oerlikon batteries

Datasheet

12CP39

Compact-Power Blockline™

Technical specifications

Type	12CP39	
Part number	66070039	
Electrical Data		
Nominal voltage	12 V	
Number of cells	6	
Rated capacity C_{10} to 1.80 Vpc at 20 °C	39 Ah	
Rated capacity C_8 to 1.75 Vpc at 25 °C	39 Ah	
Current/Power for 0.5 h back-up time 1.65 Vpc 20 °C	46.9 A	520.8 W
Current/Power for 1.0 h back-up time 1.67 Vpc 20 °C	27.0 A	304.2 W
Current/Power for 2.0 h back-up time 1.80 Vpc 20 °C	14.9 A	169.8 W
Current/Power for 4.0 h back-up time 1.80 Vpc 20 °C	8.5 A	97.2 W
Current/Power for 8.0 h back-up time 1.80 Vpc 20 °C	4.8 A	55.2 W
Current/Power for 10.0 h back-up time 1.80 Vpc 20 °C	3.9 A	46.2 W
Current/Power for 20.0 h back-up time 1.80 Vpc 20 °C	2.1 A	25.2 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	7.0 mΩ	
Short circuit current (± 10%) to IEC/EN 60896-21	1.7 kA	
Self discharge at 20 °C to IEC/EN 60896-21	max. 3%/month	
Heat loss during float service at 20 °C	≈ 0.23 W	
Mechanical Data		
Weight ready for use	22.0 kg	
Height of monobloc	197 mm	
Height over terminal connector	221 mm	
Width	178 mm	
Depth	234 mm	
Number of terminals	1⊕/1⊖	
Dimension of connector screw hole	M5	
Suggested/maximum cable cross-section	50 mm²/70 mm² *)	
Connection torque	5 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	50 mm²	
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	
Flame barriers at vents	installed	
UL file number ®	MH 26065	
Service life expected at 20 °C	15 years	

*) for UPS duties the connecting cables must be dimensioned specially

Operating specifications

Figure 1

Figure 2

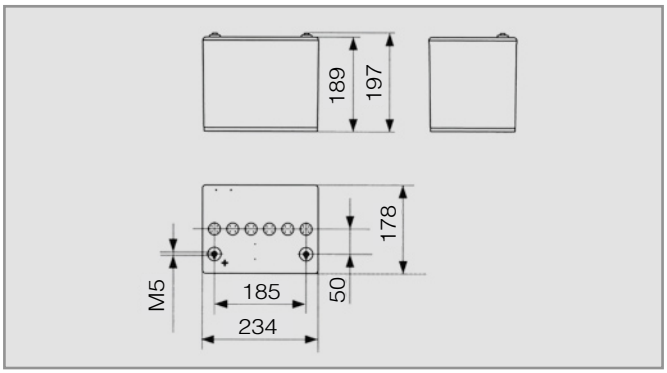
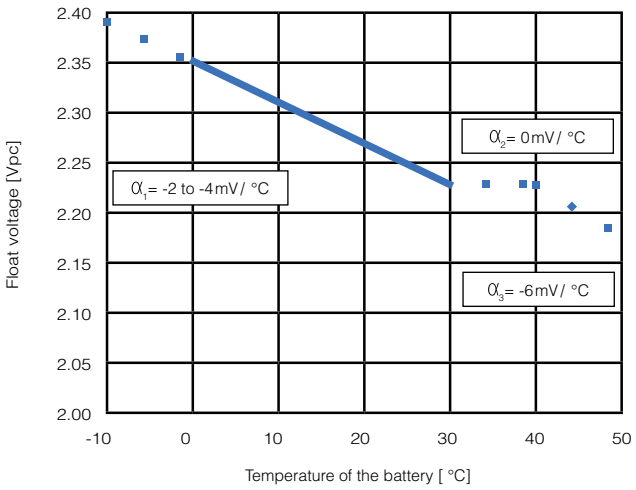


Figure 3



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	Stand-by mode with constant voltage float operation according to EN 50272-2:2001
Float voltage setting according to DIN 41773	2.25 Vpc ± 1% at 20 to 25 °C (68 to 77 °F)
Float voltage with daily discharge cycles	2.29 Vpc - 2.30 Vpc (no correction factor needed)
CC-CV charge current according to DIN 41773	unlimited, otherwise 3 · I_{10} max. if T > 25 °C
Float voltage compensation in function of temperature	-2 to -4 mV/°C or with profile as displayed figure 3
Boost charge	Not needed, if desirable then 2.35 Vpc and I_{10} max. for 24 h max. at t < 30 °C
Air exchange	As a VRLA battery according to EN 50272-2:2001 $Q=0.05 \cdot N_{cells} \cdot I_{gas} \cdot C_{Ah\,C10} \cdot 10^{-3}$ [m³/h] I_{gas}= 1 (at 2.25 Vpc) I_{gas} = 8 (at 2.40 Vpc) e.g. 48 V: 0.0468 m³/h = 1.65 cu.ft/h (at 2.25 Vpc)
Preferred operating temperature range	Between 15 °C (68 °F) and 25 °C (77 °F)
Maximum long term operating temperature	+40 °C (104 °F) with ventilation assured (reduced service life)
Maximum short term operating temperature (for hours)	+50 °C (122 °F) with ventilation assured (reduced service life)
Minimum fully charged operating temperature	-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	104	88.5	79.4	72.2	63.8	53.6	46.4	41.0	36.9	30.8	26.6	23.5	17.6	14.2	10.4	8.3	6.9	5.9	4.7	3.9	3.3	2.1	1.8
	25 °C	107	91.2	81.8	74.4	65.7	55.2	47.8	42.2	38.0	31.7	27.4	24.2	18.1	14.6	10.7	8.6	7.1	6.1	4.8	4.0	3.4	2.2	1.9
1.87	20 °C	122	102	89.7	80.7	70.3	58.1	49.7	43.6	39.0	32.3	27.7	24.3	18.0	14.5	10.5	8.4	7.0	6.0	4.7	3.9	3.3	2.1	1.8
	25 °C	126	105	92.4	83.1	72.4	59.8	51.2	44.9	40.2	33.3	28.5	25.0	18.5	14.9	10.8	8.7	7.2	6.2	4.8	4.0	3.4	2.2	1.9
1.85	20 °C	135	110	96.4	86.0	74.3	60.8	51.7	45.2	40.2	33.1	28.3	24.8	18.3	14.6	10.6	8.4	7.0	6.0	4.7	3.9	3.3	2.1	1.8
	25 °C	139	113	99.3	88.6	76.5	62.6	53.3	46.6	41.4	34.1	29.2	25.5	18.9	15.0	10.9	8.7	7.2	6.2	4.8	4.0	3.4	2.2	1.9
1.84	20 °C	141	114	100	88.6	76.2	62.1	52.7	45.9	40.7	33.5	28.5	25.0	18.4	14.7	10.7	8.4	7.0	6.0	4.7	3.9	3.4	2.1	1.8
	25 °C	145	117	103	91.3	78.5	64.0	54.3	47.3	41.9	34.5	29.4	25.8	19.0	15.1	11.0	8.7	7.2	6.2	4.8	4.0	3.5	2.2	1.9
1.83	20 °C	148	119	103	91.2	78.1	63.4	53.6	46.5	41.3	33.8	28.8	25.2	18.5	14.8	10.7	8.5	7.0	6.0	4.7	3.9	3.4	2.1	1.8
	25 °C	152	123	106	93.9	80.4	65.3	55.2	47.9	42.5	34.8	29.7	26.0	19.1	15.2	11.0	8.8	7.2	6.2	4.8	4.0	3.5	2.2	1.9
1.82	20 °C	154	123	106	93.6	79.9	64.5	54.4	47.2	41.7	34.1	29.0	25.4	18.6	14.8	10.7	8.5	7.1	6.1	4.8	3.9	3.4	2.1	1.8
	25 °C	159	127	109	96.4	82.3	66.5	56.0	48.6	43.0	35.2	29.9	26.1	19.2	15.3	11.0	8.7	7.3	6.2	4.9	4.0	3.5	2.2	1.9
1.80	20 °C	167	131	112	98.2	83.2	66.7	55.9	48.3	42.6	34.7	29.5	25.7	18.8	14.9	10.8	8.5	7.1	6.1	4.8	3.9	3.4	2.1	1.8
	25 °C	172	135	115	101	85.7	68.7	57.6	49.8	43.9	35.8	30.4	26.5	19.3	15.4	11.1	8.8	7.3	6.3	4.9	4.1	3.5	2.2	1.9
1.77	20 °C	186	142	120	105	87.7	69.5	57.9	49.8	43.8	35.5	30.0	26.1	19.0	15.1	10.9	8.6	7.1	6.1	4.8	3.9	3.4	2.1	1.8
	25 °C	192	147	124	108	90.4	71.6	59.6	51.3	45.1	36.6	30.9	26.9	19.6	15.5	11.2	8.8	7.3	6.3	4.9	4.1	3.5	2.2	1.9
1.75	20 °C	199	150	125	108	90.4	71.2	59.1	50.6	44.4	35.9	30.3	26.3	19.1	15.2	10.9	8.6	7.1	6.1	4.8	4.0	3.4	2.1	1.8
	25 °C	205	154	129	112	93.1	73.4	60.8	52.2	45.8	37.0	31.2	27.1	19.7	15.6	11.2	8.8	7.3	6.3	4.9	4.1	3.5	2.2	1.9
1.72	20 °C	217	160	132	114	94.0	73.4	60.6	51.8	45.3	36.5	30.7	26.6	19.3	15.3	10.9	8.6	7.1	6.1	4.8	4.0	3.4	2.2	1.8
	25 °C	223	165	136	117	96.8	75.6	62.4	53.3	46.7	37.6	31.6	27.4	19.8	15.7	11.3	8.9	7.4	6.3	4.9	4.1	3.5	2.2	1.9
1.70	20 °C	229	166	137	117	96.2	74.8	61.5	52.4	45.8	36.8	30.9	26.8	19.4	15.3	11.0	8.6	7.2	6.1	4.8	4.0	3.4	2.2	1.8
	25 °C	236	171	141	120	99.1	77.0	63.3	54.0	47.2	37.9	31.9	27.6	19.9	15.8	11.3	8.9	7.4	6.3	4.9	4.1	3.5	2.2	1.9
1.67	20 °C	247	176	143	121	99.2	76.6	62.7	53.3	46.5	37.3	31.3	27.0	19.5	15.4	11.0	8.7	7.2	6.2	4.8	4.0	3.4	2.2	1.8
	25 °C	254	181	147	125	102	78.9	64.6	54.9	47.9	38.4	32.2	27.8	20.1	15.9	11.3	8.9	7.4	6.3	5.0	4.1	3.5	2.2	1.9
1.65	20 °C	259	182	147	124	101	77.7	63.4	53.8	46.9	37.5	31.4	27.2	19.5	15.4	11.0	8.7	7.2	6.2	4.8	4.0	3.4	2.2	1.8
	25 °C	267	187	151	128	104	80.0	65.4	55.4	48.3	38.6	32.4	28.0	20.1	15.9	11.4	8.9	7.4	6.3	5.0	4.1	3.5	2.2	1.9
1.63	20 °C	270	187	151	127	103	78.7	64.1	54.3	47.3	37.7	31.6	27.3	19.6	15.5	11.1	8.7	7.2	6.2	4.8	4.0	3.4	2.2	1.8
	25 °C	279	193	155	131	106	81.1	66.0	55.9	48.7	38.9	32.5	28.1	20.2	15.9	11.4	8.9	7.4	6.4	5.0	4.1	3.5	2.2	1.9
1.60	20 °C	286	195	155	130	105	80.0	65.0	54.9	47.7	38.0	31.8	27.4	19.7	15.5	11.1	8.7	7.2	6.2	4.8	4.0	3.4	2.2	1.8
	25 °C	295	200	160	134	108	82.4	66.9	56.6	49.1	39.2	32.8	28.3	20.3	16.0	11.4	9.0	7.4	6.4	5.0	4.1	3.5	2.2	1.9

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	201	171	154	139	123	103	89.0	78.7	70.5	58.8	50.8	44.8	33.5	27.0	19.8	15.8	13.2	11.3	9.0	7.5	6.5	4.2	3.5
	25 °C	207	176	158	144	127	106	91.7	81.0	72.6	60.6	52.4	46.2	34.5	27.8	20.4	16.3	13.6	11.7	9.3	7.7	6.7	4.3	3.6
1.87	20 °C	234	194	172	154	134	111	94.8	83.2	74.2	61.3	52.7	46.2	34.3	27.5	20.0	16.0	13.3	11.5	9.0	7.5	6.5	4.2	3.5
	25 °C	241	200	177	159	138	114	97.7	85.7	76.4	63.2	54.2	47.6	35.4	28.3	20.6	16.5	13.7	11.8	9.3	7.7	6.7	4.3	3.6
1.85	20 °C	256	209	183	163	141	116	98.2	85.7	76.2	62.8	53.7	47.0	34.7	27.8	20.2	16.0	13.3	11.5	9.2	7.5	6.5	4.2	3.5
	25 °C	263	215	188	168	145	119	101	88.2	78.5	64.7	55.3	48.4	35.7	28.7	20.8	16.5	13.7	11.8	9.4	7.7	6.7	4.3	3.6
1.84	20 °C	266	216	188	168	144	118	100	86.9	77.1	63.4	54.1	47.3	34.9	27.9	20.3	16.1	13.4	11.6	9.1	7.6	6.5	4.2	3.6
	25 °C	274	223	194	173	149	121	103	89.5	79.4	65.3	55.7	48.8	35.9	28.8	20.9	16.6	13.8	11.9	9.4	7.8	6.7	4.3	3.7
1.83	20 °C	277	223	194	172	147	120	101	87.9	78.0	64.0	54.5	47.7	35.1	28.0	20.3	16.1	13.5	11.6	9.1	7.6	6.5	4.2	3.6
	25 °C	285	230	199	177	152	123	104	90.6	80.3	65.9	56.1	49.1	36.1	28.9	21.0	16.6	13.9	11.9	9.4	7.8	6.7	4.3	3.7
1.82	20 °C	287	230	199	176	150	122	103	89.0	78.8	64.5	54.8	48.0	35.2	28.2	20.3	16.2	13.5	11.7	9.2	7.5	6.5	4.2	3.5
	25 °C	296	237	205	181	155	125	106	91.7	81.2	66.4	56.5	49.4	36.2	29.0	20.9	16.7	13.9	12.0	9.4	7.7	6.7	4.3	3.6
1.80	20 °C	308	243	208	183	156	125	105	90.8	80.3	65.5	55.7	48.5	35.5	28.3	20.5	16.2	13.5	11.7	9.2	7.7	6.5	4.2	3.5
	25 °C	317	250	214	189	160	129	108	93.6	82.7	67.5	57.3	50.0	36.6	29.2	21.1	16.7	13.9	12.0	9.4	7.9	6.7	4.3	3.6
1.77	20 °C	337	260	221	193	163	130	108	93.2	82.2	66.7	56.5	49.2	35.8	28.5	20.7	16.3	13.5	11.7	9.2	7.7	6.5	4.2	3.5
	25 °C	347	268	228	199	168	133	111	96.0	84.6	68.7	58.2	50.6	36.9	29.4	21.3	16.8	13.9	12.0	9.4	7.9	6.7	4.3	3.6
1.75	20 °C	355	271	229	199	167	132	110	94.5	83.2	67.3	57.0	49.5	36.0	28.7	20.7	16.3	13.7	11.7	9.2	7.7	6.5	4.2	3.5
	25 °C	365	279	236	205	172	136	113	97.3	85.7	69.4	58.7	51.0	37.1	29.5	21.3	16.8	14.1	12.0	9.4	7.9	6.7	4.3	3.6
1.72	20 °C	381	286	239	207	172	136	112	96.3	84.5	68.3	57.7	50.0	36.3	28.8	20.8	16.3	13.7	11.7	9.2	7.7	6.5	4.2	3.5
	25 °C	392	295	247	213	178	140	116	99.2	87.0	70.4	59.4	51.5	37.4	29.7	21.5	16.8	14.1	12.0	9.4	7.9	6.7	4.3	3.6
1.70	20 °C	397	295	246	212	176	138	114	97.3	85.3	68.8	58.0	50.3	36.5	29.0	20.8	16.5	13.7	11.7	9.2	7.7	6.5	4.2	3.5
	25 °C	409	304	253	218	181	142	117	100	87.9	70.9	59.7	51.8	37.6	29.9	21.5	17.0	14.1	12.0	9.4	7.9	6.7	4.3	3.6
1.67	20 °C	420	308	254	218	180	140	116	98.7	86.3	69.5	58.5	50.7	36.7	29.0	20.8	16.5	13.7	11.8	9.2	7.7	6.5	4.2	3.5
	25 °C	433	317	262	225	185	145	119	102	88.9	71.6	60.3	52.2	37.8	29.9	21.5	17.0	14.1	12.2	9.4	7.9	6.7	4.3	3.6
1.65	20 °C	435	316	260	222	183	142	117	99.5	86.8	69.8	58.7	50.8	36.8	29.2	20.8	16.5	13.7	11.8	9.2	7.7	6.5	4.2	3.5
	25 °C	448	325	267	228	188	146	120	102	89.4	71.9	60.4	52.4	37.9	30.0	21.5	17.0	14.1	12.2	9.4	7.9	6.7	4.3	3.6
1.63	20 °C	448	323	264	225	185	143	118	100	87.3	70.2	59.0	51.0	36.8	29.2	21.0	16.5	13.7	11.8	9.2	7.7	6.5	4.2	3.5
	25 °C	461	332	272	232	190	148	121	103	90.0	72.3	60.8	52.5	37.9	30.0	21.6	17.0	14.1	12.2	9.4	7.9	6.7	4.3	3.6
1.60	20 °C	467	332	271	230	188	145	119	101	88.2	70.7	59.3	51.3	37.0	29.2	21.0	16.5	13.7	11.8	9.3	7.7	6.5	4.2	3.5
	25 °C	481	342	279	237	194	150	122	104	90.8	72.8	61.1	52.9	38.1	30.0	21.6	17.0	14.1	12.2	9.6	7.9	6.7	4.3	3.6