

# System reset IC

## BH6150F

The BH6150F has two reset circuits, one detects the power supply voltage, and the other detects the input voltage. With this one IC it is possible to apply a reset to the logic systems of CPUs, and mechanical systems.

### ●Applications

Personal computers, CPUs, MPUs, logic circuits, reset circuits for mechanical systems, level detector circuits, battery voltage detector circuits, and backup power supply switching circuits

### ●Features

Two types of reset circuit provided.

#### 1) Reset circuit 1 (input voltage detector)

Detection voltage: 1.25V (Typ.)

Transmission delay time: 200 $\mu$ s (Typ.)

Open collector output, and 10k $\Omega$  pull-up resistor on chip.

#### 2) Reset circuit 2 (supply voltage detector)

Detection voltage: 4.2V (Typ.)

Transmission delay time: 25, 50, 100 and 200 ms (select using the Ct0 and Ct1 pins)

Manual reset function provided

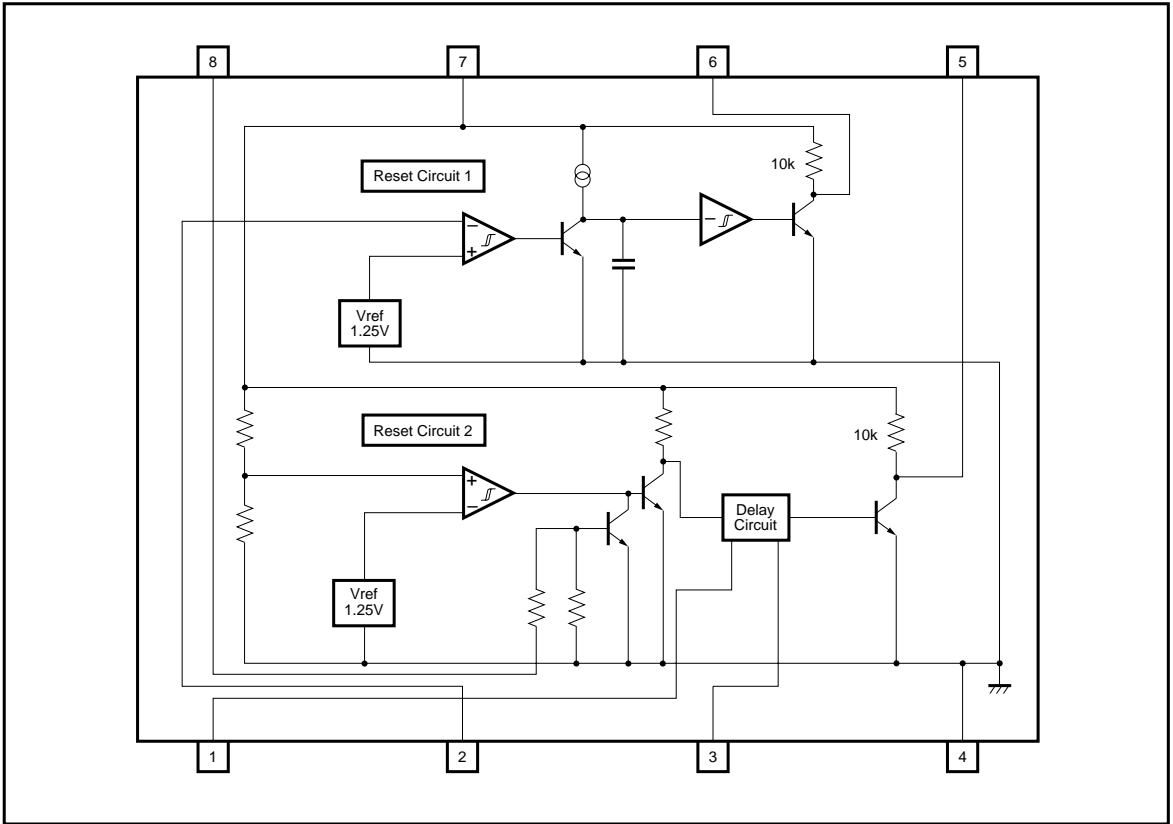
Open collector output, and 10k $\Omega$  pull-up resistor on chip.

### ●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V <sub>cc</sub>	- 0.3 ~ + 7.0	V
Power dissipation	P <sub>d</sub>	450*	mW
Operating temperature	T <sub>opr</sub>	- 20 ~ + 75	°C
Storage temperature	T <sub>stg</sub>	- 40 ~ + 125	°C

\* Reduced by 4.5mW for each increase in Ta of 1°C over 25°C.

●Block diagram



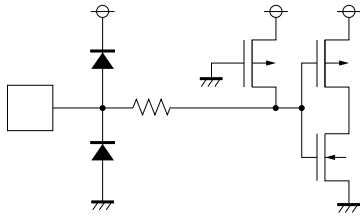
●Pin descriptions

Pin No.	Pin name	Function
1	Ct0	Delay time control*
2	Input	Reset circuit 1 input
3	Ct1	Delay time control*
4	GND	GND
5	Output 2	Reset circuit 2 output
6	Output 1	Reset circuit 1 output
7	Vcc	Power supply
8	Manual reset	Manual reset input

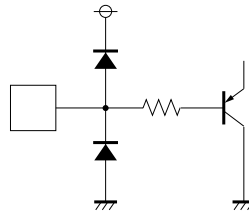
\* When neither Ct0 or Ct1 are connected, the delay time is 100ms (Typ.).

● Input / output circuits

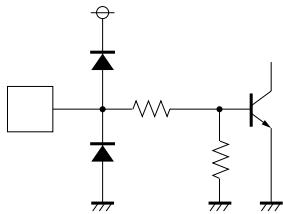
Ct0, Ct1



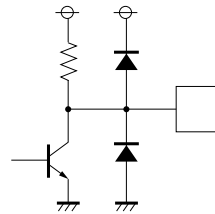
Input



Manual reset



Output 1, Output 2



●Electrical characteristics (unless otherwise specified  $V_{CC} = 4.5V$  to  $5.5V$  and  $T_a = 25^{\circ}C$ )

## Reset circuit 1

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Detection voltage	$V_{S1}$	1.20	1.25	1.30	V	—
Hysteresis voltage	$\Delta V_{S1}$	9	15	23	mV	—
High level transmission delay time	$T_{PLH1}$	80	200	500	$\mu s$	$CL = 100pF$
Low level transmission delay time	$T_{PHL1}$	—	10	—	$\mu s$	$CL = 100pF$
Output low level voltage	$V_{OL1}$	—	0.1	0.4	V	$V_{IN} < 1.2V, I_{OL} = 5mA$
Input voltage range	$V_{IN}$	-0.3	—	$V_{CC}$	V	—
Input current	$I_{IN}$	—	200	500	nA	$V_{IN} = 1.25V$

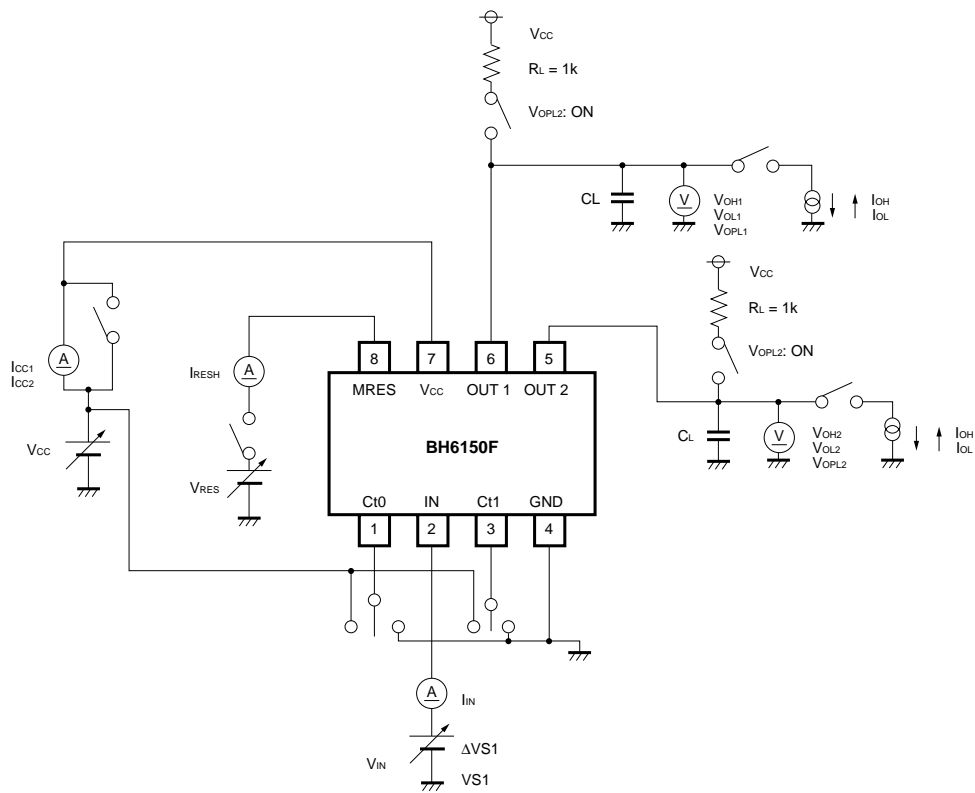
## Reset circuit 2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	
Detection voltage	$V_{S2}$	4.0	4.2	4.4	V	—	
Hysteresis voltage	$\Delta V_{S2}$	30	50	100	mV	—	
High level transmission delay time	$T_{PLH2}$	15	25	35	ms	$Ct0 = L, Ct1 = H$	
		30	50	70	ms	$Ct0 = H, Ct1 = L$	
		60	100	140	ms	$Ct0 = H, Ct1 = H$	
		120	200	280	ms	$Ct0 = L, Ct1 = L$	
Low level transmission delay time	$T_{PHL2}$	—	0.5	—	$\mu s$	$CL = 100pF$	
Output low level voltage	$V_{OL2}$	—	0.1	0.4	V	$V_{CC} < 4V, I_{OL} = 5mA$	
Manual reset	Input high level voltage	$V_{RESH}$	2	—	$V_{CC}$	V	—
	Input high level current	$I_{RESH}$	—	20	80	$\mu A$	$V_{RES} = 2V$
	Input low level voltage	$V_{RESL}$	-0.3	—	0.8	V	—

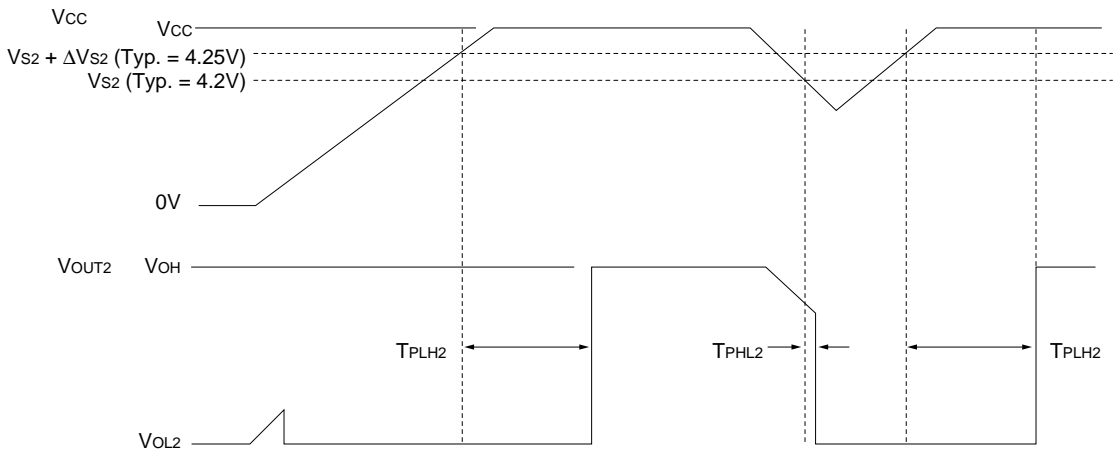
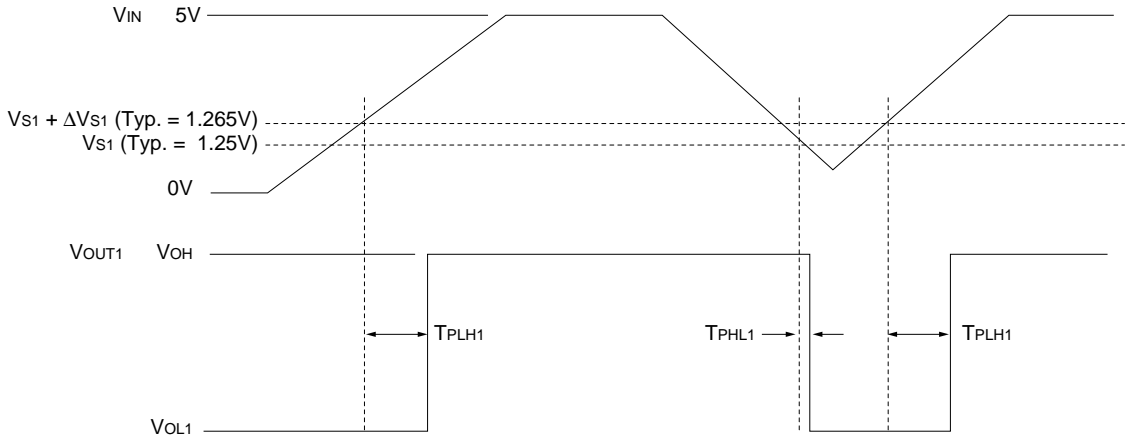
## Common specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Circuit current when off	$I_{CC1}$	—	1000	1400	$\mu A$	$V_{CC} = 5V, V_{IN} > V_{S1}$
Circuit current when on	$I_{CC2}$	—	2	3	mA	$V_{CC} = 4V, V_{IN} < V_{S1}$
Detection voltage temperature coefficient	$V_S / \Delta T$	—	0.01	—	% / $^{\circ}C$	—
Output high level voltage	$V_{OH1,2}$	$V_{CC} - 0.7$	$V_{CC} - 0.4$	—	V	$I_{OH} = 40\mu A$
Operation limit voltage	$V_{OPL1,2}$	—	0.71	0.85	V	$V_{SAT} \leq 0.4V, R_L = 1K$

● Measurement circuit



● Circuit operation



●Electrical characteristic curves

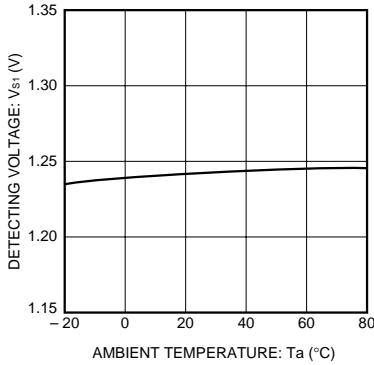


Fig. 1 Reset circuit 1 detector voltage vs. ambient temperature

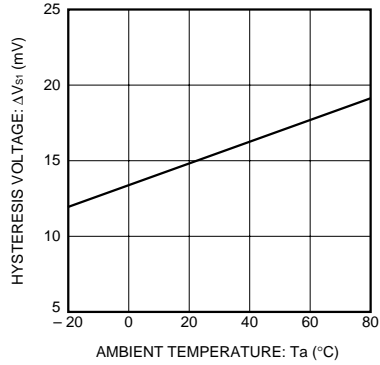


Fig. 2 Reset circuit 1 Hysteresis voltage vs. ambient temperature

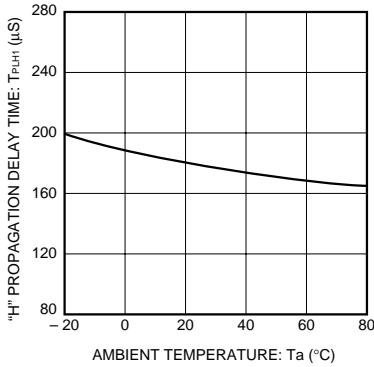


Fig. 3 Reset circuit 1 high level transmission delay time vs. ambient temperature

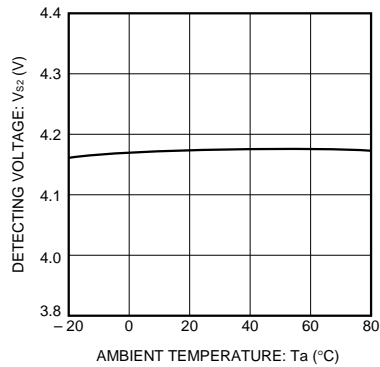


Fig. 4 Reset circuit 2 detector voltage vs. ambient temperature

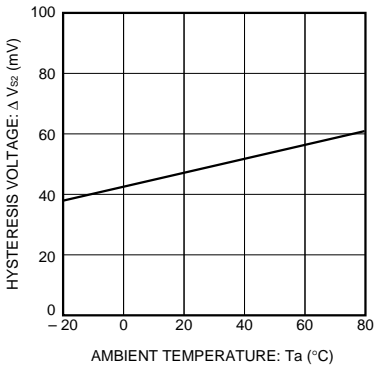


Fig. 5 Reset circuit 2 Hysteresis voltage vs. ambient temperature

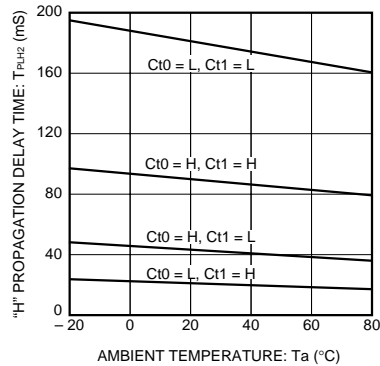


Fig. 6 Reset circuit 2 high level transmission delay time vs. ambient temperature

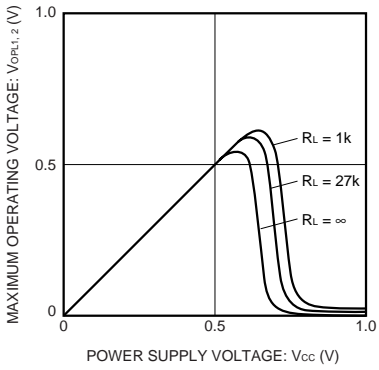


Fig. 7 Operation limit voltage vs. power supply voltage

●External dimensions (Units: mm)

