

BATTERY
CS3



MSJseries
Large Capacity
Long Life

ENERGY OF INFINITY ▼

Confidence & Creativity
Service & Sincerity
Belief & Bravery

MSJ

MSJ series



Applications

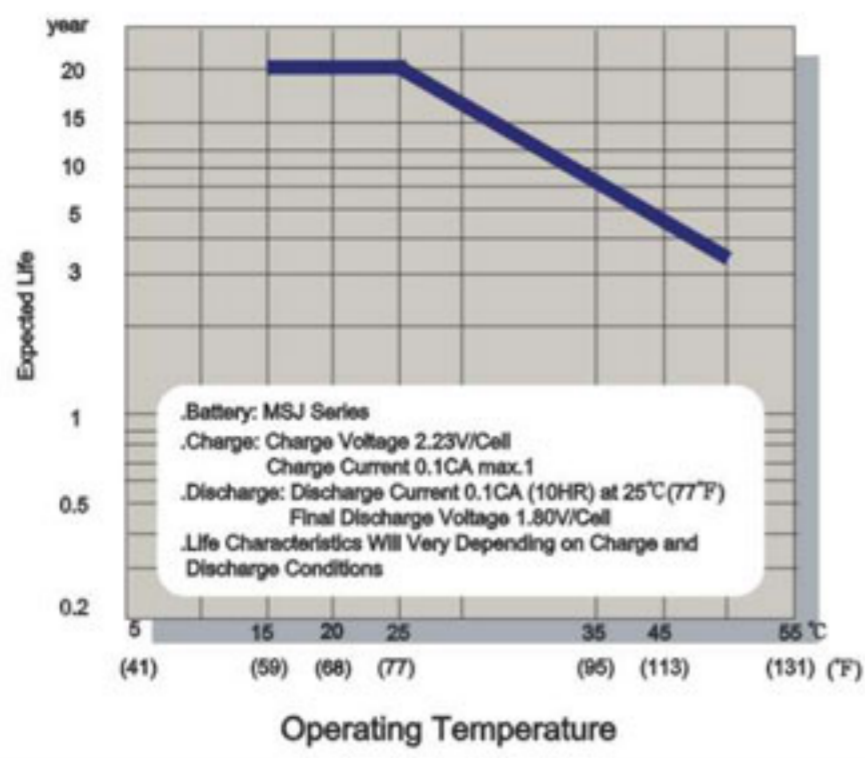
- Telecom Systems.
- Power Equipment.
- Fire Alarm/Security Systems
- Emergency Lighting.
- UPS.
- Solar Battery Systems.
- Back-up Power for Testing and Measuring Instruments.
- Replacement for Flooded Stationary Lead-Acid (VRLA) Batteries.
- Standby service life up to 20 years.



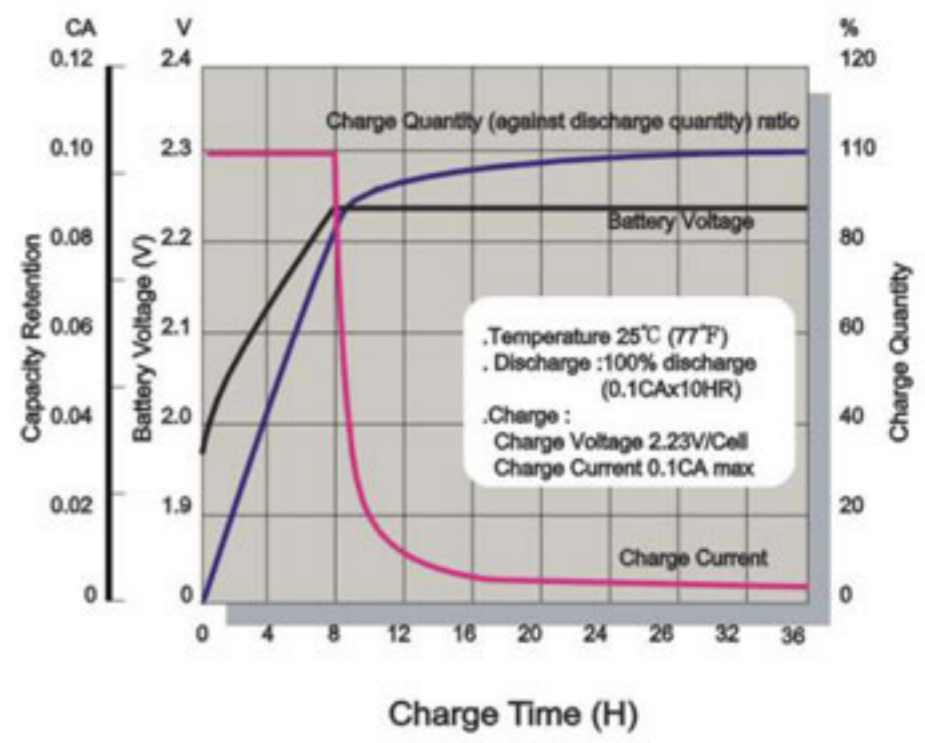
Features

- Longer service life (up to 20 years life in float service at 25 °C (77 °F) through newly formulated lead-calcium-tin alloy with high corrosion resistance. CSB's MSJ Series 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.
- The container and cover are made of flame retardant plastic that meets UL-94V-0 specifications. The oxygen index level is above 28.
- CSB's MSJ Series battery is manufactured in accordance with JIS C 8704 and is in line with the Battery Equipment Approval Committee of Japan for use in fire alarms, security systems and emergency lighting systems (Approval No. 00C248).
- CSB's MSJ Series meets the requirements of NQAS specified by NTT (Approval No. NQAS 0008).
- Abundant experiences and supply records for telecom munications.
- CSB's MSJ Series battery has a long expected service life (up to 20 years).

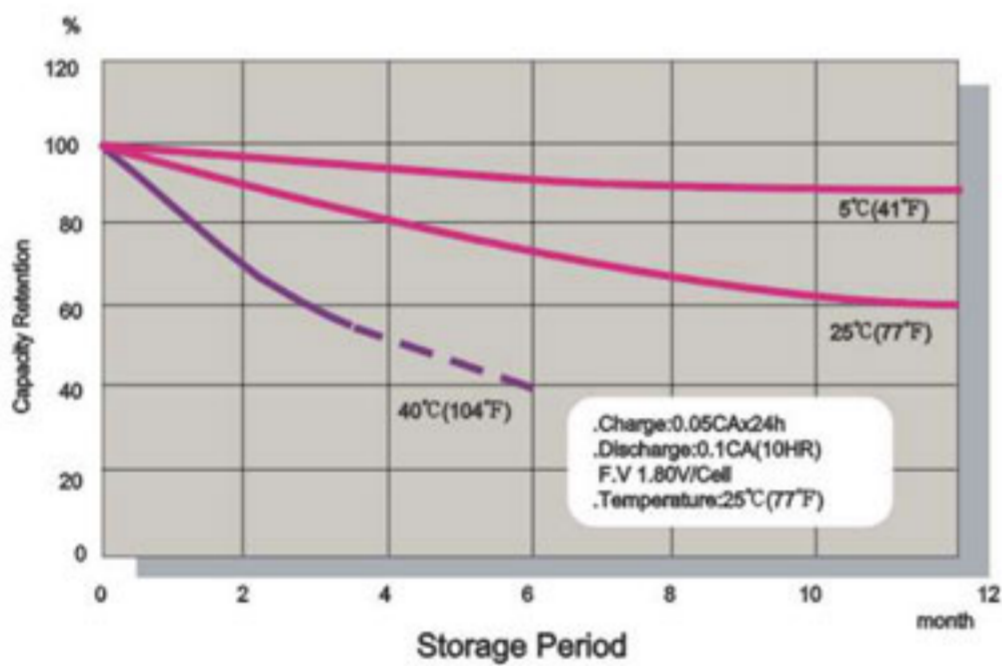
Expected Life V.S Operating Temperature



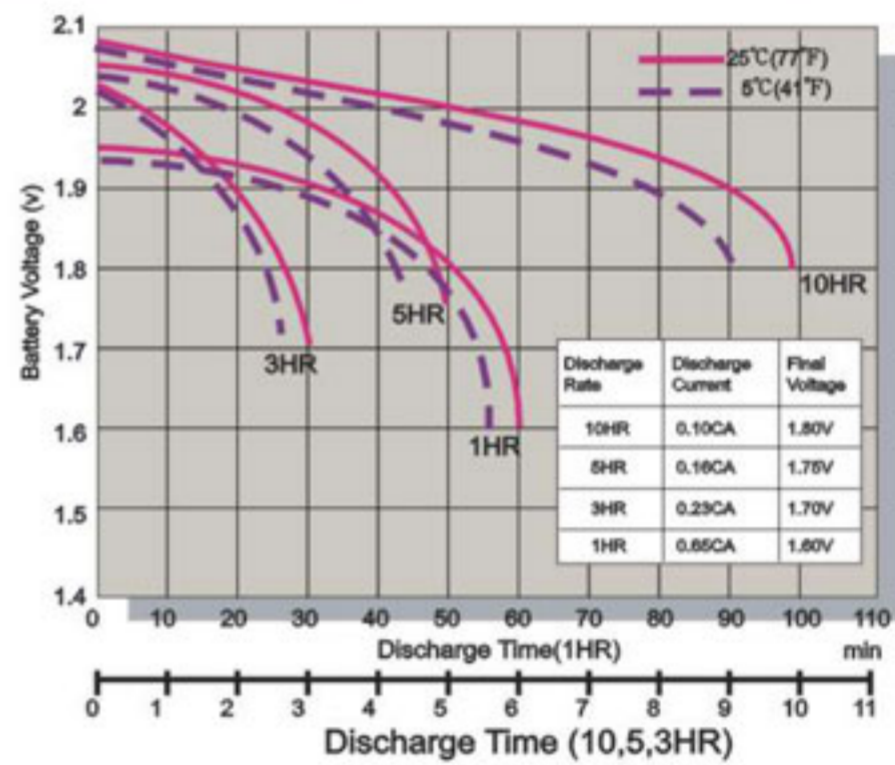
Typical Constant Voltage Charge Characteristics



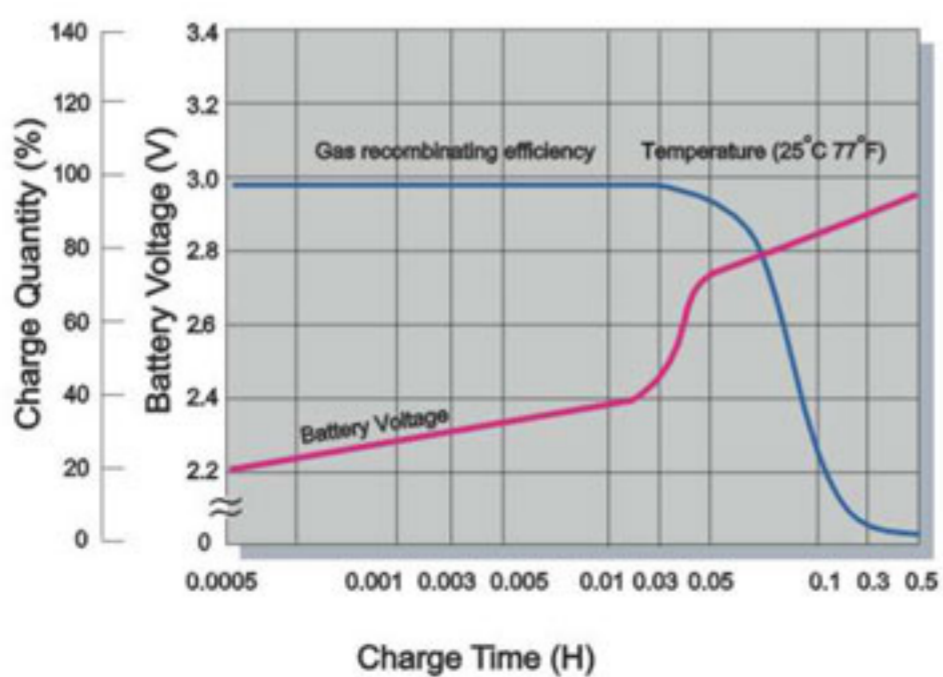
Capacity Re Voltage Charge Characteristics



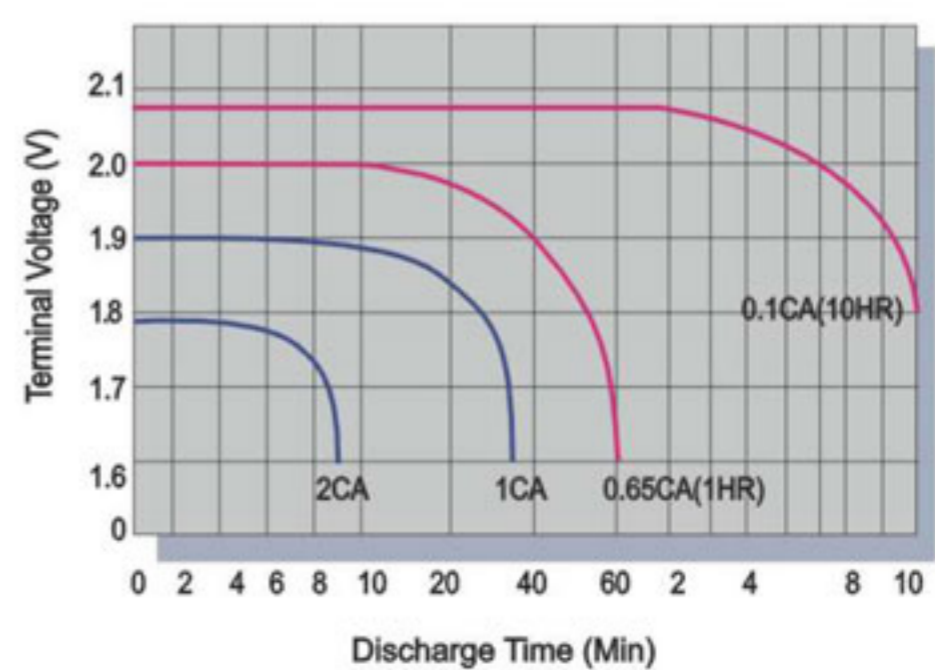
Discharge Characteristics



Oxygen Recombination Efficiency Chart



Terminal Voltage (v) and Discharge Time



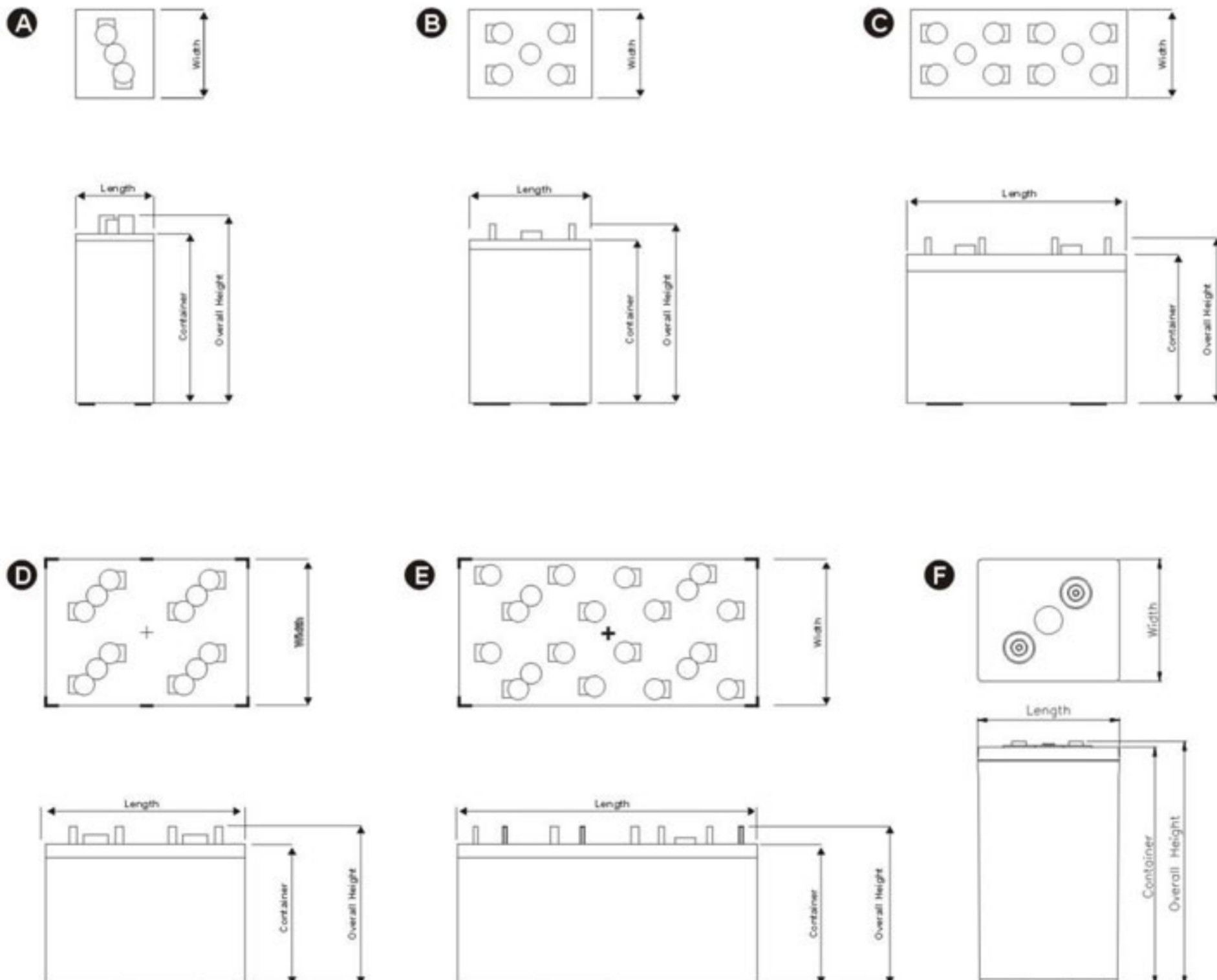
Specifications

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)	Max. Screw Torque value	
								Overall Height (H)	Container Height (h)	Length (L)	Width (W)			Kgf-cm/lbf-in	N-m
MSJ150	2	150	13.56	50.3	22.12	0.91	900	365±3.0	331±3.0	170±3.0	106±3.0	A	45.00	572496	56.08
MSJ200	2	200	15.30	67.1	26.14	0.90	1,200	365±3.0	331±3.0	170±3.0	106±3.0	A	60.00	572496	56.08
MSJ260	2	260	17.50	70.5	29.71	0.36	1,560	339±3.0	331±3.0	170±3.0	131±3.0	F	78.00	286/248	28.05
MSJ300	2	300	22.20	71.1	27.03	0.88	1,800	365±3.0	331±3.0	170±3.0	150±3.0	A	90.00	572496	56.08
MSJ350	2	350	22.30	82.9	31.39	0.87	2,100	365±3.0	331±3.0	170±3.0	150±3.0	A	105.00	572496	56.08
MSJ400	2	400	28.00	72.2	28.57	0.41	2,400	339±3.0	331±3.0	197±3.0	170±3.0	F	120.00	286/248	28.05
MSJ500	2	500	36.50	73.3	27.40	0.84	3,000	365±3.0	331±3.0	241±3.0	171±3.0	B	150.00	572496	56.08
MSJ650	2	650	46.60	74.8	27.90	0.81	3,900	365±3.0	331±3.0	307±3.0	171±3.0	B	195.00	572496	56.08
MSJ800	2	800	57.00	74.5	28.07	0.78	4,800	365±3.0	331±3.0	373±3.0	174±3.0	B	240.00	572496	56.08
MSJ1000	2	1000	72.75	75.0	27.49	0.74	6,000	365±3.0	331±3.0	471±3.0	171±3.0	C	300.00	572496	56.08

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

Terminal Position



MSJ150										
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	238	158	97.0	58.0	43.0	34.0	29.0	25.0	20.0	16.9
1.67V	227	152	93.0	55.0	41.0	33.0	28.0	24.0	19.3	16.2
1.70V	211	143	91.0	54.0	40.0	32.0	27.0	23.0	19.0	16.0
1.75V	188	127	84.0	52.0	38.0	30.9	26.0	22.0	18.4	15.5
1.80V	161	117	79.0	49.0	37.0	30.6	25.0	21.0	17.9	15.0
1.83V	136	106	73.0	46.0	35.0	28.0	24.0	20.0	17.0	14.5
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	417	281	173	104	78.0	63.0	53.0	47.0	37.4	32.0
1.67V	413	280	172	102	76.5	62.0	52.5	46.5	37.0	31.5
1.70V	380	260	167	101	75.0	61.0	52.0	46.0	36.5	31.0
1.75V	342	234	156	97.0	73.0	58.0	50.0	43.0	36.0	30.0
1.80V	294	216	147	93.0	70.0	57.0	48.0	42.6	35.0	29.0
1.83V	249	195	136	87.0	66.0	53.0	46.0	40.0	33.0	28.0

MSJ200										
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	317	211	129	77.0	57.0	45.0	38.0	33.0	27.0	22.5
1.67V	302	202	123	74.0	55.0	44.0	37.0	32.0	26.0	21.6
1.70V	282	191	121	73.0	54.0	43.0	36.0	31.7	25.0	21.3
1.75V	250	169	112	69.0	51.0	41.2	35.0	30.0	24.5	20.6
1.80V	215	156	105	66.0	49.0	40.8	34.0	29.0	24.0	20.0
1.83V	182	141	97.0	62.0	47.0	38.0	32.0	28.0	23.0	19.4
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	556	375	231	139	104	84.0	71.0	62.0	50.0	42.0
1.67V	551	373	230	137	102	83.0	70.0	61.5	49.0	41.5
1.70V	507	347	223	135	101	82.0	69.0	61.0	48.0	41.0
1.75V	456	312	208	129	97.0	77.0	66.0	58.0	47.0	40.0
1.80V	392	288	196	123	93.0	76.0	65.0	57.0	46.0	39.0
1.83V	331	260	181	116	88.0	70.0	61.0	54.0	44.0	38.0

MSJ260										
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	397	263	162	96.0	72.0	57.0	48.0	42.0	34.0	29.0
1.67V	378	253	154	93.0	68.0	55.0	46.0	41.0	33.0	28.0
1.70V	353	238	152	91.0	67.0	54.0	45.0	40.0	32.0	27.0
1.75V	313	212	140	86.0	63.0	52.0	43.0	38.0	31.0	26.0
1.80V	269	195	132	83.0	61.0	51.0	42.0	37.0	30.0	25.0
1.83V	228	176	122	78.0	58.0	47.0	40.0	35.0	28.0	24.0
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	695	468	288	173	130	104	88.0	78.0	63.0	53.0
1.67V	688	466	287	172	128	103	87.0	77.0	62.0	52.0
1.70V	633	433	278	168	126	102	86.0	76.0	61.0	51.0
1.75V	570	391	260	161	121	98.0	83.0	73.0	59.0	50.0
1.80V	490	360	245	154	116	96.0	81.0	71.0	58.0	49.0
1.83V	414	324	226	145	111	88.0	77.0	68.0	55.0	48.0

MSJ300										
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	303	185	111	82.0	66.0	55.5	48.3	39.0	32.4
1.70V	423	286	182	109	81.0	65.0	54.6	47.6	38.0	32.0
1.75V	375	254	168	103	76.0	61.9	52.0	45.0	37.0	31.0
1.80V	323	234	158	99.0	73.0	61.2	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	93.0	75.0	63.0
1.67V	826	559	345	206	154	124	105	92.0	74.0	62.5
1.70V	760	520	334	202	151	123	104	91.0	73.0	62.0
1.75V	684	469	312	193	145	118	100	87.0	71.0	60.0
1.80V	588	432	294	185	139	115	97.0	85.0	69.0	59.0
1.83V	497	389	271	174	133	105	92.0	81.0	66.0	57.0

MSJ350										
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	555	369	226	134	100	79.0	68.0	58.0	47.0	40.0
1.67V	529	354	216	130	96.0	77.0	65.0	56.0	46.0	38.0
1.70V	494	334	212	127	95.0	76.0	64.0	55.0	44.0	37.0
1.75V	438	296	196	120	89.0	72.0	61.0	53.0	43.0	36.0
1.80V	377	273	184	116	85.0	71.0	58.0	51.0	42.0	35.0
1.83V	319	246	170	109	82.0	65.0	56.0	49.0	40.0	34.0

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	973	656	404	243	182	146	124	109	88.0	74.0
1.67V	964	652	403	240	180	145	123	107	86.0	73.0
1.70V	887	607	390	236	176	144	121	106	85.0	72.0
1.75V	798	547	364	225	169	138	117	102	83.0	70.0
1.80V	686	504	343	216	162	134	113	99.0	81.0	69.0
1.83V	580	454	316	203	155	123	107	95.0	77.0	67.0

MSJ400										
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	42.0
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	82.0
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

MSJ500										
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

MSJ650										
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	1032	685	420	250	186	148	125	108	87.0	73.0
1.67V	982	658	402	241	178	143	120	105	83.0	70.0
1.70V	915	620	394	237	174	142	118	103	82.0	69.0
1.75V	813	551	363	224	165	134	113	98.0	79.0	68.0
1.80V	699	508	342	213	159	133	109	96.0	78.0	65.0
1.83V	592	458	316	202	151	122	104	91.0	74.0	62.0

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	1807	1218	750	451	338	272	230	204	163	138
1.67V	1790	1212	748	445	337	269	228	202	161	137
1.70V	1647	1127	724	438	326	265	225	198	159	135
1.75V	1481	1015	676	419	315	256	216	189	155	131
1.80V	1274	936	637	400	302	248	209	185	150	127
1.83V	1078	844	588	377	287	229	200	174	143	124

MSJ800										
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	1270	843	517	307	229	182	154	133	107	90.0
1.67V	1208	810	494	296	219	176	147	130	102	86.0
1.70V	1126	763	485	291	214	174	146	126	101	85.0
1.75V	1000	678	446	275	203	165	139	120	98.0	83.0
1.80V	861	626	421	262	195	163	134	118	96.0	80.0
1.83V	728	563	389	248	186	150	128	112	91.0	77.0
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	2224	1499	923	555	416	334	283	251	200	170
1.67V	2203	1491	920	547	414	331	280	248	198	168
1.70V	2027	1387	891	539	402	326	277	243	195	166
1.75V	1822	1250	832	515	387	315	266	232	190	162
1.80V	1568	1152	784	493	371	306	258	227	184	157
1.83V	1326	1038	723	464	354	282	246	214	176	152

MSJ1000										
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	1588	1054	646	384	286	228	192	166	134	112
1.67V	1510	1012	618	370	274	220	184	162	128	108
1.70V	1408	954	606	364	268	218	182	158	126	106
1.75V	1250	848	558	344	254	206	174	150	122	104
1.80V	1076	782	526	328	244	204	168	148	120	100
1.83V	910	704	486	310	232	188	160	140	114	96.0
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	2780	1874	1154	694	520	418	354	314	250	212
1.67V	2754	1864	1150	684	518	414	350	310	248	210
1.70V	2534	1734	1114	674	502	408	346	304	244	208
1.75V	2278	1562	1040	644	484	394	332	290	238	202
1.80V	1960	1440	980	616	464	382	322	284	230	196
1.83V	1658	1298	904	580	442	352	308	268	220	190



WAY TO THE
FUTURE CSB WITH YOU

BATTERY



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