Description

The function of this low reset Type IC is to accurately reset systems after detecting the supply voltage at the time of switching power on and instantaneous power off in various CPU and other logic system. Further, this IC, with its super low consumption current is most suited as a voltage check circuit for a number of products which use batteries.

Features

- Super low current consumption (I_{CCL} = 1.0uA Typ.)
- High current of output transistor (I_{OL}=20mA Typ.)
- Hysteresis circuit built in ($\triangle V_S$=100mV Typ.)
- It has on delay function to supplement the constant of outer C and R.

Applications

- Reset circuits for microcomputers, CPU and MPU.
- Reset circuit for logic circuitry.
- Battery voltage check circuit.
- Circuit for changing over to backup battery.
- Level detecting circuit.

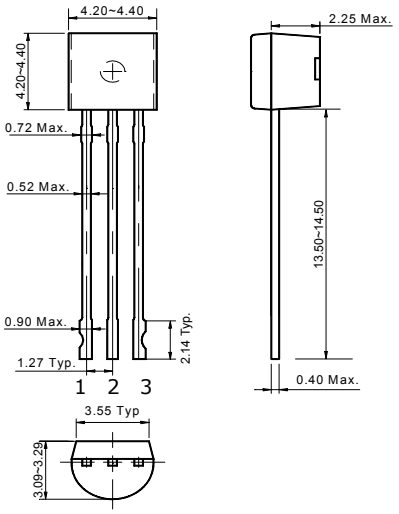
Ordering Information

Type NO.	Marking	Package Code
S72NxxN	S72N□□	TO-92N

□□: Detecting Voltage Code

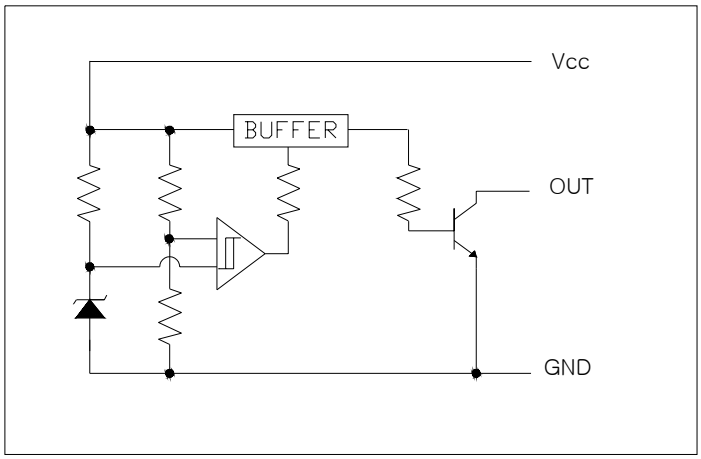
Outline Dimensions

Unit : mm



PIN Connections
1. OUT
2. Vcc
3. GND

Equivalent Circuit Diagram



Maximum ratings

(Ta=25°C)

Characteristic	Symbol	Ratings	Unit
Supply Voltage	V_{CC}	-0.3 ~ +10	V
Power Dissipation	P_D	500	mW
Output Voltage	V_{OUT}	-0.3 ~ +10	V
Operating Temperature Range	T_{OPR}	-20 ~ +75	℃
Storage Temperature Range	T_{STG}	-40 ~ +125	℃

Electrical Characteristics

(V_{CC}=5V, Ta=25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Detecting Voltage	V_S	1	*** See Table 1**				
Hysteresis Voltage	ΔV_S	1	R_L=470Ω, V_{CC} = L→H→L	40	100	300	mV
Temperature Coefficient of Detecting Voltage	$V_S/\Delta T$	1	R_L =470Ω, Ta= -20~75℃	-	±0.01	-	%/℃
Low Level Output voltage	V_{OL}	1	R_L =470Ω, V_{CC} = V_S Min	-	0.1	0.4	V
Leakage Current When OFF	I_{LEAK}	1	V_{CC}=10V, R_L=470Ω	-	-	0.1	μA
Circuit current at ON	I_{CCL}	1	V_{CC} = V_S Min	-	100	180	μA
Circuit current at OFF	I_{CCH}	1	V_{CC} = V_S Max +0.1V	-	1.0	2.5	μA
Operating Voltage	V_{OPR}	1	R_L =4.7 kΩ, V_{OL} ≤ 0.4V	-	1.4	1.6	V
Output Current at ON I	I_{OL} I	1	R_L =0Ω, V_{CC} = V_S Min	10	20	-	mA
Output Current at ON II	I_{OL} II	1	R_L =0Ω, V_{CC} = V_S Min, Ta= -20~75℃	5	-	-	mA
L→H Transmission delay time	t_{PLH}	2	R_L =4.7 kΩ, C_L=100 pF	-	100	500	μs
H→L Transmission delay time	t_{PHL}	2	R_L =4.7 kΩ, C_L=100 pF	-	10	20	μs

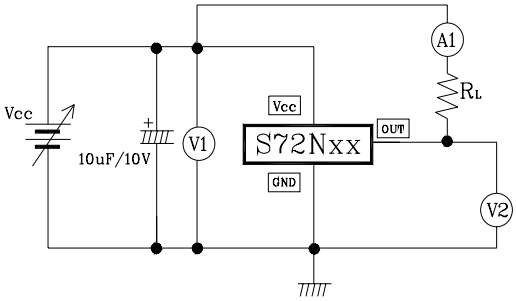
V_S : Standard Detection Voltage

* Table 1

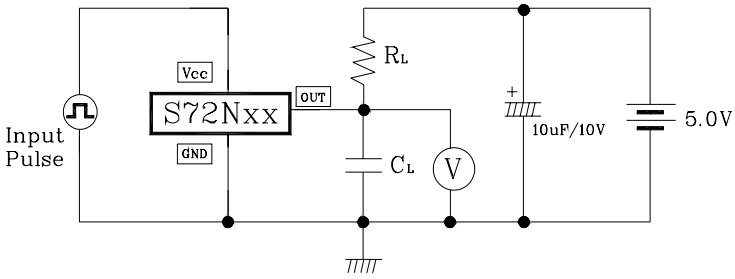
Electrical Characteristics (V_{CC}=5V, Ta=25°C)

Characteristic	Symbol	Test Circuit	Test Condition		Min.	Typ.	Max.	Unit
Detecting voltage	V_S	1	R_L=470Ω V_{CC}=H→L V_{OL}≤0.4V	S72N45N	4.30	4.50	4.70	V
				S72N42N	4.00	4.20	4.40	
				S72N39N	3.70	3.90	4.10	
				S72N36N	3.40	3.60	3.80	
				S72N33N	3.10	3.30	3.50	
				S72N31N	2.90	3.10	3.30	
				S72N29N	2.75	2.90	3.05	
				S72N27N	2.55	2.70	2.85	
				S72N25N	2.35	2.50	2.65	
				S72N23N	2.15	2.30	2.45	

Test Circuit 1

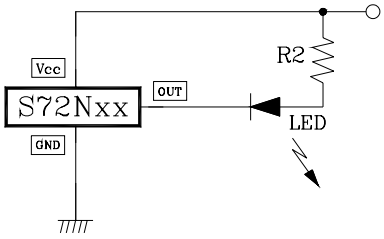


Test Circuit 2



Application Circuit

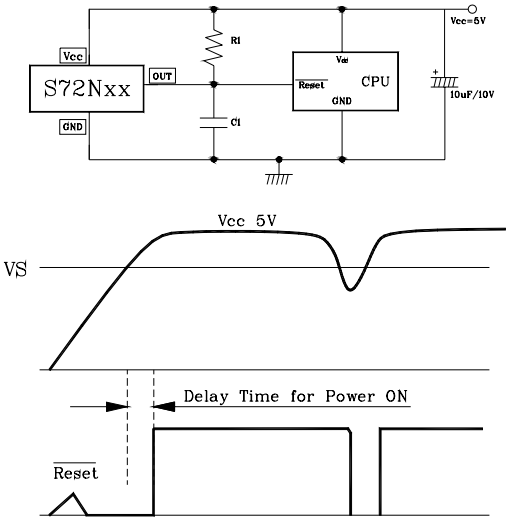
(1) Battery Low Indicator



Note 1.

: Connecting of LED and R2
obtains a voltage drop indicator.

(2) Resetting for CPU



Note 2.

: Connecting of C1 and selection of time constant
with C1 and R1 set the power on delay time.

Electrical Characteristic Curves

Fig. 1 $V_O - V_{CC}$

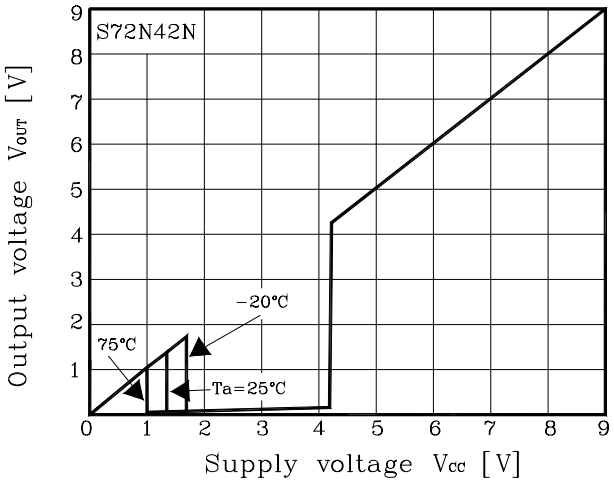


Fig. 2 $I_{CC} - V_{CC}$

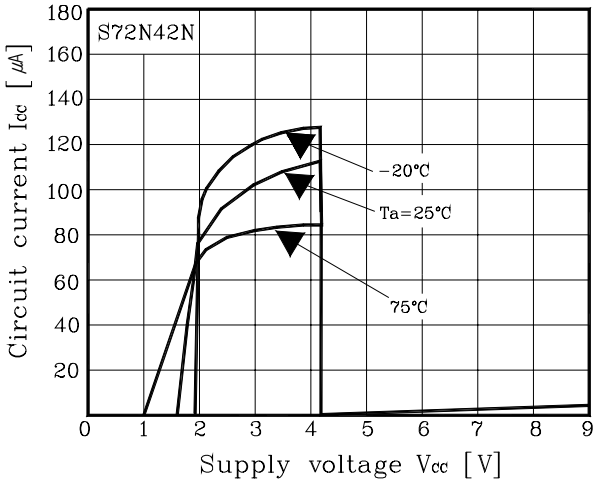


Fig. 3 $\triangle V_S - T_a$

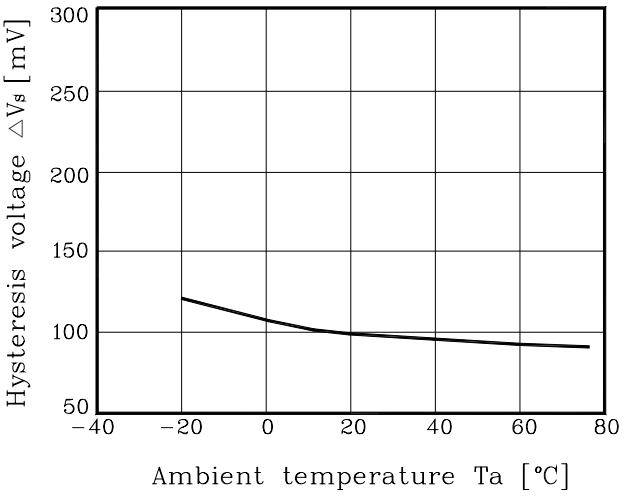


Fig. 4 $V_S - T_a$

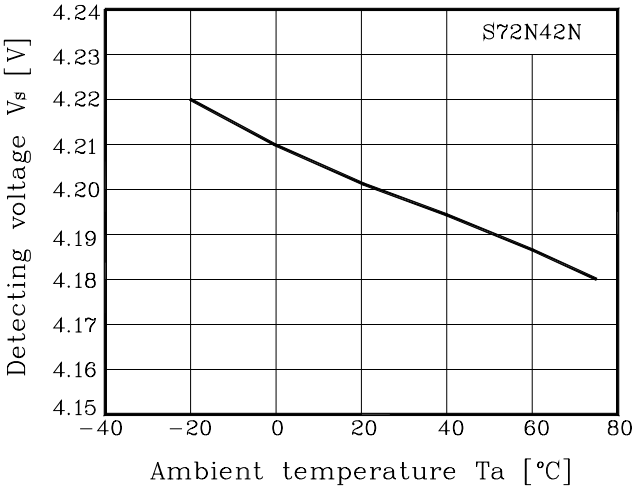


Fig. 5 $I_{CCL} - T_a$

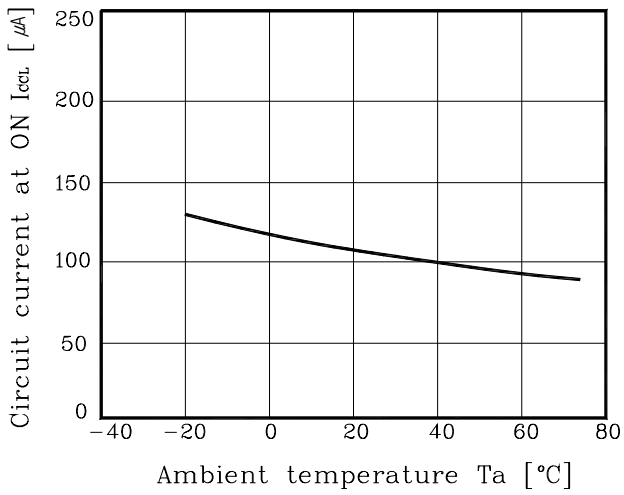


Fig. 6 $V_{OL} - T_a$

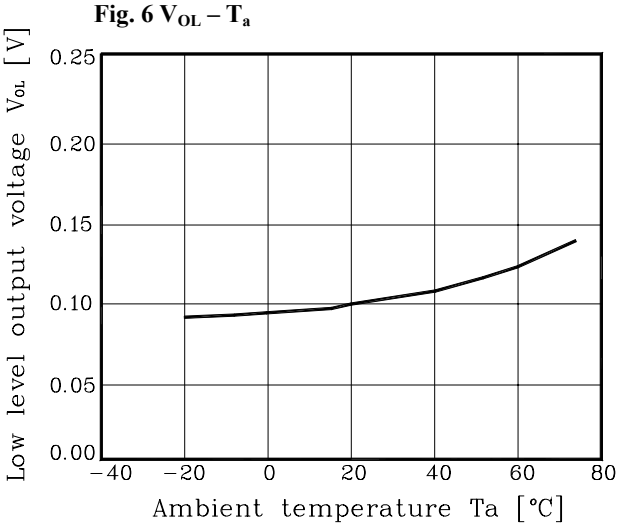


Fig. 7 $I_{OL} - T_a$

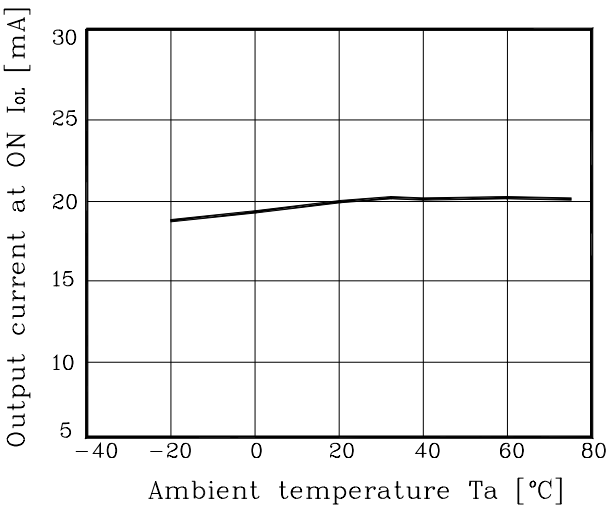


Fig. 8 $I_{CCH} - T_a$

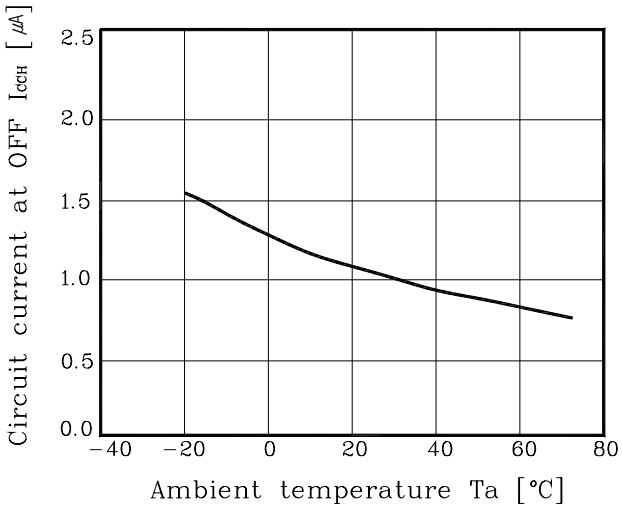
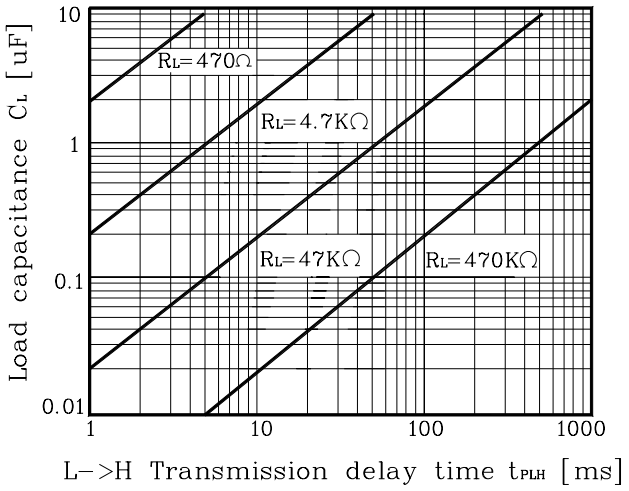


Fig. 9 $C_L - t_{PLH}$



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