

Datasheet



2CP180

Compact-Power Blockline™



Technical specifications

Type

2CP180

Part number

61010180


Electrical Data

Nominal voltage	2 V	
Number of cells	1	
Rated capacity C ₁₀ to 1.80 Vpc at 20 °C	181 Ah	
Rated capacity C ₈ to 1.75 Vpc at 25 °C	186 Ah	
Current/Power for 0.5 h back-up time 1.65 Vpc 20 °C	212 A	385 W
Current/Power for 1.0 h back-up time 1.67 Vpc 20 °C	125 A	234 W
Current/Power for 2.0 h back-up time 1.80 Vpc 20 °C	70.6 A	135 W
Current/Power for 4.0 h back-up time 1.80 Vpc 20 °C	41.4 A	79 W
Current/Power for 8.0 h back-up time 1.80 Vpc 20 °C	22.3 A	42 W
Current/Power for 10.0 h back-up time 1.80 Vpc 20 °C	18.1 A	33 W
Current/Power for 20.0 h back-up time 1.80 Vpc 20 °C	9.3 A	17 W
Conversion to capacity at 25 °C (77 °F)	20 °C Ah x 1.03 (t > 1 h)	
Internal resistance (± 10%) to IEC/EN 60896-21	0.48 mΩ	
Short circuit current (± 10%) to IEC/EN 60896-21	4.1 kA	
Self discharge at 20 °C to IEC/EN 60896-21	max. 3%/month	
Heat loss during float service at 20 °C	≈ 0.18 W	

Mechanical Data

Weight ready for use	18.5 kg	
Height of monobloc	283 mm	
Height over terminal connector	298 mm	
Width	177 mm	
Depth	205 mm	
Number of terminals	1⊕/1⊖	
Dimension of connector screw hole	M8	
Suggested/maximum cable cross-section	185 mm ²	
Connection torque	11 Nm	
Terminal insulation class according to IEC/EN 60529	IP20	
Diameter of diagnostic hole for voltage probe	2 mm Ø	
Connector (copper, tin-coated) rigid and insulated	90 mm ²	
Complete connector and terminal connection accessoires	available	

Environmental Data

Shelves, cabinets and racks	available upon request
Installation	vertically/horizontally
Distance for cooling and ventilation (preset with the rigid connectors)	10 mm
Flame retardancy rating case/cover according to Underwriters Laboratories (UL) USA	ABS – UL 94 HB (std.) ABS-PC – UL 94 V-0 with LOI > 32%, halogen-free
Flame barriers at vents	installed
UL file number 	MH 26065
Service life expected at 20 °C	15 years

Operating specifications

Figure 1



Figure 2

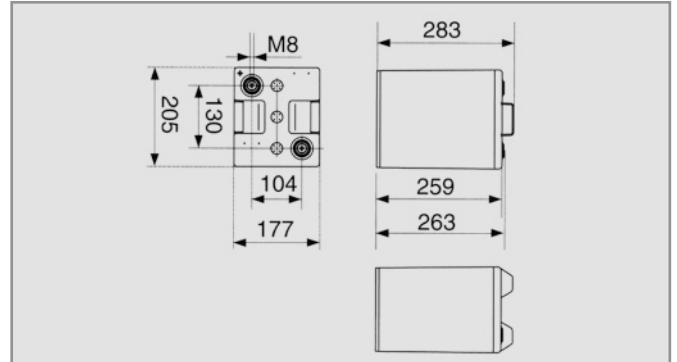
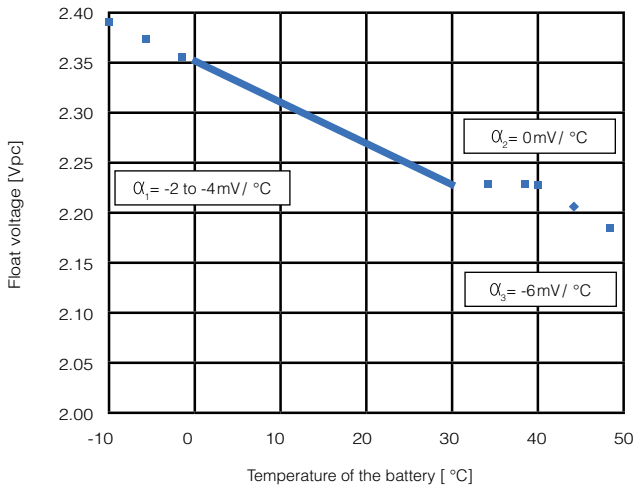


Figure 3



Temperature in °C	Temperature in °F	Percent of the rated capacity
40	104	104.8
35	95	104.2
30	86	103.6
25	77	103.0
20	68	100.0
15	59	97.0
10	50	94.0
5	41	90.0
0	32	84.7
-5	23	77.7
-10	14	69.4
-15	5	60.0
-20	-4	49.6
-25	-13	38.4
-30	-22	25.6
-35	-31	14.1
-40	-40	2.1

Battery installation and operation

Float voltage setting according to DIN 41773

Float voltage with daily discharge cycles

CC-CV charge current according to DIN 41773

Float voltage compensation in function of temperature

Boost charge

Air exchange

Preferred operating temperature range

Maximum long term operating temperature

Maximum short term operating temperature (for hours)

Minimum fully charged operating temperature

Stand-by mode with constant voltage float operation according to EN 50272-2:2001

2.25 Vpc ± 1% at 20 to 25 °C (68 to 77 °F)

2.29 Vpc - 2.30 Vpc (no correction factor needed)

unlimited, otherwise 3 · I₁₀ max. if T > 25 °C

-2 to -4 mV/°C or with profile as displayed figure 3

Not needed, if desirable then 2.35 Vpc and I₁₀ max. for 24 h max. at t < 30 °C

As a VRLA battery according to EN 50272-2:2001

$$Q = 0.05 \cdot N_{\text{cells}} \cdot I_{\text{gas}} \cdot C_{\text{Ah C10}} \cdot 10^{-3} \text{ [m}^3/\text{h]}$$

$$I_{\text{gas}} = 1 \text{ (at 2.25 Vpc)} \quad I_{\text{gas}} = 8 \text{ (at 2.40 Vpc)}$$

e.g. 48 V: 0.2172 m³/h = 7.67 cu.ft/h (at 2.25 Vpc)

Between 15 °C (68 °F) and 25 °C (77 °F)

+40 °C (104 °F) with ventilation assured (reduced service life)

+50 °C (122 °F) with ventilation assured (reduced service life)

-40 °C (-40 °F)



Discharge data

Constant current performance (in amps) to the defined end-of-discharge voltage

Voltage [Vpc]	Temp	Discharge time [Minutes]																						
		1-2	3	5	7	10	15	20	25	30	40	50	60	90	120	180	240	300	360	480	600	720	1200	1440
1.90	20 °C	266	259	247	234	215	189	169	153	140	121	107	96.9	76.1	63.4	48.0	38.8	32.4	27.8	21.6	17.6	14.8	9.2	7.8
	25 °C	274	267	254	241	221	195	174	158	144	125	110	100	78.4	65.3	49.4	40.0	33.4	28.6	22.2	18.1	15.2	9.5	8.0
1.87	20 °C	322	312	295	276	250	216	190	170	154	132	116	103	80.1	66.1	49.6	39.8	33.2	28.4	21.9	17.8	14.9	9.2	7.8
	25 °C	332	321	304	284	258	222	196	175	159	136	119	106	82.5	68.1	51.1	41.0	34.2	29.3	22.6	18.3	15.3	9.5	8.0
1.85	20 °C	361	349	328	305	273	233	203	181	163	138	120	107	82.3	67.7	50.5	40.3	33.5	28.6	22.0	17.9	15.0	9.3	7.9
	25 °C	372	359	338	314	281	240	209	186	168	142	124	110	84.8	69.7	52.0	41.5	34.5	29.5	22.7	18.4	15.5	9.6	8.1
1.84	20 °C	382	368	344	319	285	241	209	185	167	141	122	109	83.4	68.4	50.9	40.6	33.7	28.8	22.1	17.9	15.0	9.3	7.9
	25 °C	393	379	354	329	294	248	215	191	172	145	126	112	85.9	70.5	52.4	41.8	34.7	29.7	22.8	18.4	15.5	9.6	8.1
1.83	20 °C	402	387	361	333	296	249	215	190	171	143	124	111	84.3	69.0	51.2	40.8	33.9	28.9	22.2	18.0	15.1	9.3	7.9
	25 °C	414	399	372	343	305	256	221	196	176	147	128	114	86.8	71.1	52.7	42.0	34.9	29.8	22.9	18.5	15.6	9.6	8.1
1.82	20 °C	423	406	377	347	307	257	221	195	175	146	126	112	85.2	69.6	51.5	41.0	34.0	29.0	22.2	18.0	15.1	9.3	7.9
	25 °C	436	418	389	358	317	264	228	201	180	150	130	115	87.7	71.7	53.1	42.2	35.0	29.8	22.9	18.5	15.6	9.6	8.1
1.80	20 °C	464	444	410	375	329	272	232	203	181	151	130	115	86.7	70.6	52.1	41.4	34.2	29.1	22.3	18.1	15.2	9.3	7.9
	25 °C	478	458	422	386	339	280	239	209	187	155	134	118	89.3	72.7	53.6	42.6	35.3	30.0	23.0	18.6	15.6	9.6	8.1
1.77	20 °C	526	500	457	414	358	291	246	214	190	157	134	118	88.7	71.9	52.8	41.8	34.5	29.4	22.5	18.1	15.2	9.4	7.9
	25 °C	542	515	471	426	369	300	254	220	196	161	138	122	91.3	74.1	54.4	43.1	35.6	30.2	23.2	18.7	15.7	9.6	8.2
1.75	20 °C	566	537	487	438	377	303	255	220	195	160	137	120	89.7	72.6	53.2	42.0	34.7	29.5	22.5	18.2	15.2	9.4	7.9
	25 °C	583	553	502	451	388	312	262	227	201	165	141	124	92.4	74.8	54.8	43.3	35.7	30.4	23.2	18.7	15.7	9.6	8.2
1.72	20 °C	624	588	529	472	401	319	266	229	201	164	140	123	91.1	73.5	53.6	42.3	34.9	29.6	22.6	18.2	15.3	9.4	7.9
	25 °C	643	606	545	486	413	329	274	236	207	169	144	127	93.8	75.7	55.2	43.6	35.9	30.5	23.3	18.7	15.8	9.7	8.1
1.70	20 °C	660	620	555	492	416	328	272	233	205	167	142	124	91.8	73.9	53.9	42.5	35.0	29.7	22.7	18.3	15.3	9.4	7.9
	25 °C	680	639	572	507	428	338	280	240	211	172	146	128	94.6	76.2	55.5	43.8	36.1	30.6	23.4	18.8	15.8	9.7	8.2
1.67	20 °C	709	663	590	519	435	340	280	239	209	170	144	125	92.7	74.5	54.2	42.7	35.1	29.8	22.7	18.3	15.3	9.4	8.0
	25 °C	730	683	607	535	448	350	288	246	216	175	148	129	95.5	76.8	55.8	44.0	36.2	30.7	23.4	18.9	15.8	9.7	8.2
1.65	20 °C	737	688	609	534	445	346	284	242	212	171	145	126	93.2	74.8	54.3	42.8	35.2	29.8	22.8	18.3	15.3	9.4	8.0
	25 °C	759	709	627	550	458	356	293	249	218	176	149	130	96.0	77.0	55.9	44.1	36.3	30.7	23.5	18.9	15.8	9.7	8.2
1.63	20 °C	761	708	625	546	454	351	288	245	214	172	146	127	93.5	75.1	54.5	42.8	35.3	29.9	22.8	18.3	15.3	9.4	8.0
	25 °C	783	730	644	563	467	362	296	252	220	178	150	131	96.3	77.3	56.1	44.1	36.3	30.8	23.5	18.9	15.8	9.7	8.2
1.60	20 °C	786	731	642	560	463	357	291	247	216	174	147	128	93.9	75.3	54.6	42.9	35.3	29.9	22.8	18.4	15.4	9.4	8.0
	25 °C	810	753	662	576	477	368	300	255	222	179	151	132	96.7	77.6	56.2	44.2	36.4	30.8	23.5	18.9	15.8	9.7	8.2

Constant power performance (in watt per cell) to the defined end-of-discharge voltage

Voltage [Vpc]	Temp	Discharge time [Minutes]																						
		1-2	3	5	7	10	15	20	25	30	40	50	60	90	120	180	240	300	360	480	600	720	1200	1440
1.90	20 °C	511	497	474	448	411	360	321	291	267	231	205	185	146	122	93.0	75.0	62.0	53.0	40.0	33.0	27.0	16.0	14.0
	25 °C	526	512	488	461	423	371	331	300	275	238	211	191	150	126	95.8	77.3	63.9	54.6	41.2	34.0	27.8	16.5	14.4
1.87	20 °C	610	591	558	522	473	407	358	321	292	249	219	197	153	127	95.0	76.0	63.0	54.0	41.0	33.0	27.0	17.0	14.0
	25 °C	628	609	575	538	487	419	369	331	301	256	226	203	158	131	97.9	78.3	64.9	55.6	42.2	34.0	27.8	17.5	14.4
1.85	20 °C	679	655	614	571	512	436	381	339	307	260	228	203	157	130	97.0	77.0	64.0	54.0	41.0	33.0	28.0	17.0	14.0
	25 °C	699	675	632	588	527	449	392	349	316	268	235	209	162	134	100	79.3	65.9	55.6	42.2	34.0	28.8	17.5	14.4
1.84	20 °C	713	686	642	595	532	450	391	347	313	265	231	206	159	131	97.7	77.8	64.3	54.5	41.4	33.2	27.6	16.6	14.0
	25 °C	734	707	661	613	548	463	403	358	323	273	238	213	164	135	101	80.1	66.2	56.2	42.7	34.2	28.4	17.1	14.4
1.83	20 °C	747	718	669	618	550	463	401	355	320	269	235	209	161	132	98.3	78.1	64.5	54.7	41.5	33.2	27.6	16.6	14.0
	25 °C	769	739	690	637	567	477	413	366	329	277	242	215	165	136	101	80.5	66.5	56.4	42.8	34.2	28.5	17.1	14.4
1.82	20 °C	780	749	696	641	568	476	411	363	326	274	238	212	162	133	99.0	78.0	65.0	55.0	42.0	33.0	28.0	17.0	14.0
	25 °C	803	771	717	660	585	490	423	374	336	282	245	218	167	137	102	80.3	67.0	56.7	43.3	34.0	28.8	17.5	14.4
1.80	20 °C	846	810	748	685	603	500	428	376	337	281	244	216	165	135	100	79.0	65.0	55.0	42.0	33.0	28.0	17.0	14.0
	25 °C	871	834	770	706	621	515	441	387	347	289	251	222	170	139	103	81.4	67.0	56.7	43.3	34.0	28.8	17.5	14.4
1.77	20 °C	941	896	821	746	649	531	451	394	351	291	251	222	168	137	101	80.0	66.0	56.0	42.0	34.0	28.0	17.0	14.0
	25 °C	969	923	846	768	668	547	465	406	362	300	259	229	173	141	104	82.4	68.0	57.7	43.3	35.0	28.8	17.5	14.4
1.75	20 °C	1000	949	866	783	677	550	464	404	359	297	255	225	170	138	102	80.0	66.0	56.0	42.0	34.0	28.0	17.0	14.0
	25 °C	1030	977	892	806	697	567	478	416	370	306	263	232	175	142	105	82.4	68.0	57.7	43.3	35.0	28.8	17.5	14.4
1.72	20 °C	1082	1023	927	832	713	573	481	417	369	303	260	229	172	140	102	81.0	66.0	56.0	42.0	34.0	28.0	17.0	14.0
	25 °C	1114	1054	955	857	734	590	495	430	380	312	268	236	177	144	105	83.4	68.0	57.7	43.3	35.0	28.8	17.5	14.4
1.70	20 °C	1131	1067	963	861	734	587	491	424	374	307	263	231	173	141	103	81.0	66.0	56.0	42.0	34.0	28.0	17.0	14.0
	25 °C	1165	1099	992	887	756	605	506	437	385	316	271	238	178	145	106	83.4	68.0	57.7	43.3	35.0	28.8	17.5	14.4
1.67	20 °C	1195	1123	1009	898	761	604	502	432	381	312	266	234	175	141	103	81.0	67.0	56.0	42.0	34.0	28.0	17.0	14.0
	25 °C	1231	1157	1039	925	784	622	517	445	392	321	274	241	180	145	106	83.4	69.0	57.7	43.3	35.0	28.8	17.5	14.4
1.65	20 °C	1229	1153	1033	917	774	612	508	437	385	314	268	235	175	142	104	81							