TYPES SN5490A, SN5492A, SN5493A, SN54L90, SN54L93, SN7490A, SN7492A, SN7493A, SN74L90, SN74L93
DECADE, DIVIDE-BY-TWELVE, AND BINARY COUNTERS

BULLETIN NO. DL-S 7211807, DECEMBER 1972

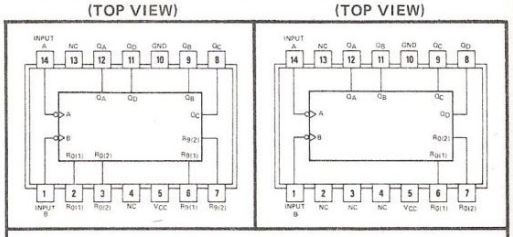
'90A, 'L90 . . . DECADE COUNTERS

'92A . . . DIVIDE-BY-TWELVE COUNTER

'93A, 'L93 . . . 4-BIT BINARY COUNTERS

'90A . . . J, N, OR W PACKAGE
'L90 . . . J, N, OR T PACKAGE
(TOP VIEW)

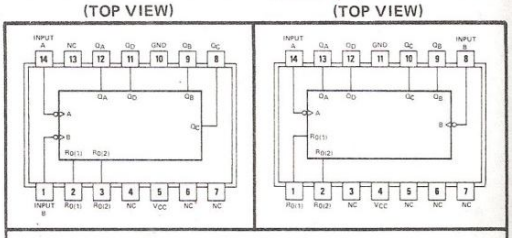
'92A . . . J, N, OR W PACKAGE
(TOP VIEW)



positive logic: see function tables

'93A . . . J, N, OR W PACKAGE
(TOP VIEW)

'L93 . . . J, N, OR T PACKAGE
(TOP VIEW)



positive logic: see function tables

NC—No internal connection

description

Each of these monolithic counters contains four master-slave flip-flops and additional gating to provide a divide-by-two counter and a three-stage binary counter for which the count cycle length is divide-by-five for the '90A and 'L90, divide-by-six for the '92A, and divide-by-eight for the '93A and 'L93.

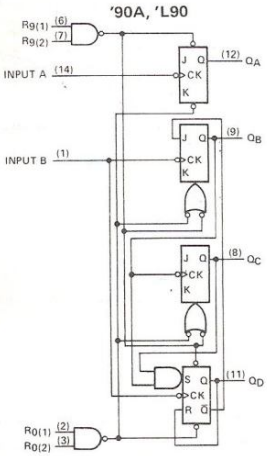
All of these counters have a gated zero reset and the '90A and 'L90 also have gated set-to-nine inputs for use in BCD nine's complement applications.

To use their maximum count length (decade, divide-by-twelve, or four-bit binary) of these counters, the B input is connected to the Q_A output. The input count pulses are applied to input A and the outputs are as described in the appropriate function table. A symmetrical divide-by-ten count can be obtained from the '90A or 'L90 counters by connecting the Q_D output to the A input and applying the input count to the B input which gives a divide-by-ten square wave at output Q_A.

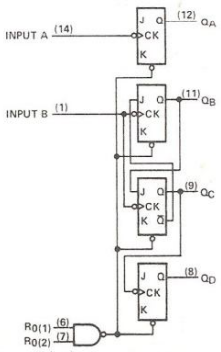
TYPES	TYPICAL POWER DISSIPATION
'90A	145 mW
'L90	20 mW
'92A, '93A	130 mW
'L93	16 mW

functional block diagrams

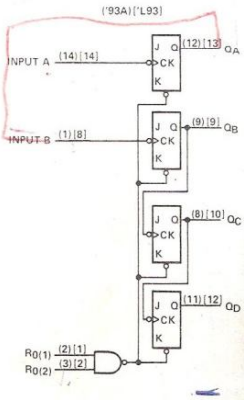
'90A, 'L90



'92A



'93A, 'L93



. . . dynamic input activated by transition from a high level to a low level.

The J and K inputs shown without connection are for reference only and are functionally at a high level.

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