

Solve

$Q_2$	$Q_1$	$Q_0$
0	0	0
0	0	1
0	1	0
0	1	1
1	0	0
1	0	1
1	1	0
1	1	1

Present State

111
000
001
010
011
100
101
110

Next State

000
001
010
011
100
101
110
111

JK

00
01
10
11

N.S. ( $Q_{n+1}$ )

$Q_n$
0
1
$\bar{Q}_n$

mode

Hold
Reset
Set
toggle

PS

0
0
1
1

N.S.

0
1
0
1

JK

00
01
10
11

mode

Hold
Set
Reset
toggle

P.S.	N.S.	$J_2 K_2$	$J_1 K_1$	$J_0 K_0$
1 1 1	0 0 0	d 1	d 1	x 1
0 0 0	0 0 1	0 d	0 d	1 x
0 0 1	0 1 0	0 d	1 d	x 1
0 1 0	0 1 1	0 d	d 0	1 x
0 1 1	1 0 0	1 d	d 1	x 1
1 0 0	1 0 1	d 0	d d	1 x
1 0 1	1 1 0	d 0	1 d	x 1
1 1 0	1 1 1	d 0	d 0	1 x

K-map

$Q_2$	$Q_1 Q_0$	00	01	11	10
0	0	0	0	1	0
1	1	x	x	x	x

$J_2 = Q_0$

$Q_2$	$Q_1 Q_0$	00	01	11	10
0	0	0	1	x	x
1	1	0	1	x	x

$J_1 = Q_0$

$Q_2$	$Q_1 Q_0$	00	01	11	10
0	0	1	x	x	1
1	1	1	x	x	1

$I_0 = 1$

$Q_2 \backslash Q_1 Q_0$	00	01	11	10
0	X	X	X	X
1	0	0	1	0

$K_2 = Q_0$

$Q_1, d_0$	00	01	11	10
$Q_2$				
0	X	X	1	0
1	X	X	1	0

$K_1 = Q_0$

$Q_2$	$Q_1 Q_0$	00	01	11	10
0	X	1	1	X	
1	X	1	1	X	

$K_0 = 1$

# Circuit

