



XTB1056

1A/28V Fully Integrated Linear Charger for Single Cell Li-ion Battery

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1A/28V Single Cell Li-ion Battery Linear Charger

DESCRIPTION

The XTB1056 is a cost-effective, high-integration linear charger for single cell Li-ion or Li-ion polymer batteries. The device support CC/CV charge from either USB port or AC adapter. Low BOM component requirement makes the whole system small in size. The charger accepts an input voltage up to 28V but is disabled when the input voltage exceeds the OVP threshold. The 28V rating eliminates the over-voltage protection circuit required in a low input voltage charger.

The charge current and the end-of-charge current are programmable with external resistors. When the battery voltage is lower than typically 2.6V, the charger preconditions the battery with typically 20% of the programmed charge current.

The XTB1056 implements two indication pins, $\overline{\text{PPR}}$ and $\overline{\text{CHG}}$, allowing connection to micro-controller or LED to show device status. With open-drain structure, $\overline{\text{PPR}}$ pin stays low while input voltage is within operation range, and $\overline{\text{CHG}}$ stays low during charging state, else pins are in the high impedance state.

The XTB1056 features thermal fold-back function to limit the charge current and protect the device from over junction temperature fault. The XTB1056 also integrates current monitor, UVLO, OVP function to prevent device from damage.

FEATURES

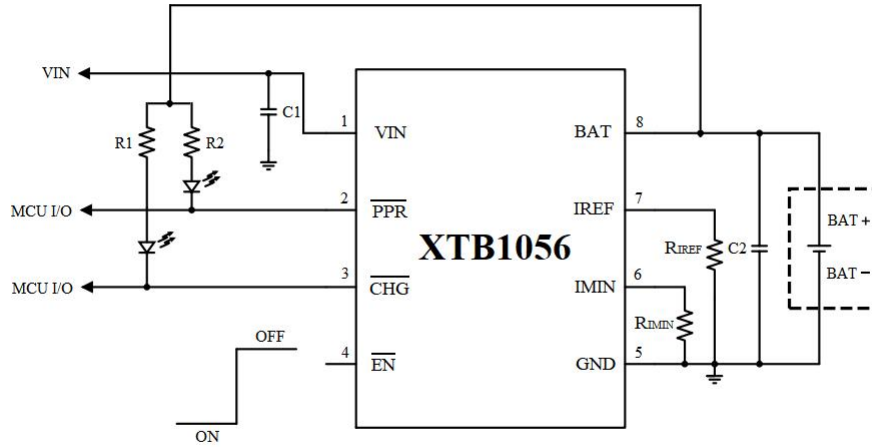
- Single-Chip for 1-cell Li-ion or Polymer Battery
- Constant-Current/Constant-Voltage Battery Charge
- No External MOSFET, Current Sensor or Diode Required
- Low Component Count and Cost
- Programmable Charge Current
- Programmable End-of-Charge Current
- Charging Current Monitor and Thermal Fold-back
- 2.6V Trickle Charge Threshold
- With 6.8V or 10.5V Input Over-Voltage Protection
- 28V Maximum Voltage for the Power Input
- Input-based dynamic power management (VIN-DPM)
- Short-circuit Protection
- Protection of Reverse Connection of Battery
- Power Presence and Charge Indications
- Soft start for Inrush Current Limitation
- Automatic Battery Recharge
- Operation Temperature: -40°C~+85°C
- Package options: DFN-2×2-8L and ESOP-8

APPLICATIONS

- ◇ Mobile Phones
- ◇ Portable Devices
- ◇ Wireless Devices, Bluetooth Headset
- ◇ Personal Electronics, Personal Healthcare
- ◇ Wearable Device

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TYPICAL APPLICATION CIRCUIT



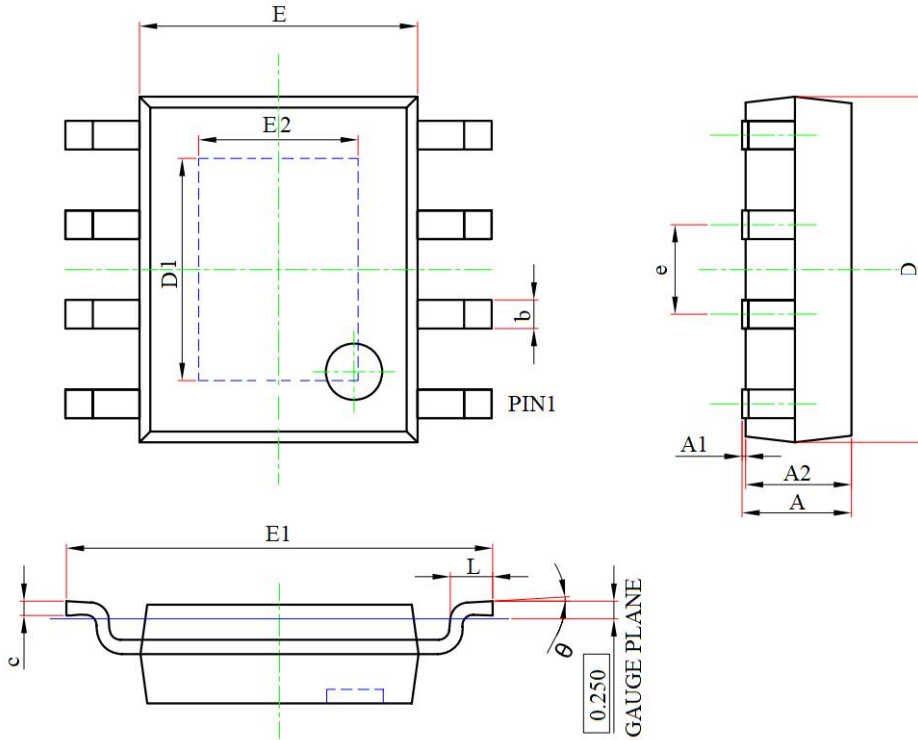
PRODUCT FAMILY TABLE

OPN	Float Voltage(V)	OVP(V)	Trickle Voltage(V)	Package	Quantity
XTB1056L420AT3CT	4.2	6.8	2.6	ESOP-8	4000
XTB1056H420AT3CT	4.2	10.5	2.6	ESOP-8	4000
XTB1056L420AD3CT	4.2	6.8	2.6	DFN2X2-8L	3000
XTB1056H420AD3CT	4.2	10.5	2.6	DFN2X2-8L	3000
XTB1056L435AT3CT	4.35	6.8	2.6	ESOP-8	4000
XTB1056H435AT3CT	4.35	10.5	2.6	ESOP-8	4000
XTB1056L435AD3CT	4.35	6.8	2.6	DFN2X2-8L	3000
XTB1056H435AD3CT	4.35	10.5	2.6	DFN2X2-8L	3000

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PACKAGE OUTLINE DIMENSIONS

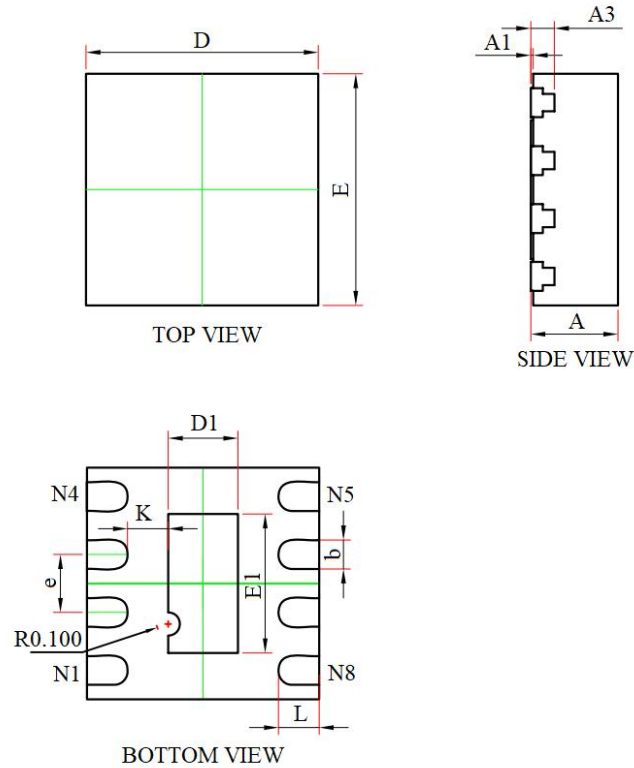
ESOP-8



SYMBOL	DIMENSIONS IN MILLIMETERS		DIMENSIONS IN INCHES	
	MIN	MAX	MIN	MAX
A	1.300	1.700	0.051	0.067
A1	0.000	0.100	0.000	0.004
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
E	3.800	4.000	0.150	0.157
D1	3.050	3.350	0.120	0.132
E1	5.800	6.200	0.228	0.244
E2	2.160	2.360	0.085	0.093
e	1.27BSC		0.050BSC	
L	0.400	1.270	0.016	0.050
theta	0	8°	0	8°

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DFN2X2-8L



SYMBOL	DIMENSIONS IN MILLIMETERS		DIMENSIONS IN INCHES	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF		0.008REF	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	0.500	0.700	0.020	0.028
E1	1.100	1.300	0.043	0.051
k	0.350REF		0.014REF	
b	0.200	0.300	0.008	0.012
e	0.500BSC		0.020BSC	
L	0.274	0.426	0.011	0.017

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