

BATTERY
CSB



MSVseries
Large Capacity
Long Life

ENERGY OF INFINITY ▼

Confidence & Creativity
Service & Sincerity
Belief & Bravery

MSV

MSV series

Applications

- Telecom Systems.
- Power Equipment.
- Fire Alarm/Security Systems.
- Emergency Lighting.
- UPS.
- Solar Battery Systems.
- Back-up Power for Testing and Measuring Instruments.
- Replacement for flooded stationary lead acid battery.
- Service life is up to 15 years in standby use.



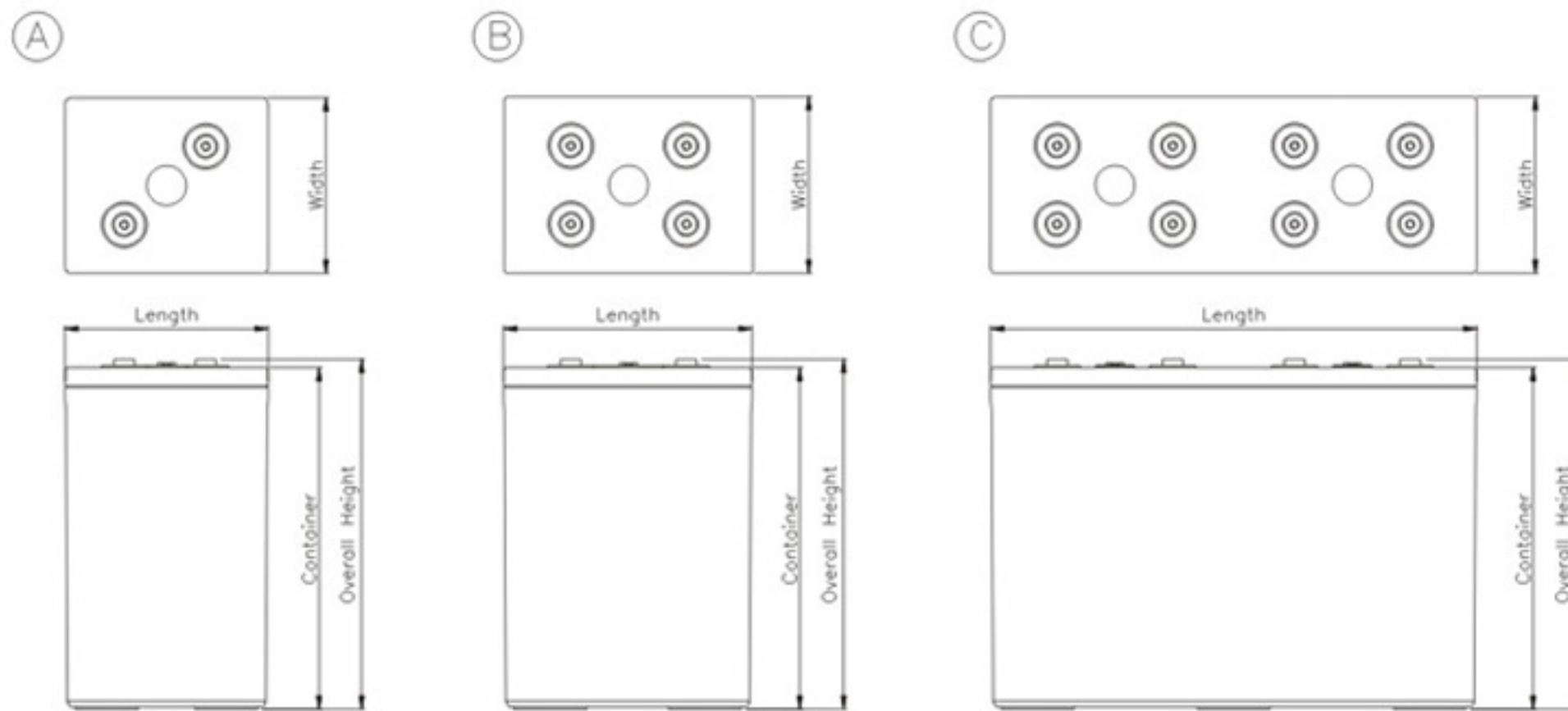
Features

- Longer service life [up to 15 years life in float service at 25°C(77°F) temperature] through newly formulated lead-calcium-tin alloy with high corrosion resistance. CSB's MSV series battery range is in line with EURO BAT specifications for "High Integrity". (Over 10 years of service life in floating charge conditions).
- Water adding and specific gravity measurements are not required. There is also no need for an equalization charge, which reduces maintenance costs.
- CSB's MSV series battery is manufactured in accordance with JIS C8704 and qualified by the Battery Equipment Approval Committee of Japan for use in fire alarms, security systems and emergency lighting systems (Approval No. 00C248).
- CSB's MSV series meets the NQAS requirements specified by NTT (Approval No. NQAS 0008).
- Proven service and supply records for telecommunications.
- CSB's MSV series battery has a long expected service life of up to 15 years.

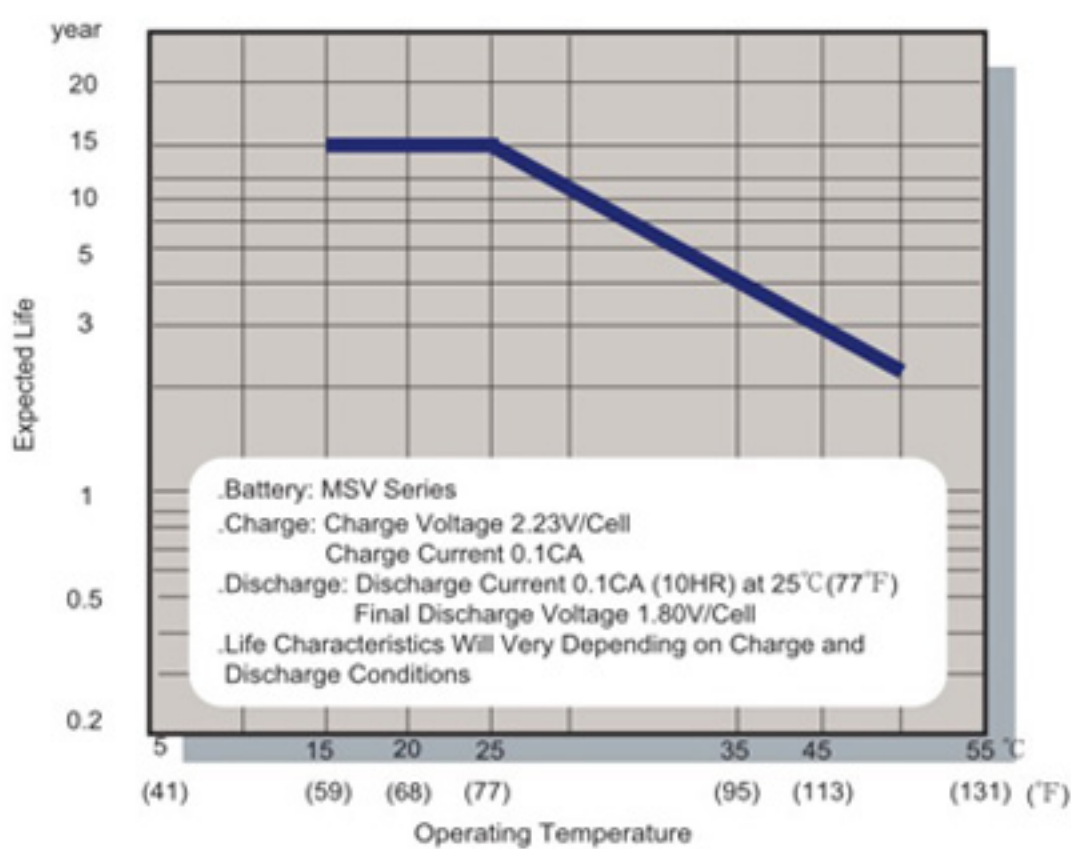
Specifications

Battery Type	Nominal Voltage (V)	Nominal Capacity (10Hr)(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	Max. Charging Current (A)	Charging (V)	
								Overall Height (H)	Container Height (h)	Length (L)	Width (W)			Float charge	
MSV200	2	200	13.00	67.1	30.77	0.52	1,200	339±3.0	331±3.0	106±3.0	170±3.0	A	60.00	2.23±0.02/Cell AT25°C(77°F) Temp.Coefficient t-3.3mV/°C (-1.8mV/°F)	
MSV240	2	240	14.10	80.5	34.04	0.52	1,440	339±3.0	331±3.0	106±3.0	170±3.0	A	72.00		
MSV300	2	300	17.50	81.4	34.29	0.44	1,800	339±3.0	331±3.0	131±3.0	170±3.0	A	90.00		
MSV360	2	360	20.20	85.3	35.64	0.38	2,160	339±3.0	331±3.0	150±3.0	170±3.0	A	108.00		
MSV400	2	400	24.00	72.2	33.33	0.41	2,400	339±3.0	331±3.0	170±3.0	197±3.0	A	120.00		
MSV500	2	500	27.00	90.2	37.04	0.41	3,000	339±3.0	331±3.0	170±3.0	197±3.0	A	150.00		
MSV600	2	600	33.50	88.0	35.82	0.40	3,600	339±3.0	331±3.0	171±3.0	241±3.0	B	180.00		
MSV780	2	780	42.50	89.8	36.71	0.37	4,680	339±3.0	331±3.0	171±3.0	307±3.0	B	234.00		
MSV960	2	960	44.80	89.4	42.86	0.37	5,760	339±3.0	331±3.0	174±3.0	373±3.0	B	288.00		
MSV1200	2	1200	66.20	90.0	36.25	0.39	7,200	339±3.0	331±3.0	171±3.0	471±3.0	C	360.00		

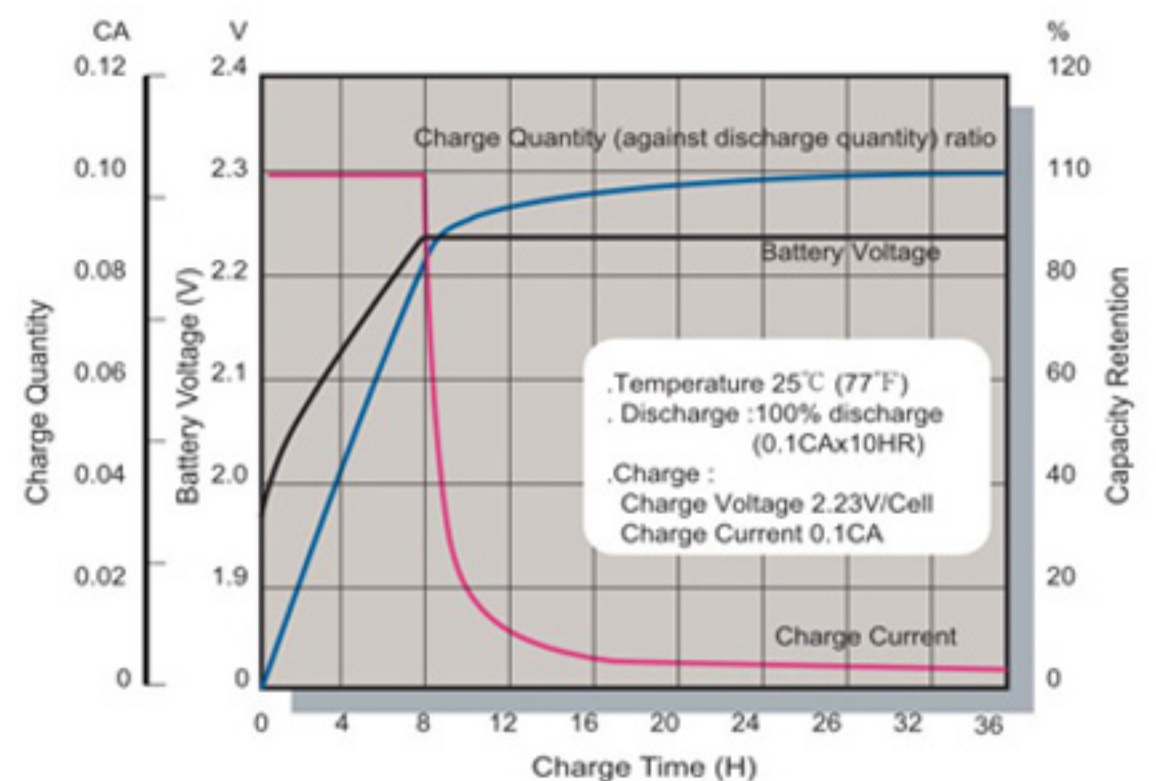
Terminal Position



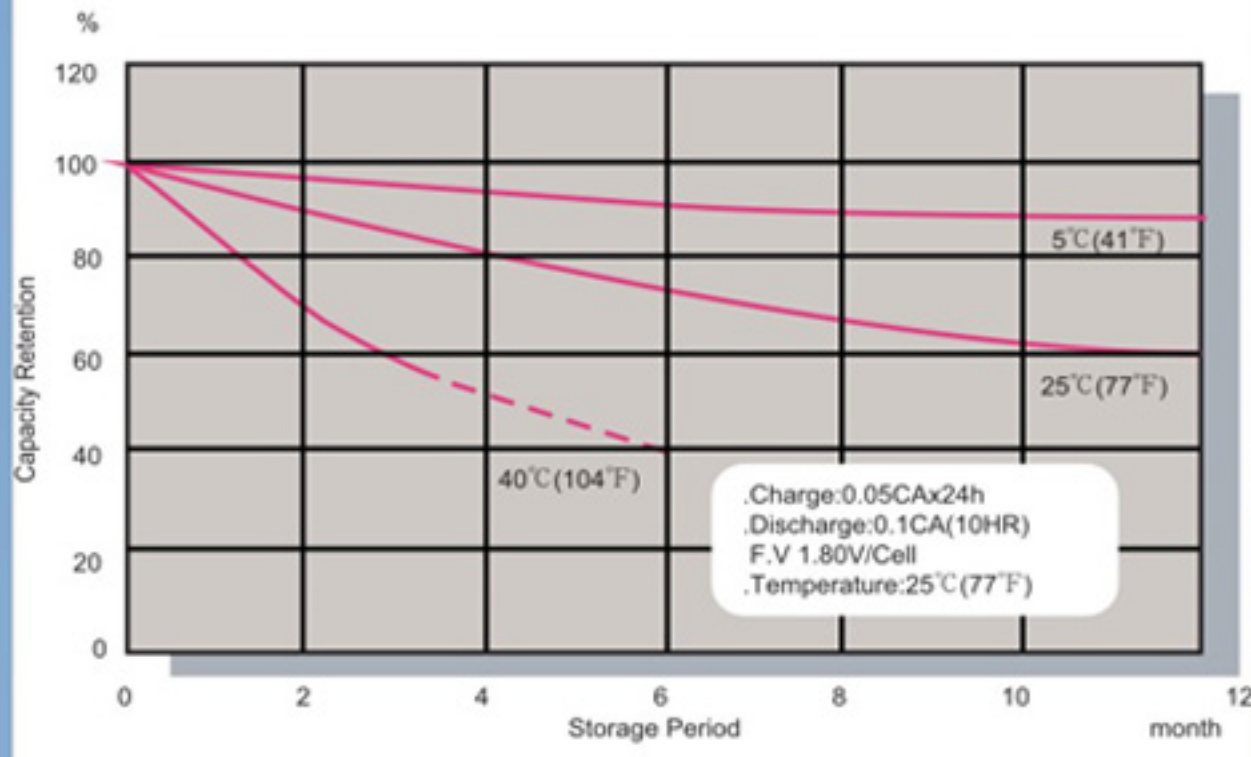
Expected Life V.S Operating Temperature



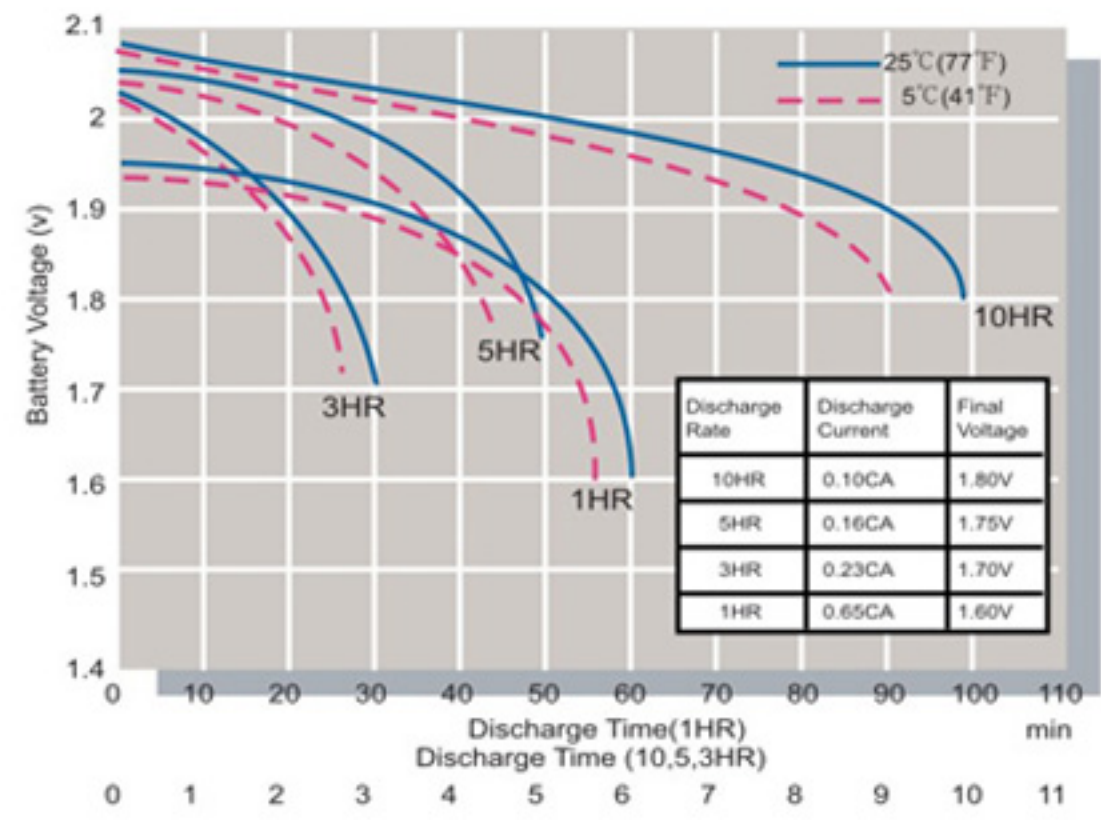
Typical Constant Voltage Charge Characteristics



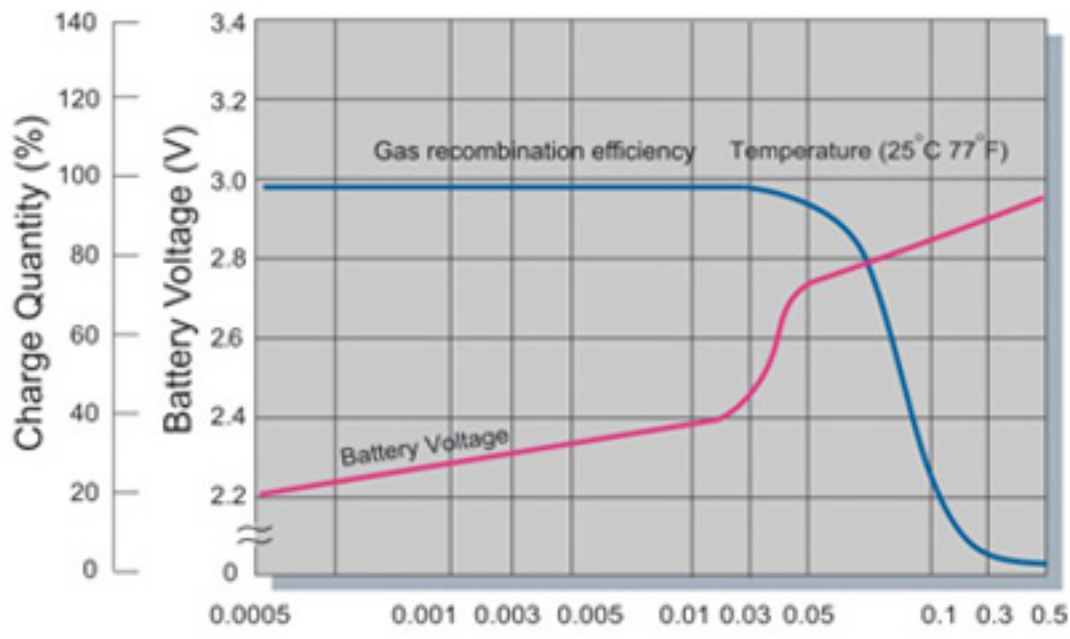
Capacity Retention Characteristics



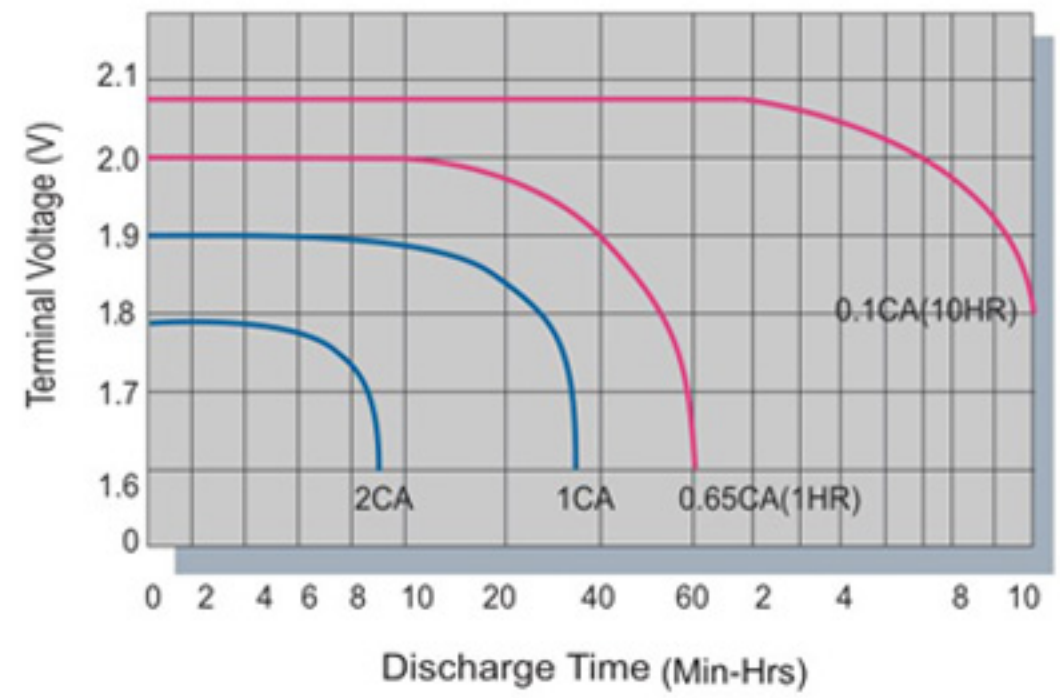
Discharge Characteristics



Oxygen Recombination Efficiency Chart



Terminal Voltage (V) and Discharge Time 25°C (77°F)



MSV200

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

F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	318	211	129	77.0	57.0	46.0	38.0	33.0	27.0	22.0
1.67V	302	202	124	74.0	55.0	44.0	37.0	32.0	26.0	22.0
1.70V	282	191	121	73.0	54.0	44.0	36.0	32.0	25.0	21.0
1.75V	250	170	112	69.0	51.0	41.0	35.0	30.0	24.0	21.0
1.80V	215	156	105	66.0	49.0	41.0	34.0	30.0	24.0	20.0
1.83V	182	141	97.0	62.0	46.0	38.0	32.0	28.0	23.0	19.0

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

F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	556	375	231	139	104	84.0	71.0	63.0	50.0	42.0
1.67V	551	373	230	137	104	83.0	70.0	62.0	50.0	42.0
1.70V	507	347	223	135	100	82.0	69.0	61.0	49.0	42.0
1.75V	456	312	208	129	97.0	79.0	66.0	58.0	48.0	40.0
1.80V	392	288	196	123	93.0	76.0	64.0	57.0	46.0	39.0
1.83V	332	260	181	116	88.0	70.0	62.0	54.0	44.0	38.0

MSV240										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	381	253	156	92.2	69.1	54.7	46.1	40.3	32.1	26.9
1.67V	357	240	149	89.3	66.2	52.8	44.6	39.4	31.1	25.9
1.70V	327	222	141	87.4	64.3	51.8	43.8	38.4	30.5	25.6
1.75V	291	204	134	82.6	61.4	49.9	42.2	36.5	29.8	25.0
1.80V	256	188	127	78.7	58.6	47.2	40.3	35.5	28.8	24.0
1.83V	219	169	117	74.9	55.7	45.1	38.4	33.6	27.3	23.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	667	450	277	167	125	101	85.4	75.8	60.5	50.9
1.67V	632	437	276	164	123	100	84.5	74.1	59.5	50.4
1.70V	588	411	268	162	121	98	83.5	73.0	58.6	49.9
1.75V	534	375	250	155	116	95.0	79.7	70.1	57.6	49.0
1.80V	470	346	235	148	111	92.2	77.8	68.2	55.7	47.0
1.83V	398	312	217	139	107	86.9	73.9	65.0	53.5	46.1

MSV300										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	476	316	194	115	86.0	68.0	58.0	50.0	40.0	34.0
1.67V	453	304	185	111	82.0	66.0	55.0	49.0	38.0	32.0
1.70V	422	286	182	109	80.0	65.0	55.0	47.0	38.0	32.0
1.75V	375	254	167	103	76.0	62.0	52.0	45.0	37.0	31.0
1.80V	323	235	158	98.0	73.0	61.0	50.0	44.0	36.0	30.0
1.83V	273	211	146	93.0	70.0	56.0	48.0	42.0	34.0	29.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	834	562	346	208	156	125	106	94.0	75.0	64.0
1.67V	826	559	345	205	155	124	105	93.0	74.0	63.0
1.70V	760	520	334	202	151	122	104	91.0	73.0	62.0
1.75V	683	469	312	193	145	118	100	87.0	71.0	61.0
1.80V	588	432	294	185	139	115	97.0	85.0	69.0	59.0
1.83V	497	389	271	174	133	106	92.0	80.0	66.0	57.0

MSV360										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	571	379	232	138	103	82.0	69.1	59.7	48.2	40.3
1.67V	543	364	222	133	98.6	79.2	66.2	58.3	46.1	38.9
1.70V	507	343	218	131	96.4	78.4	65.5	56.8	45.3	38.1
1.75V	450	305	201	124	91.4	74.2	62.6	54.0	43.9	37.4
1.80V	387	281	189	118	87.8	73.4	60.4	53.3	43.2	36.0
1.83V	327	253	175	112	83.5	67.6	57.6	50.4	41.0	34.5
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1000	674	415	250	187	150	127	113	90.0	76.3
1.67V	991	671	414	246	186	149	126	112	89.2	75.6
1.70V	912	624	401	243	181	147	124	109	87.8	74.8
1.75V	820	562	374	232	174	142	119	104	85.6	72.7
1.80V	705	518	353	222	167	137	116	102	82.8	70.5
1.83V	597	467	325	209	159	127	111	96.4	79.2	68.4

MSV400										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	635	421	259	153	115	91.0	77.0	67.0	53.0	45.0
1.67V	604	404	247	148	109	88.0	74.0	64.0	52.0	43.0
1.70V	564	381	243	145	108	87.0	73.0	63.0	51.0	43.0
1.75V	500	339	224	137	101	83.0	69.0	60.0	49.0	41.0
1.80V	431	312	211	132	97.0	82.0	67.0	59.0	48.0	40.0
1.83V	364	281	195	124	93.0	75.0	64.0	56.0	45.0	39.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1112	749	461	277	208	167	141	124	100	84.0
1.67V	1101	745	460	275	205	165	140	123	99.0	83.0
1.70V	1013	693	445	269	201	164	139	121	97.0	83.0
1.75V	912	625	416	257	193	157	133	116	95.0	80.0
1.80V	784	576	392	247	185	153	129	113	92.0	79.0
1.83V	663	519	361	232	177	140	123	108	88.0	76.0

MSV500										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	794	527	323	192	143	114	96.0	83.0	67.0	56.0
1.67V	755	506	309	185	137	110	92.0	81.0	64.0	54.0
1.70V	704	477	303	182	134	109	91.0	79.0	63.0	53.0
1.75V	625	424	279	172	127	103	87.0	75.0	61.0	52.0
1.80V	538	391	263	164	122	102	84.0	74.0	60.0	50.0
1.83V	455	352	243	155	116	94.0	80.0	70.0	57.0	48.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1390	937	577	347	260	209	177	157	125	106
1.67V	1377	932	575	342	259	207	175	155	124	105
1.70V	1267	867	557	337	251	204	173	152	122	104
1.75V	1139	781	520	322	242	197	166	145	119	101
1.80V	980	720	490	308	232	191	161	142	115	98.0
1.83V	829	649	452	290	221	176	154	134	110	95.0

MSV600										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	953	632	388	230	172	137	115	100	80.0	67.0
1.67V	906	607	371	222	164	132	110	97.0	77.0	65.0
1.70V	845	572	364	218	161	131	109	95.0	76.0	64.0
1.75V	750	509	335	206	152	124	104	90.0	73.0	62.0
1.80V	646	469	316	197	146	122	101	89.0	72.0	60.0
1.83V	546	422	292	186	139	113	96.0	84.0	68.0	58.0
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1668	1124	692	416	312	251	212	188	150	127
1.67V	1652	1118	690	410	311	248	210	186	149	126
1.70V	1520	1040	668	404	301	245	208	182	146	125
1.75V	1367	937	624	386	290	236	199	174	143	121
1.80V	1176	864	588	370	278	229	193	170	138	118
1.83V	995	779	542	348	265	211	185	161	132	114

MSV780										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1239	822	504	300	223	178	150	130	104	87.6
1.67V	1178	789	482	289	214	172	144	126	99.6	84.0
1.70V	1098	744	473	284	209	170	142	124	98.4	82.8
1.75V	975	661	436	269	198	161	136	118	94.8	81.6
1.80V	839	610	410	256	191	160	131	115	93.6	78.0
1.83V	710	549	379	242	181	146	125	109	88.8	74.4
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	2168	1462	900	541	406	326	276	245	196	166
1.67V	2148	1454	898	534	404	323	274	242	193	164
1.70V	1977	1353	869	526	391	318	270	238	191	162
1.75V	1777	1218	811	503	378	307	259	227	186	157
1.80V	1529	1123	764	480	362	298	251	222	180	152
1.83V	1293	1012	706	452	344	275	240	209	172	149

MSV960										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1524	1012	620	368	275	218	185	160	128	108
1.67V	1450	972	593	355	263	211	176	156	122	103
1.70V	1352	916	582	349	257	209	175	151	121	102
1.75V	1200	814	535	330	244	198	167	144	118	99.6
1.80V	1033	751	505	314	234	196	161	142	115	96.0
1.83V	874	676	467	298	223	180	154	134	109	92.4
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	2669	1799	1108	666	499	401	340	301	240	204
1.67V	2644	1789	1104	656	497	397	336	298	238	202
1.70V	2433	1665	1069	647	482	391	332	292	234	199
1.75V	2187	1500	998	618	464	378	319	278	228	194
1.80V	1882	1382	941	592	445	367	310	272	221	188
1.83V	1592	1246	868	557	425	338	295	257	211	182

MSV1200										
Constant Current Discharge Characteristics Unit:Amperes(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	1904	1264	776	460	344	272	232	200	160	136
1.67V	1812	1212	740	444	328	264	222	193	156	130
1.70V	1692	1144	728	436	324	260	218	190	152	128
1.75V	1500	1016	672	412	304	248	208	180	148	124
1.80V	1292	936	632	396	292	245	200	176	144	120
1.83V	1092	844	584	372	280	224	192	168	136	116
Constant Power Discharge Characteristics Unit:Watts(25°C, 77°F)										
F.V/Time	15MIN	30MIN	60MIN	2HR	3HR	4HR	5HR	6HR	8HR	10HR
1.60V	3336	2248	1384	832	624	500	424	372	300	252
1.67V	3304	2236	1380	824	616	496	420	368	296	250
1.70V	3040	2080	1336	808	604	492	416	364	292	248
1.75V	2736	1876	1248	772	580	472	400	348	284	240
1.80V	2352	1728	1176	740	556	460	388	340	276	236
1.83V	1988	1556	1084	696	532	420	368	324	264	228

BATTERY



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