

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @ 25°C)	25W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	54.16
Watts Per Cell (15-Min 1.67 VPC @ 25°)	25.67
Max Charge Current (A)	2.50
Max Discharge Current (A)	130
Short Circuit Current (A)	328
Internal Resistance (mΩ)	Approx. 19.60
Terminal Type	F2 terminal -Faston Tab 250
Terminal Torque	--
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	Approx. 1.95 / 4.30
Length (L) (mm / in)	90.0±1.0 / 3.54±0.04
Width (W) (mm / in)	70.0±1.0 / 2.76±0.04
Height (H) (mm / in)	106.1±1.5 / 4.18±0.06
Design Life	Up to 8 Years in Standby Service at 25°C Eurobat (20°C): 10-12 Years Standard Commercial Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Operating Temperature	
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



Valve Regulated Lead Acid
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Proprietary Elements

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Float Service Standby Power
Applications

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61056-1/2:2012 and UL1989
Recognized (MH14533)





HRL Series

HRL 1225W Datasheet

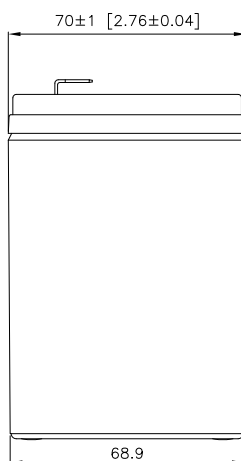
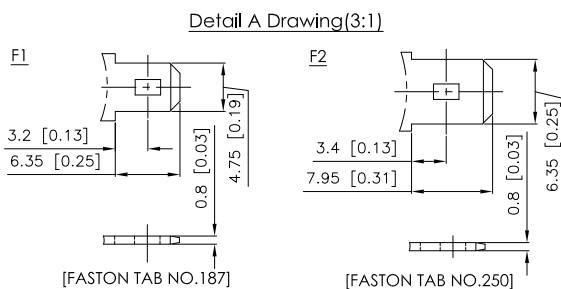
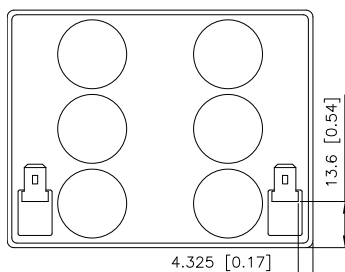
12V Top Terminal VRLA-AGM

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
10.02V (1.67 VPC)	51.9	36.0	31.7	26.9	21.7	18.8	13.7	10.9	7.85	5.63	4.45	3.19
10.50V (1.75 VPC)	44.8	33.5	28.1	24.3	20.5	17.9	13.2	10.5	7.60	5.48	4.35	3.13
10.80V (1.80 VPC)	39.1	29.2	24.9	22.5	19.3	16.7	12.5	10.0	7.32	5.30	4.21	3.05

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
10.02V (1.67 VPC)	539	369	325	292	242	208	154	123	89.2	64.1	50.7	36.4
10.50V (1.75 VPC)	453	340	302	273	231	199	149	119	87.1	62.8	49.8	35.9
10.80V (1.80 VPC)	403	312	280	254	218	188	143	115	84.3	61.0	48.5	35.1





HR Series

HR 1234W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @25°C)	34W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	73.0
Watts Per Cell (15-Min 1.67 VPC @ 25°)	34.3
Max Charge Current (A)	3.40
Max Discharge Current (A)	130
Short Circuit Current (A)	349
Internal Resistance (mΩ)	Approx. 19.0
Terminal Type	F2-Faston Tab250
Terminal Torque	--
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	2.50 / 5.51
Length (L) (mm / in)	150.9±2.0 / 5.94±0.08
Width (W) (mm / in)	64.8±1.0 / 2.55±0.04
Height (H) (mm / in)	98.6±1.0 / 3.88±0.04
Design Life	Up to 5 Years in Standby Service at 25°C Eurobat (20°C): 3-5 Years Standard Commercial Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Operating Temperature	
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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Recognized (MH14533)





HR Series

HR 1234W Datasheet

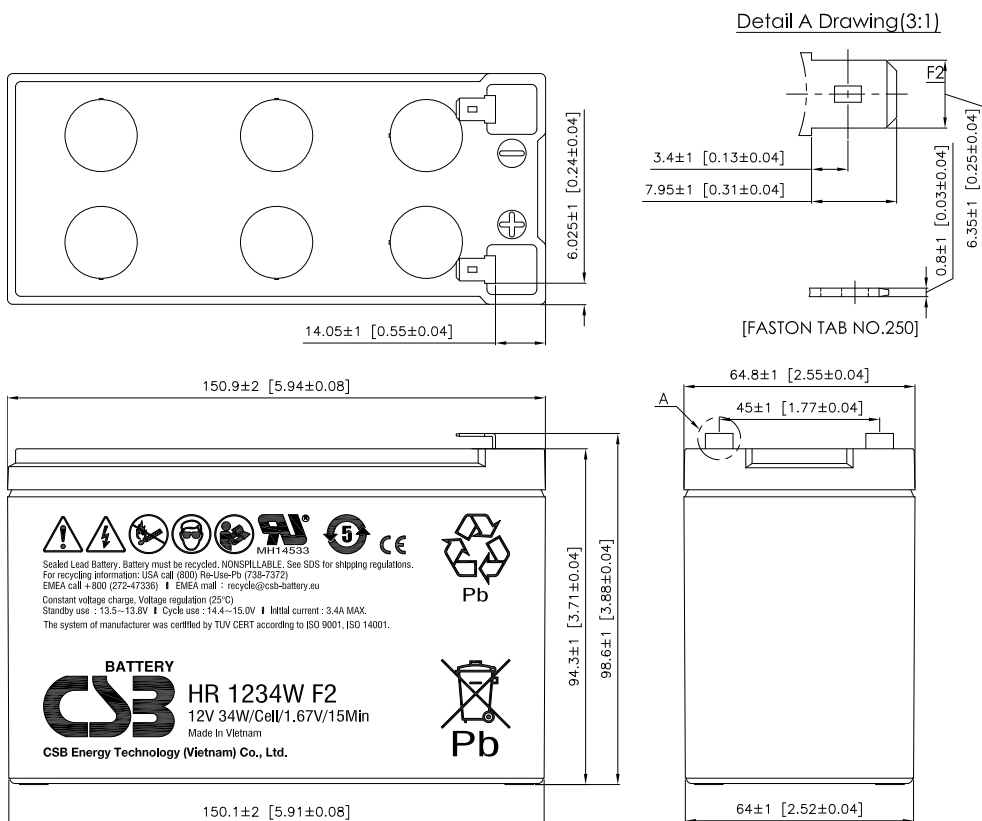
12V Top Terminal VRLA-AGM

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
10.02V (1.67 VPC)	67.3	47.5	40.7	35.8	29.0	24.5	17.8	14.1	10.2	7.34	5.82	4.20
10.50V (1.75 VPC)	58.3	42.8	37.5	33.6	27.6	23.5	17.4	13.9	10.0	7.27	5.77	4.17
10.80V (1.80 VPC)	52.6	39.1	34.7	31.2	26.0	22.4	16.8	13.5	9.83	7.12	5.67	4.11

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
10.02V (1.67 VPC)	688	502	438	391	324	277	206	164	119	86.5	68.9	50.0
10.50V (1.75 VPC)	633	466	413	372	312	268	202	161	117	85.7	68.4	49.8
10.80V (1.80 VPC)	584	434	388	351	298	257	196	157	116	84.3	67.4	49.2





HRL Series

HRL 1280W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @25°C)	80W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	161.83
Watts Per Cell (15-Min 1.67 VPC @ 25°)	80.83
Max Charge Current (A)	8.0
Max Discharge Current (A)	300
Short Circuit Current (A)	723
Internal Resistance (mΩ)	Approx. 9.00
Terminal Type	I1 thread lead alloy terminal to accept M5 bolt
Terminal Torque	30.4±6.1 Kgf·cm / 26.4±5.3 Lbf·in / 3.0±0.6 N·m
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	6.60 / 14.55
Length (L) (mm / in)	181.0±2.0 / 7.13±0.08
Width (W) (mm / in)	76.0±1.0 / 2.99±0.04
Height (H) (mm / in)	165.0±2.0 / 6.50±0.08
Design Life	Up to 8 Years in Standby Service at 25°C Eurobat (20°C): 10-12 Years Standard Commercial Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Operating Temperature	
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 1280W Datasheet

12V Top Terminal VRLA-AGM

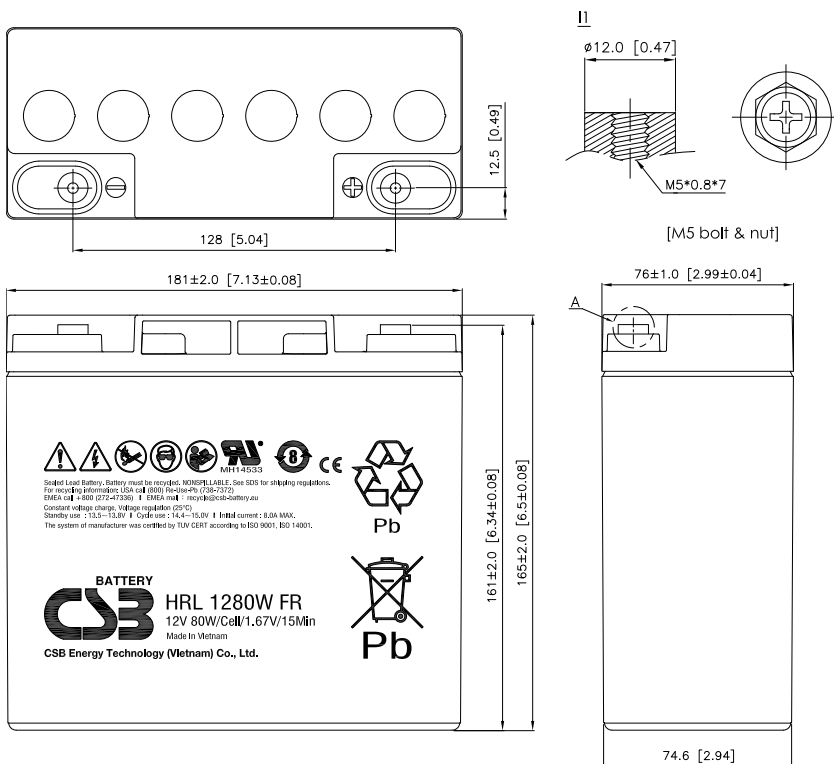
Constant Current Discharge Characteristics Unit: A (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
10.02V (1.67 VPC)	142	103	90.7	81.7	69.5	58.7	43.5	34.0	24.6	18.0	14.4	10.4
10.50V (1.75 VPC)	119	92.3	82.6	75.5	64.3	54.3	41.6	32.9	23.7	17.4	14.0	10.1
10.80V (1.80 VPC)	105	83.2	75.7	70.0	60.8	51.8	39.8	32.1	23.0	16.9	13.6	10.0

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
10.02V (1.67 VPC)	1431	1073	971	895	761	661	485	382	280	207	167	121
10.50V (1.75 VPC)	1270	983	897	832	708	626	468	370	270	200	161	117
10.80V (1.80 VPC)	1173	909	836	781	679	593	453	364	266	197	159	116

Detail A Drawing(3:1)





HRL Series

HRL 12110W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @ 25°C)	110W @ 15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	211
Watts Per Cell (15-Min 1.67 VPC @ 25°)	111
Max Charge Current (A)	11.0
Max Discharge Current (A)	225
Short Circuit Current (A)	884
Internal Resistance (mΩ)	Approx. 8.10
Terminal Type	I1 thread lead alloy terminal to accept M5 bolt
Terminal Torque	30.4±6.1 Kgf·cm / 26.4±5.3 Lbf-in / 3.0±0.6 N·m
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	9.90 / 21.82
Length (L) (mm / in)	166.0±2.0 / 6.54±0.08
Width (W) (mm / in)	125.0±1.5 / 4.92±0.06
Height (H) (mm / in)	175.0±2.0 / 6.89±0.08
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): 10-12 Years Standard Commercial Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Operating Temperature	
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 12110W Datasheet

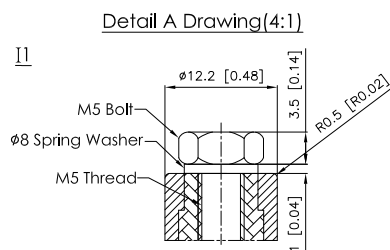
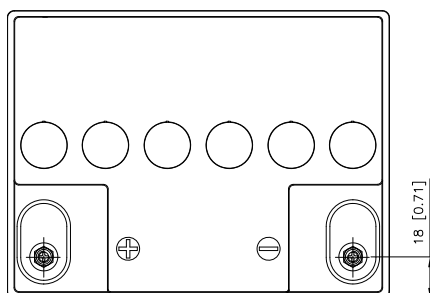
12V Top Terminal VRLA-AGM

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

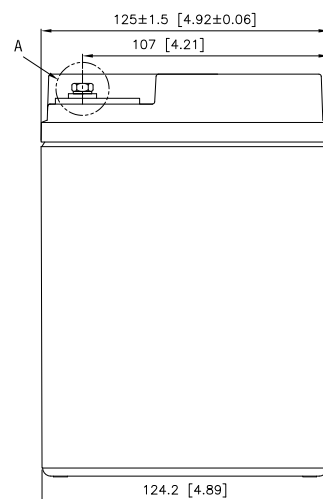
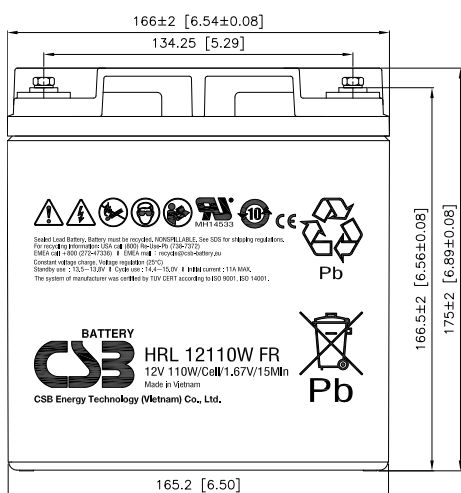
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
10.02V (1.67 VPC)	151	129	117	108	91.1	77.5	59.6	47.0	33.2	25.3	20.8	14.7
10.50V (1.75 VPC)	125	108	100	93.2	82.7	72.2	56.1	44.7	32.3	24.4	20.0	14.4
10.80V (1.80 VPC)	109	94.0	88.2	83.7	76.4	68.7	53.7	42.5	31.9	24.0	19.6	14.2

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
10.02V (1.67 VPC)	1624	1386	1263	1171	988	852	665	535	377	292	243	173
10.50V (1.75 VPC)	1358	1190	1093	1020	900	796	636	510	361	280	234	170
10.80V (1.80 VPC)	1177	1054	990	941	851	764	610	495	352	274	229	168



[M5 Bolt & M5 Thread & Spring Washer]





HRL Series

HRL 12150W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @25°C)	150W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	271
Watts Per Cell (15-Min 1.67 VPC @ 25°)	156
Max Charge Current (A)	15.0
Max Discharge Current (A)	225
Short Circuit Current (A)	1116
Internal Resistance (mΩ)	Approx. 7.30
Terminal Type	I2 thread lead alloy terminal to accept M6 bolt
Terminal Torque	51.7±10.3 Kgf·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m
Container Material	ABS (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	11.95 / 26.34
Length (L) (mm / in)	195.6±2.0 / 7.70±0.08
Width (W) (mm / in)	130.0±1.5 / 5.12±0.06
Height (H) (mm / in)	174.8.0±2.0 / 6.88±0.08
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): 10-12 Years Standard Commercial Nominal: 25°C (77°F)
Operating Temperature	Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 12150W Datasheet

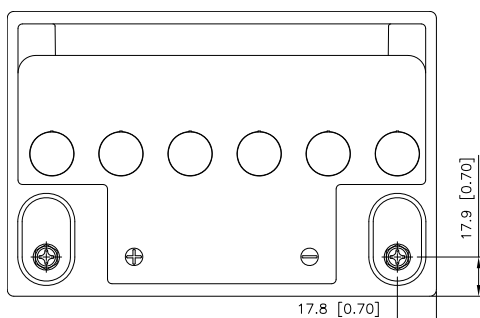
12V Top Terminal VRLA-AGM

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

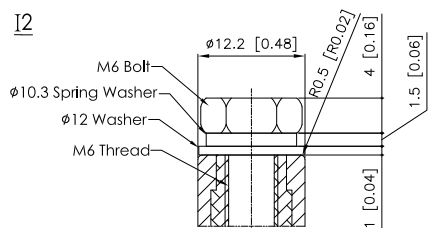
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
10.02V (1.67 VPC)	--	--	152	139	116	107	82.2	66.3	48.4	35.3	28.6	20.5
10.50V (1.75 VPC)	--	--	132	122	104	96.8	76.0	62.0	45.7	33.6	27.8	20.0
10.80V (1.80 VPC)	--	--	119	111	96.2	90.0	71.1	58.4	43.8	32.2	26.8	19.5

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

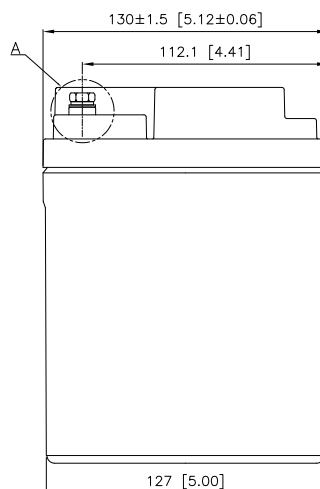
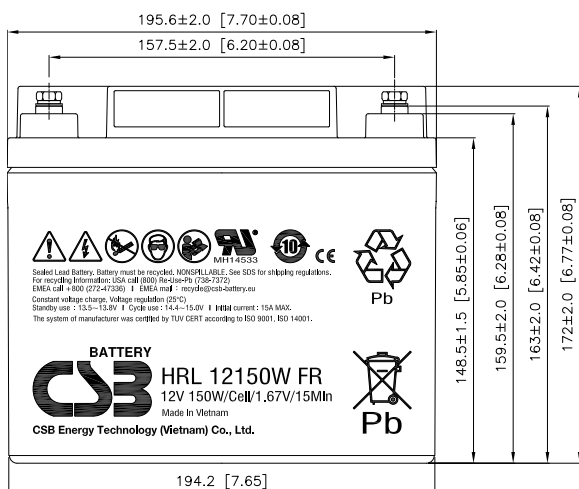
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
10.02V (1.67 VPC)	--	--	1624	1494	1275	1182	935	753	559	415	334	239
10.50V (1.75 VPC)	--	--	1422	1321	1149	1075	877	704	530	399	325	231
10.80V (1.80 VPC)	--	--	1302	1217	1069	1006	825	675	507	383	314	226



Detail A Drawing(4:1)



[M6 Bolt & M6 Thread & Washer & Spring Washer]





HRL Series

HRL 12200W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @ 25°C)	200W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	385
Watts Per Cell (15-Min 1.67 VPC @ 25°)	218
Max Charge Current (A)	20.0
Max Discharge Current (A)	400
Short Circuit Current (A)	1509
Internal Resistance (mΩ)	Approx. 5.50
Terminal Type	I2 thread lead alloy terminal to accept M6 bolt
Terminal Torque	51.7±10.3 Kgf·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	17.30 / 38.13
Length (L) (mm / in)	228.0±2.5 / 8.98±0.10
Width (W) (mm / in)	138.4±1.5 / 5.45±0.06
Height (H) (mm / in)	206.3±2.5 / 8.12±0.10
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): >12 Years Very Long Life
Operating Temperature	Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 12200W Datasheet

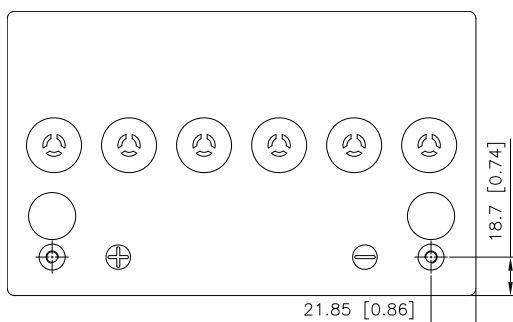
12V Top Terminal VRLA-AGM

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
10.02V (1.67 VPC)	279	232	218	205	177	157	118	97.0	71.2	52.0	41.2	29.5
10.50V (1.75 VPC)	233	197	192	176	156	141	111	92.0	68.2	50.7	40.3	29.1
10.80V (1.80 VPC)	198	172	165	156	140	126	102	85.2	64.6	48.7	38.9	28.2

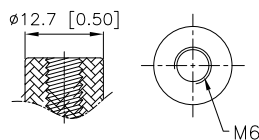
Constant Power Discharge Characteristics Unit: W (25°C, 77°F)

F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
10.02V (1.67 VPC)	2861	2395	2306	2127	1874	1666	1308	1083	809	600	475	342
10.50V (1.75 VPC)	2458	2120	2022	1904	1717	1523	1232	1027	772	585	464	335
10.80V (1.80 VPC)	2231	1889	1840	1765	1562	1409	1158	959	738	564	452	326

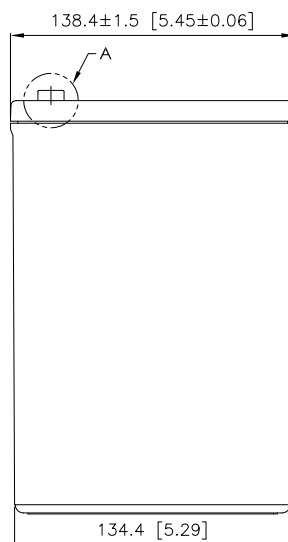
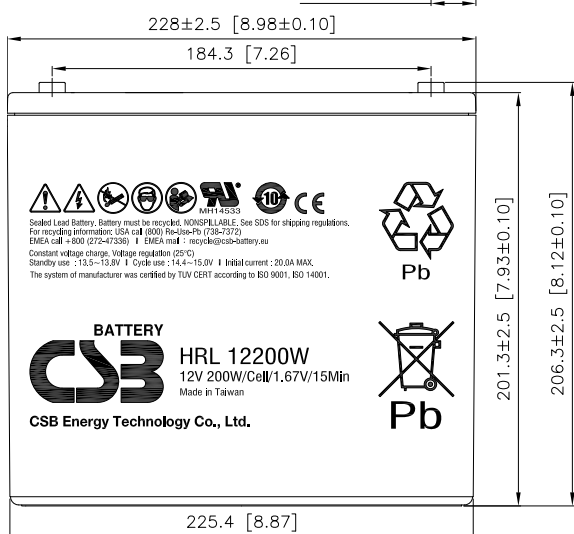


Detail A Drawing(3:1)

12



[M6 bolt]





HRL Series

HRL 12280W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @25°C)	280W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	506
Watts Per Cell (15-Min 1.67 VPC @ 25°)	284
Max Charge Current (A)	28.0
Max Discharge Current (A)	800
Short Circuit Current (A)	2576
Internal Resistance (mΩ)	Approx. 3.50
Terminal Type	I2 thread lead alloy terminal to accept M6 bolt
Terminal Torque	51.7±10.3 Kgf·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	25.80 / (56.86
Length (L) (mm / in)	261.0±2.5 / 10.28±0.10
Width (W) (mm / in)	168.5±2.0 / 6.63±0.08
Height (H) (mm / in)	213.5±2.5 / 8.41±0.10
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): >12 Years Very Long Life
Operating Temperature	Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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Recognized (MH14533)





HRL Series

HRL 12280W Datasheet

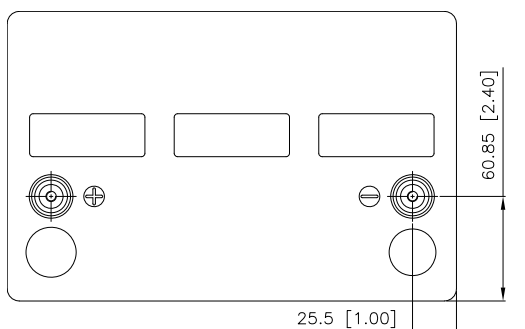
12V Top Terminal VRLA-AGM

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

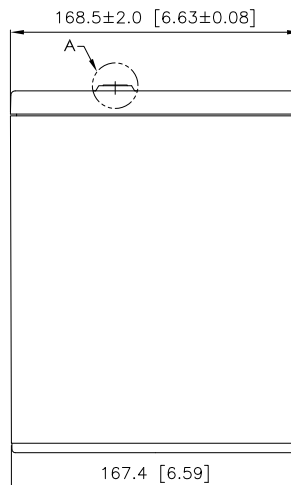
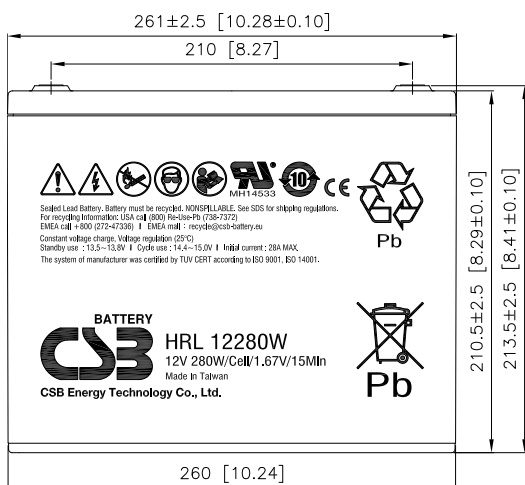
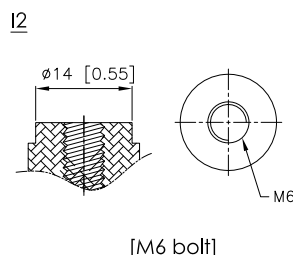
F.V/Time	2MIN	4MIN	5MIN	6MIN	8MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN
10.02V (1.67 VPC)	345	305	283	258	217	200	155	128	98.3	72.9	57.7	42.1
10.50V (1.75 VPC)	288	254	236	218	188	175	141	117	91.3	68.5	53.8	38.5
10.80V (1.80 VPC)	249	219	207	194	171	161	131	111	85.4	63.7	50.1	36.3

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
10.02V (1.67 VPC)	3807	3150	3036	2778	2347	2166	1700	1417	1079	804	636	466
10.50V (1.75 VPC)	3244	2780	2615	2422	2095	1955	1575	1326	1023	780	600	436
10.80V (1.80 VPC)	2833	2476	2329	2176	1913	1800	1493	1274	980	738	581	422



Detail A Drawing(4:1)





HRL Series

HRL 12330W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity	330W @ 15min-rate (1.67C) 100AH@ 20hour-rate (1.75V)
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	627
Watts Per Cell (15-Min 1.67 VPC @ 25°)	356
Max Charge Current (A)	33.0A
Max Discharge Current (A)	800
Short Circuit Current (A)	2386
Internal Resistance (mΩ)	Approx. 3.50
Terminal Type	I2 thread lead alloy terminal to accept M6 bolt
Terminal Torque	51.7±10.3 Kgf·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	29.60 / 65.24
Length (L) (mm / in)	308.7±2.5 / 12.15±0.10
Width (W) (mm / in)	169.0±2.0 / 6.65±0.08
Height (H) (mm / in)	213.6±2.5 / 8.41±0.10
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): >12 Years Very Long Life
Operating Temperature	Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 12330W Datasheet

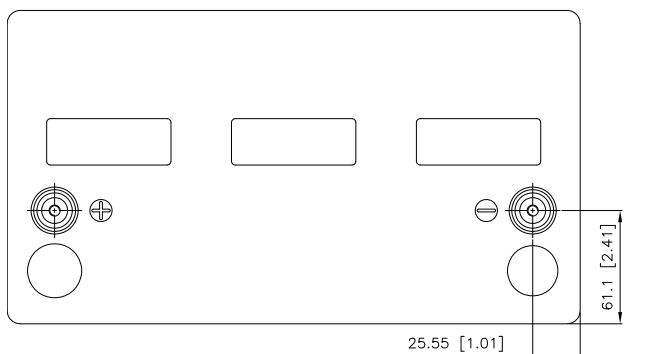
12V Top Terminal VRLA-AGM

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

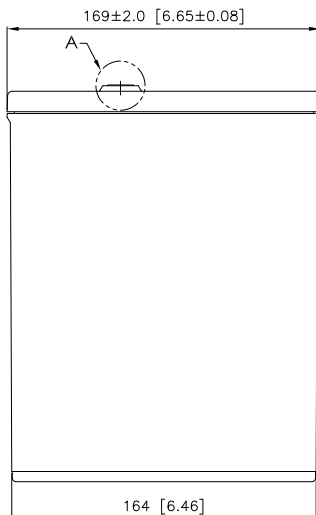
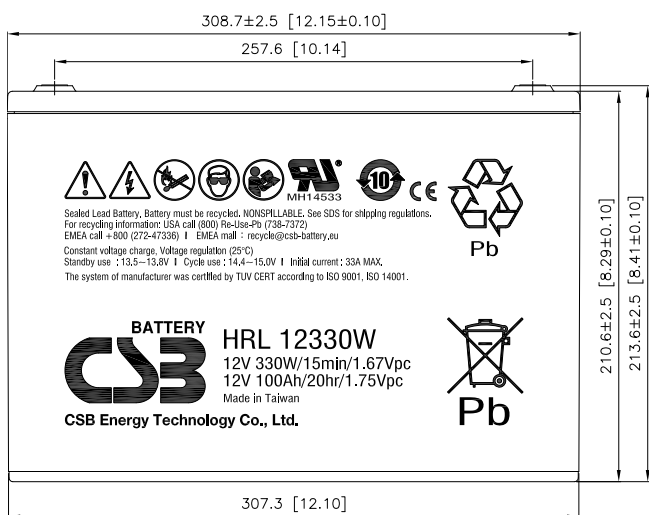
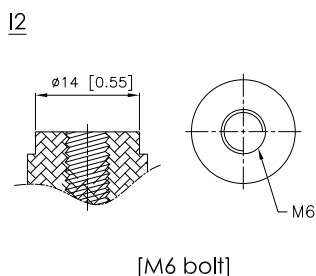
F.V/Time	2MIN	5MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN	5HR	10HR	20HR
10.02V (1.67 VPC)	482	369	256	196	158	117	85.1	67.9	49.4	18.6	9.91	5.12
10.50V (1.75 VPC)	405	317	230	181	149	112	82.6	66.4	48.9	18.2	9.74	5.06
10.80V (1.80 VPC)	337	273	206	168	139	106	79.1	64.1	47.7	17.8	9.51	4.97

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

F.V/Time	2MIN	5MIN	10MIN	15MIN	20MIN	30MIN	45MIN	60MIN	90MIN	5HR	10HR	20HR
10.02V (1.67 VPC)	4397	3761	2737	2131	1738	1304	965	779	576	216	116	61.0
10.50V (1.75 VPC)	4043	3300	2485	2009	1656	1260	941	764	571	214	115	60.5
10.80V (1.80 VPC)	3660	2993	2276	1883	1564	1204	907	742	559	210	113	59.6



Detail A Drawing(4:1)





HRL Series

HRL 12390W Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @ 25°C)	390W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	700
Watts Per Cell (15-Min 1.67 VPC @ 25°)	414
Max Charge Current (A)	39.0
Max Discharge Current (A)	800
Short Circuit Current (A)	2779
Internal Resistance (mΩ)	Approx. 3.00
Terminal Type	I2 thread lead alloy terminal to accept M6 bolt
Terminal Torque	51.7±10.3 Kg·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	33.00 / 72.73
Length (L) (mm / in)	343.0±2.5 / 13.50±0.10
Width (W) (mm / in)	170.0±2.0 / 6.69±0.08
Height (H) (mm / in)	216.9±2.5 / 8.54±0.10
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): >12 Years Very Long Life
Operating Temperature	Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 12390W Datasheet

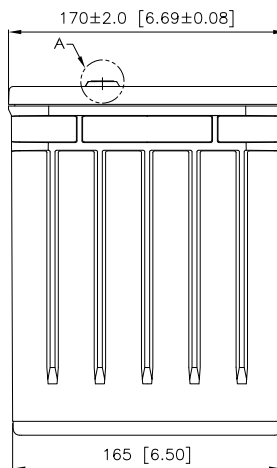
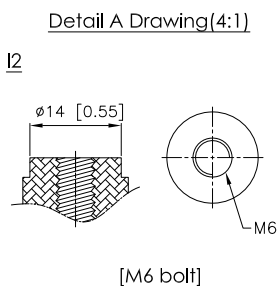
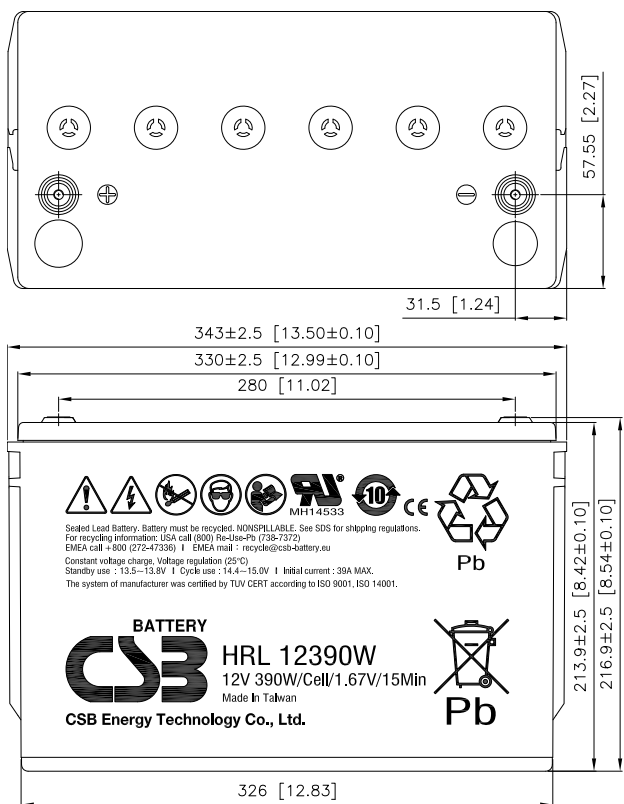
12V Top Terminal VRLA-AGM

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
10.02V (1.67 VPC)	532	456	416	386	334	298	230	186	138	99.6	78.9	56.8
10.50V (1.75 VPC)	463	384	354	330	296	266	212	174	132	96.1	76.7	55.7
10.80V (1.80 VPC)	382	330	310	296	266	239	197	163	125	91.8	73.8	54.2

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
10.02V (1.67 VPC)	5312	4557	4197	3919	3518	3141	2483	2039	1545	1130	906	663
10.50V (1.75 VPC)	4583	3970	3736	3555	3190	2861	2348	1943	1488	1098	885	653
10.80V (1.80 VPC)	4044	3587	3451	3253	2893	2641	2215	1843	1423	1059	858	639





HRL Series

HRL 12540WG Datasheet

12V Top Terminal VRLA-AGM

Specifications

Voltage (Vdc)	12
Nominal Capacity (1.67 VPC @25°C)	540W @15min-rate
Watts Per Cell (30-Sec 1.67 VPC @ 25°C)	--
Watts Per Cell (5-Min 1.67 VPC @ 25°)	838
Watts Per Cell (15-Min 1.67 VPC @ 25°)	542
Max Charge Current (A)	54
Max Discharge Current (A)	800
Short Circuit Current (A)	3523
Internal Resistance (mΩ)	Approx. 2.60
Terminal Type	I2 thread lead alloy terminal to accept M6 bolt
Terminal Torque	51.7±10.3 Kgf·cm / 44.9±9.0 Lbf·in / 5.10±1.0 N·m
Container Material	PP (UL 94-HB) & Flame Retardant (94-V0) available upon request
Weight (kg. / lb., Approx.)	43.90 / 96.76
Length (L) (mm / in)	343.0±2.5 / 13.50±0.10
Width (W) (mm / in)	170.0±2.0 / 6.69±0.08
Height (H) (mm / in)	275.7±2.5 / 10.85±0.10
Design Life	Up to 10 Years in Standby Service at 25°C Eurobat (20°C): >12 Years Very Long Life
Operating Temperature	Nominal: 25°C (77°F) Discharge: -15°C - 50°C (5°F-122°F) Charge/Storage: -15°C - 40°C (5°F - 104°F)
Float Charging Voltage	13.5 - 13.8 Vdc/battery 25°C (77°F)
Eq. Charging Voltage	14.4 - 15.0 Vdc/battery 25°C (77°F)
Self-Discharge	Less than 10% after 90 days, can be stored up to 6 months at 25°C (77°F); Fully recharging is required before usage, and charged sooner if stored at higher temperature than 25°C (77°F).



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HRL Series

HRL 12540WG Datasheet

12V Top Terminal VRLA-AGM

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
10.02V (1.67 VPC)	608	517	480	452	406	370	294	245	181	132	105	74.3
10.50V (1.75 VPC)	501	440	416	398	365	327	270	228	172	126	101	72.0
10.80V (1.80 VPC)	430	391	375	362	323	296	252	209	161	120	97.9	70.3

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
10.02V (1.67 VPC)	6207	5325	5026	4794	4282	3885	3250	2630	2006	1492	1210	865
10.50V (1.75 VPC)	5225	4639	4390	4196	3766	3472	2951	2454	1925	1441	1174	849
10.80V (1.80 VPC)	4561	4310	4032	3818	3442	3233	2723	2306	1846	1385	1129	824

