/ Revised record

A	2019-7-10				
B	2021-11-26				

/ Descriptions

BRCL3230BSE / BRCL3230BSE
MOSFET
BRCL3230BSE ESOP-8
BRCL3230BSE

The BRCL3230BSE series product is a high integration solution for lithium-lion/polymer battery protection.BRCL3230BSE contains advanced power MOSFET, high-accuracy voltage detection circuits and delay circuits.
BRCL3230BSE is put into an ultra-small ESOP-8 package makes it an ideal solution in limited space of battery pack. BRCL3230BSE has all the protection functions required in the battery application including overcharging, overdischarging, overcurrent and load short circuiting protection etc. The low standby current drains little current from the cell while in storage. The device is not only targeted for digital cellular phones, but also for any other Li-Ion and Li-Poly battery-powered information appliances requiring long-term battery life.

/ Features

- 15mΩ MOSFET
- ESOP-8
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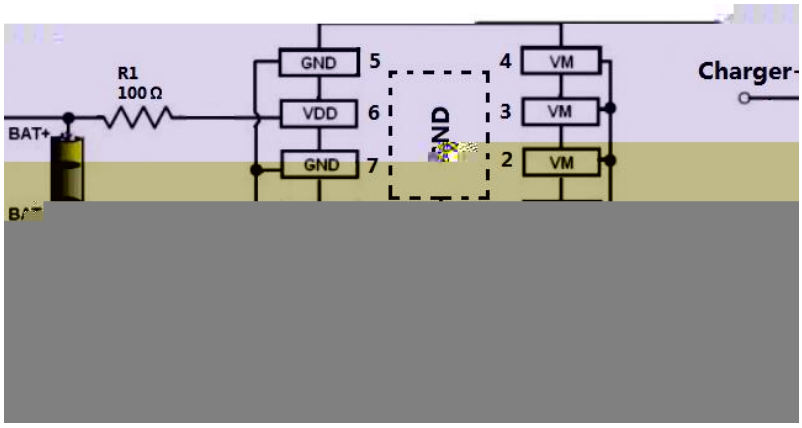
-
- 2 1 2
-
- 0V
- 7.0uA , 4.0uA ;
-
- Integrate advanced power MOSFET with Equivalent of 15mΩ $R_{DS(ON);}$
- Ultra-small ESOP-8 package;
- No capacitance is required for peripheral circuits;
- Over-temperature Protection;
- Overcharge Current Protection;
- Three-step Overcurrent Detection: Overdischarge Current1,Overdischarge Current2,Load Short Circuiting;
- Charger detection function;
- 0V battery charging function, delay times are generated inside,High-accuracy voltage detection.
- Low Current Consumption, Operation Mode: 7.0μA typ,Power-down Mode: 4.0μA typ ;
- HF Product.

/ Applications

One-Cell lithium-ion battery pack; Lithium-Polymer battery pack.



(1)

(2)

Notes

(1) The chip power consumption shall not exceed the maximum power consumed by the package.

(2) This product has anti-static protection function, but do not exceed the maximum capacity of the

/Parameter	/Symbol	/Value

Equivalent FET on Resistance						
Equivalent FET on Resistance	R_{DS}	V_{dd}=3.6V I_{VM}=1A		15	20	mΩ
Over temperature protection						
Over Temperature Protection	OTP		125	140	155	
Over Temperature Recovery Degree	OTPR		100	115	130	
Delay time						
Overcharge Current Detection Delay Time	T_{OCC}	V_{dd}=3.6V	5.6	8	10.4	ms
Overcharge Voltage Detection Delay Time	T_{CU}	V_{DD}=3.6V~4.4V	95	135		

/ Functional Description

BRCL3230BSE

MOSFET

15mΩ

The BRCL3230BSE monitors the voltage and current of a battery and protects it from being damaged due to overcharge voltage, overdischarge voltage, overdischarge current, and short circuit conditions by disconnecting the battery from the load or charger. The peripheral circuit is very simple. The MOSFET is integrated and its $R_{DS(ON)}$ is as low as 15mΩ typical.

/ Normal Operating mode

If no exception condition is detected, charging and discharging can be carried out freely. This condition is called the normal operating mode.

/ Overcharge Condition

VCU ,

TCU BRCL3230BSE FET

1 VCL BRCL3230BSE

2

/ Overcurrent Condition

VM ,

,BRCL3230BSE FET

1 2 ,VM GND RVMS

VM VDD

VM GND RVMS VM VM

1

0V / 0V Battery Charging Function

0V

VDL IC

(1)

“ 0V ” “ 0V ”

(2) “ 0V ” “ ” , “ 0V ”

IC VDL

(3)

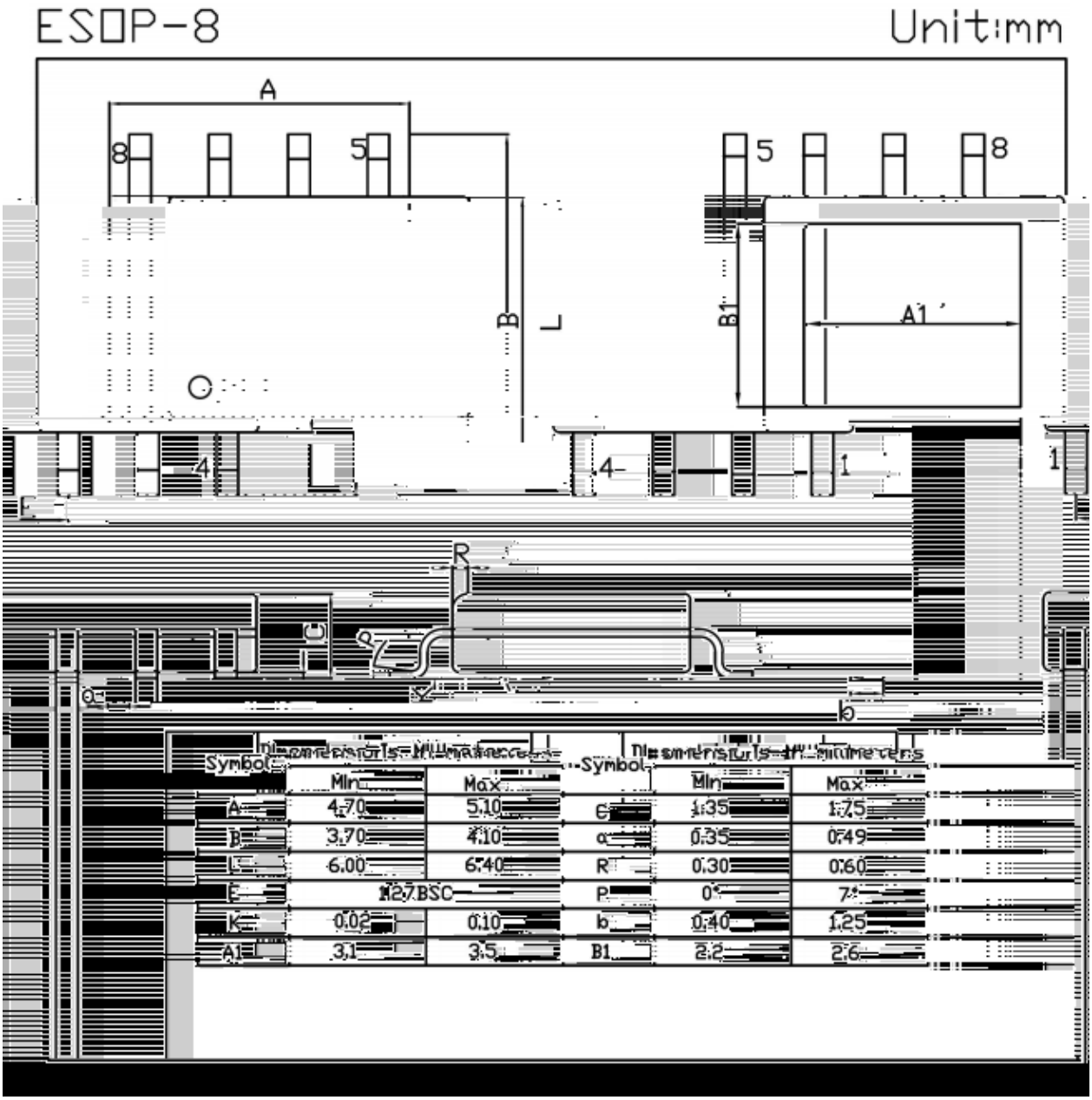
VM GND VM GND

This function enables the charging of a connected battery whose voltage is 0V by self-discharge. When connectes to a charger , the discharging control FET is off and the charging current flows through the internal parasitic diode in the discharging control FET. If the battery voltage becomes equal to or higher than the overdischarge release voltage (VDL), the normal condition returns.

Notes

BRCL3230BSE
Rev.B Nov.-2021

/ Package Dimensions



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.70	5.10	c	1.35	1.75
B	3.70	4.10	α	0.35	0.49
L	6.00	6.40	R	0.30	0.60
E	1.27BSC		P	0°	7°
K	0.02	0.10	b	0.40	1.25
A1	3.1	3.5	B1	2.2	2.6

/ Marking Instructions

BR:

3230B

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Note:

BR:	Company Code
3230B:	Product Type.
****:	Lot No. Code, code change with Lot No.

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)

Note:

1.Preheating:150~180℃, T

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