Narada® *Reliable Battery Solutions*

LFP (Lithium-Ion) 48NFPC100-19-3U-16S-2DC

Narada HELiION™ NPFC series 51.2V LFP battery modules are ideally suited for telecom base station, OSP, and renewable energy applications with a max charge voltage of 58.4V

NPFC series offer long cycle life, small size, reduced weight, and simplified installation as 19”/23” rack mountable modules.

NPFC LFP chemistry makes it one of the safest technologies, suitable for high and low temperature operation and capable of 1C and higher discharge rates.

Technical Features:

- Simple installation and load/charge system integration (Pos/Neg termination)
- Advanced intelligent lithium battery management technology
- Energy transfer patented technology provides high cell utilization efficiency for prolong system operational life.
- Configuration flexibility, support parallel connection expansion up to 16 modules

BMS – Alarming - Communication

- System monitoring of voltage, current, temperature of cells and module. Built in protection against; over-current on discharge and recharge, over-temperature, low temperature, low and high voltage, and short circuit.
- BMS maintenance and service communication via RS485 along with Modbus for simple interface with Inverters and other equipment.
- 2 levels of remote alarming through dry contacts

Compliance

UL1642, Standard for Lithium Batteries

UL2054, Standard for Household and Commercial Batteries

EN 61000-6-1:2007, Electromagnetic compatibility (EMC)

EN 61000-6-3:2007+A1:2011, Electromagnetic compatibility (EMC)

IEC 62133:2012, Battery Safety Testing

UL1973

NEBS Level 1 Certified GR-1089 / GR-63 up to 80Ah

UN3800

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Dimensions and Specifications

V	Ah 8hr to 42V 25C	Ah 1hr to 42V 25C	Max Discharge Current (A)	Width		Depth		Height		Rack Units	Weight		Terminal
				(mm)	(in.)	(mm)	(in.)	(mm)	(in.)		(kg)	(lbs.)	
48	99.4	95.0	100	443	17.42	400	15.8	133	5.24	3U	42	92.4	M6

Parallel Operation Max Strings / Discharge Rate

48NPFC100	0.5C to 1C 4 Strings		0.5C to 0.2C 6 Strings	0.2C < 8 Strings

BMS/Battery Operating Parameters

Parameters	Units	Value
Charge voltage	V	57.9 ±0.5
Equalization charge voltage	V	NA
Nominal charge current	A	0.2C
Charge current limitation	A	1.0C
Equalization charge interval	day	NA
Equalization charge duration	H	NA
Equalization charge	A	NA
Condition to float charge	A	0.05C
LVBD (Low voltage battery disconnect)	V	> 43.2
Temperature compensation (float charge)	-mV/℃	NA
Temperature compensation (equalization charge)	-mV/℃	NA

Operating Environment Limits

Maximum Recommended Temperature Range (℃)	Discharge	-20 ~ +60
	Charge	0 ~ +60
	Storage	0 ~ +40
Recommended Temperature (℃)	Discharge	+15 ~ + 35
	Charge	+15 ~ + 35
	Storage	+15 ~ + 30
Humidity		5% ~ 95%

Over Temperature Protection	High temp. - charge	70±3℃
	Recover temp. - charge	60±3℃
	High temp .- discharge	70±3℃
	Recover temp. - discharge	60±3℃
	Low temp.- charge	0±3℃
	Recover temp. - charge	5±3℃
	Low temp. - discharge	-10±3℃
	Recover temp. - discharge	0±3℃

Constant Current Rates @25C in Hours (Amps)

End	10	8	5	4	3.5	2.5	2	1.5	1
49.6	9.6	12	19	22.2	23.8	35.6	42	55.4	68.8
48.0	9.8	12.2	19.4	22.6	24.2	38.2	47	67.4	87.8
47.0	9.8	12.2	19.6	23	24.6	38.8	47.8	69.2	90.4
46.4	10	12.4	19.8	23.2	24.8	39.2	48.6	70.8	92.8
44.8	10	12.4	19.8	23.2	24.8	39.6	49.2	72.2	95
43.2	10	12.6	20	23.4	25	40	49.8	73.2	96.4

Constant Power Rates @25C in Hours (Watts)

End	10	8	5	4	3.5	2.5	2	1.5	1
49.6	523	640	1024	1302	1440	1398	2347	3017	4126
48.0	534	655	1048	1334	1477	1455	2490	3273	4751
47.0	536	660	1054	1342	1485	1464	2520	3305	4830
46.4	538	664	1061	1351	1494	1472	2543	3331	4894
44.8	542	668	1067	1359	1507	1487	2560	3386	4980
43.2	544	670	1074	1366	1513	1496	2580	3416	5010

Cycles - Temperature vs. Depth of Discharge

	Depth of Discharge (DoD)				
Temp (°C)	**100%**	**80%**	**60%**	**40%**	**20%**
25	2000	3500	6000	12000	24000
35	1600	2800	4800	9600	19200
45	1200	2100	3600	7200	14400

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