ACE4050RT

500mA, Single Li-ion Battery Charger

Description

The ACE4050RT is a complete constant-current/ constant voltage linear charger for single cell Lithium-Ion batteries. No external sense resistor is needed, and no blocking diode is required due to the internal MOSFET architecture. The charge voltage is fixed at 4.2V, 4.35V and 4.4V, and the charge current can be programmed externally with a single resistor. The ACE4050RT automatically terminates the charge cycle when the charge current drops to 1/10 the programmed value after the final float voltage is reached. When the input supply (wall adapter or USB supply) is removed, the ACE4050RT automatically enters a low current state, dropping the battery drain current to less than 0.1uA. The ACE4050RT is available in a small package with SOT-23-5. Standard product is Pb-Free.

Features

- Programmable Charge Current Up to 500mA
- 10% Charge Current Accuracy
- 1% Charge Voltage Accuracy
- Input Over Voltage Protection: 6.4V (Typ.)
- 2.9V (Typ.) Trickle Charge Threshold
- 100mV (Typ.) Automatic Recharge Threshold
- Thermal Regulation Temperature: 140°C
- Under Voltage Lockout Protection
- Charge Status Output Pin
- Protection for Battery Reverse Connection

Application

- Cellular Telephones, PDAs, GPS
- Bluetooth, wireless handsets
- Charging Docks and Cradles
- Others portable electronic device

Absolute Maximum Ratings

Item	Symbol	Value	Unit
Input Voltage	V_{CC}	-0.3 ~ 8	V
PROG Voltage	V_{PROG}	-0.3 ~ V_{CC}+0.3	V
BAT Voltage	V_{BAT}	-0.3 ~ 7	V
CHGb Voltage	V_{CHGb}	-0.3 ~ 10	V
Power Dissipation	P_{D_MAX}	0.45	W
Thermal Resistance	$R_{\theta JA}$	270	°C/W
Junction Temperature	T_J	-40 to 125	°C
Storage Temperature	T_{STG}	-55 to 150	°C
Package Lead Soldering Temperature	T_{SOLDER}	260	°C/10s

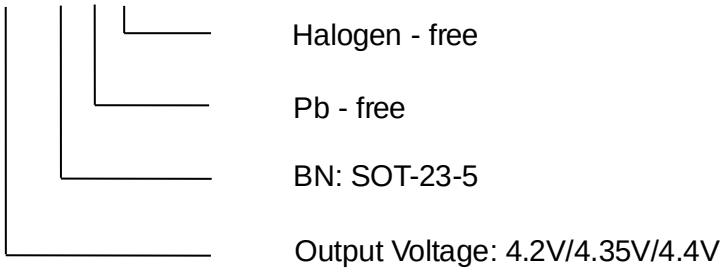
Note: Exceed these limits may damage the device. Exposure to absolute maximum rating conditions may affect device reliability.

Recommended Operating

Item	Symbol	Min	Nom	Max	Unit
Input operating voltage range	V_{CC}	4	5	6	V
Battery charge current range	I_{BAT}	100	250	500	mA
Junction temperature	T_J	0		125	°C
CC mode charge current programming resistor	R_{PROG}	2	4	10	KΩ

Ordering Information

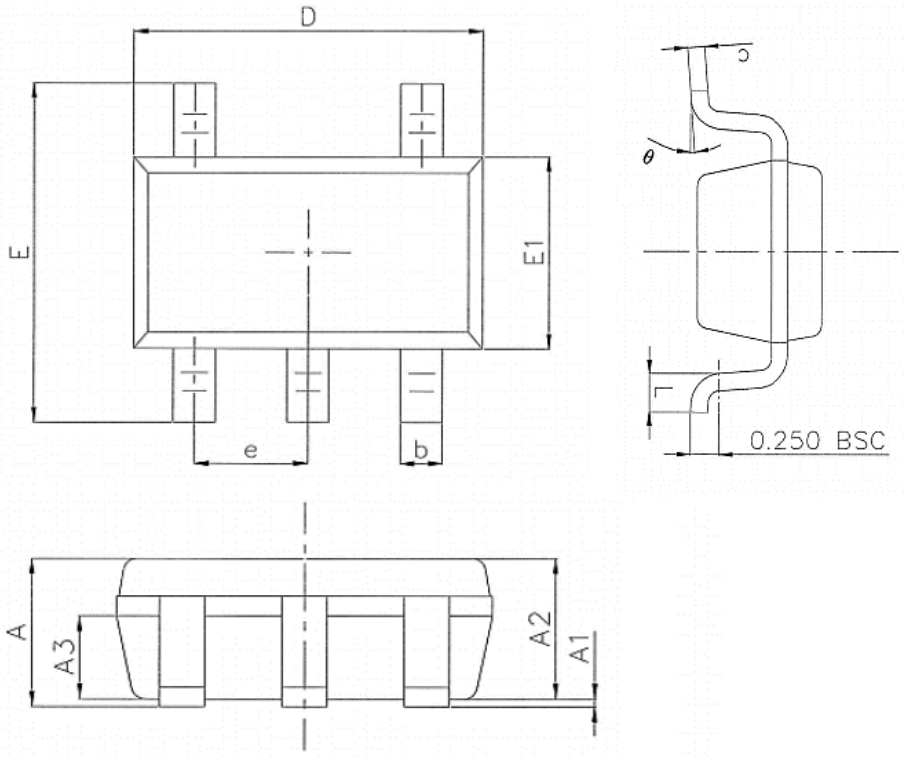
ACE4050RT XXX XX + H



- Halogen - free
- Pb - free
- BN: SOT-23-5
- Output Voltage: 4.2V/4.35V/4.4V

Packing Information

SOT-23-5



Dimensions In Millimeters			
Symbol	**Min.**	**Nom.**	**Max.**
A	1.050	1.150	1.250
A1	0.000	0.060	0.100
A2	1.000	1.100	1.200
A3	0.550	0.650	0.750
D	2.820	2.920	3.020
E	2.650	2.800	2.950
E1	1.510	1.610	1.700
b	0.300	0.400	0.500
e	0.950 (BSC)		
θ	0°	4°	8°
L	0.300	0.420	0.570
c	0.100	0.152	0.200

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 shoes 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.