

74HC4017; 74HCT4017

Johnson decade counter with 10 decoded outputs

Rev. 4 — 10 December 2013

Product data sheet

1. General description

The 74HC4017; 74HCT4017 is a 5-stage Johnson decade counter with 10 decoded outputs (Q0 to Q9), an output from the most significant flip-flop ($\overline{Q}5-9$), two clock inputs (CP0 and $\overline{CP}1$) and an overriding asynchronous master reset input (MR). The counter is advanced by either a LOW-to-HIGH transition at CP0 while $\overline{CP}1$ is LOW or a HIGH-to-LOW transition at $\overline{CP}1$ while CP0 is HIGH. When cascading counters, the $\overline{Q}5-9$ output, which is LOW while the counter is in states 5, 6, 7, 8 and 9, can be used to drive the CP0 input of the next counter. A HIGH on MR resets the counter to zero (Q0 = $\overline{Q}5-9$ = HIGH; Q1 to Q9 = LOW) independent of the clock inputs (CP0 and $\overline{CP}1$). Automatic code correction of the counter is provided by an internal circuit: following any illegal code the counter returns to a proper counting mode within 11 clock pulses. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of V_{CC} .

2. Features and benefits

- Wide supply voltage range from 2.0 V to 6.0 V
- Input levels:
 - ◆ For 74HC4017: CMOS level
 - ◆ For 74HCT4017: TTL level
- Complies with JEDEC standard no. 7 A
- ESD protection:
 - ◆ HBM JESD22-A114E exceeds 2000 V
 - ◆ MM JESD22-A115-A exceeds 200 V
- Multiple package options
- Specified from $-40\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$ and from $-40\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$



3. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74HC4017				
74HC4017N	−40 °C to +125 °C	DIP16	plastic dual in-line package; 16 leads (300 mil)	SOT38-4
74HC4017D	−40 °C to +125 °C	SO16	plastic small outline package; 16 leads; body width 3.9 mm	SOT109-1
74HC4017DB	−40 °C to +125 °C	SSOP16	plastic shrink small outline package; 16 leads; body width 5.3 mm	SOT338-1
74HC4017PW	−40 °C to +125 °C	TSSOP16	plastic thin shrink small outline package; 16 leads; body width 4.4 mm	SOT403-1
74HC4017BQ	−40 °C to +125 °C	DHVQFN16	plastic dual in-line compatible thermal-enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 × 3.5 × 0.85 mm	SOT763-1
74HCT4017				
74HCT4017N	−40 °C to +125 °C	DIP16	plastic dual in-line package; 16 leads (300 mil)	SOT38-4
74HCT4017D	−40 °C to +125 °C	SO16	plastic small outline package; 16 leads; body width 3.9 mm	SOT109-1
74HCT4017BQ	−40 °C to +125 °C	DHVQFN16	plastic dual in-line compatible thermal-enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 × 3.5 × 0.85 mm	SOT763-1

4. Functional diagram

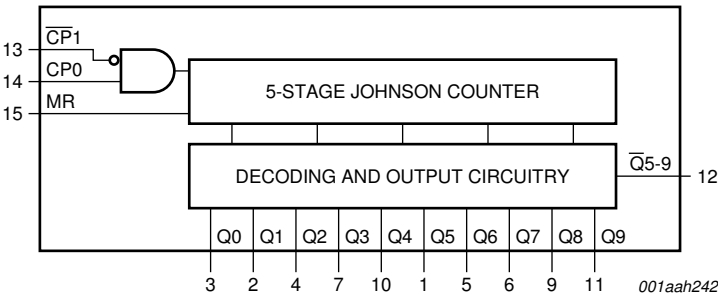


Fig 1. Functional diagram

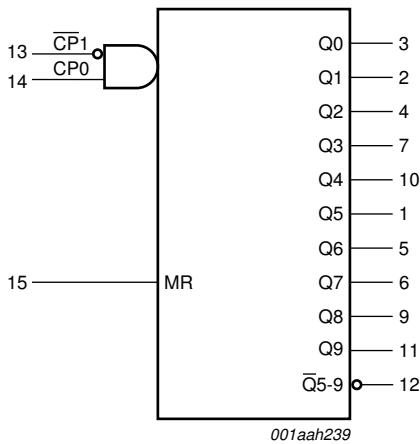


Fig 2. Logic symbol

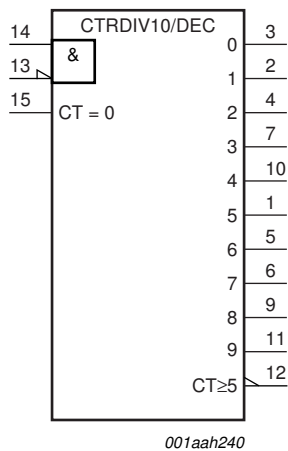


Fig 3. IEC logic symbol

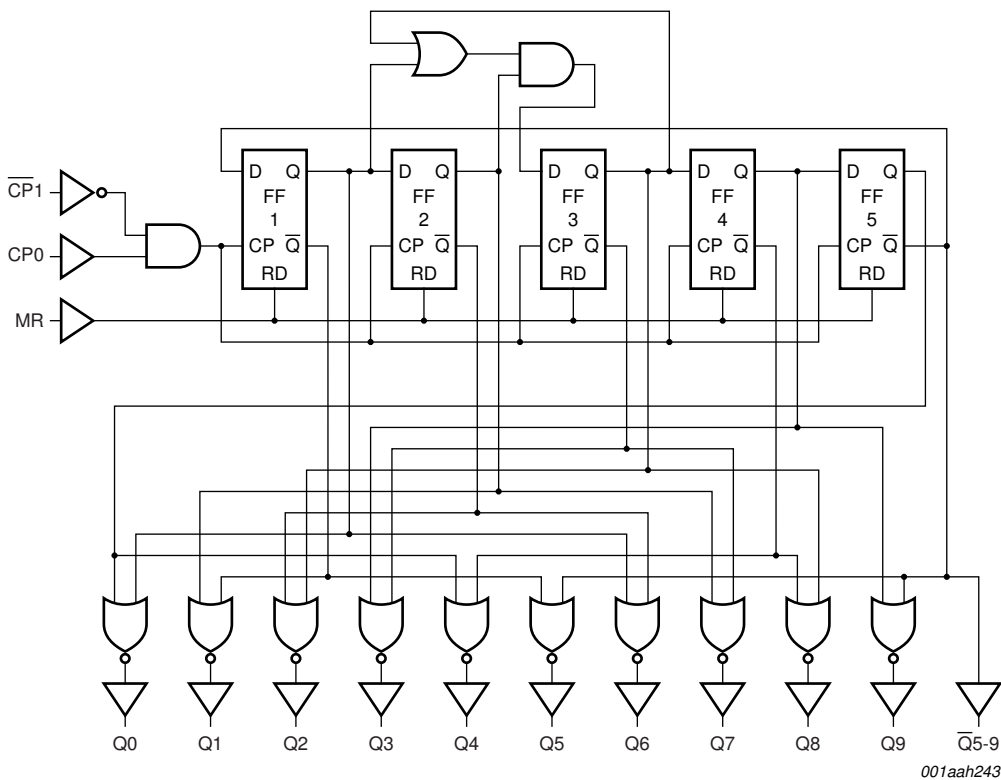


Fig 4. Logic diagram

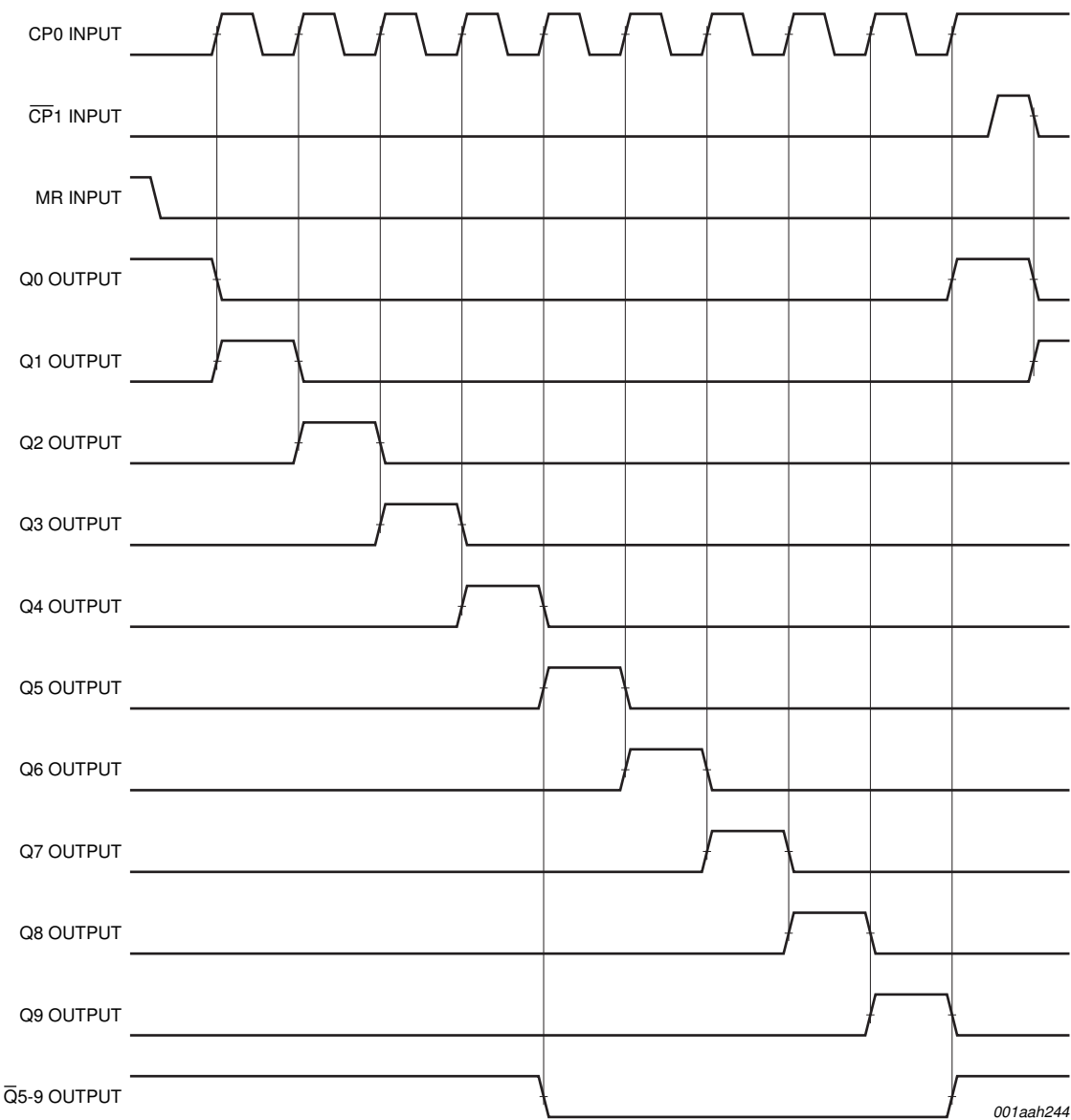


Fig 5. Timing diagram