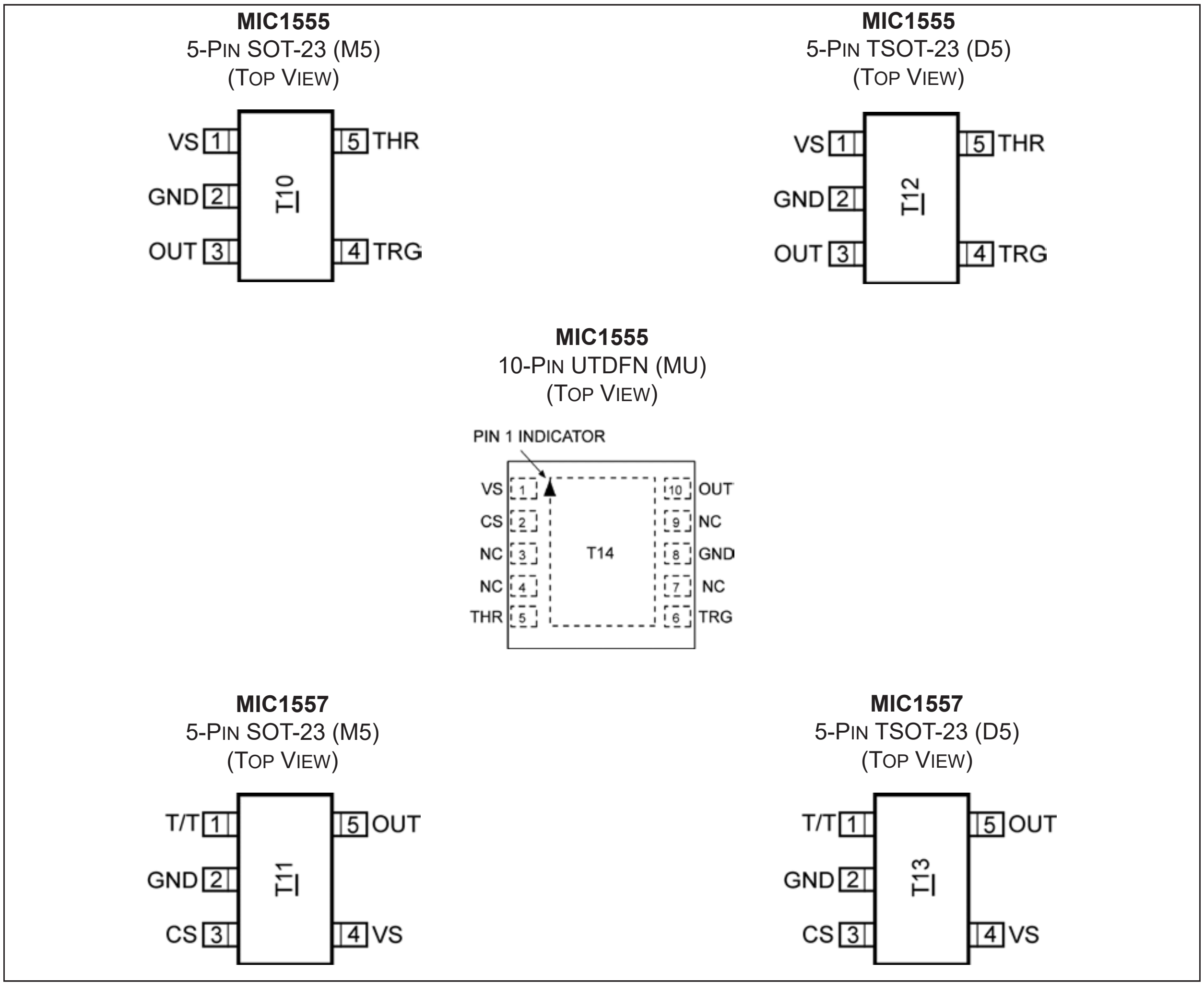
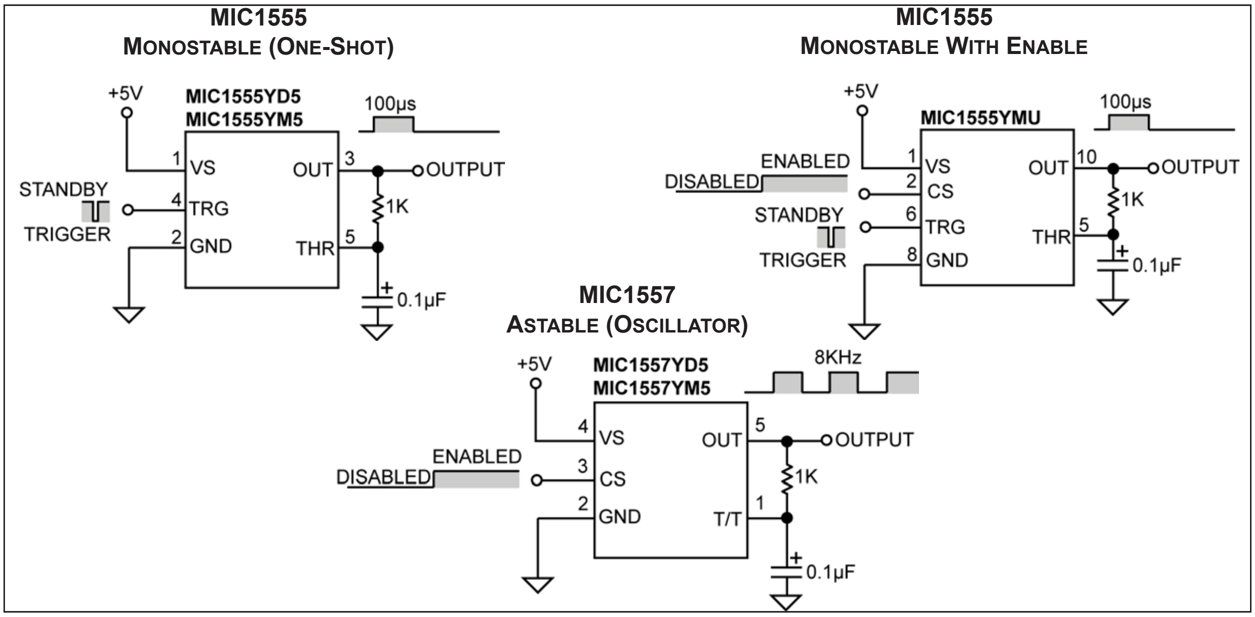
Package Types

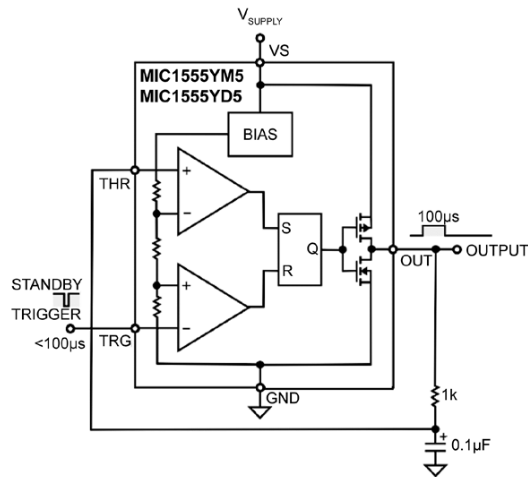


Typical Application Circuits

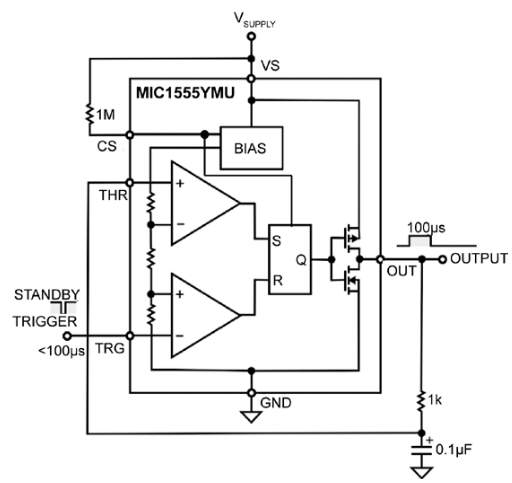


Functional Diagrams

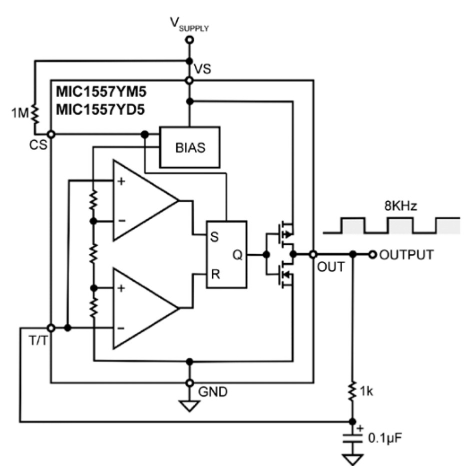
MIC155YM5/MIC155YD5 BLOCK DIAGRAM WITH EXTERNAL COMPONENTS (MONOSTABLE CONFIGURATION)



MIC1555YMU BLOCK DIAGRAM WITH EXTERNAL COMPONENTS (MONOSTABLE CONFIGURATION)



MIC1557YM5/MIC1557YD5 BLOCK DIAGRAM WITH EXTERNAL COMPONENTS (ASTABLE CONFIGURATION)



1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

Supply Voltage (V_S).. +22V
Threshold Voltage (V_{THR}, $V_{T/T}$).. +22V
Trigger Voltage (V_{TGR}, $V_{T/T}$)... +22V
ESD HBM Rating (Note 1)...2 kV
ESD MM Rating (Note 1)... 200V

Operating Ratings ‡

Supply Voltage (V_S)..+2.7V to +18V

† Notice: Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

‡ Notice: The device is not guaranteed to function outside its operating ratings.

Note 1: Devices are ESD protected, however handling precautions recommended.

TABLE 1-1: ELECTRICAL CHARACTERISTICS (Note 1)

Electrical Characteristics: T_A = +25°C, **bold** values indicate –40°C ≤ T_A ≤ +85°C, unless noted.

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Supply Current	I_S	—	240	**300**	µA	MIC1555, V_S = 5V
		—	255	**315**		MIC1557, V_S = 5V
		—	350	**400**		MIC1555, V_S = 15V
		—	370	**420**		MIC1557, VS = 15V
Monostable Timing Accuracy	—	—	2	—	%	R_A = 10 kΩ, C =0.1 µF, V_S = 5V
		858	—	**1161**	µs	R_A = 10 kΩ, C =0.1 µF, V_S = 5V
Monostable Drift Over Temperature	—	—	100	—	ppm/°C	V_S = 5V, –55°C ≤ T_A ≤ +125°C (Note 2)
		—	150	—		V_S = 10V, –55°C ≤ T_A ≤ +125°C (Note 2)
		—	200	—		V_S = 15V, –55°C ≤ T_A ≤ +125°C (Note 2)
Monostable Drift Over Supply	—	—	0.5	—	%/V	V_S = 5V to 15V (Note 2)
Astable Timing Accuracy	—	—	2	—	%	R_A = R_B = 10 kΩ, C = 0.1 µF, V_S = 5V
		1717	—	**2323**	µs	R_A = R_B = 10 kΩ, C = 0.1 µF, V_S = 5V
Maximum Astable Frequency	—	—	—	5	MHz	R_T = 1 kΩ, C_T = 47 pF, V_S = 8V
Astable Drift Over Temperature	—	—	100	—	ppm/°C	V_S = 5V, –55°C ≤ T_A ≤ +125°C (Note 2)
		—	150	—		V_S = 10V, –55°C ≤ T_A ≤ +125°C (Note 2)
		—	200	—		V_S = 15V, –55°C ≤ T_A ≤ +125°C (Note 2)
Astable Drift Over Supply	—	—	0.5	—	%/V	V_S = 5V to 15V (Note 2)
Threshold Voltage	—	**61**	67	**72**	%/V_S	V_S = 15V
Trigger Voltage	—	**27**	32	**37**	%/V_S	V_S = 15V
Trigger Current	—	—	—	**50**	nA	V_S = 15V
Threshold Current	—	—	—	**50**	nA	V_S = 15V
Chip Select	—	**50**	67	**72**	%/V_S	On > two-thirds of V_S
		28	33	**50**		Off < one-third of V_S
Output Voltage Drop	—	—	0.3	**1.25**	V	V_S = 15V, I_{SINK} = 20 mA
		—	0.08	**0.5**		V_S = 5V, I_{SINK} = 20 mA
		14.1	14.7	—		V_S = 15V, I_{SOURCE} = 20 mA
		3.8	4.7	—		V_S = 5V, I_{SOURCE} = 20 mA
Supply Voltage	—	**2.7**	—	**18**	V	Functional Operation (Note 2)
Output Rise Time	—	—	15	—	ns	R_L = 10 MΩ, C_L = 10 pF, V_S = 5V (Note 2)
Output Fall Time	—	—	15	—	ns	R_L = 10 MΩ, C_L = 10 pF, V_S = 5V (Note 2)

Note 1: Specification for packaged product only.

2: Not tested.

TEMPERATURE SPECIFICATIONS (Note 1)

Parameters	Sym.	Min.	Typ.	Max.	Units	Conditions
Temperature Ranges						
Ambient Storage Temperature	T_S	–65	—	+150	°C	—
Lead Temperature	—	—	—	+300	°C	Soldering, 10 sec.
Ambient Temperature	T_A	–40	—	+85	°C	—
Package Thermal Resistance						
Thermal Resistance SOT-23-5 and TSOT-23-5	θ_{JA}	—	250	—	°C/W	—
Thermal Resistance 10-Ld UTDFN	θ_{JA}	—	90	—	°C/W	—

Note 1: The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction to air (i.e., T_A, T_J, θ_{JA}). Exceeding the maximum allowable power dissipation will cause the device operating junction temperature to exceed the maximum +125°C rating. Sustained junction temperatures above +125°C can impact the device reliability.

2.0 TYPICAL PERFORMANCE CURVES

Note: The graphs and tables provided following this note are a statistical summary based on a limited number of samples and are provided for informational purposes only. The performance characteristics listed herein are not tested or guaranteed. In some graphs or tables, the data presented may be outside the specified operating range (e.g., outside specified power supply range) and therefore outside the warranted range.

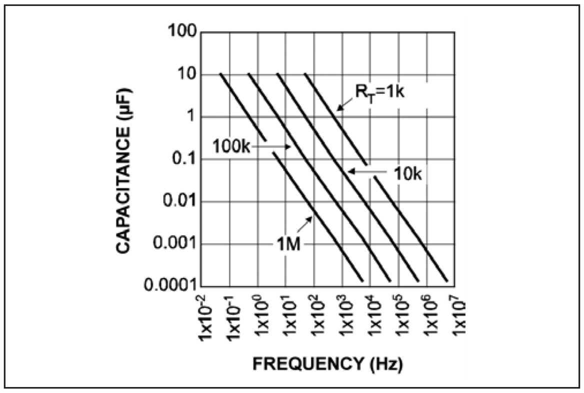


FIGURE 2-1: *Astable Frequency.*

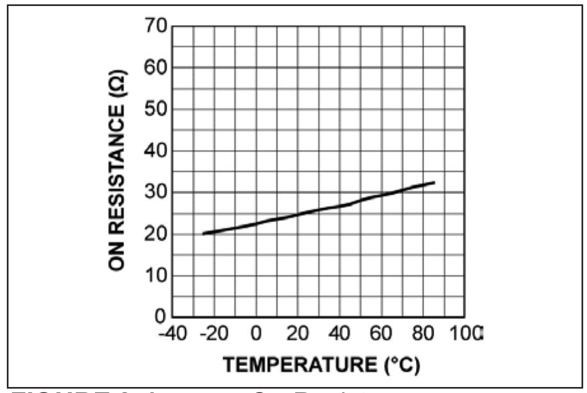


FIGURE 2-4: *On Resistance vs. Temperature.*

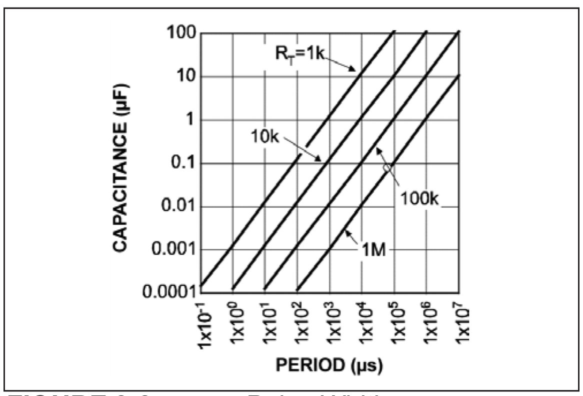


FIGURE 2-2: *Pulse Width.*

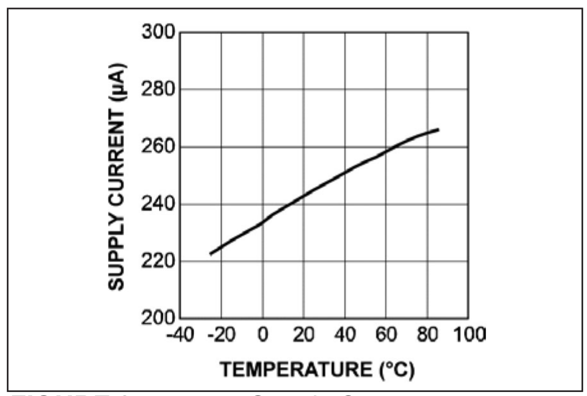


FIGURE 2-5: *Supply Current vs. Temperature.*

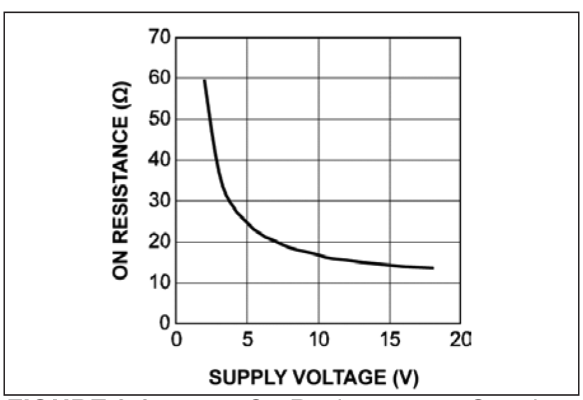


FIGURE 2-3: *On Resistance vs. Supply Voltage.*

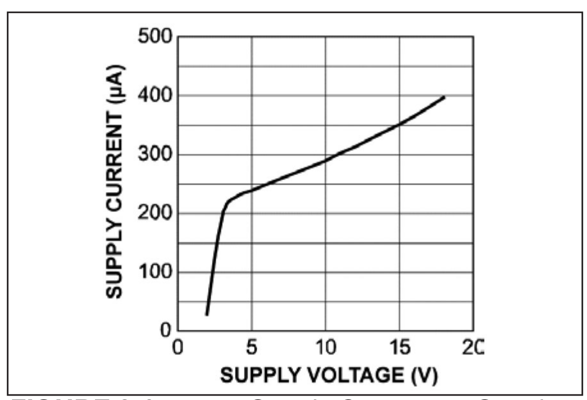


FIGURE 2-6: *Supply Current vs. Supply Voltage.*

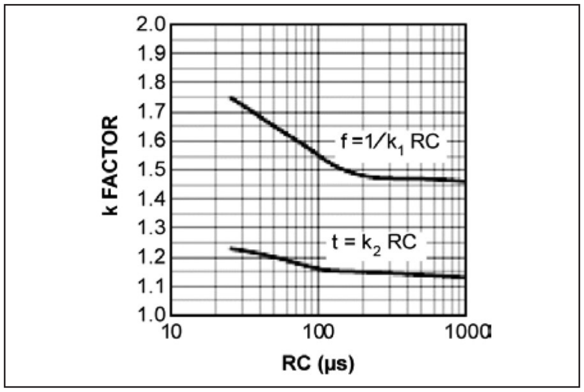


FIGURE 2-7: *k Factors Times RC.*

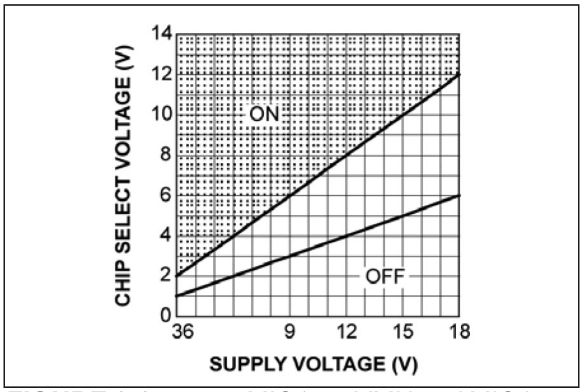


FIGURE 2-8: *MIC1555YMU and MIC1557 Chip Select vs. Supply Voltage.*

3.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 3-1, Table 3-2, and .

TABLE 3-1: PIN FUNCTION TABLE, MIC1555 SOT-23 AND TSOT-23

Pin Number	Pin Name	Description
1	VS	Supply (Input): +2.7V to +18V supply.
2	GND	Ground: Supply return.
3	OUT	Output: CMOS totem-pole output.
4	TRG	Trigger (Input): Sets output high. Active-low (at ≤2/3V_S nominal).
5	THG	Threshold (Dominant Input): Sets output low. Active-high (at ≥2/3V_S nominal).

TABLE 3-2: PIN FUNCTION TABLE, MIC1555 UTDFN

Pin Number	Pin Name	Description
1	VS	Supply (Input): +2.7 to +18V supply.
2	CS	Chip Select/Reset (Input): Active-high at >2/3V_S. Output off when low at <1/3V_S. If chip select functionality is not desired, CS may be connected directly to VS.
3, 4, 7, 9	NC	No Connect. This pin is not internally connected.
5	THR	Threshold (Dominant Input): Sets output low. Active-high (at ≥ 2/3V_S nominal).
6	TRG	Trigger (Input): Sets output high. Active-low (at ≤2/3V_S nominal).
8	GND	Ground. Supply return.
10	OUT	Output: CMOS totem-pole output

TABLE 3-3: PIN FUNCTION TABLE, MIC1557 SOT-23 AND TSOT-23

Pin Number	Pin Name	Description
1	T/T	Trigger/Threshold (Input): Internally connected to both threshold and trigger functions. When the voltage at this pin is ≤2/3V_S, it will set the output high. When the voltage at this pin is ≥2/3V_S, it will set the output low.
2	GND	Ground: Supply return.
3	CS	Chip Select/Reset (Input): Active-high at >2/3V_S. Output off when low at <1/3V_S. If chip select functionality is not desired, CS may be connected directly to VS.
4	VS	Supply (Input): +2.7 to +18V supply.
5	OUT	Output: CMOS totem-pole output.

4.0 FUNCTIONAL DESCRIPTION

The MIC1555/7 provides the logic for creating simple RC timer or oscillator circuits.

The MIC1555 has separate THR (threshold) and TRG (trigger) connections for monostable (one-shot) or astable (oscillator) operation.

The MIC1557 has a single T/T (threshold and trigger) connection for astable (oscillator) operation only. The MIC1557 includes a CS (chip select/reset) control.

For more information, refer to the Functional Diagrams for MIC1555 and MIC1557.

4.1 Supply

Voltage supply (V_S) is rated for +2.7V to +18V. An external capacitor is recommended to decouple noise.

4.2 Resistive Divider

The resistive voltage divider is constructed of three equal value resistors to produce $1/3V_S$ and $2/3V_S$ voltage for trigger and threshold reference voltages.

4.3 Chip Select/Reset (MIC1555YMU and MIC1557 only)

Chip select/reset (CS) controls the bias supply to the oscillator's internal circuitry. CS must be connected to CMOS logic-high or logic-low levels. Floating CS will result in unpredictable operation. When the chip is deselected, the supply current is less than 1 µA. Forcing CS low resets the device by setting the flip flop, forcing the output low. If Chip Select functionality is not desired, CS may be connected directly to V_S.

4.4 Threshold Comparator

The threshold comparator is connected to S (set) on the RS flip-flop. When the threshold voltage ($2/3V_S$) is reached, the flip-flop is set, making the output low. THR is dominant over TRG.

4.5 Trigger Comparator

The trigger comparator is connected to R (reset) on the RS flip-flop. When TRG (trigger) goes below the trigger voltage ($1/3V_S$), the flip-flop resets, making the output high.

4.6 Flip-Flop and Output

A reset signal causes Q to go low, turning on the P-channel MOSFET and turning off the N-channel MOSFET. This makes the output rise to nearly V_S.

A set signal causes Q to go high, turning off the P-channel MOSFET, and turning on the N-channel MOSFET, grounding OUT.

4.7 Basic Monostable Operation

A momentary low signal applied to TRG causes the output to go high. The external capacitor charges slowly through the external resistor. When threshold voltage (V_{THR}) reaches $2/3V_S$, the output is switched off, discharging the capacitor. During power-on, a single pulse may be generated.

For more information, refer to the Functional Diagrams for MIC1555.

4.8 Basic Astable Operation

The MIC1557 starts with T/T low, causing the output to go high. The external capacitor charges slowly through the external resistor. When $V_{T/T}$ reaches $2/3V_S$ (threshold voltage), the output is switched off, slowly discharging the capacitor. When $V_{T/T}$ decreases to $1/3V_S$ (trigger voltage), the output is switched on, causing $V_{T/T}$ to rise again, repeating the cycle.

For more information, refer to the Functional Diagrams for MIC1557.

5.0 APPLICATION INFORMATION

5.1 Basic Monostable (One-Shot) Circuit

A monostable oscillator produces a single pulse each time that it is triggered, and is often referred to as a "one-shot." The pulse width is constant, while the time between pulses depends on the trigger input. One-shots are generally used to stretch incoming pulses of varying widths to a fixed width. The IttyBitty MIC1555 is designed for monostable operation, but may also be connected to provide astable oscillations. The pulse width is determined by the time it takes to charge a capacitor from ground to a comparator trip point. If the capacitor (C_T) is charged through a resistor (R_T) that is connected to the output of an MIC1555, the trip point is approximately $1.1R_TC_T$ (the same time as the initial power-on cycle of an astable circuit.) If the trigger pulse of an MIC1555 remains low longer than the output pulse width, short oscillations may be seen in the output of a one-shot circuit because the threshold pin has precedence over the trigger pin. These occur because the output goes low when the threshold is exceeded, and then goes high again as the trigger function is asserted. AC coupling the input with a series capacitor and a pull-up resistor, with an RC time constant less than the pulse width, will prevent these short oscillations. A diode (D_T) in parallel with (R_T) quickly resets the one-shot.

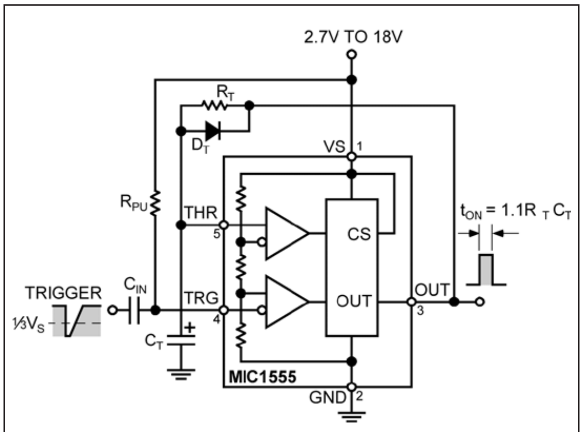


FIGURE 5-1: One-Shot Diagram.

The period of a monostable circuit is:

EQUATION 5-1:

$$t = k_2RC$$

Where:

t	Period (sec.)
k_2	Constant (see Typical Performance Curves)
R	Resistance (Ω)
C	Capacitance (F)

5.2 Basic Astable (Oscillator) Circuits

An astable oscillator switches between two states, "on" and "off", producing a continuous square wave. The MIC1557 is optimized for this function, with the two comparator inputs, threshold and trigger (T/T), tied together internally. CS is brought out to allow on-off control of the oscillator.

The MIC1555 may also be used as an astable oscillator by tying the threshold and trigger pins together, forming a T/T pin. If a resistor (R_T) is connected from the output to a grounded timing capacitor (C_T), the voltage at their junction will ramp up from ground when the output goes high. If the T/T pin is connected to this junction, the output will switch low when the ramp exceeds 2/3 of the input voltage. The junction's voltage ramps down toward ground while the output is low. When the ramp is below 1/3 of the input voltage, the output switches to high, and the junction ramps up again. The continuing frequency of an MIC1555/7 astable oscillator depends on the RC time constant, and is approximately 0.7/RC below 1 MHz. At frequencies above 1 MHz the RC multiplier increases as capacitance is decreased, and propagation delay becomes dominant. Non-symmetrical oscillator operation is possible at frequencies up to 5 MHz.

If a duty cycle other than 50% is desired, a low-power signal diode may be connected in series with the timing resistor (R_A), and a second resistor (R_B) in series with an opposite facing switching diode and resistor connected in parallel (see Figure 5-2). The frequency is then made up of two components, the charging time (t_A) and the discharging time (t_B) $t_A = 0.7R_AC_T$ and $t_B = 0.7R_BC_T$. The frequency is the reciprocal of the sum of the two times $t_A + t_B$, so the total time is $1.4R_TC_T$. The first half-cycle of an astable, after power-on or CS enable, is lengthened because the capacitor is charging from ground instead of the 1/3 input trigger trip voltage, to 1.1RC, the same as a monostable pulse.

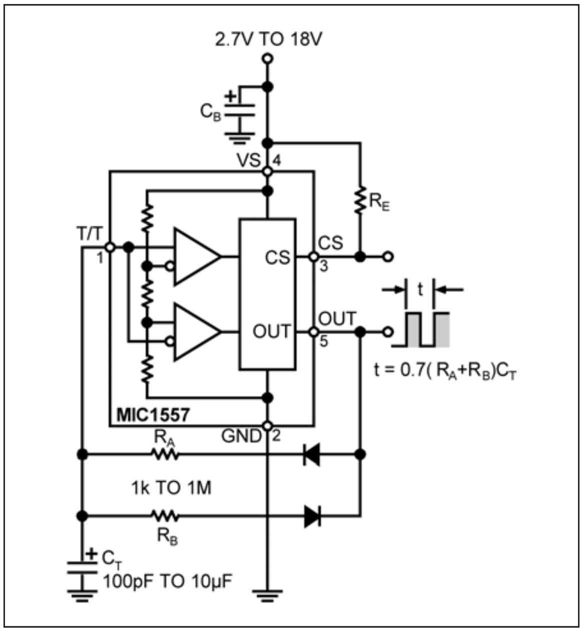


FIGURE 5-2: Oscillator Diagram.

The MIC1555 or MIC1557 can be used to construct an oscillator.

The frequency of an astable oscillator is:

EQUATION 5-2:

$$f = \frac{1}{k_1 RC}$$

Where:

f	Frequency (Hz)
k_1	Constant (see Typical Performance Curves)
R	Resistance (Ω)
C	Capacitance (F)

To use the MIC1555 as an oscillator, connect TRG to THR.

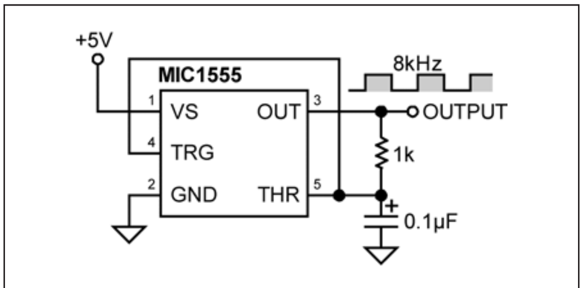


FIGURE 5-3: MIC1555 Oscillator Configuration.

The MIC1555YMU and MIC1557 feature a CS input. With a logic-low signal, CS places the part into a <1 μA shutdown state. If unused, the CS input must be pulled up.

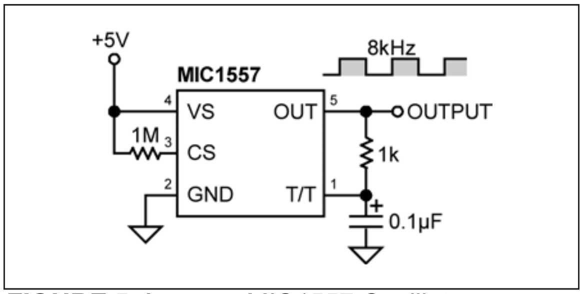


FIGURE 5-4: MIC1557 Oscillator Configuration.

5.3 Falling-Edge Triggered Monostable Circuit

The MIC1555 may be triggered by an AC-coupled falling edge, as shown in Figure 5-5. The RC time constant of the input capacitor and pull-up resistor should be less than the output pulse time, to prevent multiple output pulses. A diode across the timing resistor provides a fast reset at the end of the positive timing pulse.

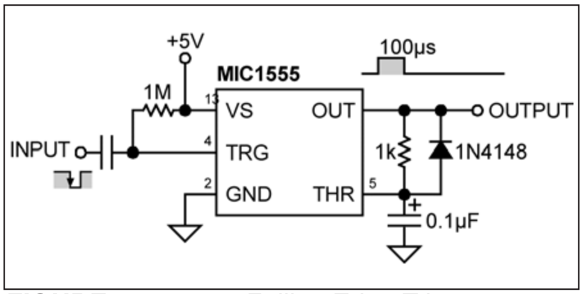


FIGURE 5-5: Falling Edge Trigger Configuration.

5.4 Rising-Edge Triggered Monostable Circuit

The MIC1555 may be triggered by an AC-coupled rising edge, as shown in Figure 5-6. The pulse begins when the AC-coupled input rises, and a diode from the output holds the THR input low until TRG discharges to $1/3V_S$. This circuit provides a low-going output pulse.

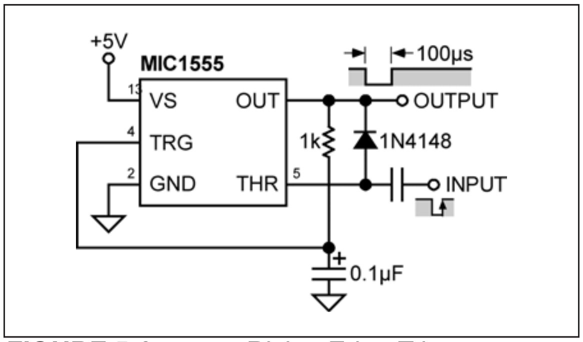


FIGURE 5-6: Rising Edge Trigger Configuration.

5.5 Accuracy

The two comparators in the MIC1555/7 use a resistor voltage divider to set the threshold and trigger trip points to approximately 2/3 and 1/3 of the input voltage, respectively. Because the charge and discharge rates of an RC circuit are dependent on the applied voltage, the timing remains constant if the input voltage varies. If a duty cycle of exactly 50% (or any other value from 1 to 99%), two resistors (or a variable resistor) and two diodes are needed to vary the charge and discharge times. The forward voltage of diodes varies with temperature, so some change in frequency will be seen with temperature extremes, but the duty cycle should track. For absolute timing accuracy, the MIC1555/7 output could be used to control constant current sources to linearly charge and discharge the capacitor, at the expense of added components and board space.

5.6 Long Time Delays

Timing resistors larger than 1 MΩ or capacitors larger than 10 µF are not recommended due to leakage current inaccuracies. Time delays greater than 10 seconds are more accurately produced by dividing the output of an oscillator by a chain of flip-flop counter stages. To produce an accurate one-hour delay, for example, divide a 4.55 Hz MIC1557 oscillator by 16,384 (4000hex, 214) using a CD4020 CMOS divider. 4.5 Hz may be generated with a 1 µF C_T and approximately 156 kΩ.

5.7 Inverting Schmitt Trigger

As shown in Figure 5-7, the trip points of the MIC1555/7 are defined as $1/3V_S$ and $2/3V_S$, which allows either device to be used as a signal conditioning inverter, with hysteresis. A slowly changing input on T/T will be converted to a fast rise or fall-time opposite direction rail-to-rail output voltage. This output maybe used to directly drive the gate of a logic-level P-channel MOSFET with a gate pull-up resistor. This is an inverted logic low-side logic level MOSFET driver. A standard N-channel MOSFET may be driven by a second MIC1555/7, powered by 12V to 15V, to level-shift the input.

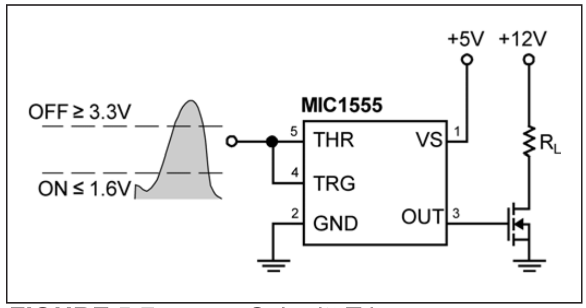


FIGURE 5-7: Schmitt Trigger.

5.8 Charge Pump Low-Side MOSFET Drivers

A standard MOSFET requires approximately >5V to fully enhance the gate for minimum $R_{DS(ON)}$. Substituting a logic-level MOSFET reduces the required gate voltage, allowing an MIC1557 to be used as an inverting Schmitt trigger, described above. An MIC1557 may be configured as a voltage quadrupler to boost a 5V input to over 15V to fully enhance an N-channel MOSFET which may have its drain connected to a higher voltage, through a high-side load. A TTL-high signal applied to CS enables a 10 kHz oscillator, which quickly develops 15V at the gate of the MOSFET, clamped by a Zener diode. A resistor from the gate to ground ensures that the FET will turn off quickly when the MIC1557 is turned off.

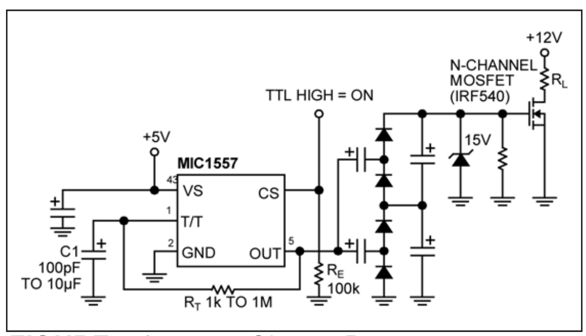


FIGURE 5-8: Charge Pump.

5.9 Audible Voltmeter

If an additional charge or discharge source is connected to the timing capacitor, the frequency may be shifted by turning the source on or off. An MIC1555 oscillator, powered by the circuit under test, may be used to drive a small loud speaker or piezo-electric transducer to provide a medium frequency for an open or high impedance state at the probe. A high tone is generated for a high level, and a lower frequency for a logic low on the probe.

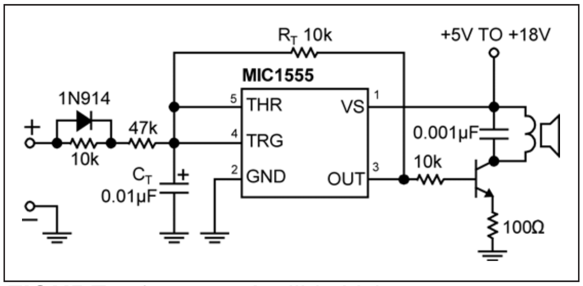


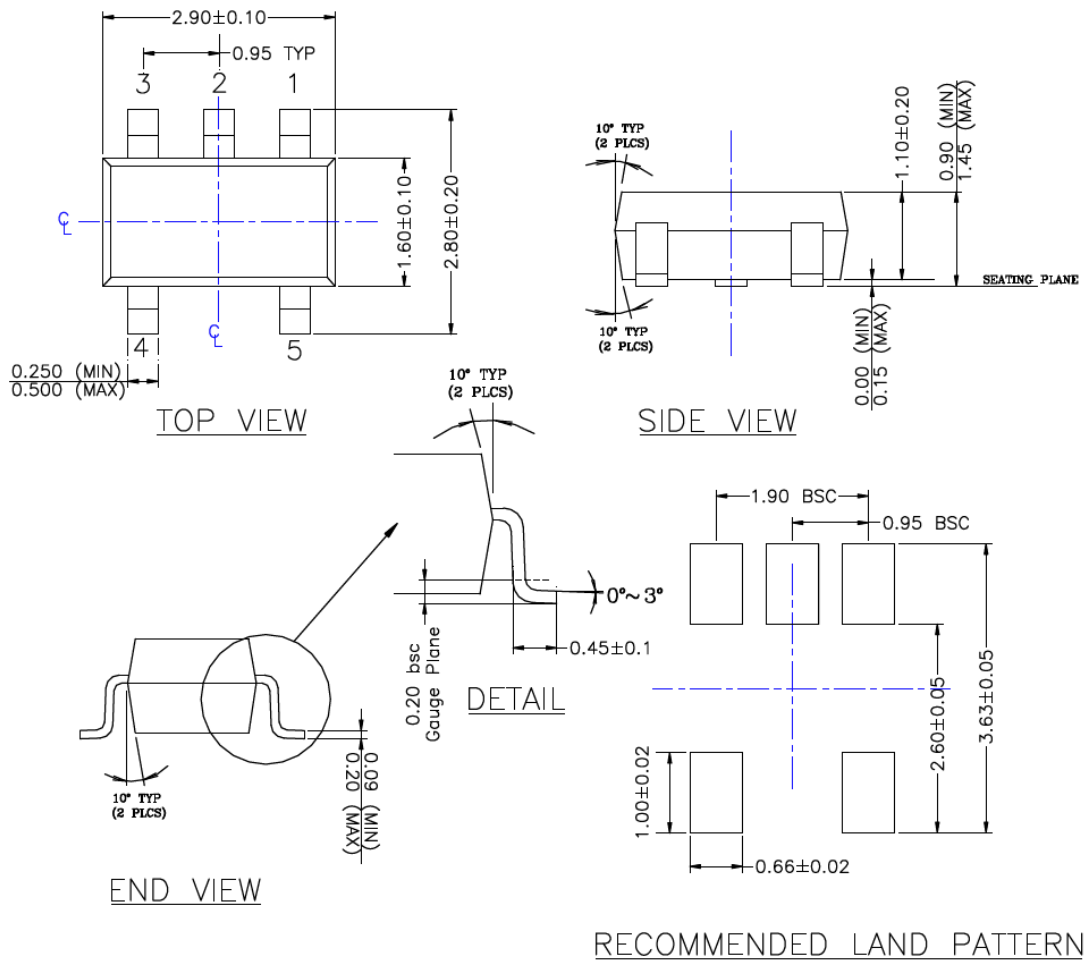
FIGURE 5-9: *Audible Voltmeter.*

6.0 PACKAGING INFORMATION

5-Lead SOT-23 Package Outline and Recommended Land Pattern

TITLE
5 LEAD SOT23 PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

DRAWING #	SOT23-5LD-PL-1	**UNIT**	MM



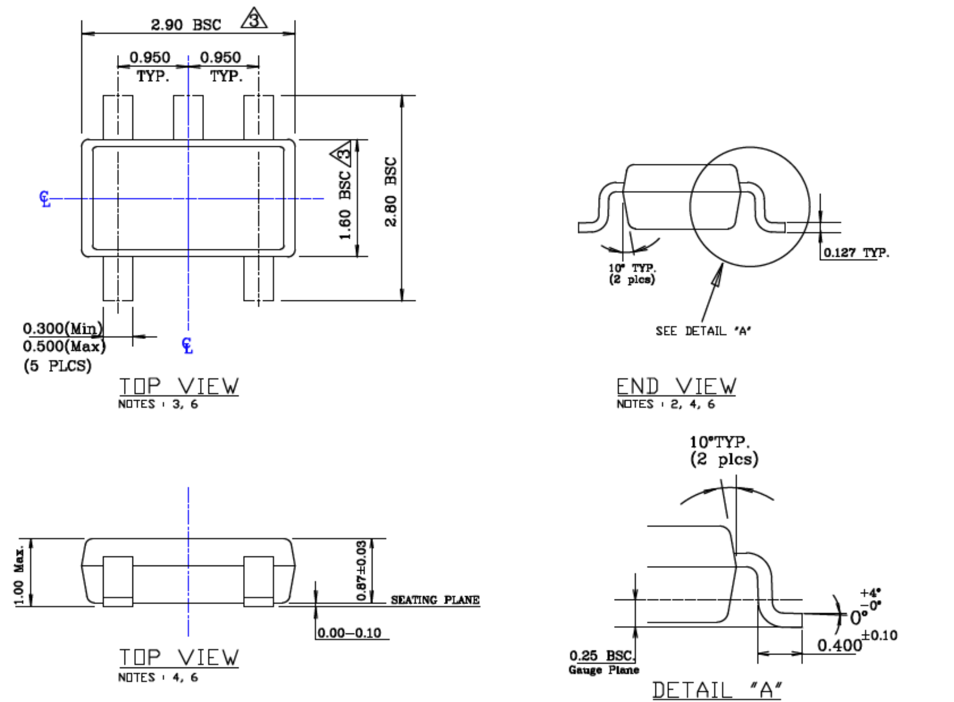
NOTE:
1. PACKAGE OUTLINE EXCLUSIVE OF MOLD FLASH & BURR.
2. PACKAGE OUTLINE INCLUSIVE OF SOLER PLATING.
3. DIMENSION AND TOLERANCE PER ANSI Y14.5M, 1982.
4. FOOT LENGTH MEASUREMENT BASED ON GAUGE PLANE METHOD.
5. DIE FACES UP FOR MOLD, AND FACES DOWN FOR TRIM/FORM.
6. ALL DIMENSIONS ARE IN MILLIMETERS.

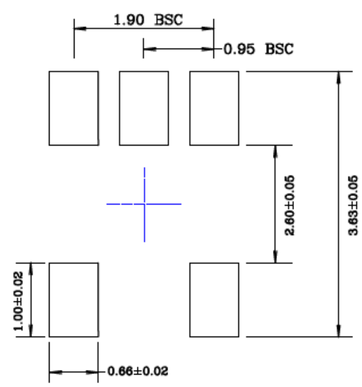
Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging.

5-Lead Thin SOT-23 Package Outline and Recommended Land Pattern

TITLE
5 LEAD TSOT PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

DRAWING #	TSOT-5LD-PL-1	UNIT	MM





RECOMMENDED LAND PATTERN

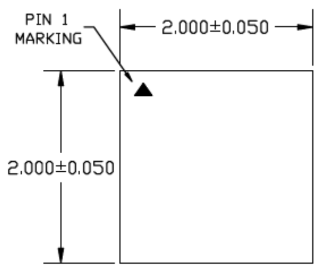
NOTE:
1. Dimensions and tolerances are as per ANSI Y14.5M, 1994.
2. Die is facing up for mold. Die is facing down for trim/form, ie. reverse trim/form.
3. Dimensions are exclusive of mold flash and gate burr.
4. The footlength measuring is based on the gauge plane method.
5. All specification comply to Jedec Spec MO193 Issue C.
6. All dimensions are in millimeters.

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging.

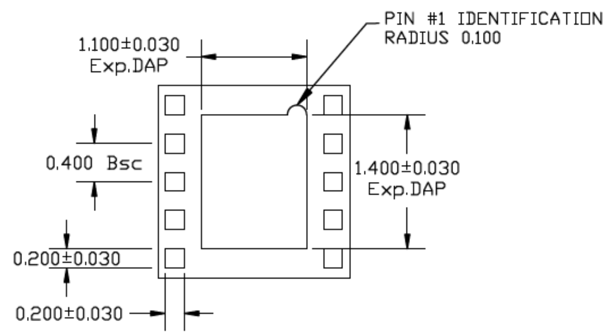
10-Lead 2 mm x 2 mm UTDFN Package Outline and Recommended Land Pattern

TITLE
10 LEAD UTDFN 2.0x2.0 mm PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

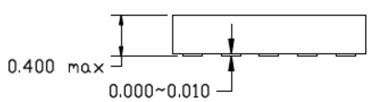
DRAWING #	UTDFN22-10LD-PL-1	**UNIT**	MM
Lead Frame	Copper	**Lead Finish**	Au-Ni-Au



TOP VIEW
NOTE: 1,2,3,4

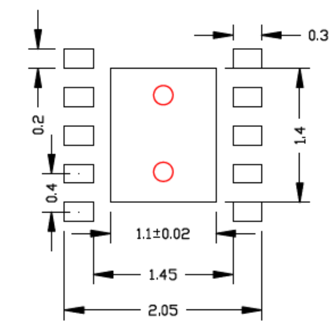


BOTTOM VIEW
NOTE: 1,2,3,4



SIDE VIEW
NOTE: 1,2,3,4

NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. MAX. PACKAGE WARPAGE IS 0.08 mm.
3. MAXIMUM ALLOWABE BURRS IS 0.076 mm IN ALL DIRECTIONS.
4. PIN #1 ID ON TOP WILL BE LASER MARKED.
5. Red Circle Indicates Thermal Via. Size should be 0.200mm to 0.0350mm in diameter, 0.80mm pitch, and should be connected to ground plane for maximum thermal performance.



RECOMMENDED LAND PATTERN
NOTE: 5

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging.

NOTES:

APPENDIX A: REVISION HISTORY

Revision A (March 2017)

- Converted Micrel document MIC1555/57 to Microchip data sheet DS20005730A.
- Minor text changes throughout.
- Updated Supply Current values for MIC1557 in **Section 1.0 "Electrical Characteristics"**.

Revision B (April 2019)

- Corrected part number and package type in the Package Types section.

NOTES:

PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

PART NO.	X	X	-	XX
Device	Temperature	Package		Media Type

Device:	MIC1555:		IttyBitty RC Timer/Oscillator
	MIC1557:		IttyBitty RC Timer/Oscillator
Temperature:	Y	=	–40°C to +85°C
Package:	M5	=	5-Lead SOT-23
	D5	=	5-Lead Thin SOT-23
	MU	=	10-Lead 2 mm x 2 mm UTDFN
Media Type:	TR	=	3,000/Reel (SOT-23, TSOT-23)
	TR	=	5,000/Reel (UTDFN)
	T5	=	500/Reel (UTDFN)

Examples:

a) MIC1555YM5-TR: IttyBitty RC Timer/Oscillator –40°C to +85°C Temp. Range, 5-Lead SOT-23, 3,000/Reel

b) MIC1555YD5-TR: IttyBitty RC Timer/Oscillator –40°C to +85°C Temp. Range, 5-Lead TSOT-23, 3,000/Reel

c) MIC1555YMU-T5: IttyBitty RC Timer/Oscillator –40°C to +85°C Temp. Range, 10-Lead UTDFN, 500/Reel

d) MIC1555YMU-TR: IttyBitty RC Timer/Oscillator –40°C to +85°C Temp. Range, 10-Lead UTDFN, 5,000/Reel

e) MIC1557YM5-TR: IttyBitty RC Timer/Oscillator –40°C to +85°C Temp. Range, 5-Lead SOT-23, 3,000/Reel

f) MIC1557YD5-TR: IttyBitty RC Timer/Oscillator –40°C to +85°C Temp. Range, 5-Lead TSOT-23, 3,000/Reel

Note 1: Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

NOTES:

Note the following details of the code protection feature on Microchip devices:

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
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