

HR1227W												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	55.4	36.5	31.2	27.5	22.1	18.7	13.6	10.9	7.88	5.71	4.55	3.23
1.67V	50.4	34.3	29.8	26.5	21.4	18.3	13.5	10.8	7.83	5.66	4.49	3.18
1.70V	45.6	32.2	28.2	25.3	20.8	17.8	13.1	10.7	7.77	5.62	4.47	3.16
1.75V	41.0	29.9	26.6	24.2	20.0	17.2	12.8	10.6	7.68	5.57	4.43	3.13
1.80V	36.4	27.5	24.7	22.7	18.9	16.3	12.4	10.3	7.49	5.45	4.35	3.08
1.85V	31.7	24.8	22.5	20.7	17.4	15.2	11.7	9.59	7.11	5.20	4.16	2.96
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	503	383	338	305	254	219	163	127	92.4	66.3	52.4	37.4
1.67V	469	358	318	288	242	211	162	126	91.6	66.0	52.3	37.3
1.70V	455	347	308	280	236	206	161	125	91.3	65.8	52.2	37.1
1.75V	428	327	293	268	229	200	158	124	90.3	65.2	51.8	36.8
1.80V	403	309	278	255	218	192	153	120	88.2	64.2	51.3	36.7
1.85V	377	290	261	240	208	184	144	114	84.4	61.6	49.2	35.1

HR1234W												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	74.0	50.0	42.2	36.8	29.6	24.9	18.0	14.2	10.3	7.36	5.84	4.21
1.67V	67.3	47.5	40.7	35.8	29.0	24.5	17.8	14.1	10.2	7.34	5.82	4.20
1.70V	64.1	45.9	39.7	35.2	28.6	24.2	17.7	14.0	10.1	7.33	5.81	4.19
1.75V	58.3	42.8	37.5	33.6	27.6	23.5	17.4	13.9	10.0	7.27	5.77	4.17
1.80V	52.6	39.1	34.7	31.2	26.0	22.4	16.8	13.5	9.83	7.12	5.67	4.11
1.85V	46.2	35.4	31.2	28.2	23.8	20.6	15.7	12.7	9.38	6.83	5.45	3.96
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	737	518	450	399	328	280	207	165	120	86.7	69.0	50.1
1.67V	688	502	438	391	324	277	206	164	119	86.5	68.9	50.0
1.70V	677	492	431	386	320	275	205	163	118	86.3	68.8	49.9
1.75V	633	466	413	372	312	268	202	161	117	85.7	68.4	49.8
1.80V	584	434	388	351	298	257	196	157	116	84.3	67.4	49.2
1.85V	519	397	355	324	276	240	185	150	111	81.3	65.2	47.8

HR1251W												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	85.8	64.0	56.4	50.8	43.0	36.8	27.1	21.4	15.4	10.9	8.33	6.65
1.67V	82.4	61.6	54.4	49.2	41.8	35.8	26.7	20.9	15.3	10.8	8.29	6.61
1.70V	80.5	60.5	53.3	48.0	41.2	35.2	26.4	20.7	15.2	10.7	8.28	6.58
1.75V	77.2	57.9	51.3	46.4	39.9	34.3	25.7	20.3	15.1	10.6	8.24	6.52
1.80V	72.9	54.8	48.9	44.6	38.3	32.9	24.8	19.9	14.9	10.5	8.20	6.44
1.85V	68.6	51.6	46.5	42.7	36.5	31.6	23.9	19.6	14.7	10.4	8.16	6.36
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	1030	768	675	607	511	441	325	257	185	130	100	79.8
1.67V	990	742	651	585	500	430	320	251	184	129	99.6	79.4
1.70V	969	726	637	573	494	422	317	249	183	128	99.3	79.0
1.75V	927	695	612	552	479	408	310	244	181	127	98.9	78.3
1.80V	875	657	585	532	460	393	300	239	179	126	98.4	77.3
1.85V	824	619	558	513	441	379	290	235	177	125	97.9	76.4

HR1290W												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	177	124	108	95.8	79.4	68.0	48.7	38.4	27.3	19.8	15.8	11.5
1.67V	156	114	100	90.2	77.6	65.2	48.4	38.1	27.0	19.7	15.7	11.4
1.70V	147	109	96.8	87.8	76.4	63.9	47.6	37.7	26.9	19.6	15.6	11.3
1.75V	131	102	91.0	82.9	72.8	61.1	46.2	37.0	26.3	19.3	15.5	11.2
1.80V	115	92.5	83.7	77.2	67.7	58.0	44.0	35.5	25.5	18.8	15.2	11.1
1.85V	98.6	82.9	76.0	70.8	60.8	53.3	40.7	32.6	23.8	17.8	14.5	10.6
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	1701	1282	1143	1041	868	753	544	429	309	227	183	133
1.67V	1570	1193	1076	989	850	734	540	428	307	226	182	132
1.70V	1509	1155	1044	962	838	726	534	426	305	225	181	131
1.75V	1398	1087	987	913	802	704	520	416	300	222	179	130
1.80V	1282	1011	926	862	756	665	501	402	295	219	177	129
1.85V	1166	926	853	797	687	608	461	375	277	207	168	124

HR12120W												
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	169	148	135	125	107	94.2	70.5	56.1	41.2	30.4	24.5	16.8
1.67V	153	135	124	115	100	88.9	67.0	53.6	39.7	29.6	24.0	16.6
1.70V	146	128	117	109	95.5	85.6	65.3	52.5	39.2	29.2	23.7	16.4
1.75V	132	117	108	101	88.9	80.2	62.0	50.4	37.8	28.3	23.1	16.2
1.80V	117	105	97.2	91.2	81.3	73.3	58.3	48.0	36.0	27.1	22.2	15.8
1.85V	100	92.5	86.8	82.4	74.3	67.3	54.3	45.7	34.6	26.0	21.2	15.2
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)												
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	1745	1622	1507	1419	1199	1030	771	621	462	348	284	197
1.67V	1608	1495	1393	1315	1119	975	738	600	453	341	279	194
1.70V	1539	1427	1333	1260	1084	947	724	590	447	337	276	193
1.75V	1412	1306	1224	1161	1012	895	701	578	435	329	270	190
1.80V	1273	1181	1113	1060	944	853	676	561	418	319	263	186
1.85V	1100	1045	1001	966	877	805	648	536	402	307	253	181

Please refer to the official site for the latest rating confirmation. URL: www.csb-battery.com

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High Rate
ENERGY OF INFINITY ▶

HR series



BATTERY
CSB

HR series

HR-series batteries are specially designed for high rate discharge applications. With new VRLA technology, they are small, lightweight and offer a service life of up to 5 years in standby use. Because of the innovative design, HR-series batteries feature 20% greater power density in the standard footprint. As with all our ISO/UL certified batteries, HR series batteries are rechargeable, highly efficient, maintenance free, leakproof and viable in any orientation.



In accordance with IEC 61056-1/2:2012
In accordance with BS6290-4

Features and Benefits :

- Up to 50% greater resistance to grid growth under optimal temperature
- Innovative plate structure greatly increases energy/density ratios
- Reduced internal resistance for superior performance
- Increased current delivery for high-rate discharge
- Uniformed plate formation for consistent capacity
- Viable in any orientation
- No-spill design
- Maintenance free

Long Service Life :

- Up to 5 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**
 - UPS power supply
 - Workstation UPS
 - Emergency lighting equipment
 - Precision instrument backup power
 - Fire alarm and security systems
- Communications and electrical equipment
- Office computers, microcomputers and OA equipment
- Robots, control equipment and other FA equipment
- Emergency power supply in power plants and substations

Solar Cell Power Generation

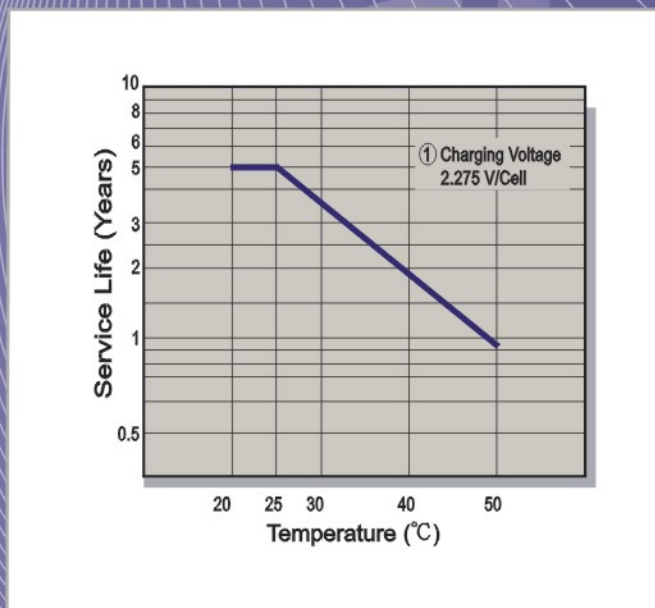
- Street lighting
- Portable power supply
- Water pumping
- Rural power systems

Specifications

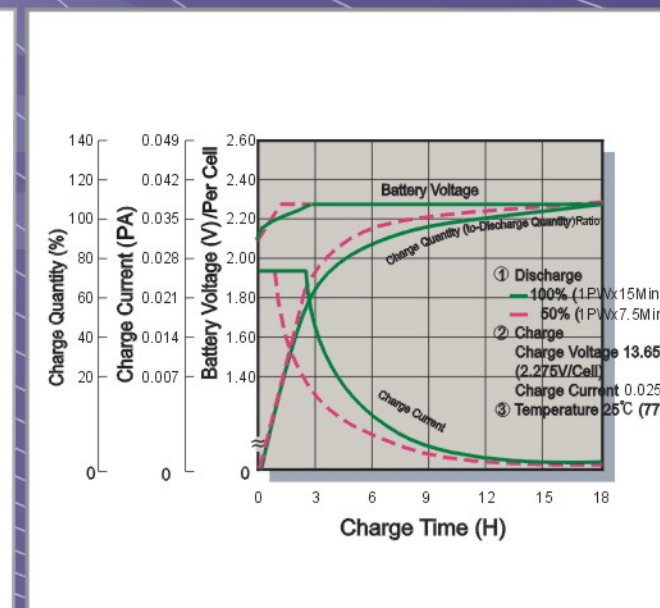
Battery Type	Nominal Voltage (V)	Nominal Capacity (Wh/cell)	Weight (Approx. Kg)	Internal Resistance (Approx. mΩ)	Short Circuit Current (A)	Max Discharge Current (5 sec.) (A)	Dimensions (mm)				Terminal Type	Bolt	Max. Charge Current (A)	Max. Screw Torque Value	
							Overall Height (H)	Container Height (h)	Length(L)	Width (W)				Kg-cm/ lbf-in	N-m
HR1218W	12	18	1.53	28.5	..	130	96.8±1.0	94.3±1.0	150.9±2.0	51.0±1.0	F2	Faston Tab 250	1.8	..	..
HR1221W	12	21	1.80	29.0	249	60/60	105.6±1.5	101.8±1.5	90.0±1.0	70.0±1.0	F1F2	Faston Tab 187/250	2.1	..	..
HR1224W	12	24	1.95	20.6	280	100/130	97.9±1.0	94.3±1.0	151.0±2.0	51.0±1.0	F1F2	Faston Tab 187/250	2.4	..	..
HR1225W	12	24.5	1.84	24.7	..	130	96.8±1.0	94.3±1.0	150.9±2.0	64.8±1.0	F2	Faston Tab 250	2.5	..	..
HR1227W	12	27	1.97	19.9	424	100/130	105.6±1.5	101.8±1.5	90.0±1.0	70.0±1.0	F1F2	Faston Tab 187/250	2.7	..	..
HR1234W	12	34	2.50	19.0	349	130	96.8±1.0	94.3±1.0	150.9±2.0	64.8±1.0	F2	Faston Tab 250	3.4	..	..
HR1251W	12	51	3.85	13.6	482	180	100.3±1.5	94.1±1.0	151.0±2.0	96.0±1.0	F2	Faston Tab 250	5.1	..	..
HR1290W	12	90	6.80	9.90	836	300	167.0±2.0	167.0±2.0	181.0±2.0	76.2±1.0	I1	M5	9.0	59±1	5.73
HR12120W	12	120	10.20	8.20	928	225	175.0±2.0	175.0±2.0	196.0±2.0	125.0±1.5	I1	M5	12	99±1	5.73

• *Nominal Capacity 15 min-rate to 1.67V per cell @25°C (77°F)
• Float Charge: 2.275±0.025 V/Cell at 25°C (77°F); Temp. Coefficient: -3.3mV/°C

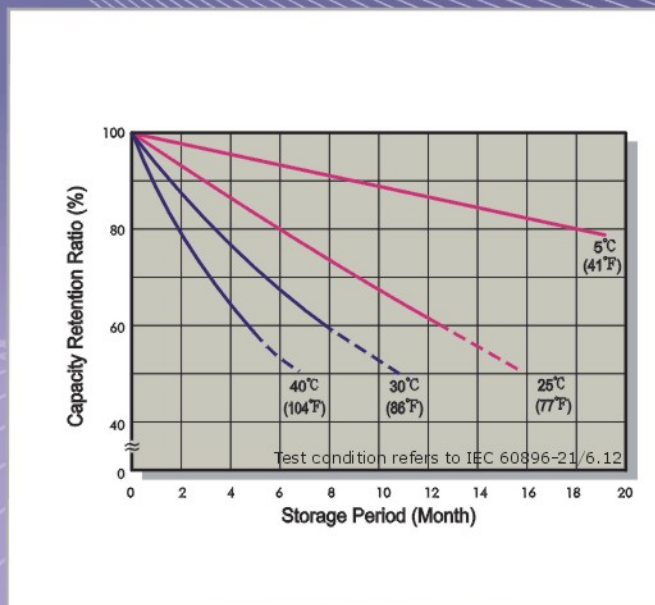
Expected Life vs. Operating Temperature



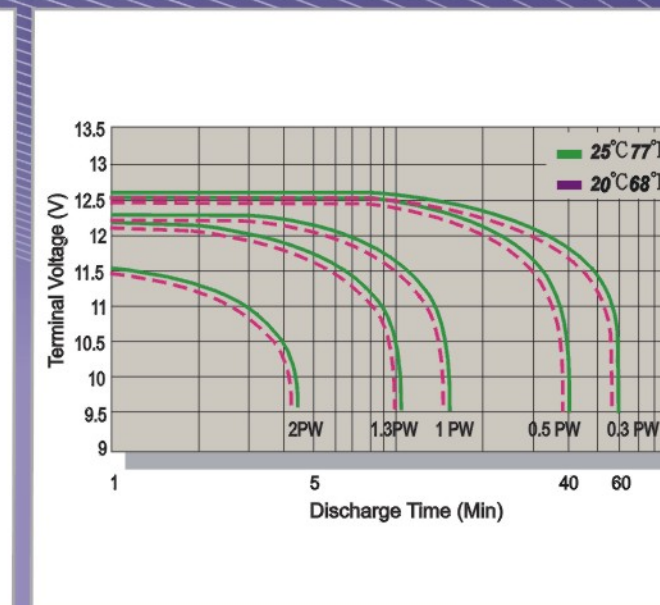
Battery Voltage and Charge Time for Standby Use



Capacity Retention Characteristics

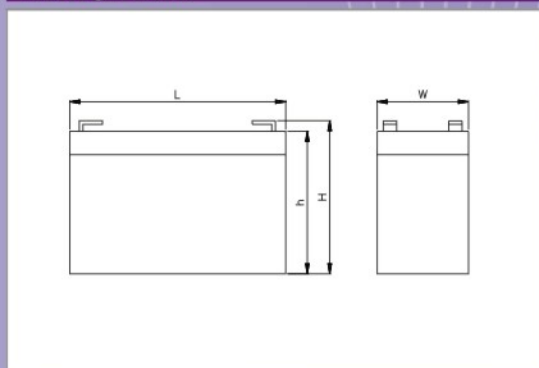


Discharge Characteristics

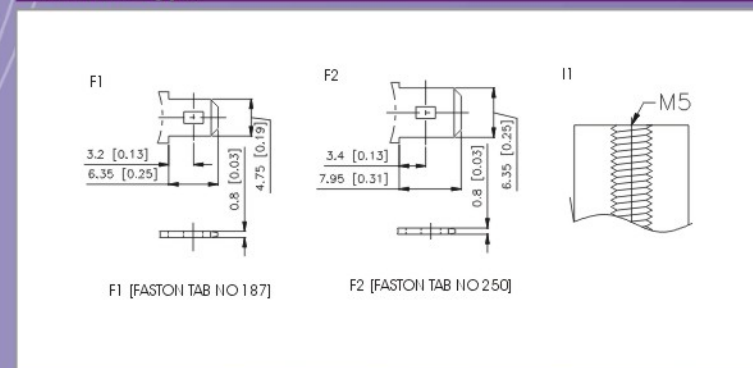


• The above diagrams are typical. For more detailed information please see the specific product sheets.
• P is the capacity of 15 minute-rate while the final voltage is 1.67V per cell.
For example, 1PW discharge power of HR1218W is: 1 x 18 x 6 = 108 (Wh/battery)
For example, 0.1PA charge current of HR1218W is: 0.1 x 18 = 1.8 (A)

Battery Profile



Terminal Type



HR1218W

F.V/Time	Constant Current Discharge Characteristics Unit: A (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	33.2	26.5	22.8	20.2	16.3	13.6	9.86	7.77	5.61	4.02	3.17	2.28
1.67V	30.9	24.8	21.8	19.6	15.9	13.3	9.74	7.74	5.54	3.96	3.12	2.24
1.70V	30.0	24.1	21.3	19.2	15.5	13.0	9.59	7.67	5.47	3.92	3.10	2.22
1.75V	29.2	22.8	20.1	18.1	15.0	12.7	9.46	7.53	5.42	3.89	3.07	2.20
1.80V	27.9	20.6	18.3	16.6	14.1	12.0	9.11	7.32	5.32	3.83	3.04	2.17
1.85V	24.1	18.3	16.3	14.9	12.6	10.9	8.43	6.82	5.04	3.66	2.92	2.09

F.V/Time	Constant Power Discharge Characteristics Unit: W (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	339	271	237	213	178	150	108	88.0	64.5	46.6	37.0	26.7
1.67V	332	260	229	206	174	147	107	87.0	64.2	46.4	36.8	26.5
1.70V	329	252	223	202	172	146	106	85.8	63.5	45.9	36.4	26.2
1.75V	325	241	214	194	165	141	105	85.0	62.9	45.4	36.0	26.0
1.80V	308	227	202	183	155	133	102	82.5	61.8	44.8	35.6	25.7
1.85V	273	207	186	170	143	124	94.6	77.9	59.2	43.1	34.4	24.8

HR1221W

F.V/Time	Constant Current Discharge Characteristics Unit: A (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	46.4	31.2	27.3	24.4	20.3	17.4	12.9	10.4	7.29	5.15	4.02	2.83
1.67V	43.1	29.7	26.2	23.6	19.9	17.1	12.5	10.1	7.18	5.10	4.00	2.71
1.70V	41.3	28.9	25.6	23.2	19.7	16.8	12.3	9.93	7.14	5.08	3.99	2.65
1.75V	37.4	27.4	24.4	22.2	19.0	16.3	12.1	9.70	7.07	5.05	3.98	2.56
1.80V	33.1	25.2	22.8	21.0	18.2	15.7	11.8	9.51	7.00	5.02	3.96	2.46
1.85V	28.6	22.8	20.7	19.2	16.9	14.8	11.5	9.29	6.92	4.98	3.95	2.36

F.V/Time	Constant Power Discharge Characteristics Unit: W (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	557	374	327	293	244	209	154	123	87.5	61.7	48.2	33.9
1.67V	515	357	315	284	238	203	150	120	86.6	61.4	48.1	32.5
1.70V	495	348	308	279	234	200	149	119	86.2	61.2	48.0	31.9
1.75V	451	329	293	266	226	194	145	116	85.8	61.0	47.9	30.7
1.80V	397	302	272	250	216	188	141	113	85.4	60.8	47.8	29.5
1.85V	343	275	253	237	208	181	138	111	85.3	60.7	47.7	28.3

HR1224W

F.V/Time	Constant Current Discharge Characteristics Unit: A (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	47.5	33.0	29.0	26.1	22.0	18.9	14.0	11.0	7.95	5.54	4.29	3.43
1.67V	44.1	31.1	27.4	24.7	21.0	18.0	13.5	10.6	7.76	5.42	4.20	3.34
1.70V	42.7	30.3	26.7	24.0	20.5	17.6	13.2	10.5	7.67	5.35	4.15	3.30
1.75V	40.5	28.8	25.4	23.0	19.8	17.0	12.8	10.2	7.56	5.29	4.10	3.26
1.80V	38.4	27.4	24.4	22.2	19.1	16.4	12.5	10.0	7.49	5.23	4.06	3.22
1.85V	36.4	26.0	23.3	21.3	18.5	16.0	12.1	9.84	7.44	5.21	4.04	3.19

F.V/Time	Constant Power Discharge Characteristics Unit: W (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	570	396	348	313	264	228	168	132	95.4	66.5	51.5	41.2
1.67V	529	373	329	297	251	217	162	128	92.9	64.9	50.3	40.2
1.70V	512	363	320	289	246	212	159	126	92.1	64.4	49.9	39.7
1.75V	486	346	306	277	238	204	154	123	90.8	63.5	49.3	39.2
1.80V	461	329	293	266	229	197	149	121	89.9	62.9	48.8	38.8
1.85V	437	314	281	256	219	187	144	119	89.2	62.5	48.5	38.6

HR1225W

F.V/Time	Constant Current Discharge Characteristics Unit: A (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	48.5	33.2	28.6	25.2	20.6	17.5	12.9	10.3	7.46	5.38	4.27	3.08
1.67V	44.1	31.5	27.4	24.4	20.1	17.2	12.7	10.2	7.40	5.34	4.24	3.06
1.70V	42.2	30.5	26.6	23.8	19.8	17.0	12.6	10.1	7.36	5.32	4.22	3.05
1.75V	38.0	28.2	24.9	22.5	19.0	16.3	12.3	9.8	7.25	5.25	4.18	3.02
1.80V	33.6	25.5	22.8	20.8	17.7	15.3	11.7	9.49	7.04	5.12	4.08	2.97
1.85V	28.7	22.3	20.3	18.7	15.9	14.0	10.8	8.85	6.67	4.87	3.90	2.85

F.V/Time	Constant Power Discharge Characteristics Unit: W (25°C, 77°F)											
	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	490	346	303	271	224	192	148	115	85.0	62.2	49.8	36.5
1.67V	454	332	293	264	221	189	147	114	84.6	61.9	49.6	36.3
1.70V	436	324	286	259	218	187	146	113	84.2	61.7	49.5	36.2
1.75V	401	306	272	248	210	181	143	112	83.3	61.1	49.1	36.0
1.80V	368	284	254	232	197	172	137	108	81.3	59.9	48.2	35.5
1.85V	321	253	229	211	180	159	128	102	77.5	57.4	46.	