

芯伯乐®
X I N B O L E

Product Specification

XBLW NE555

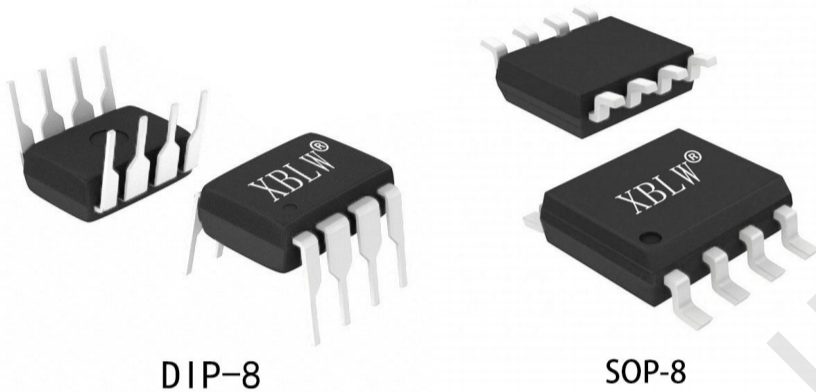
General Timer Circuit

WEB | www.xinboleic.com



Descriptions

NE555 is a general timer circuit, which is an analog integrated circuit that combines analog signal with logic function and can generate accurate time delay and oscillation. This timing circuit can be used in many aspects such as electronic control, electronic detection and electronic alarm. For example, it can constitute a precise timer, pulse generator, time delay generator, pulse width modulation, phase modulation and sawtooth voltage generator, etc. In the microcomputer peripheral equipment, it can be used to constitute a clock generator to generate the required clock pulse. It is available in SOP8 or DIP8 package.



DIP-8

SOP-8

Feature

- Applied Advanced BiMOS Technology
- Low quiescent current : 2.7mA (TYP.)
- The chip disables the input end to power down the IC
- The quiescent current is small when the power is off, the typical value is 65 uA.
- Can drive a variety of resistance of the speaker 8Ω above
- Make the output power rate exceed 250mW when using 32Ω negative load
- Distortion is small by 0.5 % TYP.
- In the speech frequency band gain can be adjusted from 0dB to 46dB
- Few outer component

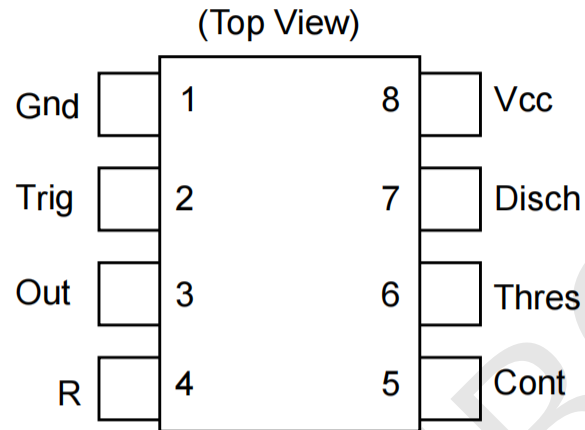
Applications

- Active Filter
- Pulse Generation
- Precision Timing
- Time Delay Generation
- Pulse Width Modulation

Ordering Information

| Product Model | Package Type | Marking | Packing | Packing Qty |
|---------------|--------------|---------|---------|--------------|
| XBLW NE555N | DIP-8 | NE555N | Tube | 2000Pcs/Box |
| XBLW NE555DTR | SOP-8 | NE555 | Tape | 2500Pcs/Reel |

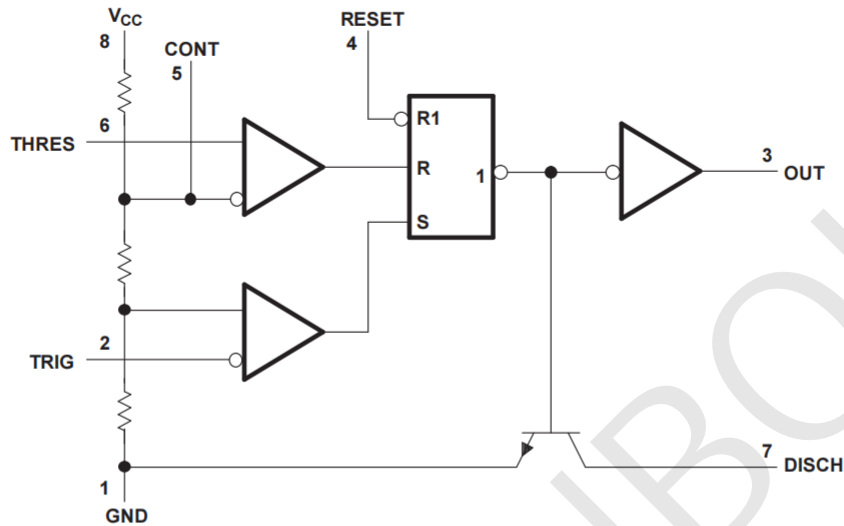
Pin Configurations



Pin Description

| No. | Symbol | Function | No. | Symbol | Function |
|-----|--------|----------|-----|--------|-------------------|
| 1 | Gnd | Ground | 5 | Cont | Trigger Control |
| 2 | Trig | Trigger | 6 | Thres | Threshold Control |
| 3 | Out | Output | 7 | Dis | Discharge Current |
| 4 | R | Reset | 8 | Vcc | Power Supply |

Block Diagram



Absolute Maximum Ratings

$T_{amb}=25^{\circ}\text{C}$, unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|-------------------------|-----------|---------|--------------------|
| Supply Voltage | V_{cc} | 18 | V |
| Power Dissipation (DIP) | PD | 600 | mW |
| Ambient Temperature | T_{amb} | 0~70 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{stg} | -65~150 | $^{\circ}\text{C}$ |

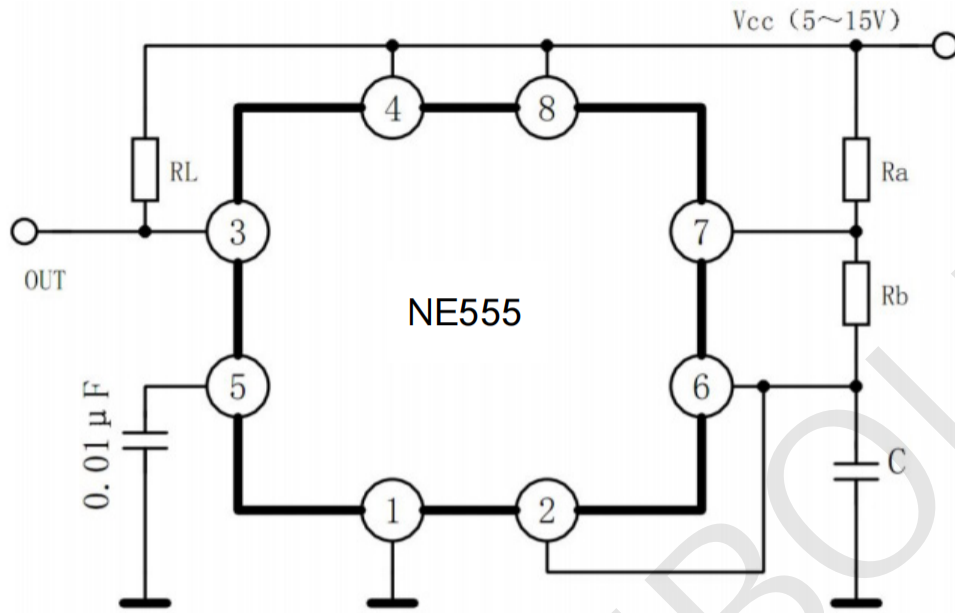
Recommended Operating Conditions

| Parameter | Symbols | Value | Unit |
|--------------------------------|----------|-----------|--------------------|
| Supply voltage | V_{cc} | 4.5~15 | V |
| Input voltage | V_i | VCC | V |
| Output current | I_o | ± 200 | mA |
| Operating free-air temperature | T_A | 0~70 | $^{\circ}\text{C}$ |

Electrical Characteristics Tamb=25°C, unless otherwise specified.

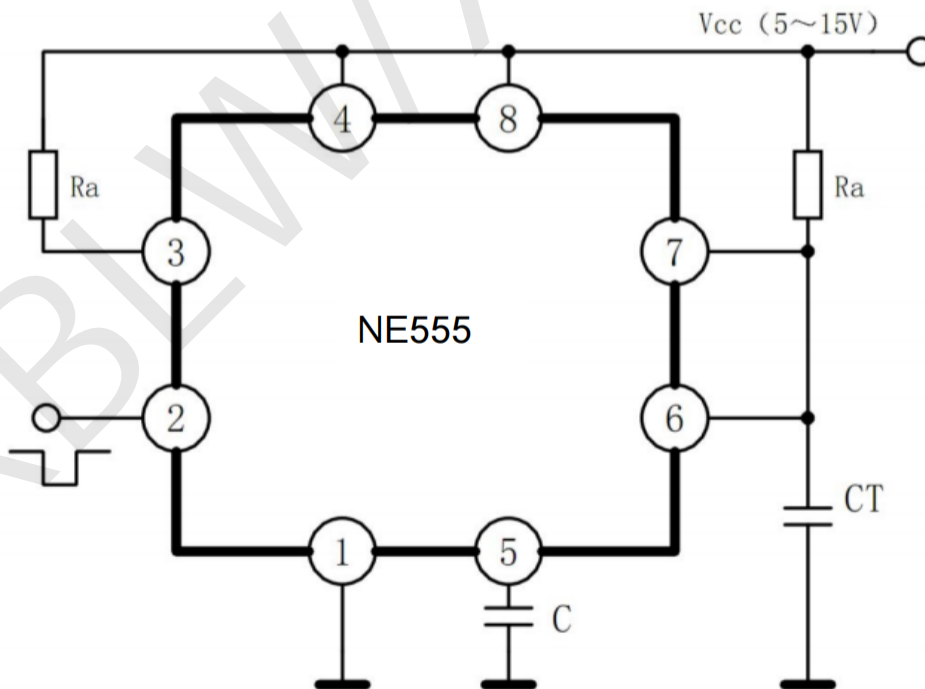
| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---------------------------------------|------------------------------------|---|--|-----------------------|------|--------|
| Supply Voltage | V _{CC} | | 4.5 | | 16 | V |
| THRES Current | I _{TH} | | | 0.1 | 0.25 | uA |
| TRIG Voltage Level | V _{TR} | V _{CC} =15 V | | 5 | | V |
| | | V _{CC} =5 V | | 1.67 | | |
| TRIG Current | I _{TR} | | | 0.5 | 2 | μ A |
| Reset Voltage Level | V _R | | 0.4 | 0.5 | 1 | V |
| Reset Current | I _R | | | 0.1 | 0.4 | mA |
| CONT Voltage | V _{CON} | V _{CC} = 15 V | 9 | 10 | 11 | V |
| | | V _{CC} = 5 V | 2.6 | 3.33 | 4 | |
| Leakage Current Pin7 | I ₇ (I _{EAK}) | Output High | | 20 | 100 | nA |
| Leakage Saturation Voltage Fall Pin 7 | V ₇ (SAT) | Output Low V _{CC} =15V I ₇ =15 mA | | 180 | | mV |
| | | Output Low V _{CC} = 4.5V I ₇ =4.5mA | | 80 | 200 | |
| High-Level Output Voltage | V _{OH} | V _{CC} =15V I _S = 200mA | | 12.5 | | V |
| | | V _{CC} =15V I _S =100mA | 12.75 | 13.3 | | |
| | | V _{CC} =5V I _S =100mA | 2.75 | 3.3 | | |
| Low-Level Output Voltage | V _{OL} | V _{CC} =15V I _{SINK} =10mA | | 0.1 | 0.25 | V |
| | | V _{CC} =15V I _{SINK} =50mA | | 0.4 | 0.75 | |
| | | V _{CC} =15V I _{SINK} =100mA | | 2 | 2.5 | |
| | | V _{CC} =15V I _{SINK} =200mA | | 2.5 | | |
| | | V _{CC} =5V I _{SINK} =5mA | | 0.25 | 0.35 | |
| Output Rise Time | t _r | | | 100 | | ns |
| Output Fall Time | t _f | | | 100 | | |
| Initial Accuracy | Δ t _E | Monostable R _A .R _B =1~100K C=0.1μF V _{CC} =5V(15V) | | 1 | | % |
| Drift With Temperature | Δ t _T | | | 50 | | ppm/°C |
| Drift With Supply Voltage | Δ t _v | | | 0.1 | | %/V |
| Accuracy Over Temperature | Δ t _{OPr} | | | 1.5 | | % |
| Initial Accuracy | Δ t _{E1} | | Astable R _A .R _B =1~100K C=0.1μF V _{CC} =5V(15V) | | 2.25 | |
| Drift With Temperature Ratio | Δ t _{T1} | | | 150 | | ppm/°C |
| Drift With Supply Voltage | Δ t _{v1} | | | 0.3 | | %/V |
| Accuracy Over Temperature | Δ t _{OPr1} | | | 3 | | % |
| Supply Current | I _{CC} | V _{CC} =5V , R _L =∞ | | | 3 | 6 |
| | | V _{CC} =5V , R _L =∞ | | 10 | 15 | |
| THRES Voltage Level | V _{TH} | | | 0.667*V _{CC} | | |

Oscillator Application Diagram



Oscillation period: $T=0.693(R_A+2R_B)C$ Duty: $D=R_B/(R_A+2R_B)$

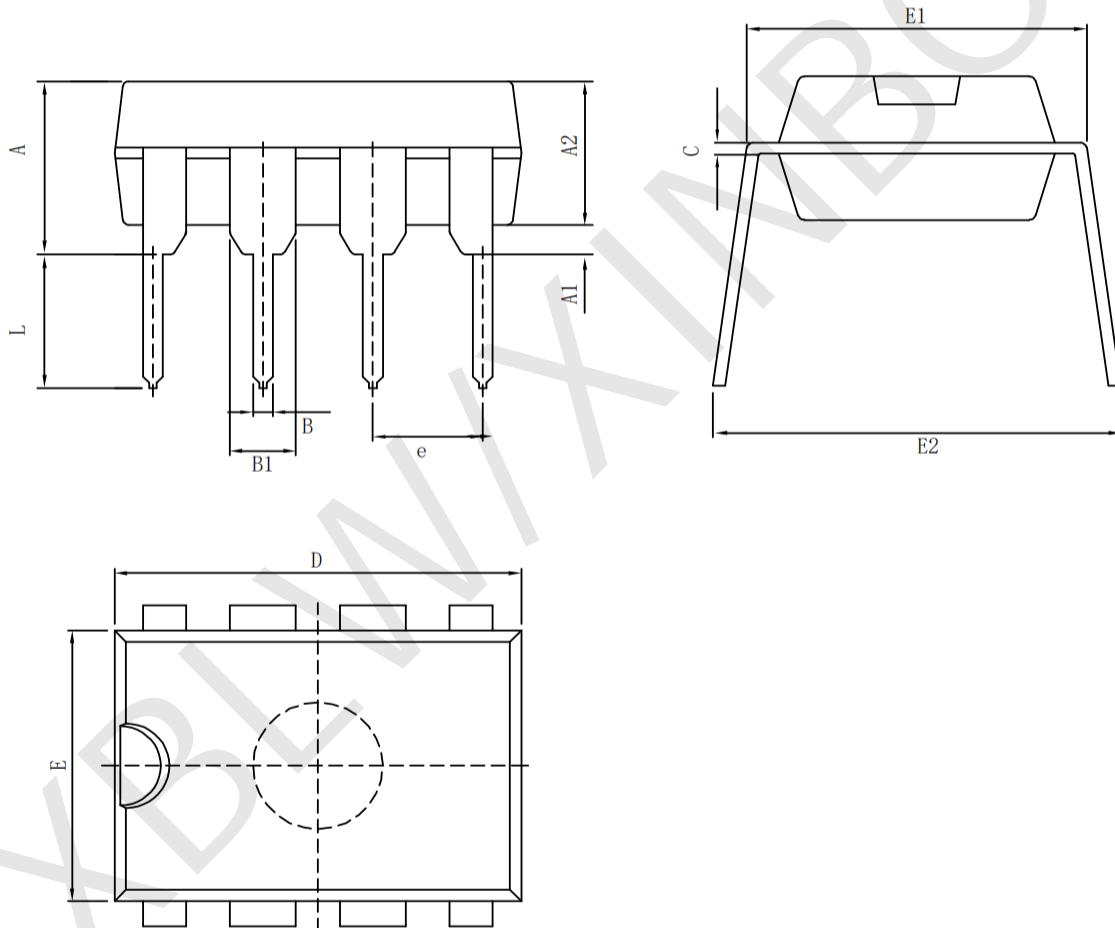
Monostable Application Circuit



Package Information

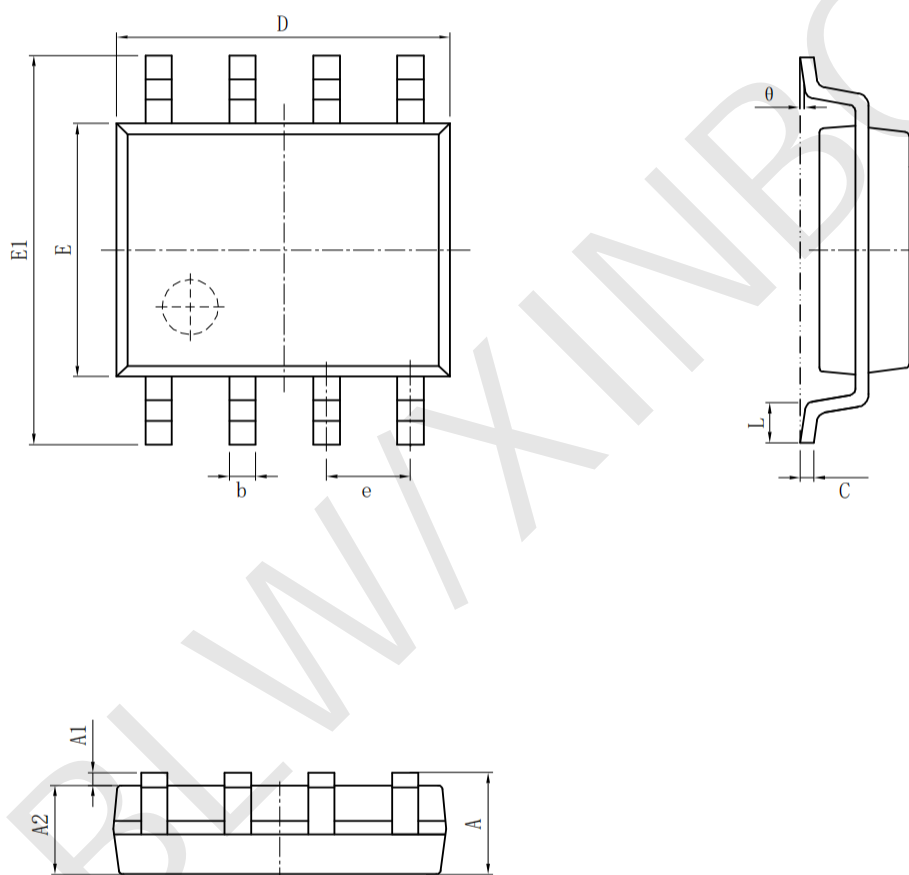
- DIP-8

| Symbol | Size | | Dimensions In Millimeters | | Symbol | Size | | Dimensions In Inches | |
|--------|-------------|----------|---------------------------|-------------|--------|----------|----------|----------------------|--|
| | Min (mm) | Max (mm) | Min (in) | Max (in) | | Min (in) | Max (in) | | |
| A | 3.710 | 4.310 | A | 0.146 | 0.170 | | | | |
| A1 | 0.510 | | A1 | 0.020 | | | | | |
| A2 | 3.200 | 3.600 | A2 | 0.126 | 0.142 | | | | |
| B | 0.380 | 0.570 | B | 0.015 | 0.022 | | | | |
| B1 | 1.524 (BSC) | | B1 | 0.060 (BSC) | | | | | |
| C | 0.204 | 0.360 | C | 0.008 | 0.014 | | | | |
| D | 9.000 | 9.400 | D | 0.354 | 0.370 | | | | |
| E | 6.200 | 6.600 | E | 0.244 | 0.260 | | | | |
| E1 | 7.320 | 7.920 | E1 | 0.288 | 0.312 | | | | |
| e | 2.540 (BSC) | | e | 0.100 (BSC) | | | | | |
| L | 3.000 | 3.600 | L | 0.118 | 0.142 | | | | |
| E2 | 8.400 | 9.000 | E2 | 0.331 | 0.354 | | | | |



• SOP-8

| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Inches | |
|--------|---------------------------|----------|--------|----------------------|----------|
| | Min (mm) | Max (mm) | | Min (in) | Max (in) |
| A | 1.350 | 1.750 | A | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | A1 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | A2 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | b | 0.013 | 0.020 |
| c | 0.170 | 0.250 | c | 0.006 | 0.010 |
| D | 4.700 | 5.100 | D | 0.185 | 0.200 |
| E | 3.800 | 4.000 | E | 0.150 | 0.157 |
| E1 | 5.800 | 6.200 | E1 | 0.228 | 0.224 |
| e | 1.270 (BSC) | | e | 0.050 (BSC) | |
| L | 0.400 | 1.270 | L | 0.016 | 0.050 |
| θ | 0° | 8° | θ | 0° | 8° |



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