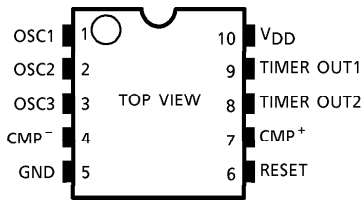


FUNCTION DESCRIPTION ON EACH TERMINAL

PIN No.	SYMBOL	FUNCTION
1	OSC1	Oscillation input terminal
2	OSC2	Oscillation input terminal
3	OSC3	Oscillation input terminal
4	CMP ⁻	Comparator minus (-) side input terminal "L" : Timer mode, "H" : Timer over voltage detection mode
5	GND	GND
6	RESET	Reset terminal (H→L : inside reset)
7	CMP ⁺	Comparator plus (+) side input terminal "H" : Timer mode, "L" : Timer over voltage detection mode
8	TIMER OUT2	Timer output terminal 2 (TIMER OUT1) (N-ch open drain, sink max. 5mA)
9	TIMER OUT1	Timer output terminal 1 (N-ch open drain, sink max. 5mA)
10	V _{DD}	Power supply voltage

PIN CONNECTION



TRUTH TABLE

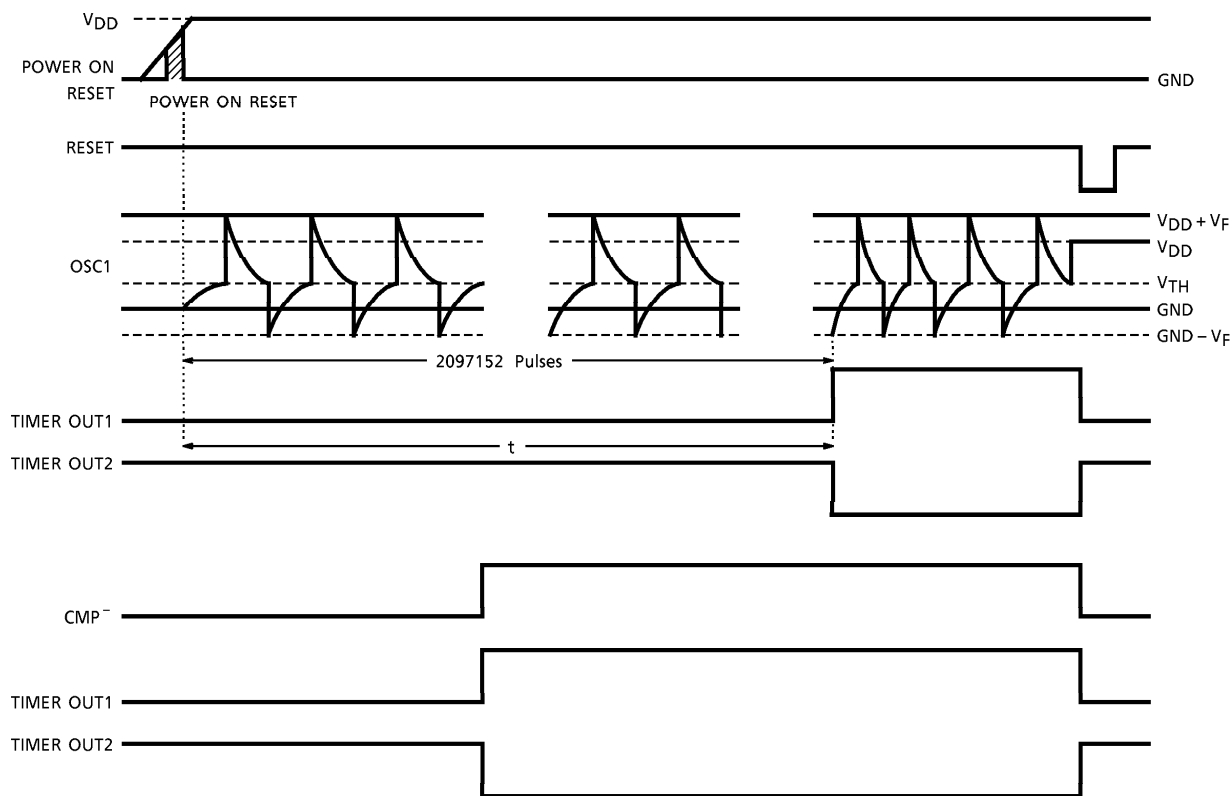
MODE	INPUT			OUTPUT
	RESET	CMP ⁺	CMP ⁻	
1	L	(*)	(*)	L
2	H	H	L	Timer mode
3	H	L	H	Timer over voltage detecting mode

(*) : H or L
Turning the power supply on, "Power on Reset" is operated and output level is "L".

961001EBA2'

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TIMING CHART



MAXIMUM RATINGS (T_a = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{DD}	- 0.3 ~ 7.0	V
Power Dissipation	P _D	250 ~ 300	mW
Operating Temperature	T _{opr}	- 20 ~ 75	°C
Storage Temperature	T _{stg}	- 55 ~ 125	°C
Electrostatic Discharge	ESD (*)	± 200	V
Latch Up Current	I _L	± 10	mA

(*) : C = 200pF, R = 0Ω, one time discharge

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, $V_{DD} = 5.0V$, $T_a = 25 \pm 1.5^\circ C$)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage		V _{opr}	—		4.0	5.0	6.0	V
Oscillation Frequency Characteristic		Δf _{OSC1}	—	1H C = 4700pF R = 254.9kΩ, V _{DD} = 4~6V (f = 582.5Hz)	- 15	—	15	%
		Δf _{OSC2}	—	60s C = 1000pF R = 17.2kΩ, V _{DD} = 4~6V (f = 34.9Hz)	- 20	—	20	
				8H C = 0.01μF R = 996.7kΩ, V _{DD} = 4~6V (f = 72.8Hz)		—		
Power Dissipation Current	1	I _{QD}	—	CR OSC. stopping (at reset) V _{DD} = 6V	—	—	130	μA
	2	I _{DD}	—	CR OSC. operating	—	—	700	

DC CHARACTERISTICS

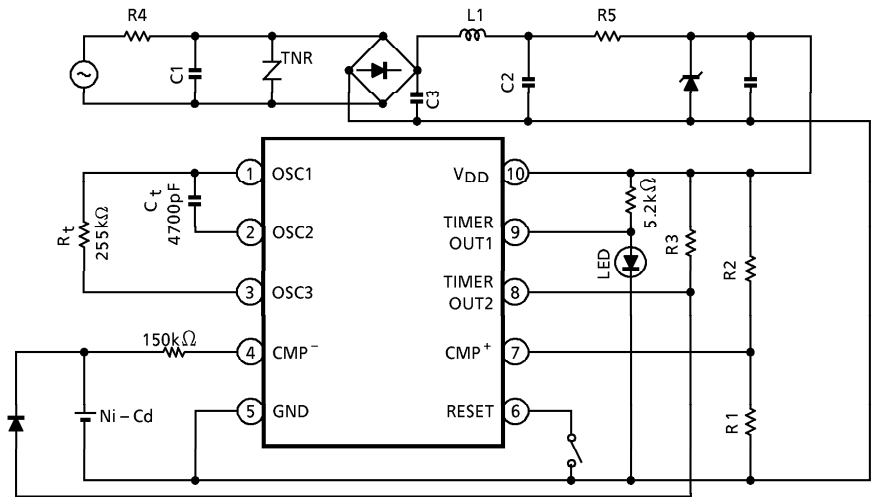
1. Oscillation Input							
OSC1 Leak Current	$I_{IH\ OSC}$	—	$V_{IN} = 5.0V$	- 1.0	—	1.0	μA
OSC1 Leak Current	$I_{IL\ OSC}$	—	$V_{IN} = 0V$	- 1.0	—	1.0	μA
2. CMP Terminal							
CMP Offset Voltage	V_{off}	—	$V_{DD} = 5V$	- 30	—	30	mV
Offset Supply Voltage Change	ΔV_{off}	—	$V_{DD} = 4 \sim 6V$	- 10	—	10	mV
CMP ⁺ , CMP ⁻ , Leak Current	$I_{IH\ CMP^{+,-}}$	—	$V_{IN} = 5.0V$	- 1.0	—	1.0	μA
	$I_{IL\ CMP^{+,-}}$		$V_{IN} = 0V$	- 1.0	—	1.0	
Input Dynamic Range		—		0	—	$V_{DD} - 2.5$	V
3. Reset Terminal							
Leak Current	I_{IHR}	—	$V_{IN} = 5.0V$	- 1.0	—	1.0	μA
Input Pull Up Resistance	$R3$	—		490	700	910	$k\Omega$
4. Timer Out Terminal							
Timer Out1, 2 Sink Current	I_{TS}	—	$V_{OL} = 0.3V$	—	—	5	mA
Timer Out Offleak Current	$I_{TSLH1, 2}$	—	$V_{IN} = 0 \sim 5.0V$	- 1.0	—	1.0	μA

FUNCTION CHARACTERISTICS

Timer Precision	$\Delta T1$	—	C = 4700pF, R = 254.9k Ω V _{DD} = 4 ~ 6V (1H)	- 15		15	%
	$\Delta T2$	—	C = 1000pF, R = 17.2k Ω V _{DD} = 4 ~ 6V (60s)	- 20		20	
			C = 0.01 μ F, R = 966.7k Ω V _{DD} = 4 ~ 6V (8H)				

APPLICATION CIRCUIT (Example)

1 hour setting



- Timer setting time -

$$T = 2^{21} \cdot C_t \cdot R_t \cdot \ln \left\{ \frac{V_{DD}^2 - V_f^2}{V_{TH} (V_{DD} - V_{TH})} \right\}$$

T : Timer setting time (s)

C_t (F)

R_t (Ω)

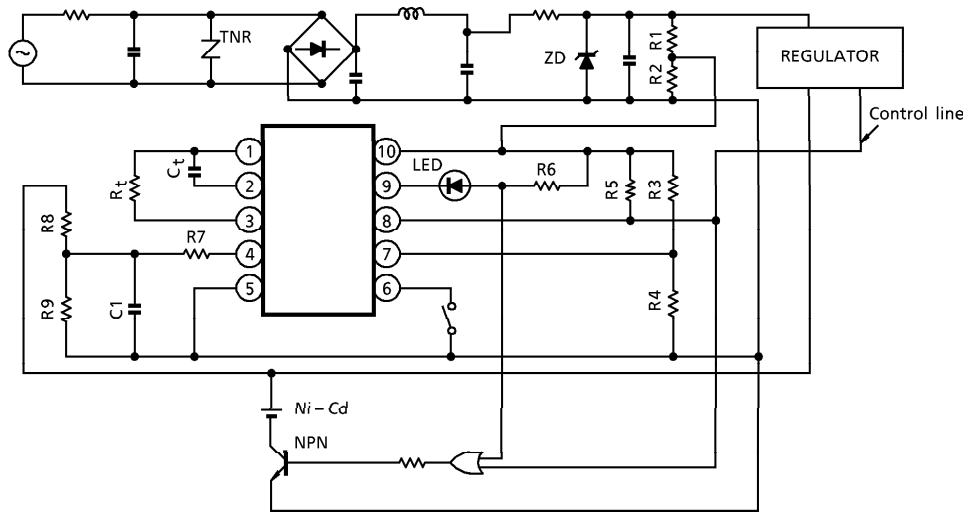
V_{TH} = 1.95 (V) : Voltage of OSC. first stage circuit

V_f = 0.7 (V) : Voltage of input protection diode (1pin)

(*) Recommendation of timer setting

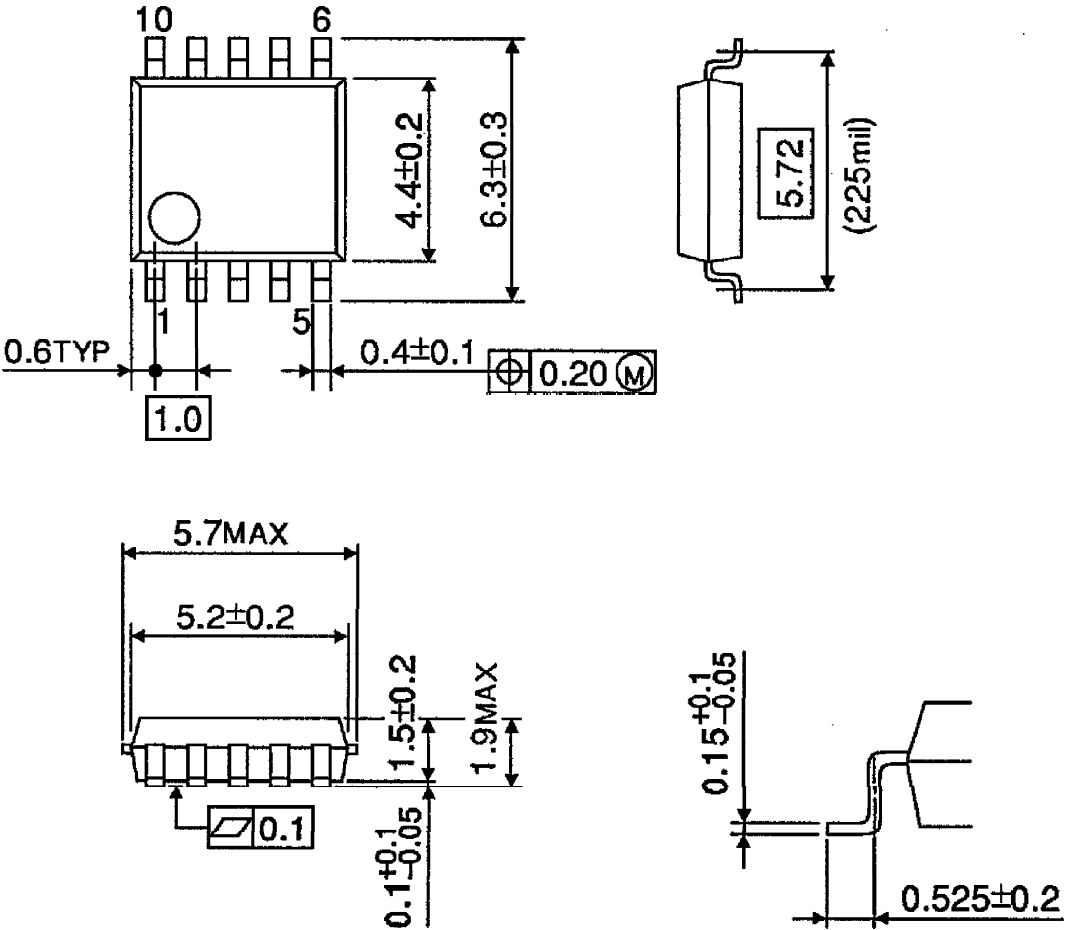
TIMER SET UP	R _t	C _t
About 60s	17.2kΩ	1000pF
About 1H	254.9kΩ	4700pF
About 8H	966.7kΩ	0.01μF

APPLICATION CIRCUIT (Example)



OUTLINE DRAWING
SSOP10-P-225-1.00

Unit : mm



Weight : 0.1g (Typ.)