1,087	822	545	418	343	254	202	169	144	127	113	94.0	50.1

### TPL121000T

#### Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	209	125	73.0	53.2	42.2	29.9	23.6	19.5	13.0	10.8	5.59
1.67V	203	123	72.6	52.9	41.9	29.8	23.4	19.4	12.9	10.7	5.55
1.70V	198	122	72.2	52.7	41.5	29.7	23.3	19.3	12.8	10.6	5.51
1.75V	184	117	71.1	52.0	41.2	29.4	23.1	19.2	12.7	10.5	5.47
1.80V	164	111	68.7	50.8	40.2	28.7	22.6	18.8	12.5	10.4	5.37
1.85V	138	101	64.0	48.1	38.1	27.3	21.6	18.0	12.1	9.91	5.15

#### Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)

F.V/Time	15MIN	30MIN	60MIN	90MIN	2HR	3HR	4HR	5HR	8HR	10HR	20HR
1.60V	2197	1389	845	622	491	347	271	224	153	128	67.3
1.67V	2117	1370	843	619	488	344	270	223	152	127	66.6
1.70V	2069	1361	837	615	487	342	268	222	149	124	65.6
1.75V	1944	1327	828	611	482	341	265	221	148	123	65.3
1.80V	1753	1261	798	598	472	334	262	217	147	122	65.0
1.85V	1516	1177	748	569	447	320	252	210	144	120	62.6

BATTERY



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