BPS801 Series Voltage Detectors

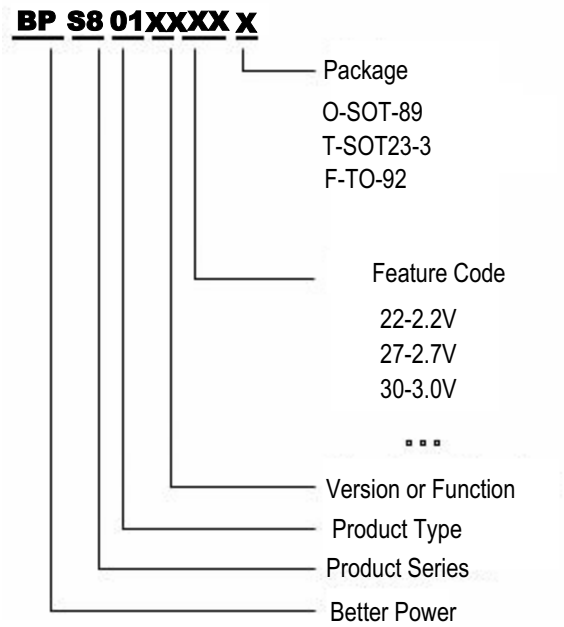
BPS801 Series are highly precise ,low power consumption voltage detectors,manufactured using CMOS technologies. Detect voltage is extremely accurate with minimal temperature drift.

NMOS output configurations are available.

Features

- Highly accurate： ±1%；
- Low power consumption：
  TYP 0.7uA (Vin=1.5V)；
- Detect voltage range：
  2.0V~4.8V in 0.1V increments；
- Operating voltage range：0.7V~7V；
- Detect voltage temperature characteristics：
  TYP±100ppm/℃；
- Output configuration： NMOS；
- PACKAGE： SOT23-3，SOT89-3，TO-92。

Selection Guide

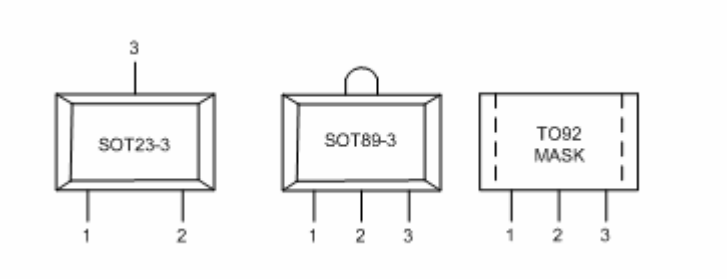


Applications

- Microprocessor reset circuitry；
- Memory battery back-up circuits；
- Power-on reset circuits；
- Power failure detection；
- System battery life and charge voltage monitors。

TYPE	POSTFIX	PACKAGE	OUTPUT CONFIGURATION
BPS801XXXXX	T	SOT23-3	NMOS
	O	SOT89-3	
	F	TO-92	

Pin Configuration

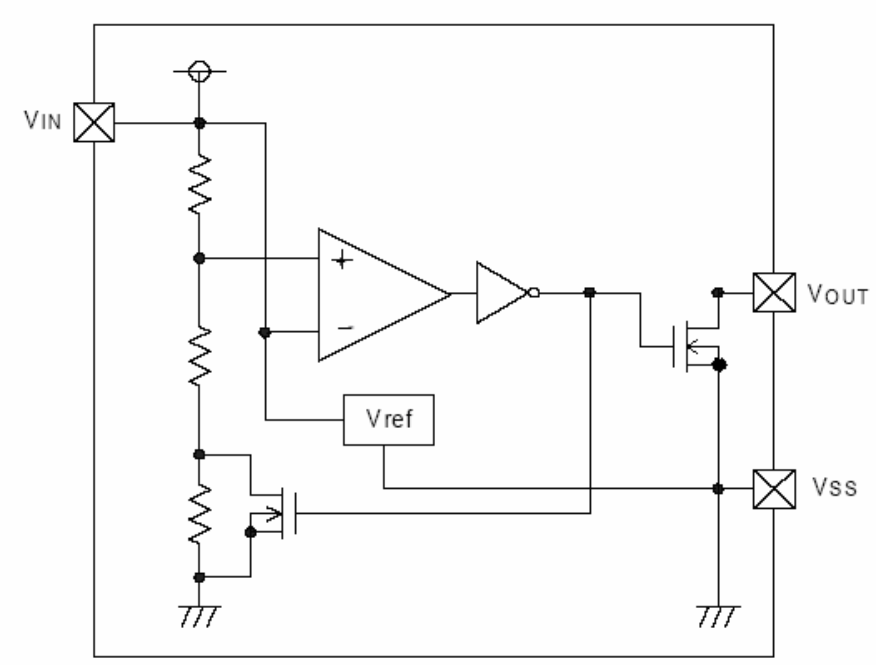


Pin Assignment

BPS801XXXXX

PIN Number			PIN NAME	FUNCTION
SOT23-3	SOT89-3	TO-92(F)		
2	3	2	Vss	Ground
1	1	3	Vout	Output
3	2	1	Vin	Input

Block Diagram



Absolute Maximum Ratings

PARAMETER		SYMBAL	RATINGS	UNITS
V_{IN} Input Voltage		V_{IN}	8	V
Output Current		Iout	50	mA
Output Voltage	NMOS	Vout	Vss-0.3~Vin+0.3	V
	N-ch open drain		Vss-0.3~12	
Continuous Total Power Dissipation	SOT23	Pd	150	mW
	SOT89		500	mW
	TO92		300	mW
Operating Ambient Temperature		T_{Opr}	-40~+85	℃
Storage Temperature		T_{stg}	-40~+125	℃
Soldering temperature and time		T_{solder}	260℃, 10s	

Electrical Characteristics (V_{DF}(T)=2.0V to 4.8V±1% Ta=25℃)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{DF}	Detect Voltage		V_{DF}* 0.99	V_{DF}	V_{DF}* 1.01	V
V_{HYS}	Hysteresis Range		V_{DF}* 0.02	V_{DF}* 0.05	V_{DF}* 0.08	V
Iss	Supply Current	Vin=1.5V		0.7	2.7	uA
		=2.0V		0.8	3.2	
		=3.0V		0.9	3.6	
		=4.0V		1.0	3.8	
		=5.0V		1.1	4.3	
V_{IN}	Operating Voltage	V_{DF}(T)=1.6V to 6.0V	0.7		7	V
I_{OUT}	Output Current	N-ch VDS=0.5V VIN=1.0V	1.0	2.2		mA
		=2.0V	3.0	7.7		
		=3.0V	5.0	10.1		
		=4.0V	6.0	11.5		
		=5.0V	7.0	13.0		
ΔV_{DF}/(Δtopr*V_{DF})	Temperature characteristics	-40℃≤Topr≤ 85℃		±100		ppm/℃

Note：1、VDF(T) ：Established Detect Voltage value

2、Release Voltage：$V_{DR}=V_{DF}+V_{HYS}$

Functional Description

Functional Description

1、 When input voltage (V_{IN}) rises above detect voltage (V_{DF}), output voltage (V_{OUT}) will be equal to V_{IN}.

2、 When input voltage (V_{IN}) falls below detect voltage (V_{DF}), output voltage (V_{OUT}) will be equal to the ground voltage (V_{SS}) level.

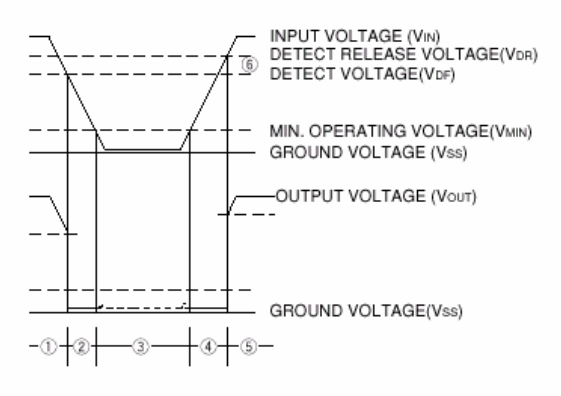
3、 When input voltage (V_{IN}) falls to a level below that of the minimum operating voltage (V_{MIN}), output will become unstable. In this condition, V_{IN} will equal the pulled-up output (should output be pulled-up.)

4、 When input voltage (V_{IN}) rises above the ground voltage (V_{SS}) level, output will be unstable at levels below the minimum operating voltage (V_{MIN}). Between the VMIN and detect release voltage (V_{DR}) levels, the ground voltage (V_{SS}) level will be maintained.

5、 When input voltage (V_{IN}) rises above detect release voltage (V_{DR}), output voltage (V_{OUT}) will be equal to V_{IN}.

6、 The difference between V_{DR} and V_{DF} represents the hysteresis range.

Timing Chart



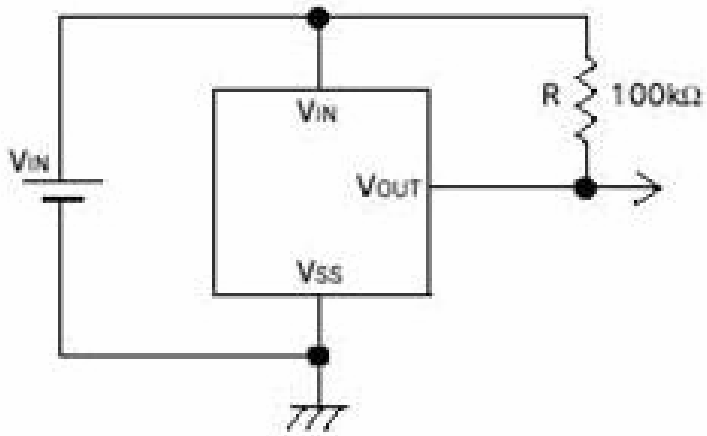
Directions for use

Notes on Use

1、 Please use this IC within the stated maximum ratings. Operation beyond these limits may cause degrading or permanent damage to the device.

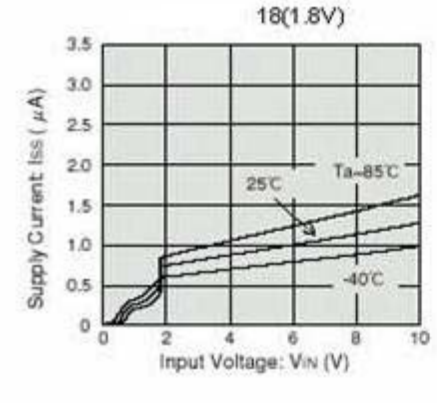
2、In order to stabilize the IC's operations, please ensure that V_{IN} pin's input frequency's rise and fall times are more than several u Sec/V.

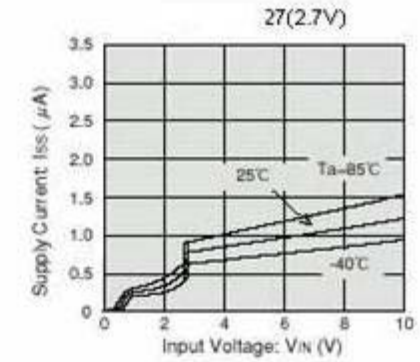
Typical Applications

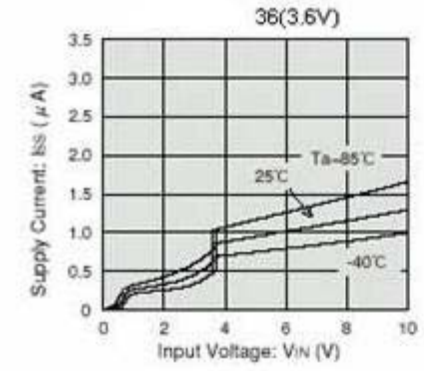


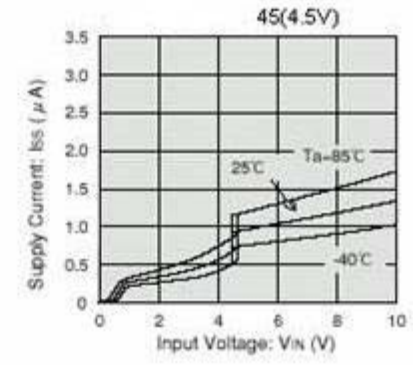
Type Characteristics

1、 SUPPLY CURRENT vs. INPUT VOLTAGE

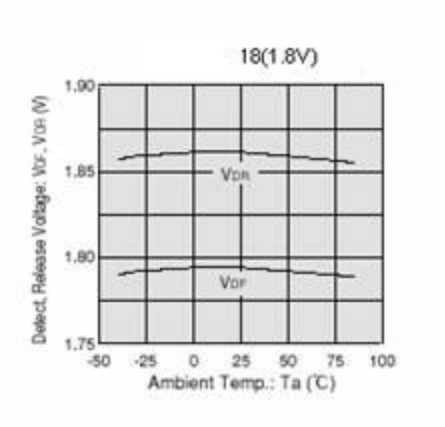


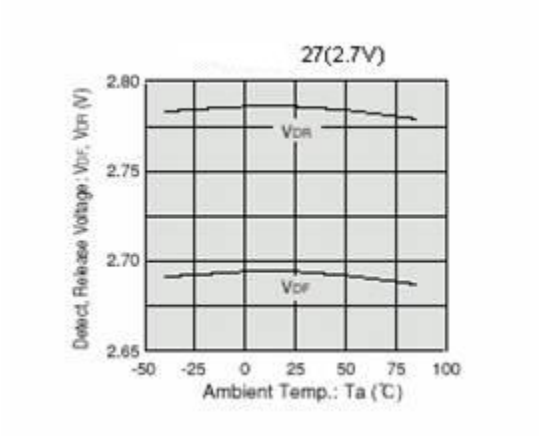


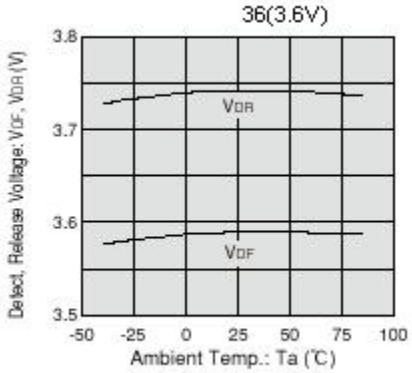


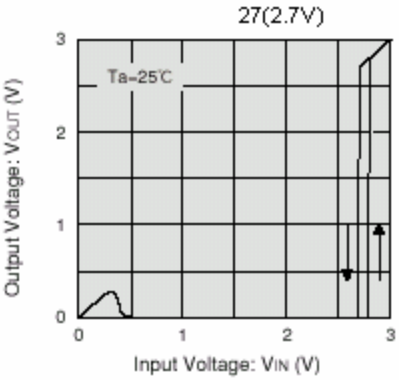


2、 DETECT,RELEASE VOLTAGE vs. AMBIENT TEMPERATURE

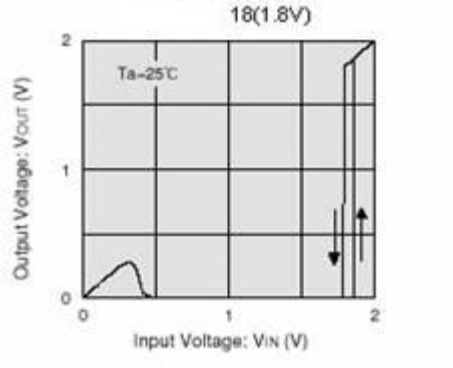


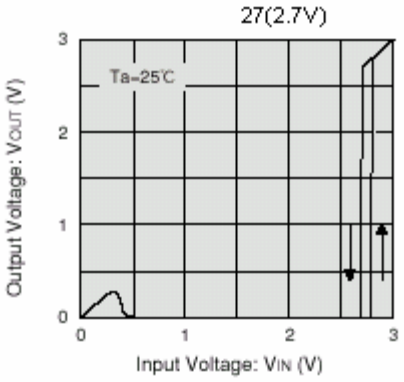


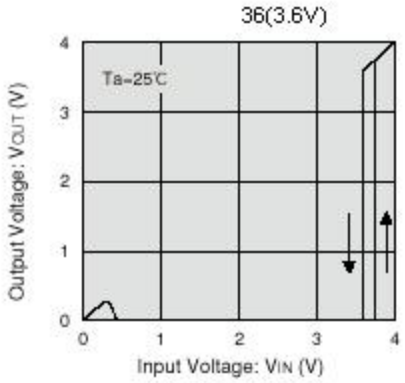


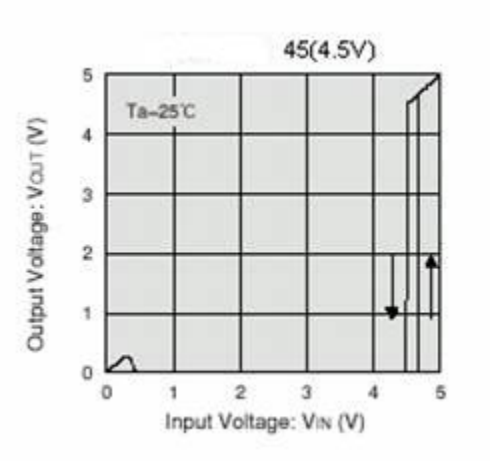


3、 OUTPUT VOLTAGE vs. INPUT VOLTAGE






36(3.6V)
Ta=25℃
Output Voltage: VOUT (V)
Input Voltage: VIN (V)
0
1
2
3
4


45(4.5V)
Ta=25℃
Output Voltage: VOUT (V)
Input Voltage: VIN (V)
0
1
2
3
4
5

Package Diomensions