



HI-PERFORMANCE
VRLA
BATTERIES



AMARA RAJA BATTERIES LIMITED
(An Amara Raja Johnson Controls Company)

CORPORATE OPERATIONS OFFICE:
Fifth Floor, Astra Towers, No.12P, Hi-Tech City
Kondapur, Hyderabad - 500 038. India
Tel: +91 040 2368 3000. Fax: +91 040 2311 8219.
www.amararaja.co.in

REGISTERED OFFICE & WORKS:
Karakambadi - 517 520, Tirupati, Andhra Pradesh. India
Tel: +91 - 877 - 228 5561. Fax: +91 - 877 - 228 5600.
Email: mktg@amararaja.co.in



ARB/BD/PSLV/1000/0609
Design Improvement is a continuous process of Amara Raja. As a result, specifications are subject to modification without prior notice

Design Magic - 0 98400 56365

POWERSTACK

The future belongs to those who stake a claim for it here and now. This axiom has been our guiding principle at Amara Raja, helping us ceaselessly innovate and explore the new and never-before.

Amara Raja has put its vision into practice by striding forward in the power management industry and consolidating its position as one of the leading players in the Asia-Pacific region. With Johnson Controls Inc., a world leader, as an equity alliance partner (26%), Amara Raja Pioneered the next generation battery technology in India. This partnership facilitates sharing of knowledge and innovations to accelerate and expand development efforts in the global battery market. It also enables harnessing technology that acclimatized batteries to operate in harsh tropical conditions.

Working together with alliance partner Johnson Controls, Amara Raja set up India's finest battery plant, the first such facility for Johnson Controls in the last decade. This facility is backed by one of the finest Research & Development centers on site. A center that constantly and unceasingly thinks out-of-the-box and develops products and services that match world-class standards, and sets industry benchmarks.

AMARA RAJA - POWERED BY INNOVATION



Amara Raja's Battery Excellence Center is another first for the region. Here, products are put through rigorous tests to ensure that they comply with international standards and design requirements. With the latest testing equipment, the center evaluates battery performance, design and longevity. Apart from this, there are facilities for application engineering, vehicle system study, simulations and computer-aided design, including a full calibration laboratory. Amara Raja's quality commitment has ensured that it conforms to International quality standards.

Amara Raja today has the distinction of being a prime player in the Johnson Controls led global alliance and is forging ahead in to new market - powered by innovation.

Amara Raja's Powerstack, a hi-performance battery is designed to meet the demands of a wide range of industrial applications. The Powerstack range, modular in structure, is capable of accommodating a wide spectrum of capacities depending on the application. Major application areas include Telecommunications, Power Utilities, Railways, Defence and other heavy industries.

POWERSTACK

POWERSTACK The Reliable Powerhouse

PERFORMANCE EDGE

- Design Float life of 20 years and cyclic life of 4000 cycles at 20% DOD
- Leadership bolstered by proven performance in harsh tropical conditions, since 1989
- Deep discharge capability
- Modular design for ease of installation and stacking flexibility
- Unique Ribbed Design Polypropylene container and cover offering enhanced strength and durability for safe operation
- Patented Lead Oxide Paste Recipe offering excellent charge acceptance and low self-discharge rate
- Innovative Plate Design offers low internal resistance and superior high rate discharge performance
- Advanced AGM separator offering a longer service life and enhanced high rate discharge performance
- 100% charged when shipped from factory

QUALITY EDGE

- Produced in state-of-the-art ISO 9001, ISO 14001 & TS 16949 certified facility
- OHSAS under implementation
- Continuous improvement through Internationally acclaimed tools like TQM, Kaizen, Six Sigma, 5S

Quality Systems certified to
ISO 9001 : 2004
ISO / TS16949 : 2002
and ISO 14001 : 2004 by





Backed by its unflinching commitment to offer the best of technology and quality, Amara Raja offers you Powerstack, the reliable power house.

APPLICATION SPECTRUM

Powerstack provides robust backup power solutions for varied applications.

MAJOR APPLICATION AREAS INCLUDE:

- **Telecommunications** - Basic Telephony, Cellular Telephony, Transmission, Last Mile Connectivity, Local Network Broadband, Microwave
- **Uninterruptible Power Supply Systems** - Data Processing, Process Instrumentation, Automated Banking
- **Power Utilities** - Switchgear & Instrumentation Controls, Transmission & Distribution
- **Railways** - Train lighting, Air-conditioning
- **Solar Photo Voltaics (SPV)** - Offshore Oil Exploration Platforms & Cathodic Protection
- **Process & Service Industry**
- **Defence**

INTERNATIONAL COMPLIANCE

- ISO 9001:2004, ISO 14001:2004, TS 16949:2002 certified facilities
- CE Marking for Conformité Européene, ratified by Underwriters Laboratories
- Compliance to IEC 60896-21/22:2004 standards
- Classified as Non Hazardous Cargo and complies to requirements of IMDG (International Maritime Code for Dangerous Goods)
- Complies to Air Transport Requirement - IATA/ICAO special provision A67
- Complies to 1997 UBC Zone 4 Seismic Requirements
- Completely Recyclable - Lead, Plastic and Sulphuric acid can be recycled and reused
- UL Approval - July 2009 (File No. MH25726)

TECHNICAL SPECIFICATIONS

PRODUCT:

- **Container & Cover** - Polypropylene Co-polymer (fire-retardant optional)
- **AGM Separator** - Spun glass micro-porous matrix with high compression.
- **Positive Plate** - SRS Grid Flat Pasted Type
- **Positive Plate Alloy** - Hybrid Alloy with deep discharge and long life characteristics
- **Negative Plate** - SRS Grid Flat Pasted Type
- **Negative Plate Alloy** - Lead Calcium Alloy with Maintenance-Free characteristics
- **Safety Valve** - Self resealing, pressure regulated, explosion-proof
- **Terminals** - Lead terminals with copper inserts with a large surface area to provide maximum conductivity
- **Connectors** - Heavy-duty lead plated copper connectors
- **Trays** - Acid resistant MS trays, self-stackable type
- **Color** - Coded terminal polarity - Provides easy terminal identification



RANGE SPECIFICATIONS

Powerstack is available in varied ranges to meet customers' complex business needs. Powerstack is available in modular design, with 2V as the basic cell, with capacities ranging from 100Ah to 6000Ah, housed in self-stackable MS trays.

DISCHARGE DATASHEET ATTACHED

PERFORMANCE:

- **Self-discharge:** Less than 1% per week
- **Shelf life without re-charge:** Upto 6 months
- **Operating conditions:** - 40° C to + 60° C
- **Design Float Life:** 20 Years
- **Design Cycle Life:** 4000 @20% DOD; 2000 @50% DOD; 1200 @ 80% DOD
- **Recombination Efficiency:** > 99%

NOTE:

- All values are rated at 27°C.
- Charging parameters at 27°C.

Method: Constant Potential Current Limited

Charge Provision	Charging Voltage	Maximum Charging Current (Amps)
Float charge	2.23 VPC	0.2 C
Boost charge	2.30 VPC	0.2 C

C is the rated capacity @ 10 hour

*Please refer to operating manual for storage instructions





MODULE SPECIFICATION AND PERFORMANCE DATA														
Sl. No.	Cell type	Nominal Ah Capacity @ C10 to 1.75 ECV at 27° C	System Module Voltage (V)	Stacking dimensions ± 5 mm			Moudle weight ± 5 KGS	Amperes to 1.75 VPC @ 27° C						
				W	D	H		30Min	1Hr	2Hr	3Hr	5Hr	8Hr	10Hr
1	IP1009	300	12	706	500	218	127	224	171	108	81	52	36	30
2	IP1011	375	12	706	500	250	152	280	214	134	101	66	45	38
3	IP1013	450	12	706	500	280	177	336	257	161	122	79	54	45
4	IP1017	600	12	706	500	340	229	448	343	215	162	105	72	60
5	IP1021	750	6	706	500	231	148	560	429	269	203	131	91	75
6	IP1025	900	6	706	500	261	173	672	514	323	243	157	109	90
7	IP1031	1125	6	706	500	306	212	840	643	403	304	197	136	113
8	IP1037	1350	6	706	500	351	252	1007	771	484	365	236	163	135
9	IP1051	1800	12	706	500	1020	687	1343	1029	645	486	315	217	180
10	IP1063	2250	6	706	500	693	444	1679	1286	806	608	393	272	225
11	IP1075	2700	6	706	500	783	519	2015	1543	968	730	472	326	270
12	IP1093	3375	6	706	500	918	636	2519	1929	1210	912	590	408	338
13	IP1111	4050	6	706	500	1053	756	3022	2314	1452	1095	708	489	405
14	IP1124	4500	8	706	500	1224	848	3358	2571	1613	1216	787	543	450
15	IP1148	5400	8	706	500	1404	1008	4030	3086	1935	1459	944	652	540
16	IP2009	340	12	706	555	218	141	254	194	122	92	59	41	34
17	IP2011	425	12	706	555	250	170	317	243	152	115	74	51	43
18	IP2013	510	12	706	555	280	198	381	291	183	138	89	62	51
19	IP2017	680	12	706	555	340	255	507	389	244	184	119	82	68
20	IP2021	850	6	706	555	231	165	634	486	305	230	149	103	85
21	IP2025	1020	6	706	555	261	193	761	583	366	276	178	123	102
22	IP2031	1275	6	706	555	306	236	951	729	457	345	223	154	128
23	IP2037	1530	6	706	555	351	282	1142	874	548	414	267	185	153
24	IP2051	2040	12	706	555	1020	765	1522	1166	731	551	357	246	204
25	IP2063	2550	6	706	555	693	495	1903	1457	914	689	446	308	255
26	IP2075	3060	6	706	555	783	579	2284	1749	1097	827	535	370	306
27	IP2093	3825	6	706	555	918	708	2854	2186	1371	1034	669	462	383
28	IP2111	4590	6	706	555	1053	846	3425	2623	1645	1241	802	554	459
29	IP2124	5100	8	706	555	1224	944	3806	2914	1828	1378	892	616	510
30	IP2148	6120	8	706	555	1404	1128	4567	3497	2194	1654	1070	739	612

Note: Due to company’s ongoing product improvement process, the design and specifications are subject to change without prior notice.
Models having weight of above 310 kgs will be shipped in sub modules.

POWERSTACK RANGE



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Power in Watts															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	747	603	548	416	323	204	155	123	101	88	78	70	58	51	33	29
2	IP1011	375	933	754	686	519	404	255	194	154	126	109	97	88	73	64	42	36
3	IP1013	450	1120	905	823	623	484	306	232	185	151	131	117	105	87	77	50	43
4	IP1017	600	1493	1207	1097	831	646	408	310	247	202	175	156	140	116	102	67	57
5	IP1021	750	1867	1508	1371	1039	807	510	387	309	252	219	195	175	145	128	84	71
6	IP1025	900	2240	1810	1645	1247	969	612	465	370	303	263	233	210	174	154	100	86
7	IP1031	1125	2800	2263	2057	1558	1211	765	581	463	378	328	292	263	218	192	126	107
8	IP1037	1350	3360	2715	2468	1870	1453	918	697	555	454	394	350	315	261	231	151	129
9	IP1051	1800	4480	3620	3290	2493	1938	1224	929	740	605	526	467	420	348	307	201	172
10	IP1063	2250	5600	4525	4113	3116	2422	1530	1161	926	757	657	584	525	435	384	251	214
11	IP1075	2700	6720	5430	4936	3740	2907	1836	1394	1111	908	788	700	630	522	461	301	257
12	IP1093	3375	8400	6788	6170	4675	3633	2295	1742	1388	1135	985	876	788	653	576	377	322
13	IP1111	4050	10080	8145	7403	5610	4360	2754	2091	1666	1362	1182	1051	945	784	692	452	386
14	IP1124	4500	11200	9050	8226	6233	4845	3060	2323	1851	1514	1314	1167	1051	871	768	502	429
15	IP1148	5400	13440	10860	9871	7479	5813	3672	2788	2221	1816	1577	1401	1261	1045	922	603	515
16	IP2009	340	846	684	622	471	366	231	176	140	114	99	88	79	66	58	38	32
17	IP2011	425	1058	855	777	589	458	289	219	175	143	124	110	99	82	73	47	41
18	IP2013	510	1269	1026	932	706	549	347	263	210	172	149	132	119	99	87	57	49
19	IP2017	680	1692	1368	1243	942	732	462	351	280	229	199	176	159	132	116	76	65
20	IP2021	850	2116	1709	1554	1177	915	578	439	350	286	248	220	198	164	145	95	81
21	IP2025	1020	2539	2051	1865	1413	1098	694	527	420	343	298	265	238	197	174	114	97
22	IP2031	1275	3173	2564	2331	1766	1373	867	658	525	429	372	331	298	247	218	142	122
23	IP2037	1530	3808	3077	2797	2119	1647	1040	790	629	515	447	397	357	296	261	171	146
24	IP2051	2040	5077	4103	3729	2826	2196	1387	1053	839	686	596	529	476	395	348	228	194
25	IP2063	2550	6347	5128	4661	3532	2745	1734	1316	1049	858	745	661	595	493	435	285	243
26	IP2075	3060	7616	6154	5594	4238	3294	2081	1580	1259	1029	893	794	714	592	522	342	292
27	IP2093	3825	9520	7693	6992	5298	4118	2601	1975	1574	1287	1117	992	893	740	653	427	365
28	IP2111	4590	11424	9231	8391	6357	4941	3121	2369	1888	1544	1340	1191	1072	888	784	512	437
29	IP2124	5100	12693	10257	9323	7064	5491	3468	2633	2098	1715	1489	1323	1191	987	871	569	486
30	IP2148	6120	15232	12308	11187	8477	6589	4161	3159	2518	2059	1787	1588	1429	1184	1045	683	583

WATTS PER CELL DATA TO 1.75 ECV @ 27°C



PERFORMANCE SPECIFICATIONS

Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Power in Watts															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	734	596	508	416	318	205	151	121	100	87	78	70	56	50	31	27
2	IP1011	375	918	745	634	520	397	257	189	151	125	109	97	88	71	62	39	33
3	IP1013	450	1101	894	761	624	477	308	227	181	150	130	117	105	85	74	47	40
4	IP1017	600	1468	1192	1015	832	636	411	302	242	200	174	155	141	113	99	63	53
5	IP1021	750	1835	1490	1269	1040	795	514	378	302	251	217	194	176	141	124	78	67
6	IP1025	900	2202	1788	1523	1248	954	616	453	362	301	261	233	211	169	149	94	80
7	IP1031	1125	2753	2235	1903	1560	1192	770	566	453	376	326	291	263	212	186	117	100
8	IP1037	1350	3303	2683	2284	1872	1430	925	680	544	451	391	350	316	254	223	141	120
9	IP1051	1800	4404	3577	3045	2496	1907	1233	906	725	601	521	466	422	338	297	188	160
10	IP1063	2250	5505	4471	3807	3120	2384	1541	1133	906	752	651	583	527	423	371	235	200
11	IP1075	2700	6606	5365	4568	3744	2861	1849	1359	1087	902	782	699	632	508	446	282	240
12	IP1093	3375	8258	6706	5710	4680	3576	2311	1699	1359	1128	977	874	790	635	557	352	299
13	IP1111	4050	9909	8048	6852	5616	4291	2774	2039	1631	1353	1173	1049	949	761	668	422	359
14	IP1124	4500	11010	8942	7613	6240	4768	3082	2265	1812	1504	1303	1165	1054	846	743	469	399
15	IP1148	5400	13212	10730	9136	7489	5721	3698	2718	2175	1804	1564	1398	1265	1015	891	563	479
16	IP2009	340	832	676	575	472	360	233	171	137	114	98	88	80	64	56	35	30
17	IP2011	425	1040	845	719	589	450	291	214	171	142	123	110	100	80	70	44	38
18	IP2013	510	1248	1013	863	707	540	349	257	205	170	148	132	119	96	84	53	45
19	IP2017	680	1664	1351	1150	943	720	466	342	274	227	197	176	159	128	112	71	60
20	IP2021	850	2080	1689	1438	1179	901	582	428	342	284	246	220	199	160	140	89	75
21	IP2025	1020	2496	2027	1726	1415	1081	699	513	411	341	295	264	239	192	168	106	91
22	IP2031	1275	3120	2534	2157	1768	1351	873	642	513	426	369	330	299	240	210	133	113
23	IP2037	1530	3743	3040	2588	2122	1621	1048	770	616	511	443	396	358	288	253	160	136
24	IP2051	2040	4991	4054	3451	2829	2161	1397	1027	822	682	591	528	478	384	337	213	181
25	IP2063	2550	6239	5067	4314	3536	2702	1746	1284	1027	852	738	660	597	479	421	266	226
26	IP2075	3060	7487	6081	5177	4244	3242	2096	1540	1232	1022	886	792	717	575	505	319	272
27	IP2093	3825	9359	7601	6471	5304	4052	2619	1925	1540	1278	1108	990	896	719	631	399	339
28	IP2111	4590	11230	9121	7765	6365	4863	3143	2311	1848	1534	1329	1189	1075	863	758	479	407
29	IP2124	5100	12478	10134	8628	7073	5403	3493	2567	2054	1704	1477	1321	1195	959	842	532	453
30	IP2148	6120	14974	12161	10354	8487	6484	4191	3081	2465	2045	1772	1585	1433	1151	1010	638	543

WATTS PER CELL DATA TO 1.80ECV @ 27°C

PERFORMANCE SPECIFICATIONS



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Power in Watts															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	703	573	489	393	304	191	144	115	94	81	72	65	53	47	30	26
2	IP1011	375	878	716	612	491	380	239	180	144	117	101	90	81	67	59	37	32
3	IP1013	450	1054	859	734	590	456	287	216	173	141	121	108	97	80	71	44	39
4	IP1017	600	1405	1145	979	786	608	383	288	231	187	162	144	129	107	94	59	52
5	IP1021	750	1757	1431	1223	983	760	478	359	289	234	202	180	162	133	118	74	64
6	IP1025	900	2108	1718	1468	1179	912	574	431	346	281	243	216	194	160	141	89	77
7	IP1031	1125	2635	2147	1835	1474	1140	718	539	433	351	303	269	242	200	177	111	97
8	IP1037	1350	3162	2576	2202	1769	1368	861	647	519	422	364	323	291	240	212	133	116
9	IP1051	1800	4216	3435	2936	2358	1824	1148	863	692	562	485	431	388	320	283	177	155
10	IP1063	2250	5270	4294	3670	2948	2280	1435	1078	866	703	606	539	485	400	354	222	193
11	IP1075	2700	6323	5153	4404	3537	2736	1722	1294	1039	843	728	647	582	480	424	266	232
12	IP1093	3375	7904	6441	5506	4421	3419	2153	1618	1298	1054	909	808	727	601	531	333	290
13	IP1111	4050	9485	7729	6607	5306	4103	2584	1941	1558	1265	1091	970	873	721	637	399	348
14	IP1124	4500	10539	8588	7341	5895	4559	2871	2157	1731	1406	1213	1078	970	801	707	444	387
15	IP1148	5400	12647	10305	8809	7074	5471	3445	2588	2077	1687	1455	1293	1164	961	849	532	464
16	IP2009	340	796	649	555	445	344	217	163	131	106	92	81	73	61	53	34	29
17	IP2011	425	995	811	693	557	431	271	204	164	133	115	102	92	76	67	42	37
18	IP2013	510	1194	973	832	668	517	325	244	196	159	137	122	110	91	80	50	44
19	IP2017	680	1593	1298	1109	891	689	434	326	262	212	183	163	147	121	107	67	58
20	IP2021	850	1991	1622	1387	1114	861	542	407	327	266	229	204	183	151	134	84	73
21	IP2025	1020	2389	1947	1664	1336	1033	651	489	392	319	275	244	220	182	160	101	88
22	IP2031	1275	2986	2433	2080	1670	1292	813	611	491	398	344	305	275	227	200	126	110
23	IP2037	1530	3583	2920	2496	2004	1550	976	733	589	478	412	366	330	272	241	151	131
24	IP2051	2040	4778	3893	3328	2672	2067	1301	978	785	637	550	488	440	363	321	201	175
25	IP2063	2550	5972	4866	4160	3341	2584	1627	1222	981	797	687	611	549	454	401	251	219
26	IP2075	3060	7167	5840	4992	4009	3100	1952	1467	1177	956	825	733	659	545	481	302	263
27	IP2093	3825	8958	7299	6240	5011	3875	2440	1833	1472	1195	1031	916	824	681	601	377	329
28	IP2111	4590	10750	8759	7488	6013	4650	2928	2200	1766	1434	1237	1099	989	817	722	452	394
29	IP2124	5100	11944	9733	8320	6681	5167	3254	2444	1962	1593	1374	1221	1099	908	802	503	438
30	IP2148	6120	14333	11679	9984	8017	6201	3904	2933	2354	1912	1649	1465	1319	1089	962	603	526

WATTS PER CELL DATA TO 1.85ECV @ 27°C

PERFORMANCE SPECIFICATIONS



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Power in Watts															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	660	534	456	349	286	178	133	108	86	75	67	60	50	44	27	23
2	IP1011	375	825	667	570	437	358	222	167	135	108	94	84	75	62	55	33	29
3	IP1013	450	990	801	684	524	430	266	200	162	130	113	100	90	74	66	40	35
4	IP1017	600	1320	1068	912	699	573	355	267	215	173	151	134	120	99	88	53	47
5	IP1021	750	1651	1335	1140	873	716	444	334	269	216	188	167	151	124	109	67	59
6	IP1025	900	1981	1602	1368	1048	859	533	400	323	259	226	201	181	149	131	80	70
7	IP1031	1125	2476	2002	1710	1310	1074	666	500	404	324	282	251	226	186	164	100	88
8	IP1037	1350	2971	2402	2052	1572	1289	799	601	485	389	339	301	271	223	197	120	106
9	IP1051	1800	3961	3203	2737	2096	1719	1065	801	646	519	452	401	361	298	263	160	141
10	IP1063	2250	4952	4004	3421	2619	2148	1331	1001	808	648	565	502	452	372	328	200	176
11	IP1075	2700	5942	4805	4105	3143	2578	1598	1201	970	778	677	602	542	446	394	240	211
12	IP1093	3375	7427	6006	5131	3929	3222	1997	1501	1212	972	847	753	677	558	492	300	264
13	IP1111	4050	8913	7207	6157	4715	3867	2396	1802	1455	1167	1016	903	813	669	591	360	317
14	IP1124	4500	9903	8008	6842	5239	4297	2663	2002	1616	1296	1129	1003	903	744	656	400	352
15	IP1148	5400	11884	9610	8210	6287	5156	3195	2402	1939	1556	1355	1204	1084	893	788	480	423
16	IP2009	340	748	605	517	396	325	201	151	122	98	85	76	68	56	50	30	27
17	IP2011	425	935	756	646	495	406	251	189	153	122	107	95	85	70	62	38	33
18	IP2013	510	1122	908	775	594	487	302	227	183	147	128	114	102	84	74	45	40
19	IP2017	680	1496	1210	1034	792	649	402	303	244	196	171	152	136	112	99	61	53
20	IP2021	850	1871	1513	1292	990	812	503	378	305	245	213	190	171	140	124	76	67
21	IP2025	1020	2245	1815	1551	1187	974	604	454	366	294	256	227	205	169	149	91	80
22	IP2031	1275	2806	2269	1938	1484	1217	754	567	458	367	320	284	256	211	186	113	100
23	IP2037	1530	3367	2723	2326	1781	1461	905	681	550	441	384	341	307	253	223	136	120
24	IP2051	2040	4489	3630	3101	2375	1948	1207	908	733	588	512	455	409	337	298	182	160
25	IP2063	2550	5612	4538	3877	2969	2435	1509	1134	916	735	640	569	512	421	372	227	200
26	IP2075	3060	6734	5445	4652	3562	2922	1811	1361	1099	881	768	682	614	506	446	272	240
27	IP2093	3825	8418	6807	5815	4453	3652	2263	1702	1374	1102	960	853	768	632	558	340	299
28	IP2111	4590	10101	8168	6978	5344	4383	2716	2042	1649	1322	1152	1023	921	759	669	408	359
29	IP2124	5100	11224	9076	7754	5937	4869	3018	2269	1832	1469	1280	1137	1023	843	744	454	399
30	IP2148	6120	13468	10891	9304	7125	5843	3621	2723	2198	1763	1536	1365	1228	1012	893	545	479

WATTS PER CELL DATA TO 1.90ECV @ 27°C

PERFORMANCE SPECIFICATIONS



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Current in Amps															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	417	333	300	224	171	108	81	64	52	45	40	36	30.0	25.9	16.5	14.3
2	IP1011	375	521	417	375	280	214	134	101	80	66	57	50	45	37.5	32.3	20.6	17.9
3	IP1013	450	625	500	450	336	257	161	122	97	79	68	60	54	45.0	38.8	24.7	21.4
4	IP1017	600	833	667	600	448	343	215	162	129	105	91	81	72	60.0	51.7	33.0	28.6
5	IP1021	750	1042	833	750	560	429	269	203	161	131	114	101	91	75.0	64.7	41.2	35.7
6	IP1025	900	1250	1000	900	672	514	323	243	193	157	136	121	109	90.0	77.6	49.5	42.9
7	IP1031	1125	1563	1250	1125	840	643	403	304	241	197	170	151	136	112.5	97.0	61.8	53.6
8	IP1037	1350	1875	1500	1350	1007	771	484	365	290	236	205	181	163	135.0	116.4	74.2	64.3
9	IP1051	1800	2500	2000	1800	1343	1029	645	486	386	315	273	242	217	180.0	155.2	98.9	85.7
10	IP1063	2250	3125	2500	2250	1679	1286	806	608	483	393	341	302	272	225.0	194.0	123.6	107.1
11	IP1075	2700	3750	3000	2700	2015	1543	968	730	579	472	409	362	326	270.0	232.8	148.4	128.6
12	IP1093	3375	4688	3750	3375	2519	1929	1210	912	724	590	511	453	408	337.5	290.9	185.4	160.7
13	IP1111	4050	5625	4500	4050	3022	2314	1452	1095	869	708	614	544	489	405.0	349.1	222.5	192.9
14	IP1124	4500	6250	5000	4500	3358	2571	1613	1216	966	787	682	604	543	450.0	387.9	247.3	214.3
15	IP1148	5400	7500	6000	5400	4030	3086	1935	1459	1159	944	818	725	652	540.0	465.5	296.7	257.1
16	IP2009	340	472	378	340	254	194	122	92	73	59	52	46	41	34.0	29.3	18.7	16.2
17	IP2011	425	590	472	425	317	243	152	115	91	74	64	57	51	42.5	36.6	23.4	20.2
18	IP2013	510	708	567	510	381	291	183	138	109	89	77	68	62	51.0	44.0	28.0	24.3
19	IP2017	680	944	756	680	507	389	244	184	146	119	103	91	82	68.0	58.6	37.4	32.4
20	IP2021	850	1181	944	850	634	486	305	230	182	149	129	114	103	85.0	73.3	46.7	40.5
21	IP2025	1020	1417	1133	1020	761	583	366	276	219	178	155	137	123	102.0	87.9	56.0	48.6
22	IP2031	1275	1771	1417	1275	951	729	457	345	274	223	193	171	154	127.5	109.9	70.1	60.7
23	IP2037	1530	2125	1700	1530	1142	874	548	414	328	267	232	205	185	153.0	131.9	84.1	72.9
24	IP2051	2040	2833	2267	2040	1522	1166	731	551	438	357	309	274	246	204.0	175.9	112.1	97.1
25	IP2063	2550	3542	2833	2550	1903	1457	914	689	547	446	386	342	308	255.0	219.8	140.1	121.4
26	IP2075	3060	4250	3400	3060	2284	1749	1097	827	657	535	464	411	370	306.0	263.8	168.1	145.7
27	IP2093	3825	5313	4250	3825	2854	2186	1371	1034	821	669	580	513	462	382.5	329.7	210.2	182.1
28	IP2111	4590	6375	5100	4590	3425	2623	1645	1241	985	802	695	616	554	459.0	395.7	252.2	218.6
29	IP2124	5100	7083	5667	5100	3806	2914	1828	1378	1094	892	773	685	616	510.0	439.7	280.2	242.9
30	IP2148	6120	8500	6800	6120	4567	3497	2194	1654	1313	1070	927	821	739	612.0	527.6	336.3	291.4

AMPERES TO 1.75ECV @ 27°C



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Current in Amps															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	400	323	273	221	167	107	78	63	52	45	40	36	29.0	25.4	16.0	13.6
2	IP1011	375	500	403	341	276	208	134	98	78	65	56	50	45	36.2	31.8	20.1	17.0
3	IP1013	450	600	484	409	331	250	161	117	94	78	67	60	54	43.5	38.1	24.1	20.5
4	IP1017	600	800	645	545	441	333	214	157	125	103	90	80	72	58.0	50.8	32.1	27.3
5	IP1021	750	1000	806	682	551	417	268	196	156	129	112	100	90	72.5	63.6	40.1	34.1
6	IP1025	900	1200	968	818	662	500	321	235	188	155	134	120	108	87.0	76.3	48.1	40.9
7	IP1031	1125	1500	1210	1023	827	625	402	294	234	194	168	150	136	108.7	95.3	60.2	51.1
8	IP1037	1350	1800	1452	1227	993	750	482	352	281	233	201	180	163	130.4	114.4	72.2	61.4
9	IP1051	1800	2400	1935	1636	1324	1000	643	470	375	310	269	240	217	173.9	152.5	96.3	81.8
10	IP1063	2250	3000	2419	2045	1654	1250	804	587	469	388	336	300	271	217.4	190.7	120.3	102.3
11	IP1075	2700	3600	2903	2455	1985	1500	964	705	563	466	403	360	325	260.9	228.8	144.4	122.7
12	IP1093	3375	4500	3629	3068	2482	1875	1205	881	703	582	504	450	407	326.1	286.0	180.5	153.4
13	IP1111	4050	5400	4355	3682	2978	2250	1446	1057	844	698	604	540	488	391.3	343.2	216.6	184.1
14	IP1124	4500	6000	4839	4091	3309	2500	1607	1175	938	776	672	600	542	434.8	381.4	240.6	204.5
15	IP1148	5400	7200	5806	4909	3971	3000	1929	1410	1125	931	806	720	651	521.7	457.6	288.8	245.5
16	IP2009	340	453	366	309	250	189	121	89	71	59	51	45	41	32.9	28.8	18.2	15.5
17	IP2011	425	567	457	386	313	236	152	111	89	73	63	57	51	41.1	36.0	22.7	19.3
18	IP2013	510	680	548	464	375	283	182	133	106	88	76	68	61	49.3	43.2	27.3	23.2
19	IP2017	680	907	731	618	500	378	243	178	142	117	101	91	82	65.7	57.6	36.4	30.9
20	IP2021	850	1133	914	773	625	472	304	222	177	147	127	113	102	82.1	72.0	45.5	38.6
21	IP2025	1020	1360	1097	927	750	567	364	266	213	176	152	136	123	98.6	86.4	54.5	46.4
22	IP2031	1275	1700	1371	1159	938	708	455	333	266	220	190	170	154	123.2	108.1	68.2	58.0
23	IP2037	1530	2040	1645	1391	1125	850	546	399	319	264	228	204	184	147.8	129.7	81.8	69.5
24	IP2051	2040	2720	2194	1855	1500	1133	729	533	425	352	304	272	246	197.1	172.9	109.1	92.7
25	IP2063	2550	3400	2742	2318	1875	1417	911	666	531	440	381	340	307	246.4	216.1	136.4	115.9
26	IP2075	3060	4080	3290	2782	2250	1700	1093	799	638	528	457	408	369	295.7	259.3	163.6	139.1
27	IP2093	3825	5100	4113	3477	2813	2125	1366	999	797	659	571	510	461	369.6	324.2	204.5	173.9
28	IP2111	4590	6120	4935	4173	3375	2550	1639	1198	956	791	685	612	553	443.5	389.0	245.5	208.6
29	IP2124	5100	6800	5484	4636	3750	2833	1821	1332	1063	879	761	680	614	492.8	432.2	272.7	231.8
30	IP2148	6120	8160	6581	5564	4500	3400	2186	1598	1275	1055	913	816	737	591.3	518.6	327.3	278.2

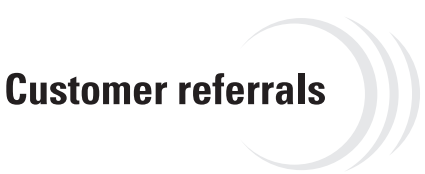
AMPERES TO 1.80ECV @ 27°C



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Current in Amps															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	375	303	259	205	158	99	74	59	48	41	37	33	27.2	24.0	15.0	13.0
2	IP1011	375	469	379	323	257	197	124	93	74	60	52	46	41	34.0	30.0	18.8	16.3
3	IP1013	450	563	455	388	308	237	149	111	89	72	62	56	50	40.8	36.0	22.5	19.6
4	IP1017	600	750	606	517	411	316	198	148	119	96	83	74	66	54.4	48.0	30.0	26.1
5	IP1021	750	938	758	647	514	395	248	185	148	120	103	93	83	68.1	60.0	37.5	32.6
6	IP1025	900	1125	909	776	616	474	297	222	178	144	124	111	99	81.7	72.0	45.0	39.1
7	IP1031	1125	1406	1136	970	771	592	371	278	222	180	155	139	124	102.1	90.0	56.3	48.9
8	IP1037	1350	1688	1364	1164	925	711	446	333	267	216	186	167	149	122.5	108.0	67.5	58.7
9	IP1051	1800	2250	1818	1552	1233	947	594	444	356	288	248	222	198	163.3	144.0	90.0	78.3
10	IP1063	2250	2813	2273	1940	1541	1184	743	556	445	360	310	278	248	204.2	180.0	112.5	97.8
11	IP1075	2700	3375	2727	2328	1849	1421	891	667	534	432	372	333	297	245.0	216.0	135.0	117.4
12	IP1093	3375	4219	3409	2909	2312	1776	1114	833	667	540	466	417	372	306.3	270.0	168.8	146.7
13	IP1111	4050	5063	4091	3491	2774	2132	1337	1000	800	648	559	500	446	367.5	324.0	202.5	176.1
14	IP1124	4500	5625	4545	3879	3082	2368	1485	1111	889	720	621	556	496	408.3	360.0	225.0	195.7
15	IP1148	5400	6750	5455	4655	3699	2842	1782	1333	1067	864	745	667	595	490.0	432.0	270.0	234.8
16	IP2009	340	425	343	293	233	179	112	84	67	54	47	42	37	30.9	27.2	17.0	14.8
17	IP2011	425	531	429	366	291	224	140	105	84	68	59	52	47	38.6	34.0	21.3	18.5
18	IP2013	510	638	515	440	349	268	168	126	101	82	70	63	56	46.3	40.8	25.5	22.2
19	IP2017	680	850	687	586	466	358	224	168	134	109	94	84	75	61.7	54.4	34.0	29.6
20	IP2021	850	1063	859	733	582	447	281	210	168	136	117	105	94	77.1	68.0	42.5	37.0
21	IP2025	1020	1275	1030	879	699	537	337	252	202	163	141	126	112	92.6	81.6	51.0	44.3
22	IP2031	1275	1594	1288	1099	873	671	421	315	252	204	176	157	140	115.7	102.0	63.8	55.4
23	IP2037	1530	1913	1545	1319	1048	805	505	378	302	245	211	189	169	138.8	122.4	76.5	66.5
24	IP2051	2040	2550	2061	1759	1397	1074	673	504	403	326	281	252	225	185.1	163.2	102.0	88.7
25	IP2063	2550	3188	2576	2198	1747	1342	842	630	504	408	352	315	281	231.4	204.0	127.5	110.9
26	IP2075	3060	3825	3091	2638	2096	1611	1010	756	605	490	422	378	337	277.7	244.8	153.0	133.0
27	IP2093	3825	4781	3864	3297	2620	2013	1262	944	756	612	528	472	421	347.1	306.0	191.3	166.3
28	IP2111	4590	5738	4636	3957	3144	2416	1515	1133	907	734	633	567	506	416.5	367.2	229.5	199.6
29	IP2124	5100	6375	5152	4397	3493	2684	1683	1259	1008	816	703	630	562	462.8	408.0	255.0	221.7
30	IP2148	6120	7650	6182	5276	4192	3221	2020	1511	1209	979	844	756	674	555.4	489.6	306.0	266.1

AMPERES TO 1.85ECV @ 27°C

AMARARAJA BATTERIES SPECIFICATIONS



Sl. No.	Cell type	Nominal Ah Capacity @ C10 at 27° C	Discharge Current in Amps															
			5 Min	10 Min	15 Min	30 Min	1 Hrs	2 Hrs	3 Hrs	4 Hrs	5 Hrs	6 Hrs	7 Hrs	8 Hrs	10 Hrs	12 Hrs	20 Hrs	24 Hrs
1	IP1009	300	349	280	238	181	147	91	68	55	44	38	36	31	25.0	22.0	13.4	11.8
2	IP1011	375	436	350	298	226	184	114	85	69	55	48	45	38	31.3	27.6	16.8	14.7
3	IP1013	450	523	421	357	271	221	136	102	82	66	57	54	46	37.6	33.1	20.1	17.6
4	IP1017	600	698	561	476	361	294	182	136	110	88	77	71	61	50.1	44.1	26.8	23.5
5	IP1021	750	872	701	595	452	368	227	170	137	110	96	89	76	62.6	55.1	33.5	29.4
6	IP1025	900	1047	841	714	542	441	273	205	165	132	115	107	92	75.1	66.1	40.2	35.3
7	IP1031	1125	1308	1051	893	678	551	341	256	206	165	143	134	114	93.9	82.7	50.3	44.1
8	IP1037	1350	1570	1262	1071	813	662	409	307	247	198	172	161	137	112.7	99.2	60.3	52.9
9	IP1051	1800	2093	1682	1429	1084	882	545	409	330	264	230	214	183	150.3	132.3	80.4	70.6
10	IP1063	2250	2616	2103	1786	1355	1103	682	511	412	330	287	268	229	187.8	165.3	100.5	88.2
11	IP1075	2700	3140	2523	2143	1627	1324	818	614	495	396	344	321	275	225.4	198.4	120.6	105.9
12	IP1093	3375	3924	3154	2679	2033	1654	1023	767	618	495	430	402	343	281.7	248.0	150.8	132.4
13	IP1111	4050	4709	3785	3214	2440	1985	1227	920	742	594	517	482	412	338.1	297.6	181.0	158.8
14	IP1124	4500	5233	4206	3571	2711	2206	1364	1023	824	660	574	536	458	375.6	330.6	201.1	176.5
15	IP1148	5400	6279	5047	4286	3253	2647	1636	1227	989	792	689	643	549	450.8	396.8	241.3	211.8
16	IP2009	340	395	318	270	205	167	103	77	62	50	43	40	35	28.4	25.0	15.2	13.3
17	IP2011	425	494	397	337	256	208	129	97	78	62	54	51	43	35.5	31.2	19.0	16.7
18	IP2013	510	593	477	405	307	250	155	116	93	75	65	61	52	42.6	37.5	22.8	20.0
19	IP2017	680	791	636	540	410	333	206	155	125	100	87	81	69	56.8	50.0	30.4	26.7
20	IP2021	850	988	794	675	512	417	258	193	156	125	108	101	86	71.0	62.5	38.0	33.3
21	IP2025	1020	1186	953	810	614	500	309	232	187	150	130	121	104	85.1	74.9	45.6	40.0
22	IP2031	1275	1483	1192	1012	768	625	386	290	234	187	163	152	130	106.4	93.7	57.0	50.0
23	IP2037	1530	1779	1430	1214	922	750	464	348	280	224	195	182	156	127.7	112.4	68.4	60.0
24	IP2051	2040	2372	1907	1619	1229	1000	618	464	374	299	260	243	208	170.3	149.9	91.2	80.0
25	IP2063	2550	2965	2383	2024	1536	1250	773	580	467	374	325	304	259	212.9	187.4	113.9	100.0
26	IP2075	3060	3558	2860	2429	1843	1500	927	695	560	449	390	364	311	255.4	224.8	136.7	120.0
27	IP2093	3825	4448	3575	3036	2304	1875	1159	869	701	561	488	455	389	319.3	281.0	170.9	150.0
28	IP2111	4590	5337	4290	3643	2765	2250	1391	1043	841	673	585	546	467	383.1	337.3	205.1	180.0
29	IP2124	5100	5930	4766	4048	3072	2500	1545	1159	934	748	651	607	519	425.7	374.7	227.9	200.0
30	IP2148	6120	7116	5720	4857	3687	3000	1855	1391	1121	897	781	729	623	510.9	449.7	273.5	240.0

AMPERES TO 1.90ECV @ 27°C

