

# Voltage Detector

**IL70xx**

Function of this IC is accurately resetting the system after detecting voltage at the time of switching power on and instantaneous power off in various CPU systems and other logic systems.

## FUNCTIONS

- Current Consumption is Low.
- Resetting Output Minimum Guarantee Voltage is Low (0.8V Typ.)
- Hysteresis Voltage is Provided 50mV (Typ.)
- Reset Signal Generation Starting Voltage:  
2.1; 2.3; 2.5; 2.7; 2.9; 3.1; 3.3; 3.6; 3.7; 3.9; 4.2; 4.5V (Typ.)

## APPLICATIONS

- As Control Circuit of Battery-Backed Memory.
- As Measure Against Erroneous Operations at Power ON-OFF
- As Measure Against System Runaway at Instantaneous Break of Power Supply etc.
- As Resetting Function for the CPU-Mounted Equipment, such as Personal Computers, Printers, VTRs and so forth.

**IL70xx (TO-92)**



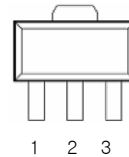
- 1. Output
- 2. GND
- 3. Vcc

**IL70xxA (TO-92)**



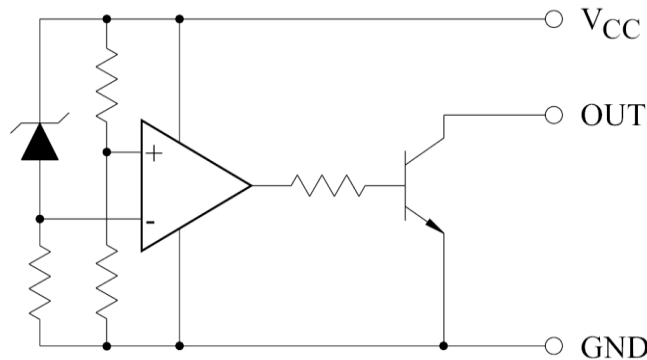
- 1. Vcc
- 2. GND
- 3. Output

**IL70xx (SOT-89)**



- 1. Vcc
- 2. GND
- 3. Output

## EQUIVALENT CIRCUIT



**MAXIMUM RATINGS** (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	Vcc	-0.3~+15.0	V
Power Dissipation (Package Limitation)	PD	500	mW
Operation Temperature	Topr	-30~+85	°C

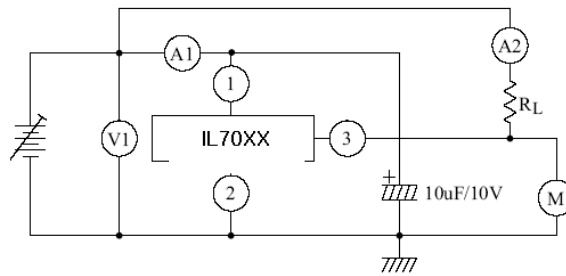
**ELECTRICAL CHARACTERISTICS**

(Tj= +25°C, unless otherwise noted)

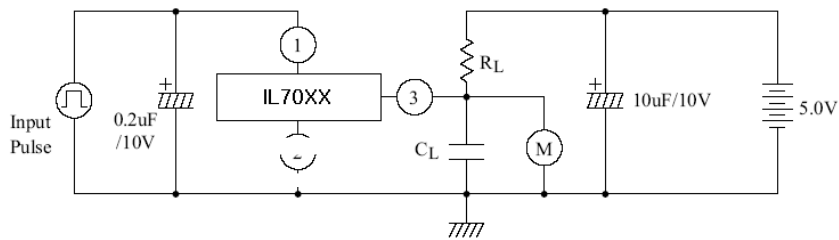
CHARACTERISTIC	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	
Detecting Voltage	Vs	RL=200Ω VOL≤0.4V	IL7021T2	1.95	2.1	2.25	V
			IL7023T2	2.15	2.3	2.45	
			IL7025T2	2.35	2.5	2.65	
			IL7027T2	2.55	2.7	2.85	
			IL7029T2	2.75	2.9	3.05	
			IL7031T2	2.95	3.1	3.25	
			IL7033T2	3.15	3.3	3.45	
			IL7036T2	3.45	3.6	3.75	
			IL7037T2	3.55	3.7	3.85	
			IL7039T2	3.75	3.9	4.05	
			IL7042T2	4.05	4.2	4.35	
IL7045T2	4.35	4.5	4.65				
Low-Level Output Voltage	VOL	RL=200Ω	-	-	0.4	V	
Output Leakage Current	IOH	Vcc=15V	-	-	0.1	μA	
Hysteresis Voltage	ΔVs	RL=200Ω	30	50	100	mV	
Detecting Voltage Temperature Coefficient	Vs/ΔT	RL=200Ω	-	±0.01	-	%/°C	
Circuit Current at on Time	IccL	Vcc=Vsmin – 0.05V	-	-	500	μA	
Circuit Current at off Time	IccH	Vcc=5.25V	-	-	50	μA	
Threshold Operating Voltage	Vopr	RL=200Ω VOL≤0.4V	-	0.8	-	V	
"L" Transmission Delay Time	tPHL	RL=1.0k , CL=100pF	-	10	-	μs	
"H" Transmission Delay Time	tPLH	RL=1.0k , CL=100pF	-	15	-	μs	
Output Current	IOL	Vcc=Vsmin – 0.05V Tc=25°C	20	-	-	mA	

**TEST and APPLICATION CIRCUITS**

TEST CIRCUIT 1.

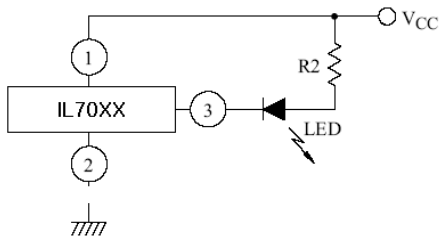


TEST CIRCUIT 2.

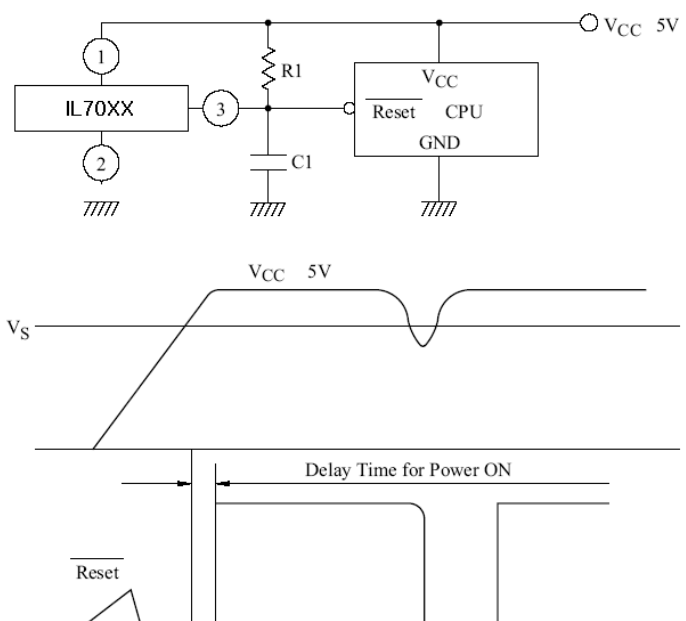


APPLICATION CIRCUIT

(1) BATTERY LOW INDICATOR



(2) CPU RESETTING

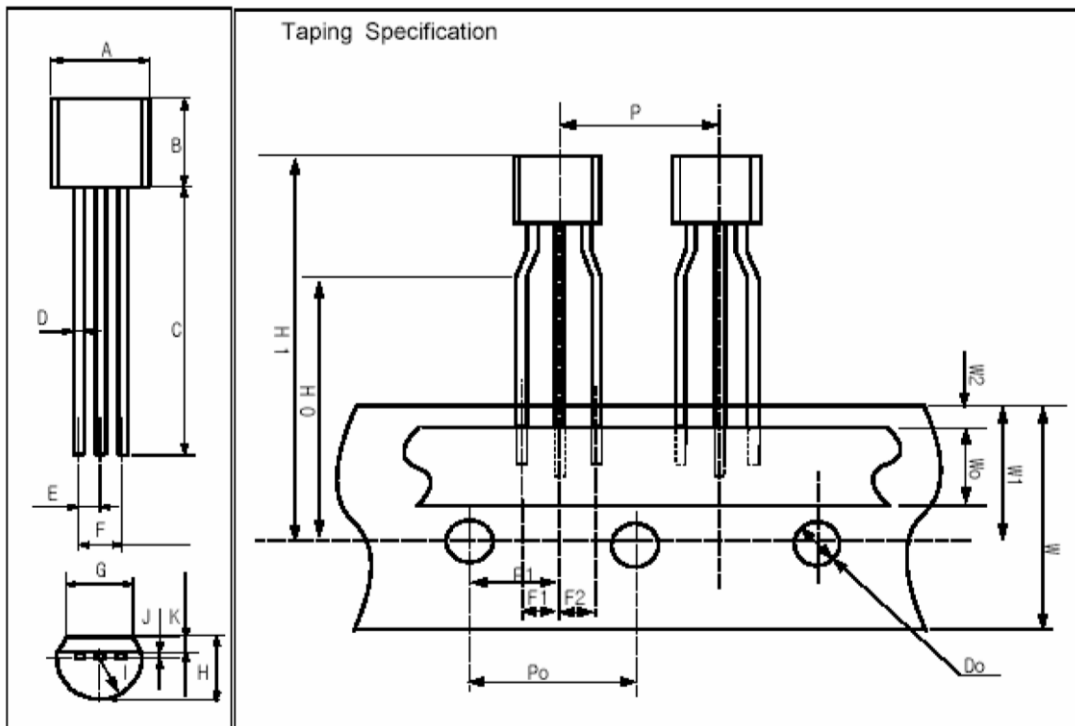


(NOTE)

- (1) Connecting of LED and R2 obtains a voltage drop indicator.
- (2) Connecting of C1 and selection of time constant with C1 and R1 set the power on delay time.

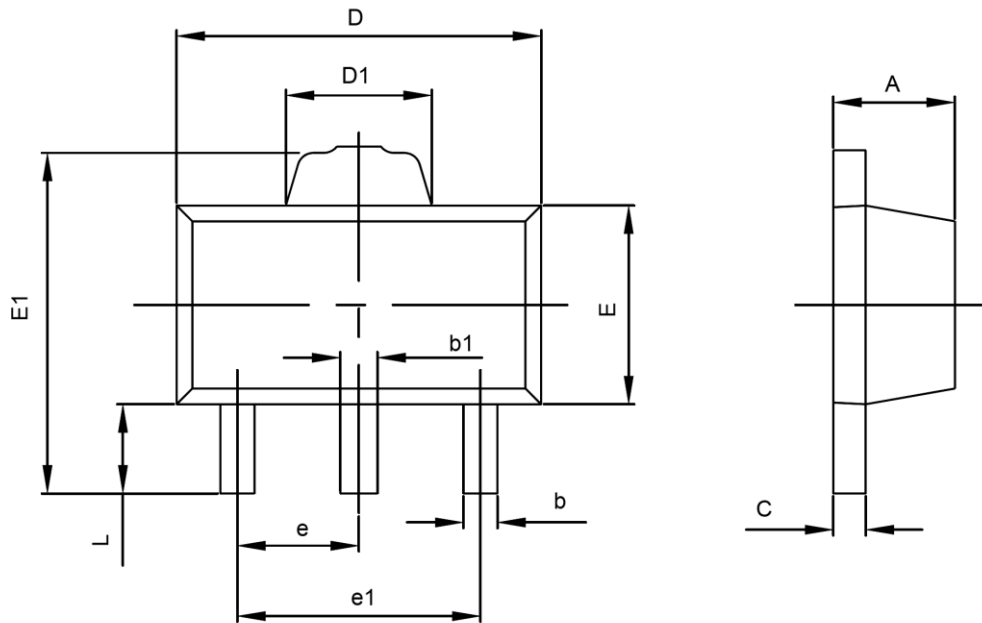
**PACKAGE DIMENSIONS**

**TO-92 PACKAGE OUTLINE DEMENSIONS**



Package Dimension(unit:mm)				Taping Dimension(unit:mm)			
Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	4.43	4.58	4.83	P	12.2	12.7	13.2
B	4.38	4.58	4.78	PO	12.5	12.7	12.9
C	14.07	14.47	14.87	P1	5.85	6.35	6.85
D	0.36	0.46	0.56	F1,F2	2.4	2.5	2.9
E	1.07	1.27	1.47	W	17.5	18.0	19.0
F	2.34	2.54	2.74	WO	5.5	6.0	6.5
G	3.40	3.60	3.80	W1	8.5	9.0	9.5
H	-	-	3.86	W2	-	-	1.0
I	-	[R2.29]	-	HO	15.5	16.0	16.5
J	0.33	0.38	0.39	H1	-	-	27.0
K	0.92	1.02	1.12	DO	3.8	4.0	4.2

SOT-89-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.360	0.560	0.014	0.022
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.400	1.800	0.055	0.071
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	2.900	3.100	0.114	0.122
L	0.900	1.100	0.035	0.043