BL8511

Low Voltage Detector With Built-in Delay Circuit

DESCRIPTION

BL8511 is a series of high precision voltage detector with ultra-low current consumption (4uA typ.@Vin=3.0V) and a built-in delay circuit. It can work at very low voltage, which makes it perfect for system reset.

BL8511 is composed of high precision voltage reference, comparator, delay circuit, output driver and resistor array. Internally preset detect voltage has a low temperature drift and requires no external trimming.

BL8511 is available in DFN2*2-6 package which is Pb free.

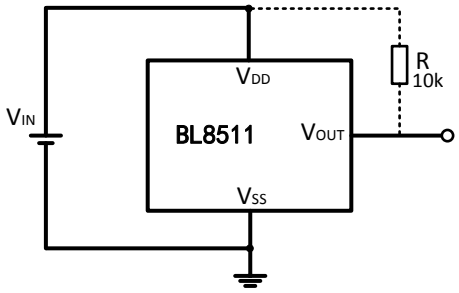
FEATURES

- High-Precision Detection Voltage: ±2.5%
- Detection Voltage: 1.4V
- Built-in Power on Reset Delay time circuit: Refer to Selection Guide
- Operating Voltage Range: 1.2V~6V
- Ultra-low current consumption: 4uA(typ.)@Vin=3.0V
- Output Forms: Active Low

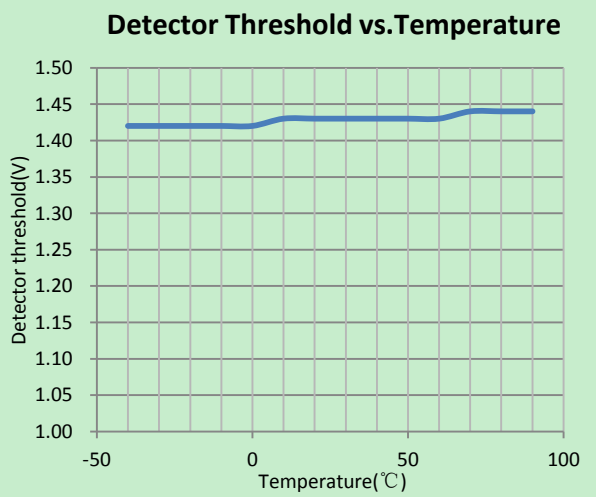
APPLICATIONS

- Power monitor for portable equipment such as PDA,DSC,Mobile phone,Notebook,MP3
- CPU and Logic Circuit Reset
- Battery Checker
- Battery Back-up Circuit
- Power Failure Detector

TYPICAL APPLICATION



ELECTRICAL CHARACTERISTICS

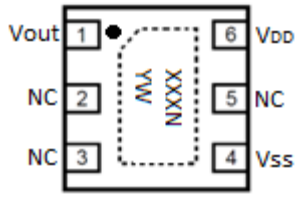


ORDERING INFORMATION

BL8511 □□□□□

Code	Description
□	Temperature&Rohs: C:-40~85°C ,Pb Free Rohs Std.
□	Package type: KC:DFN2*2-6
□	Packing type: TR:Tape&Reel (Standard)
□	Detector Voltage: e.g. 140=1.4V
□	Output forms: N:NCH

PIN CONFIGURATION

Product Classification		BL8511CKCTR□□□
Marking		
XXXN YW	XXX: Detector Voltage	
	N: NCH	
	YW: *Date code* *(Year &* *Week)*	
Vss	Ground Pin	
VDD	Supply Voltage Input	
Vout	Voltage Detection Output pin	
NC	No Connection	

ABSOLUTE MAXIMUM RATING

Parameter		Value
Input Voltage		-0.3V-8V
Output Voltage range		-0.3V- 8V
Maximum Output current		10mA
Ambient Temperature(Ta)		-40°C -85°C
Package Thermal Resistance (θjA)	DFN2*2-6	80°C / W
Storage Temperature(Ts)		-40°C -150°C
Lead Temperature & Time		260°C,10S

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

RECOMMENDED WORK CONDITIONS

Item	Min	Recommended	Max.	Unit
Input Voltage Range	1.2		6	V
Ambient Temperature	-40	25	85	°C

ELECTRICAL CHARACTERISTICS

BL8511CKCTR140N (1.4V)

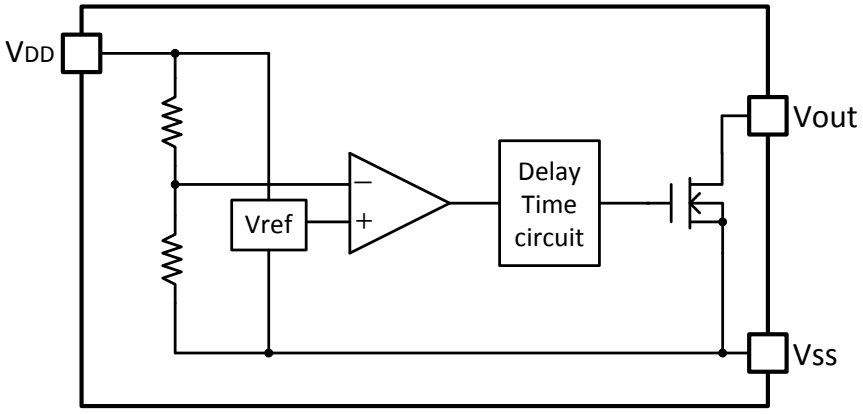
(Topt＝25℃,Unless otherwise specified.)

Symbol	Parameter	Conditions	Reference data			Unit
			Min.	Typ.	Max.	
-VDET	Detector Threshold		1.365	1.4	1.435	V
ISS	Current consumption	VDD=3V		4.0	10	uA
IOUT	Output current	Nch VDS=-0.5V，VDD=1.2V	1.0	2.5		mA

ELECTRICAL CHARACTERISTICS BY OUTPUT DELAY TIME

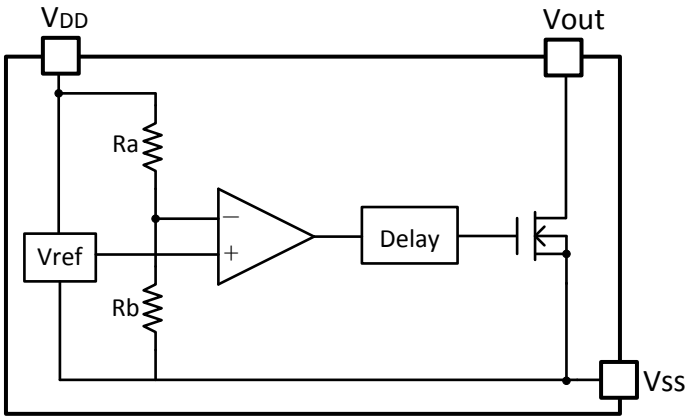
Part Number	Test Condition	Output Delay Time			Unit
		Min.	Typ.	Max.	
BL8511CKCTRXXXN	VDD=1.0V to Vdet+1.0V	10	15	20	ms

BLOCK DIAGRAM



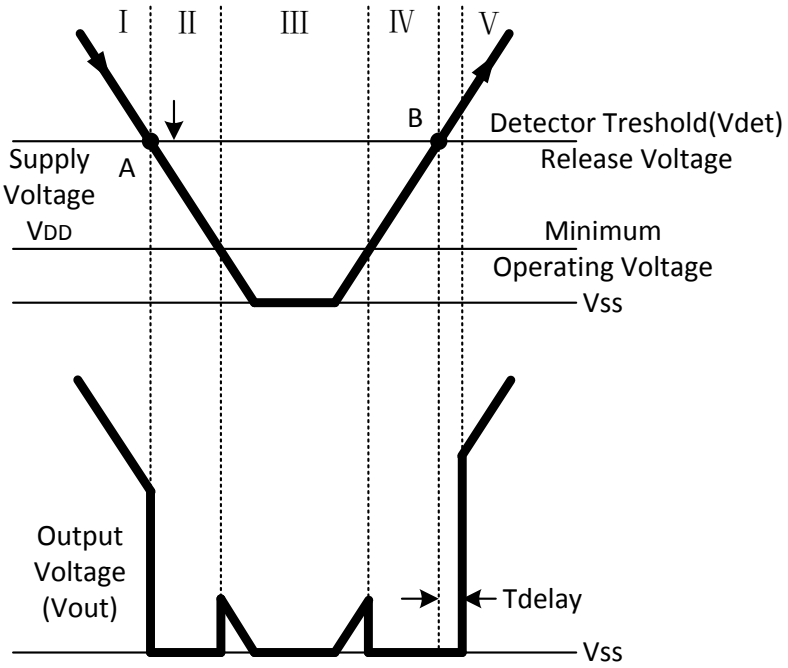
N Channel Open Drain

FUNCTION DESCRIPTION



High precision low temperature co-efficiency reference voltage is applied to the negative input of a comparator. Input voltage, divided by resistor array of Ra and Rb, is applied to the positive input of the comparator. Output of the comparator passes a delay circuit and a series of buffer to drive the output.

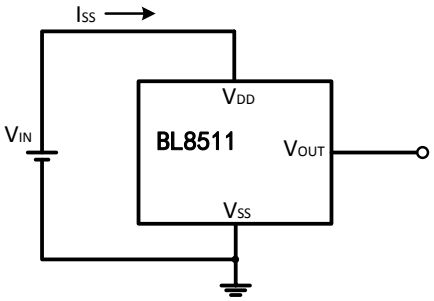
VDET =VREF*(1+Ra/Rb)



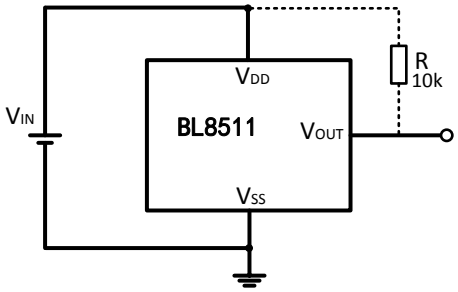
No.	Operation status	Output status
I	VDD>Vdet	Output voltage is equal to the supply voltage
II	VDD drops below Vdet	Output voltage equals to GND level
III	VDD drops further below VDDL	Output voltage is undefined
IV	VDD rises above VDDL	Output voltage equals to GND level
V	VDD rises above Vdet	Output voltage equals to supply voltage after Tdelay

TEST CIRCUITS

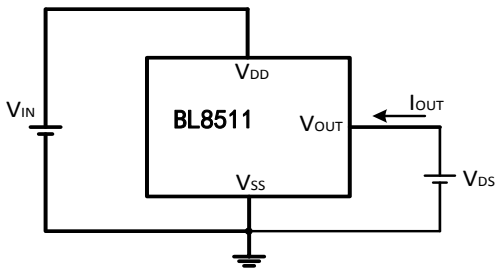
(1) Supply current test circuit



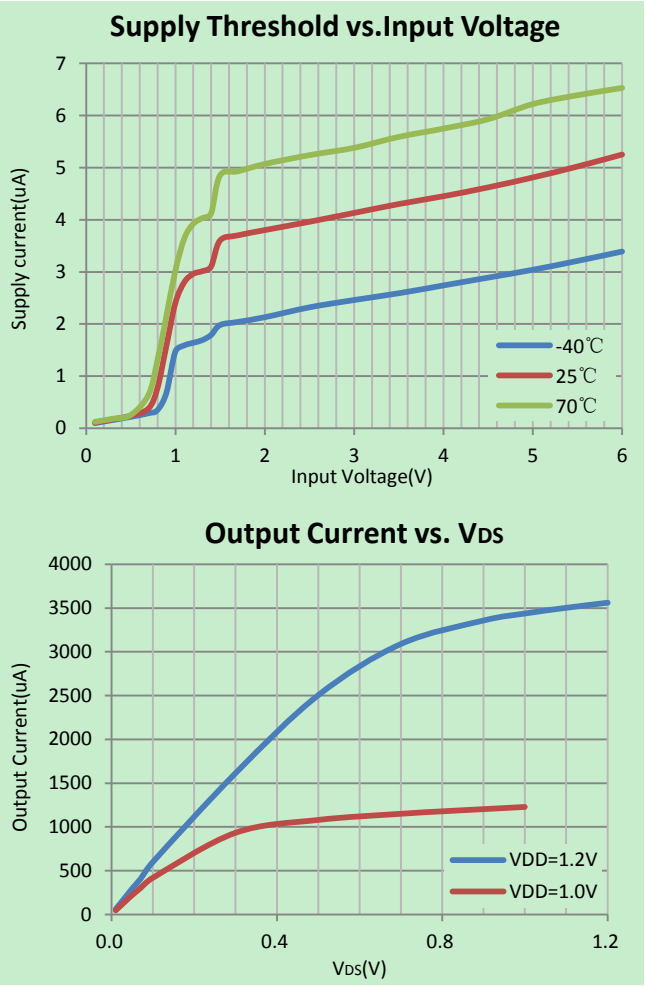
(2) Detector threshold test circuit

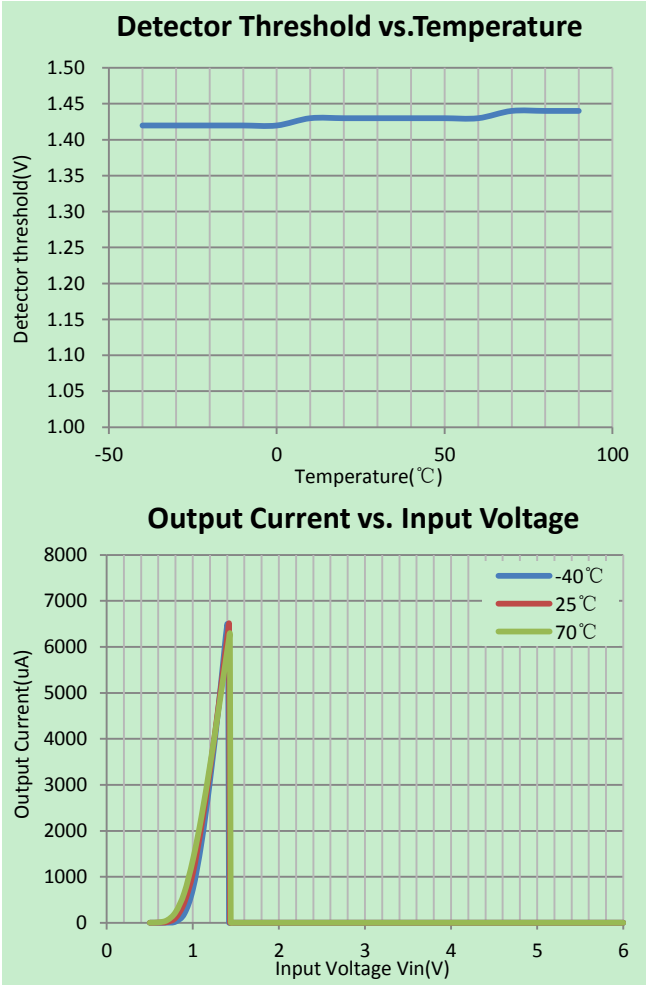


(3) NCH Drive Output Current Test Circuit



TYPICAL PERFORMANCE CHARACTERISTICS

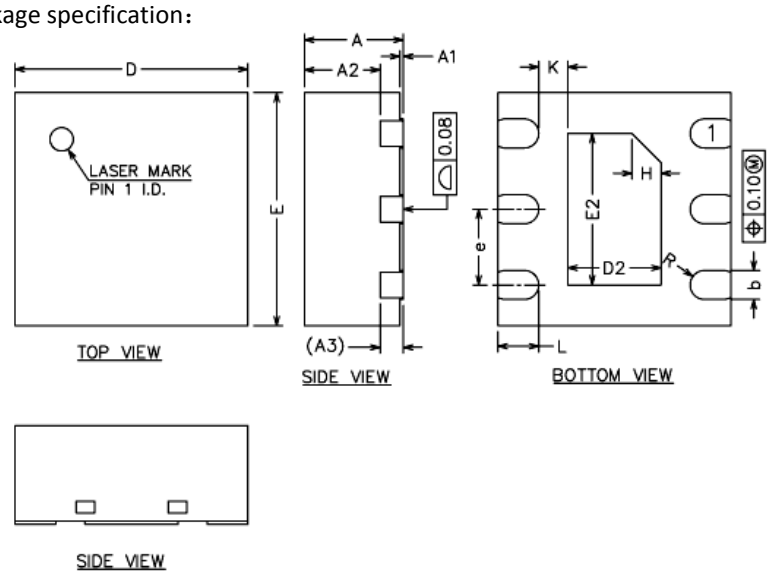




PACKAGE LINE

Package	DFN2x2-6	Devices per reel	3000	Unit	mm

Package specification:



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.80	0.85	0.90
A1	0.00	0.02	0.05
A2	0.60	0.65	0.70
A3		0.20REF	
b	0.18	0.25	0.30
D	1.90	2.00	2.10
E	1.90	2.00	2.10
D2	0.70	0.80	0.90
E2	1.20	1.30	1.40
e	0.55	0.65	0.75
H		0.25REF	
K	0.20	–	–
L	0.30	0.35	0.40
R	0.11	–	–