



# ACE45555P

## High Input Voltage Charger with OVP protection and Charge Termination

### Description

The ACE45555P is a cost-effective, fully integrated high input voltage single-cell Li-ion battery charger. The charger uses a CC/CV charge profile required by Li-ion battery. The charger accepts an input voltage up to 24V but is disabled when the input voltage exceeds the OVP threshold, typically 6.0V, to prevent excessive power dissipation. The 24V rating eliminates the over-voltage protection circuit required in a low input voltage charger.

The charge current and the end-of-charge (EOC) current are programmable with external resistors. When the battery voltage is lower than 2.55V, the charger preconditions the battery with typically 20% of the programmed charge current. When the charge current reduces to the programmable EOC current level during the CV charge phase, an EOC indication is provided by the  $\overline{\text{CHG}}$  pin, which is an open-drain output. An internal thermal foldback function protects the charger from any thermal failure. Two indication pins (  $\overline{\text{PPR}}$  and  $\overline{\text{CHG}}$  ) allow simple interface to a microprocessor or LEDs. When no adapter attached, the charger draws less than 1 $\mu$ A leakage current from the battery. The ACE45555P is available in Green DFN-2x2-8L packages and is rated between -40 °C to 85 °C temperature range.

### Features

- Complete Charger for Single-Cell-Li-ion or Polymer Batteries
- Integrated Pass Element and Current Sensor
- No External Blocking Diode Required
- Low Component Count and Cost
- Programmable Charger Current
- Programmable End-of-Charger Current
- Charger Current Thermal Foldback for Thermal Protection
- 2.55V Trickle Charge Threshold
- 6.0V Input Over-Voltage Protection
- 24V Maximum Voltage for the Power Input
- Power Presence and Charge Indications
- Less than 1 $\mu$ A Leakage Current from the Battery When No Input Power Attached
- Less than 200 $\mu$ A Supply Current when Charging is terminated
- Available in Green DFN-2x2-8 Packages

### Application

- Mobile Phones
- Blue-Tooth Devices
- PDAs
- MP3 Players
- Stand-Alone Chargers
- Other Handheld Devices



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### Absolute Maximum Ratings

Symbol	Items	Value	Unit
$V_{IN}$	Input Voltage	-0.3 ~ 24	V
	Voltage of other PINs	-0.3~6	V
$R_{\theta JA}$	Thermal Resistance	118	°C/W
$T_J$	Junction Temperature	150	°C
$T_{STG}$	Storage Temperature	-65 ~ 150	°C
$T_{SOLDER}$	Package Lead Soldering Temperature	260°C, 10s	
ESD MM	Machine Mode	200	V
ESD HBM	Human Body Mode	8	KV

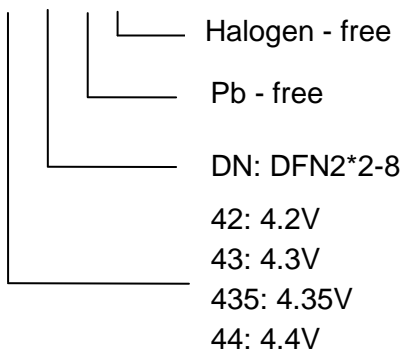
Note: Exceed these limits to damage to the device. Exposure to absolute maximum rating conditions may affect device reliability.

### Recommended Operating Condition

Symbol	Items	Value	Unit
$V_{MAX}$	Maximum Supply Voltage	$\leq 24$	V
$V_{IN}$	Operating Supply Voltage	4.55 to 6.0	V
$I_{REF}$	Programmed Charge Current	20 to 700	mA
$T_{OPT}$	Operating Temperature	-40 to +85	°C

### Ordering information

ACE4555P XX XX + H





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### Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Technology Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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