JK Flip-Flop

MC10EL35
MC100EL35

The MC10EL/100EL35 is a high speed JK flip-flop. The J/K data enters the master portion of the flip-flop when the clock is LOW and is transferred to the slave, and thus the outputs, upon a positive transition of the clock. The reset pin is asynchronous and is activated with a logic HIGH.

- 525ps Propagation Delay
- 2.2GHz Toggle Frequency
- High Bandwidth Output Transitions
- 75kΩ Internal Input Pulldown Resistors
- >1000V ESD Protection

LOGIC DIAGRAM AND PINOUT ASSIGNMENT
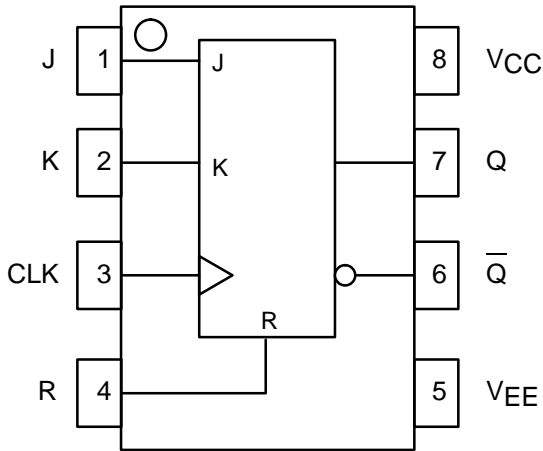
D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

TRUTH TABLE

J	K	R	CLK	Qn+1
L	L	L	Z	Qn
L	H	L	Z	L
H	L	L	Z	$\underline{H}$
H	H	L	Z	$\overline{Qn}$
X	X	H	X	L

Z = LOW to HIGH Transition

REV 2

MOTOROLA

MC10EL35 MC100EL35

DC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = GND)

Symbol	Characteristic		−40°C Min	−40°C Typ	−40°C Max	0°C Min	0°C Typ	0°C Max	25°C Min	25°C Typ	25°C Max	85°C Min	85°C Typ	85°C Max	Unit
I_{EE}	Power Supply Current	10EL 100EL		27 27	32 32		27 27	32 32		27 27	32 32		27 32	32 37	mA
V_{EE}	Power Supply Voltage	10EL 100EL		−5.2 −4.5		−4.75 −4.20	−5.2 −4.5	−5.5 −5.5	−4.75 −4.20	−5.2 −4.5	−5.5 −5.5	−4.75 −4.20	−5.2 −4.5	−5.5 −5.5	V
I_{IH}	Input HIGH Current				150			150			150			150	µA

AC CHARACTERISTICS (V_{EE} = V_{EE}(min) to V_{EE}(max); V_{CC} = GND)

Symbol	Characteristic		−40°C Min	−40°C Typ	−40°C Max	0°C Min	0°C Typ	0°C Max	25°C Min	25°C Typ	25°C Max	85°C Min	85°C Typ	85°C Max	Unit
f_{MAX}	Maximum Toggle Frequency		1.4	2.0		1.8	2.2		1.8	2.2		1.8	2.2		GHz
t_{PLH} t_{PHL}	Propagation Delay to Output	CLK MR	290 225	515 450	740 675	340 275	515 450	690 625	350 275	525 450	700 625	395 350	570 525	745 700	ps
t_S	Setup Time	J, K	150	0		150	0		150	0		150	0		ps
t_H	Hold Time	J, K	250	100		250	100		250	100		250	100		ps
t_{RR}	Reset Recovery		400	200		400	200		400	200		400	200		ps
t_{PW}	Minimum Pulse Width CLK, Reset		400			400			400			400			ps
t_r t_f	Output Rise/Fall Times Q (20% – 80%)		100	225	350	100	225	350	100	225	350	100	225	350	ps

OUTLINE DIMENSIONS

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751–05
ISSUE P

NOTES:
1. DIMENSIONS A AND B ARE DATUMS AND T IS A DATUM SURFACE.
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
3. DIMENSIONS ARE IN MILLIMETER.
4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
6. DIMENSION D DOES NOT INCLUDE MOLD PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	4.80	5.00
B	3.80	4.00
C	1.35	1.75
D	0.35	0.49
F	0.40	1.25
G	1.27 BSC	
J	0.18	0.25
K	0.10	0.25
M	0 °	7 °
P	5.80	6.20
R	0.25	0.50

How to reach us:
USA/EUROPE/Locations Not Listed: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447 or 602–303–5454

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE 602–244–6609
INTERNET: http://Design–NET.com

JAPAN: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, 6F Seibu–Butsuryu–Center, 3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–81–3521–8315

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park, 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298

MOTOROLA

◊

MC10EL35/D