



86N1C

LINEAR INTEGRATED CIRCUIT

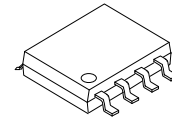
VOLTAGE DETECTING, SYSTEM RESETTING IC

DESCRIPTION

UTC **86N1C**, which has the feature of setting the detection voltage by adding external resistance is semiconductor integrated circuit for resetting of all types of logic circuits such as CPUs.

It includes a built-in delay circuit to get the desired retardation time simply by adding an external capacitor.

It is well-suited to extensive applications, including battery checking circuit, waveform shaping circuit and level detecting circuit.



SOP-8

FEATURES

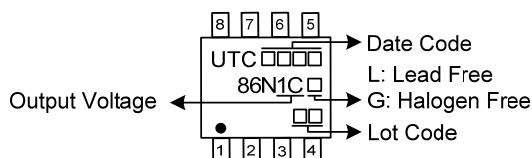
- * Few external parts
- * Low threshold operating voltage (Supply voltage to keep low-state at low supply voltage): 0.6V (Typ) at $R_L=22k\Omega$
- * Large delay time with a capacitor of small capacitance
- * Wide application range
- * Wide supply voltage range: 2V~17V
- * Open-Drain RESET Active Low Output

ORDERING INFORMATION

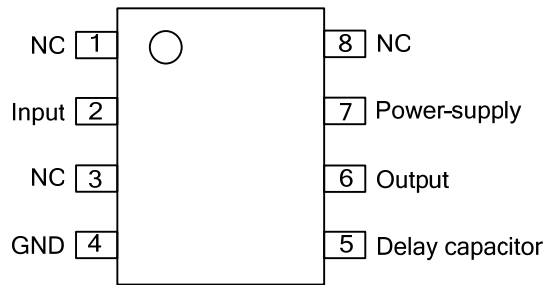
Ordering Number		Package	Packing
Lead Free	Halogen Free		
86N1CL-S08-R	86N1CG-S08-R	SOP-8	Tape Reel

<p>86N1CG-S08-R</p> <ul style="list-style-type: none"> (1)Packing Type (2)Package Type (3)Green Package (4)Output Voltage Code 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free (4) 1C: 1.25V
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MARKING



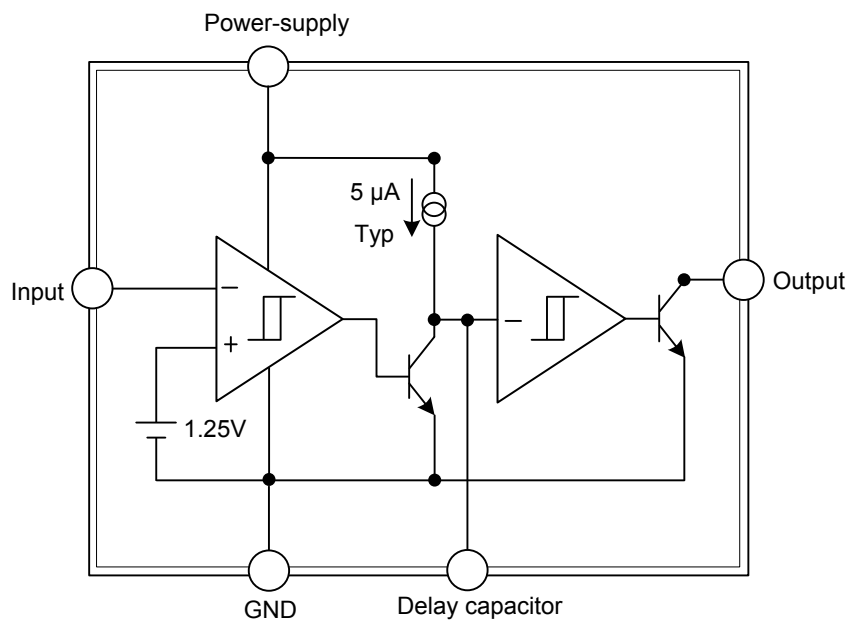
■ PIN CONFIGURATION



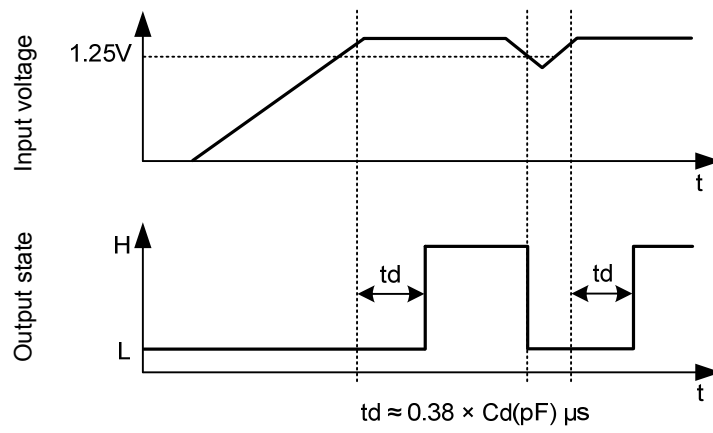
■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1, 3, 8	NC	No Connection
2	Input	Input Voltage
4	GND	Ground
5	Delay capacitor	External Delay Capacitor
6	Output	Output
7	Power-supply	Supply Voltage

■ BLOCK DIAGRAM



■ OPERATING WAVEFORM



■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	18	V
Input Voltage Range	$V_{CC}\leq 7V$	$-0.3 \sim V_{CC}$	V
	$V_{CC}>7V$	$-0.3 \sim +7$	V
Output Sink Current	I_{sink}	6	mA
Output Voltage	V_O	18	V
Power Dissipation	P_D	400	mW
Thermal Derating	$K\theta$	4.4	mW/ $^\circ\text{C}$
Operating Temperature	T_{OPR}	$-40 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +125$	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Detecting Voltage	V_S		1.20	1.25	1.30	V	
Hysteresis Voltage	ΔV_S	$V_{CC}=5V$	9	15	23	mV	
Detecting Voltage Temperature Coefficient	$V_S/\Delta T$			0.01		%/ $^\circ\text{C}$	
Supply Voltage Range	V_{CC}		2		17	V	
Input Voltage Range	V_{IN}	$V_{CC}\leq 7V$	-0.3		V_{CC}	V	
		$V_{CC}>7V$	-0.3		7.0	V	
Input Current	I_{IN}	$V_{IN}=1.25V$		100	500	nA	
Circuit Current	I_{CC}	$V_{CC}=5V$		270	540	μA	
Delay Time	t_{pd}	$C_d=0.01\mu\text{F}$ (Note)	1.6	3.8	7.0	ms	
Constant Current	I_{pd}	$V_{CC}=5V$	-8	-5	-3	μA	
Output Saturation Voltage	V_{sat}	$V_{CC}=5V, V_{IN}<1.2V, I_{\text{sink}}=4\text{mA}$		0.25	0.4	V	
Threshold Operating Voltage	V_{OPL}	minimum supply voltage for IC operation	$R_L=2.2\text{k}\Omega, V_{\text{SAT}}\leq 0.4V$		0.67	0.8	V
			$R_L=100\text{k}\Omega, V_{\text{SAT}}\leq 0.4V$		0.55	0.7	V
Output Leakage Current	I_{OH}				30	nA	

Note: Please set the desired delay time by attaching capacitor of the range between 4700pF and 10 μF .

■ TYPICAL APPLICATION CIRCUIT

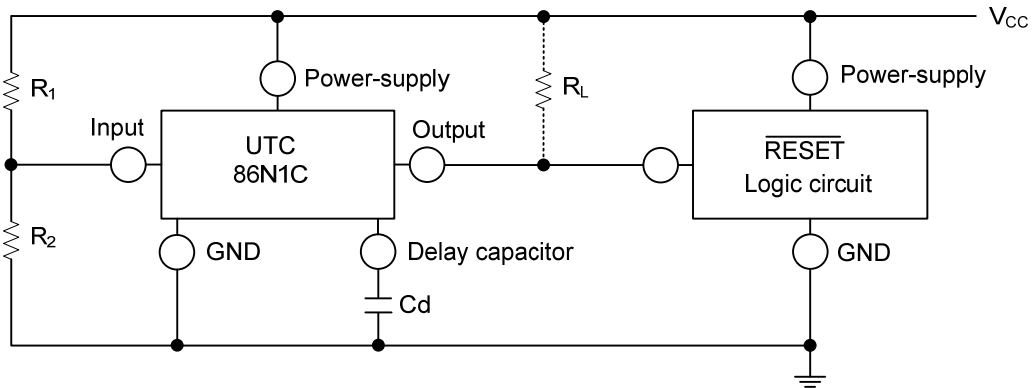


Figure 1 Reset Circuit of UTC 86N1C

- Notes:
1. The detecting supply voltage is $V_S \times (R_1 + R_2)/R_2$ (V) approximately. $V_S=1.25V$ (Typ)
The detecting supply voltage can be set between 2V and 15V.
 2. The delay time is about $0.38 \times C_d$ (pF) μs .
 3. The logic circuit preferably should not have a pull-down resistor, but if one is present, add load resistor R_L to overcome the pull-down resistor.
 4. When a negative supply voltage is used, the supply voltage side of UTC **86N1C** and the GND side are connected to negative supply voltage respectively.

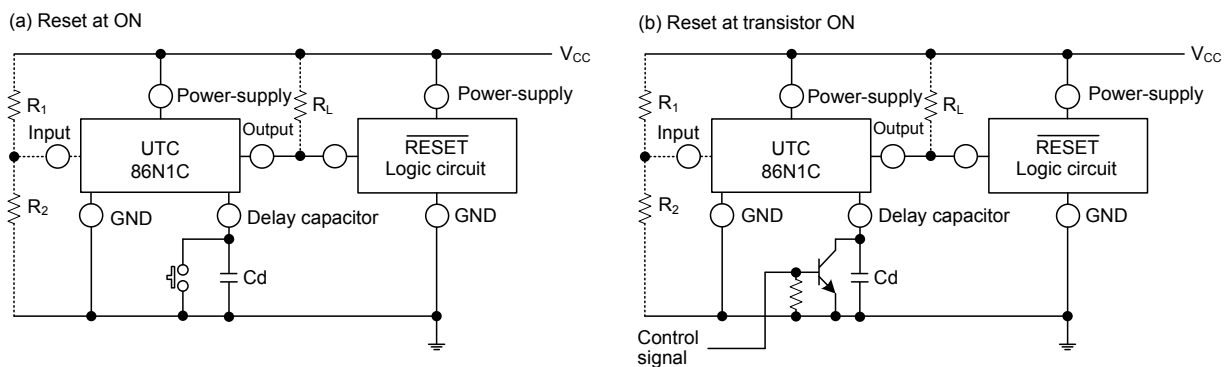


Figure 2 Case of Using Reset Signal except Supply Voltage in the UTC 86N1C

■ TYPICAL APPLICATION CIRCUIT (Cont.)

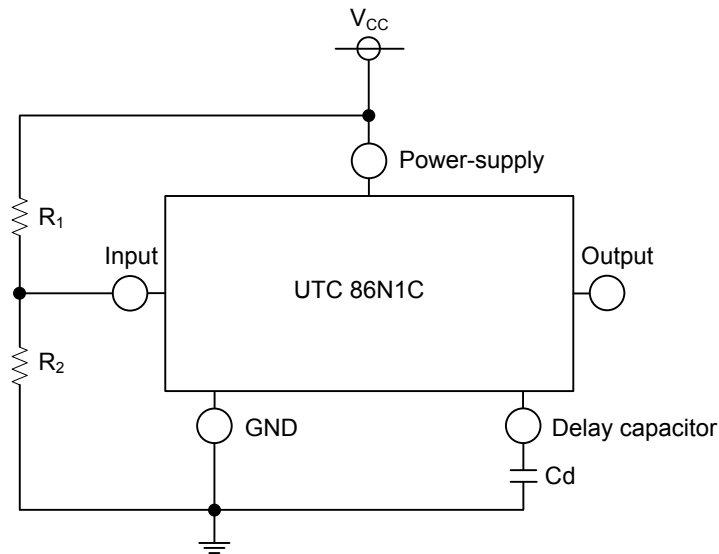


Figure 3 Delay Waveform Generating Circuit

Note: 1. When UTC 86N1C are used, a waveform with a large delay time can generate only by adding a small capacitor.

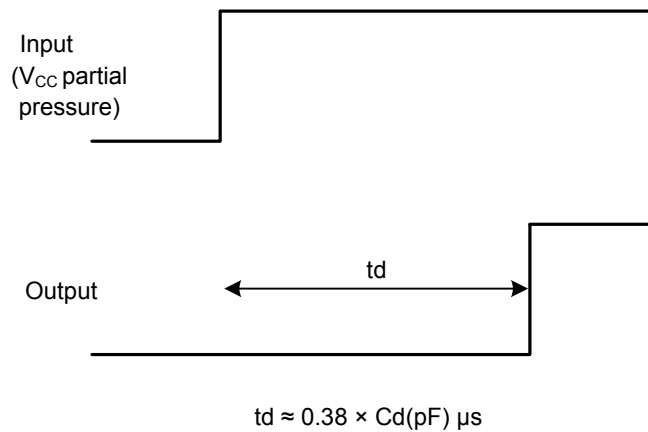
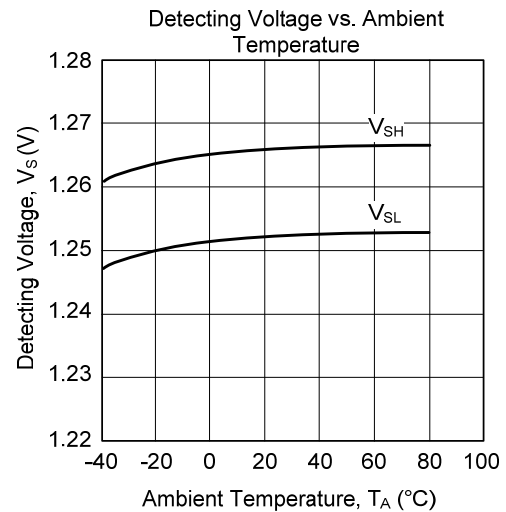
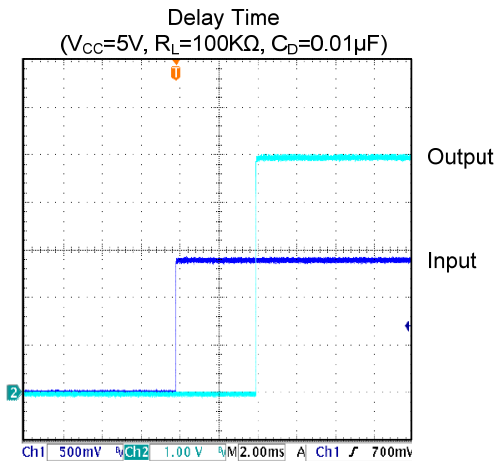
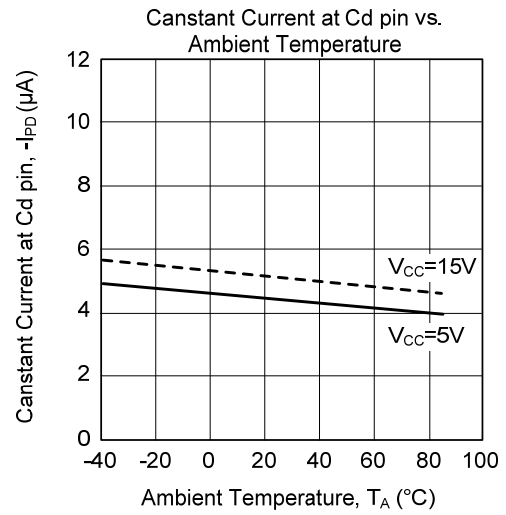
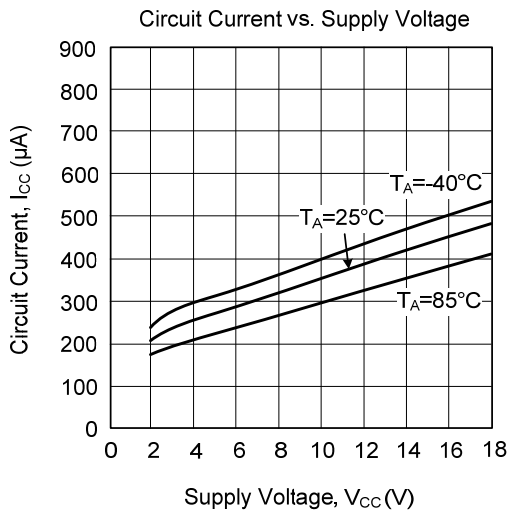
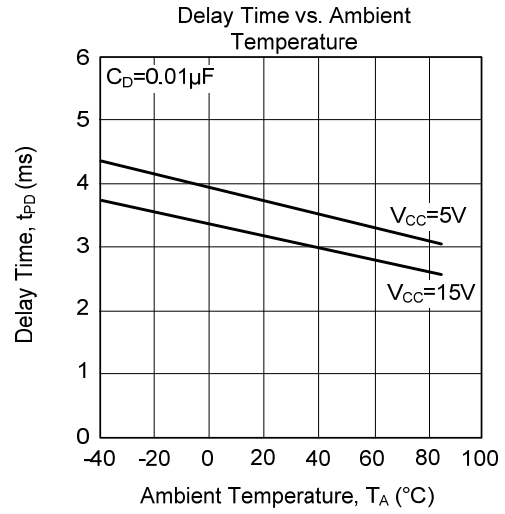
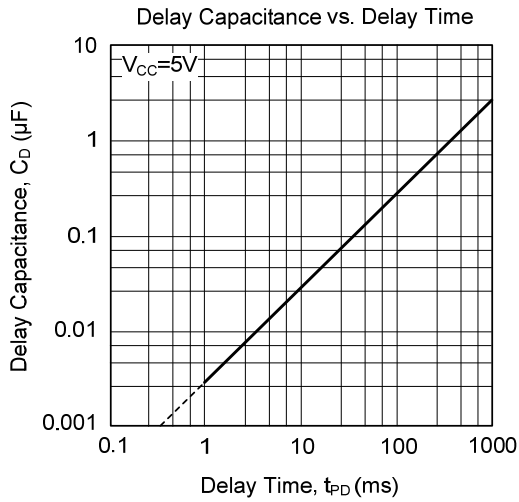
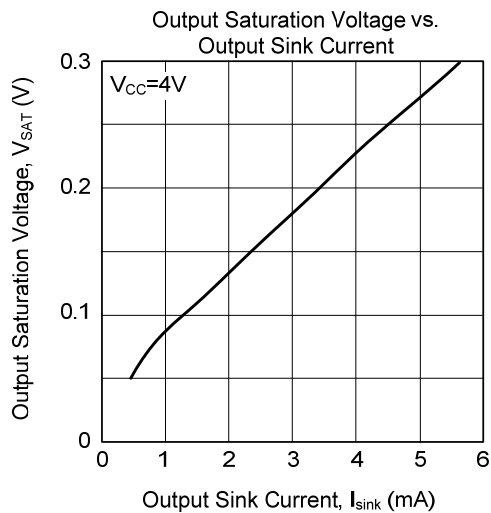
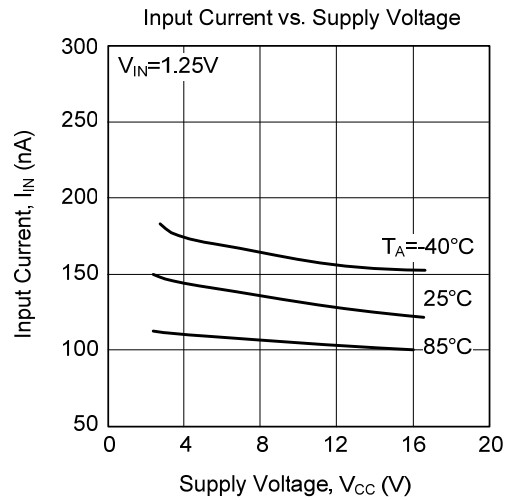
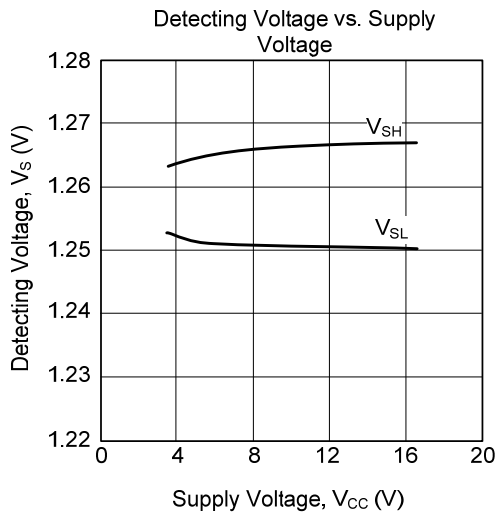


Figure 4 Operating Waveform

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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