

Таймеры

Таймеры **M1006ВИ1, P1106ВИ1, KP1006ВИ1** являются интегральными времязадающими схемами и изготавливаются для применения как в специальной аппаратуре, так и в аппаратуре широкого применения. Таймеры **M1006ВИ1, P1106ВИ1** повышенной надежности дополнительно маркируются индексом **ОСМ**.

Тип изделия	Номер ТУ	Тип корпуса
M1106ВИ1	бК0.347.395-01ТУ	201.14-10
P1106ВИ1	бК0.347.395-01ТУ	201.14-1
KP1106ВИ1	бК0.348.685 ТУ	201.08-1

Таблица назначения выводов

Номер вывода. Тип корпуса			Назначение вывода		
201.14-10	201.14-1	201.8-1			
1	1	1		Общий	
3	3	2		Запуск	
4	4	3		Выход	
6	6	4		Сброс	
8	8	5		Контроль делителя	
10	10	6		Срабатывание	
12	12	7		Цепь разряда	
14	14	8		Положительное напряжение питания	

Габаритные чертежи указанных выше корпусов приведены ниже

Основные электрические параметры при температуре 0 - 70 °C

Наименование параметра, единица измерения	Буквен. обознач.	Норма				Режим измерения			
		M1006ВИ1 P1006ВИ1		KP1006ВИ1		U_{CC} В	U_T В	U_I В	I_O мА
		не менее	не более	не менее	не более				
Выходное напряжение низкого уровня, В	U_{OL}	-	2,2	-	2,5	15	11,5-14	7,0-9,5	100
		-	0,2	-	0,35	5	3,7-4,7	2,3-3,3	5
Выходное напряжение высокого уровня, В	U_{OH}	12,5	-	12,5	-	15	5,5-8,0	0,7-1,5	100
		3,0	-	2,75	-	5	1,8-2,8	0,3-0,8	100

Основные электрические параметры при приемке и поставке

Продолжение таблицы

Наименование параметра, единица измерения	Буквен. обознач.	Норма				Режим измерения			
		M1006ВИ1 P1006ВИ1		KP1006ВИ1					
		не менее	не более	не менее	не более	U _{cc} В	U _T В	U _I В	I _O мА
Ток потребления, мА	I _{cc}	-	12	-	15	15	11,5-14	7,0-9,5	-
		-	5	-	6	5	3,7-4,7	2,3-3,3	-
Входной ток, мкА	I _I	-	0,9	-	2	15	5,5-8,0	-	-
Ток сброса, мА	I _R	-	1,0	-	1,5	15	5,5-8,0	0,7-1,5	-
Начальная погрешность, %	δ _O	-	2,0	-	3,0	15	-	-	-

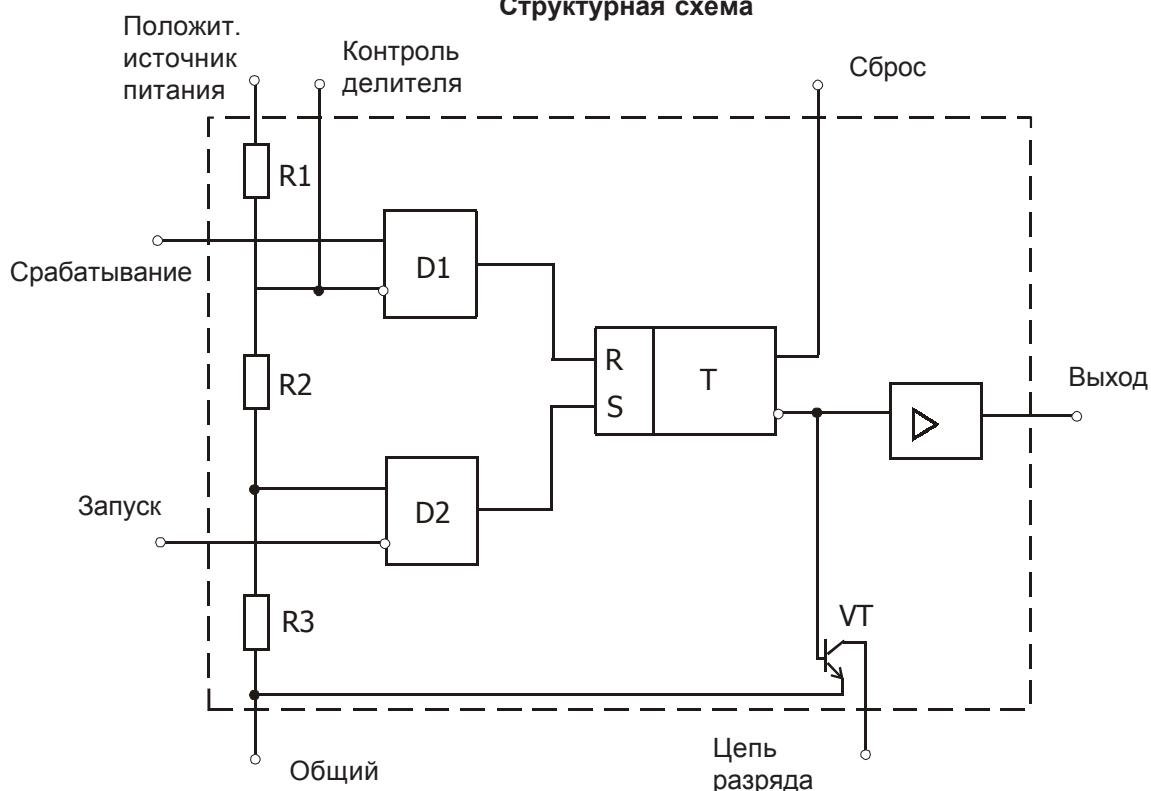
Предельно-допустимые параметры эксплуатации

Наименование параметра, единица измерения	Буквенное обозначе- ние па- раметра	Норма				Время воздействия предельного режима эксплуатации	Примечание		
		Предельно-допу- стимый режим		Предельный режим					
		не менее	не более	не менее	не более				
Напряжение питания, В	U _{cc}	5,0	15,0	4,5	16,5	2 часа			
Ток нагрузки, мА	I _O	-	100	-	200*				
Рассеиваемая мощность, мВт	P _{tot}	-	-	-	600				

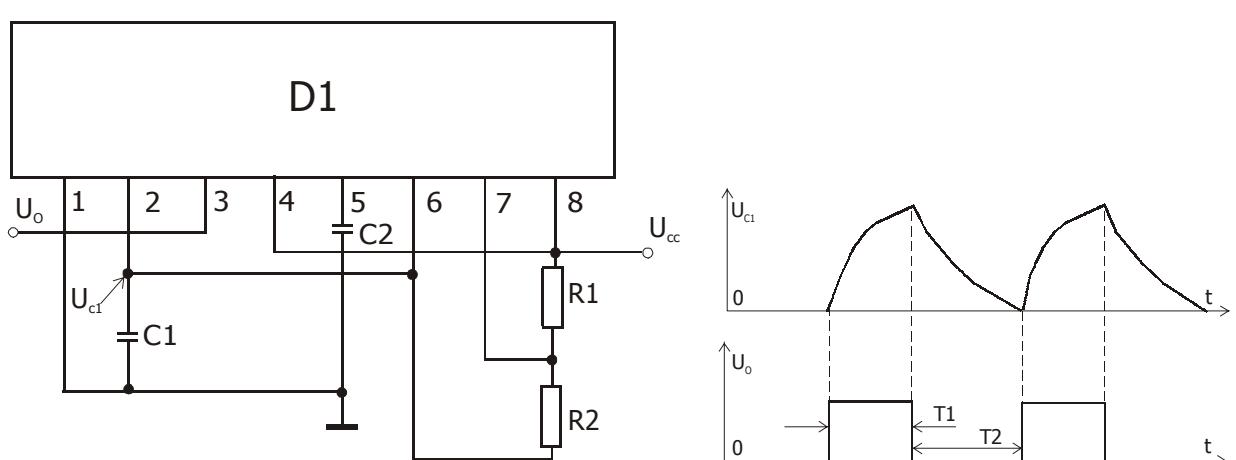
Примечания:

1. Предельный режим для изделий KP1006ВИ1 не оговаривается
2. * - При условии требования по предельной рассеиваемой мощности.

Структурная схема



**Схема включения микросхемы в режиме генератора
самовозбуждения**



$R_1+R_2 < 10 \text{ МОм}$ при $U_{cc}=15 \text{ В}$

$R_1+R_2 < 3 \text{ МОм}$ при $U_{cc}=5 \text{ В}$

$R_2 > 3 \text{ кОм}$

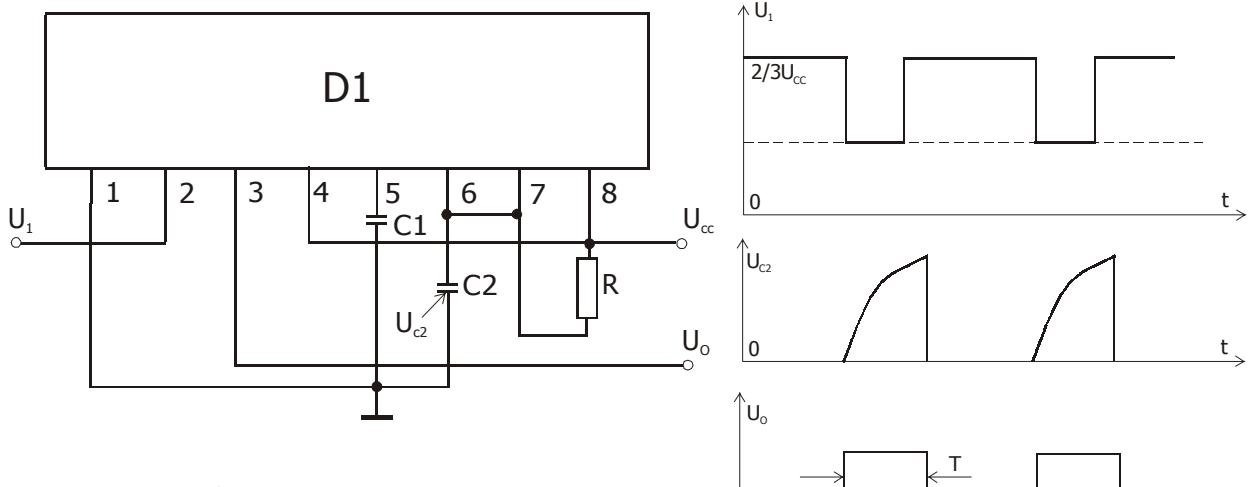
$C_2 = 0,01 - 0,1 \text{ мкФ}$

$T_1 = 0,695 \cdot (R_1+R_2) \cdot C_1$

$T_2 = 0,695 \cdot R_2 \cdot C_1$

Нумерация выводов микросхемы указана для корпуса 201.8-1

**Схема включения микросхемы в режиме генератора
с внешним запуском**



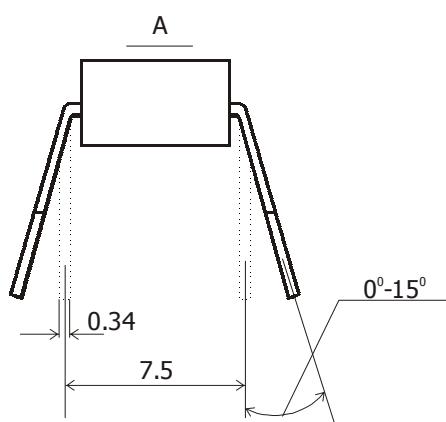
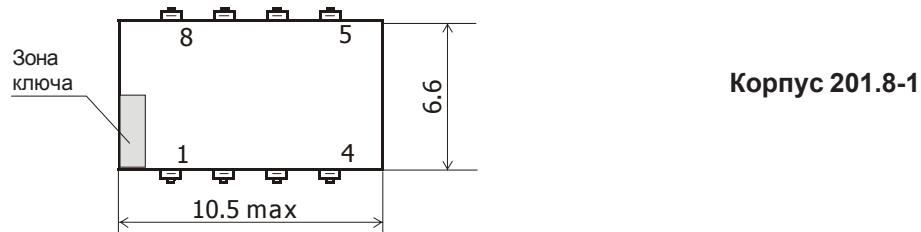
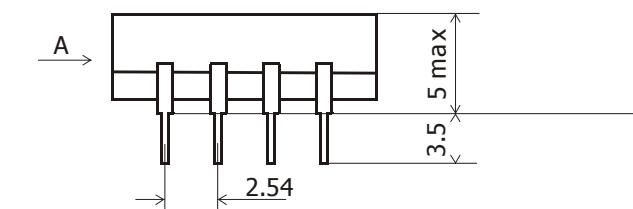
R = 3 - 10⁴ кОм при U_{cc} = 15 В

R = (3 - 3•10³) кОм при U_{cc} = 5 В

C1 = 0,01 - 0,1 мкФ

T = 1,1•R•C2

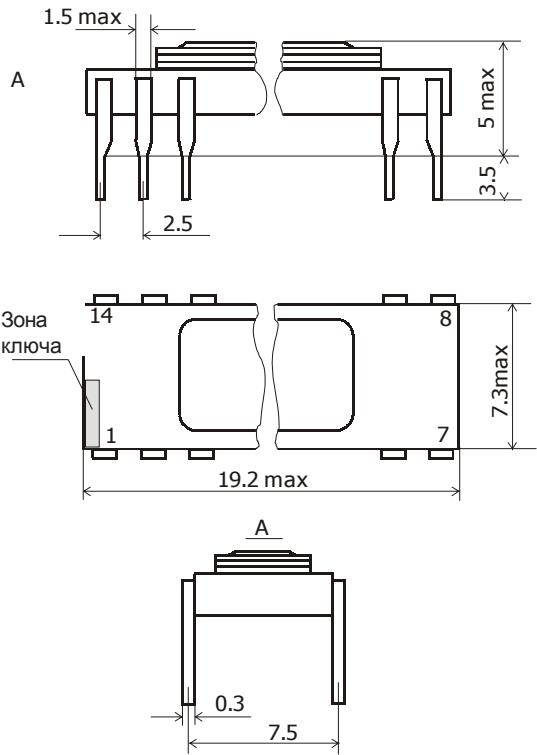
Нумерация выводов микросхемы указана для корпуса 201.8-1



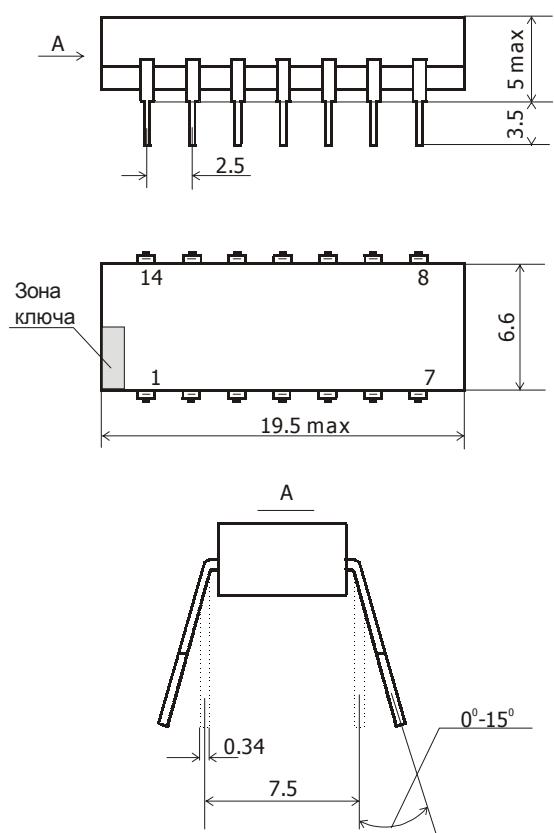
**М1106ВИ1
Р1106ВИ1
КР1106ВИ1**

www.batcom.ru

Корпус 201.14-10



Корпус 201.14-1



AS556CN

Note 1: Supply current when output high typically 1 mA less Vcc=5 V.

Note 2: Tested at Vcc=5 V and Vcc=15 V.

Note 3: As reset voltage lowers, then 0,4 V timing is inhibited and than the output goes low. The maximum value of reset voltage less then 1 V.

Note 4: This will determine the maximum value of $R_A + R_B$ for 15 V operation. The maximum total ($R_A + R_B$) is 20 MΩ.

Note 5: No protection against excessive pin 1, 13 current is necessary providing the package dissipation rating will not be exceeded.

Note 6: Matching characteristics refer to the difference between performance characteristics of each timer section.

Note 7: For operating at elevated temperatures the device must be derated based on a +150°C maximum junction temperature. Thermal resistance is 100°C/W.

AS556CN

Dual Timer

Description

The AS556CN Dual timing circuit is a highly stable controller capable of producing accurate time delays or oscillation. The AS556CN is a dual AS555CN. Timing is provided by an external resistor and capacitor for each other sharing only V_{cc} and ground. The circuits may be triggered and reset on falling waveforms. The output structures may sink or source 200 mA.

Features

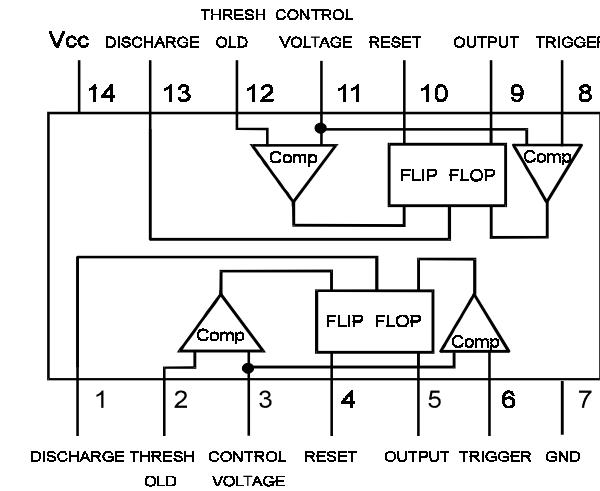
- Timing from microsecond to hours.
- Operates in both the astable and monostable modes.
- Replaces two AS555CN timers.
- Adjustable duty cycle.
- Output can source or sink 200 mA.
- Output and supply TTL compatible.
- Temperature stability of 0,005 %/°C.
- Normally on and normally off output.

Applications

- Precision timing.
- Pulse generation.
- Sequential timing.
- Time delay generation.
- Pulse width modulation.
- Pulse position modulation.
- Linear ramp generator

Connection Diagram

Package: 14-lead plastic DIP (2,50mm step, 7,5mm base)



LM556CN

Absolute maximum ratings

Supply voltage.....	+16 V
Power dissipation (Note 7)	600 mW
Operating temperature range	0°C to +70°C
Storage temperature range	-65°C to +150°C
Soldering (10 seconds)	260°C

Electrical characteristics

$T_{amb}=25^\circ\text{C}$, $Vcc= +5\text{V}$ to $+15\text{V}$ unless otherwise specified

Parameter	Test conditions	Limits			Units
		Min	Typ	Max	
Supply Voltage		4,5	16,0	V	
Supply Current (low state)	$Vcc=5 \text{ V}$, no load	6,0	12,0	mA	
	$Vcc=15 \text{ V}$, no load (Low State) (Note 1)	20,0	28,0	mA	
Timing Error (monostable)	$R_A=100 \text{ k}\Omega$				
Initial Accuracy	$C=0,1 \mu\text{F}$ (Note 2)	1,0	3,0	%	
Drift with Temperature		50		ppm/ $^\circ\text{C}$	
Accuracy over Temperature		1,5		%	
Drift with Supply Voltage		0,1		%/V	
Timing Error (astable)	$R_A=1 \text{ k}\Omega$ to $100 \text{ k}\Omega$				
Initial Accuracy	$C=0,1 \mu\text{F}$ (Note 2)	2,25		%	
Drift with Temperature		150		ppm/ $^\circ\text{C}$	
Accuracy over Temperature		3,0		%	
Drift with Supply Voltage		0,3		%/V	
Control Voltage Level and Threshold Voltage	$Vcc=15 \text{ V}$	9,0	10,0	11,0	V
	$Vcc=5 \text{ V}$	2,6	3,33	4,0	V
Trigger Voltage	$Vcc=15 \text{ V}$	4,5	5,0	5,5	V
	$Vcc=5 \text{ V}$	1,25	1,67	2,0	V
Trigger Current		0,2	2,0	μA	
Reset Voltage	(Note 3)	0,7		V	
Reset Current		0,1	0,6	mA	

AS556CN

Electrical characteristics

$T_{amb}=25^\circ\text{C}$, $Vcc= +5\text{V}$ to $+15\text{V}$ unless otherwise specified

Parameter	Test conditions	Limits			Units
		Min	Typ	Max	
Threshold Current	$V_{TH}=V\text{-Control}$ (Note 4)				μA
	$V_{TH}= 11,2\text{V}$				μA
Pin1,13 Leakage Output High				1,0	100 nA
Pin1,13 Sat	(Note 5)				
Output Low	$V_{cc}=15\text{V}; I =15\text{mA}$			180	mV
Output Low	$V_{cc}=4,5\text{V}; I =4,5\text{mA}$			80	mV
Output Voltage Drop (low)	$Vcc=15 \text{ V}$				
	$I_{sink}=10\text{mA}$			0,1	V
	$I_{sink}=50\text{mA}$			0,4	V
	$I_{sink}=100\text{mA}$			2,0	2,75 V
	$I_{sink}=200\text{mA}$			2,5	V
	$Vcc=5 \text{ V}$				
	$I_{sink}=5\text{mA}$			0,1	0,25 V
Output Voltage Drop (high)	$Vcc=15 \text{ V}$				
	$I_{source}=200\text{mA}$			12,5	V
	$I_{source}=100\text{mA}$			12,75	13,3 V
	$Vcc=5 \text{ V}$				
	$I_{source}=100\text{mA}$			2,75	3,3 V
Rise Time of Output				100	ns
Fall Time of Output				100	ns
Matching Characteristics (Note 6)					
Initial Timing Accuracy				0,1	%
Timing Drift with Temperature				± 10	ppm/ $^\circ\text{C}$
Drift Supply Voltage				0,2	%/V

AS7555CN

Electrical characteristics

($T_{amb}=25^{\circ}\text{C}$, $U_{cc}=+3\text{V}$ to $+15\text{V}$ Unless Noted)

Parameter	Test conditions	Limits			Unit
		Min	Typ	Max	
Rise Time of Output (t_r) ⁴	$R_L=10\text{M}\Omega$, $C_L=10\text{pF}$, $V^+=5\text{ V}$		40		ns
Fall Time of Output (t_f) ⁴	$R_L=10\text{M}\Omega$, $C_L=10\text{pF}$, $V^+=5\text{ V}$		40		ns
Guaranteed Max Osc Freq (f_{max}) ⁴	Astable Operation	500			kHz

Note 1: Due to the SCR structure inherent in the CMOS process used to fabricate these devices, connecting any terminal to a voltage greater than $V^+ + 0.3\text{ V}$ or less than $V^- - 0.3\text{ V}$ may cause destructive latchup. For this reason it is recommended that no inputs from external sources not operating from the same power supply be applied to the device before its power supply is established. In multiple systems, the supply of the LM7555 must be turned on first.

Note 2: Junction temperatures should not exceed 135°C and the power dissipation must be limited to 20 mW at 125°C . Below 125°C power dissipation may be increased to 300 mW at 25°C . Derating factor is approximately $2\text{ mW}^{\circ}\text{C}$

Note 3: The supply current value is essentially independent of the TRIGGER, THRESHOLD and RESET voltage.

Note 4: Parameter is not 100% tested. Majority of all units meet this specification.

AS7555CN

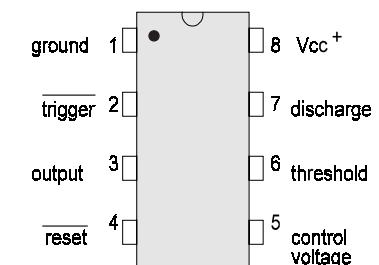
Timers

Description

The AS7555 is single general purpose RC timer capable of generating accurate time delays or frequencies. The primary feature is an extremely low supply current, making this device ideal for battery-powered systems. Additional features include low THRESHOLD, TRIGGER, and RESET current, a wide operating supply voltage range, and improved performance at high frequencies.

This CMOS low-power device offer significant performance advantages over the standard 555 bipolar timer. Low-power consumption, combined with the virtually non-existent current spike during output transistors, make this timer the optimal solution in many applications.

Pin configurations



Package: 8-lead plastic DIP

Features

- Wide Supply Voltage Range: 3-18 V
- No Crowbarring of Supply During Output Transition
- Adjustable Duty Cycle
- Low THRESHOLD, TRIGGER and RESET Currents
- TTL Compatible
- Monolithic, Low Power CMOS Design

Applications

- Pulse Generator
- Precision Timing
- Time Delay Generation
- Pulse Width Modulation
- Pulse Position Modulation
- Sequential Timing
- Missing Pulse Detector

Absolute maximum ratings¹

Supply Voltage	+18 V
Input Voltage TRIGGER	
Control Voltage THRESHOLD	<V ⁺ +0.3V to ≥ -0.3V
RESET	
Output Current	100 mA
Power Dissipation ²	200 mW
Operating Temperature Range	0°C to +70°
Storage Temperature	-65°C to +150°
Lead Temperature (Soldering 60 Seconds)	+265°C

Electrical characteristics(T_{amb}=25°C, Ucc= +3V to +15V Unless Noted)

Parameter	Test conditions	Limits			Unit
		Min	Typ	Max	
Supply voltage (V ⁺)	-20°C ≤ T _{amb} ≤ +85°	3	18	V	
Supply Current (I ⁺) ³	V ⁺ =5 V	80	120	μA	
	V ⁺ =16.5 V	160	250	μA	
Timing Error	R _A , R _B =1k to 100k, 5V ≤ V ⁺ ≤ 15V, C=0.1μF				
Initial Accuracy		2.0	5.0	%	
Drift with Temperature ⁴	V ⁺ =5 V	50		ppm/°C	
	V ⁺ =10 V	75			
	V ⁺ =15 V	100			
Drift with Supply Voltage ⁴	V ⁺ =5 V	1.0	3.0	%/V	
Threshold Voltage (V _{TH}) ⁴	V ⁺ =5 V	0.63	0.66	0.67	V ⁺

Electrical characteristics(T_{amb}=25°C, Ucc= +3V to +15V Unless Noted)

Parameter	Test conditions	Limits			Unit
		Min	Typ	Max	
Trigger Voltage (V _{TRIG}) ⁴	V ⁺ =5 V	0.29	0.33	0.34	V ⁺
Trigger Current (I _{TRIG}) ⁴	V ⁺ =18 V	50			pA
	V ⁺ =5 V	10			pA
	V ⁺ =3 V	1			pA
Threshold Current (I _{TH}) ⁴	V ⁺ =18 V	50			pA
	V ⁺ =5 V	10			pA
	V ⁺ =3 V	1			pA
Reset Current (I _{RST}) ⁴	V _{RESET} =Ground				
	V ⁺ =18 V	100			pA
	V ⁺ =5 V	20			pA
	V ⁺ =3 V	2			pA
Reset Voltage (V _{RST}) ⁴	V ⁺ =18 V	0.4	0.7	1.3	V
	V ⁺ =3 V	0.4	0.7	1.3	V
Control Voltage Lead (V _{CV})	V ⁺ =5 V	0.31	0.35	V	
Output Voltage Drop (V _O)					
Output Lo					
	V ⁺ =16.5 V, I _{SINK} =5.0mA	0.1	0.4	V	
	V ⁺ =5 V, I _{SINK} =5.0mA	0.15	0.4	V	
Output Hi					
	V ⁺ =16.5 V, I _{SOURCE} =5.0mA	15.0	16.2	V	
	V ⁺ =5 V, I _{SOURCE} =5.0mA	3.5	4.5	V	