



HR Series

Extended Discharge Tables

12V Top Terminal VRLA-AGM

* Published specification data is subject to change without notice

HR1218W

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

F.V/Time	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
1.65V	31.6	25.3	22.1	19.8	16.0	13.4	9.77	7.75	5.56	3.98	3.13	2.25
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

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

F.V/Time	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
1.65V	334	263	231	208	175	148	107	87.3	64.3	46.4	36.9	26.6
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

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

F.V/Time	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
1.65V	44.0	30.1	26.5	23.8	20.0	17.2	12.6	10.2	7.21	5.11	4.01	2.74
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

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

F.V/Time	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
1.65V	527	362	318	287	240	205	151	121	86.9	61.5	48.1	32.9
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



HR Series

Extended Discharge Tables

12V Top Terminal VRLA-AGM

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HR1224W

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

F.V/Time	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
1.65V	45.1	31.6	27.9	25.1	21.3	18.3	13.6	10.7	7.81	5.45	4.23	3.37
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

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

F.V/Time	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
1.65V	541	380	334	302	255	220	164	129	93.6	65.4	50.6	40.5
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

HR1227W

Constant Current Discharge Characteristics Unit: Amperes (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
1.65V	51.8	34.9	30.2	26.8	21.6	18.4	13.5	10.8	7.84	5.67	4.51	3.19
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: Watts (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	574	383	338	305	254	219	163	127	92.4	66.3	52.4	37.4
1.65V	550	365	323	293	245	213	162	126	91.8	66.1	52.3	37.3
1.67V	541	358	318	288	242	211	162	126	91.6	66.0	52.3	37.3
1.70V	522	347	308	280	236	206	161	125	91.3	65.8	52.2	37.1
1.75V	454	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



HR Series

Extended Discharge Tables

12V Top Terminal VRLA-AGM

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HR1232W

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

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	66.4	44.7	38.7	33.9	27.4	23.2	17.1	13.4	9.56	6.80	5.34	3.80
1.65V	63.2	42.7	37.5	33.0	26.9	22.8	16.9	13.3	9.53	6.78	5.33	3.79
1.67V	61.9	41.9	37.0	32.7	26.7	22.7	16.8	13.3	9.51	6.77	5.32	3.78
1.70V	57.9	40.4	35.8	31.9	26.2	22.4	16.7	13.2	9.47	6.74	5.30	3.77
1.75V	50.8	37.5	33.5	30.0	25.1	21.6	16.3	13.1	9.30	6.63	5.22	3.72
1.80V	43.8	34.4	30.7	27.7	23.4	20.3	15.5	12.5	8.95	6.40	5.04	3.60
1.85V	38.2	31.4	27.3	24.9	21.2	18.6	14.4	11.5	8.24	5.93	4.69	3.38

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

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
1.60V	672	469	410	365	303	259	193	154	111	78.7	62.1	44.4
1.65V	633	456	401	358	299	256	192	153	110	78.5	61.9	44.3
1.67V	617	451	397	356	297	255	192	153	110	78.4	61.9	44.3
1.70V	590	441	389	349	293	252	190	152	109	78.1	61.6	44.1
1.75V	540	421	370	334	283	244	185	150	108	77.1	60.9	43.6
1.80V	484	399	345	314	267	232	178	144	104	74.7	59.1	42.5
1.85V	417	354	314	289	245	215	166	134	96.6	69.8	55.5	40.1

HR1234W

Constant Current Discharge Characteristics Unit: Amperes (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
1.65V	69.3	48.2	41.1	36.1	29.2	24.6	17.9	14.2	10.2	7.35	5.83	4.20
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	14.1	10.1	7.33	5.81	4.20
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: Watts (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
1.65V	702	507	442	394	325	278	206	164	119	86.5	68.9	50.0
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



HR Series

Extended Discharge Tables

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HR1251W

Constant Current Discharge Characteristics Unit: Amperes (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	10.7	8.33	6.65
1.65V	83.4	62.3	55.0	49.7	42.1	36.1	26.8	21.0	15.3	10.7	8.30	6.62
1.67V	82.4	61.6	54.4	49.2	41.8	35.8	26.7	20.9	15.3	10.7	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: Watts (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	129	100	79.8
1.65V	1001	749	658	591	503	433	321	253	184	129	99.7	79.5
1.67V	990	742	651	585	500	430	320	251	184	128	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: Amperes (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
1.65V	162	117	102	91.8	78.1	66.0	48.5	38.2	27.1	19.7	15.7	11.4
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: Watts (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
1.65V	1607	1218	1095	1004	855	739	541	428	308	226	182	132
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



HR Series

Extended Discharge Tables

12V Top Terminal VRLA-AGM

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HR12120W

Constant Current Discharge Characteristics Unit: Amperes (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
1.65V	158	139	127	118	102	90.4	68.0	54.3	40.1	29.8	24.1	16.7
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: Watts (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
1.65V	1647	1531	1426	1345	1142	991	747	606	456	343	280	195
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