

Technical Data Sheet

EZP06DC005 Series Battery Charger



6 Watt VARTA EasyPack battery charger

Features:

- 1 bay desktop charger suitable for charging VARTA Microbattery EasyPack Lithium Polymer batteries
- Integrated AC/DC switch mode power supply
- Pulse charging method
- 4.2V charging voltage
- 1A maximum charging current
- Battery temperature monitoring
- Resistor based battery identification

Applications:

- Standard charging station for VARTA EasyPack battery packs for mobile devices used in industry and customer areas

Specification

Input	
Voltage range	100 – 240VAC
Frequency range	50/60Hz
Input current	0.2A max. (@ 100VAC)
Standby power	0.3W max.
Input fuse	800mA

Output	
Voltage range	0 - 4.2VDC nom.
Power	6W max.
Current	0 - 1A nom.
Voltage tolerance ⁽²⁾	±1% max.
Current tolerance ⁽²⁾	±10% max.
Leakage current ⁽⁴⁾	< 250µA
Ripple & Noise ⁽¹⁾	< 120mV _{pk-pk}
Protection	Short circuit Over temperature shutdown Input/output over current protection Reverse polarity

Environmental	
Cooling	convection cooled
Temperature	Operating: 0°C to 40°C Non-operating -40°C to 70°C
Pressure & altitude	Operating: 1060hPa to 795hPa, -382m to 2000m Non-operating: 1060hPa to 572hPa, -382m to 4570m
Humidity	5 to 90% r.H., non-condensing

General	
Battery Adapter ⁽⁵⁾	EZP S – 3.7V, EZP M – 3.7V, EZP L – 3.7V, EZP XL – 3.7V
Input connector	IEC60320 , C8 (2-pin)
Efficiency ⁽³⁾	typical 80% at 100% load
MTBF	> 20000h at 25°C and full load per MIL-HDBK 217F
Green procurement	RoHS WEEE China RoHS
Indicator	LED (green, orange, red)

Charge and termination methods		
Maximum Charge		The charger will automatically charge at 1C up to a maximum of 1A whichever is smaller.
LiIon / LiPolymer	Fast Charge / Top-off Charge	Charger uses the Pulse charging method: when battery voltage is above 3.06V, charger is fast-charging (LED is orange) until the on/off duty cycle falls to 1/8. Then charger indicates that the battery is charged to approximately 95% of full capacity and goes in top-off charge (LED still is orange).
Further cut off criteria	Timer TCO	Terminate the charge process based on a safety timer. Charge process stops if the temperature is out of a specified safety window.

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Charge phases and Indicators		LED - Indicators (dual LED: green / red)		
Charge phase	Description	Green	Orange	Red
No battery	No battery connected, power on	ON		
Pre-charge	0V < battery voltage < 3.06V ($\pm 1\%$) pre-charge / pre-qualification / wake-up charge: I = 15mA for a max. period of 40 minutes		FLASHES	
Fast charge	3.06V ($\pm 1\%$) < battery voltage < 4.18V ($\pm 1\%$) fast charge: I = I _{out} (500mA to 1A depending on ID), pulse-charging → if no EZP-ID is founded: I ≤ 550mA, pulse-charging		ON	
Top-off charge	4.18V ($\pm 1\%$) < Battery voltage < 4.20V ($\pm 1\%$) trickle charge (top-off): I = I _{out} (500mA to 1A), reduced pulse frequency (Fast-charge + Top-off-charge = max. 6 hours).		ON	
Standby / Battery full	Battery cell full (4.2V, $\pm 1\%$) no charge current: I = 0A	ON		
Failure	1. Battery with defective NTC 2. Pre-charge timeout (40min) is reached and battery voltage remains under 3.06V 3. Battery Temperature fault T < 0°C or T > 45°C 4. Bad contact between charger and battery 5. Fast-/Top-off-charge timeout (max. 6hours) is reached and battery voltage remains under 4.2V In all these cases, charge current I = 0A			FLASHES
Other	Power off or charger broken	OFF	OFF	OFF

Safety & EMC		
Regulatory approvals	Europe USA, Canada Japan	CE (EN 60950-1) cETLus PSE
Electromagnetic emissions	Europe USA International	EN55022, class B FCC part15, class B CISPR 22, class B
Electromagnetic Immunity	ESD immunity Electromagnetic field immunity EFT / Burst Surge Conducted Immunity	EN61000-4-2, 4kV/8kV (contact/air) EN61000-4-3, 3V/m EN61000-4-4, 2kV EN61000-4-5, 1kV EN61000-4-6, 10V
Insulation class		II

Mechanical Details	
Housing dimensions (LxWxH)	115 x 68 x 41 mm
Weight	210 g (inc. cables & connectors)

- Notes:**
- Ambient temperature T_A = 20°C unless otherwise noted.
 - Load regulation is measured at the charger battery contacts.
 - 1. Measured with a 0.1µF ceramic and a 10µF electrolytic capacitors across the output terminals. The oscilloscope bandwidth is set at 20MHz a co-axial cable will be used to measure it. The test condition is maximum load.
 - 2. Total regulation tolerance includes initial set accuracy, line and load regulation
 - 3. Power losses of input and output cables are not considered here.
 - 4. The rms method is used for leakage current measurements.
 - 5. All 4 battery adapters are part of the packing unit.

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