'90A, 'L90 . . . DECADE COUNTERS

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

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

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 QD 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 QD output to the A input and applying the input count to the B input which gives a divide-by-ten square wave at output QD.

functional block diagrams

positive logic: see function tables

NC—No internal connection

TYPICAL POWER DISSIPATION

<table>
<thead>
<tr>
<th>TYPES</th>
<th>TYPICAL POWER DISSIPATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>'90A</td>
<td>145 mW</td>
</tr>
<tr>
<td>'L90</td>
<td>20 mW</td>
</tr>
<tr>
<td>'92A, '93A</td>
<td>130 mW</td>
</tr>
<tr>
<td>'L93</td>
<td>16 mW</td>
</tr>
</tbody>
</table>

Texas Instruments

INTEGRATED CIRCUIT No. D.S. 7211807, DECEMBER 1972

224

POST OFFICE BOX 9512 • DALLAS, TEXAS 75222

B1