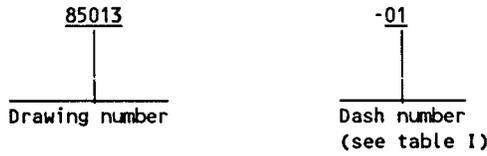




1. SCOPE

1.1 Scope. This drawing describes the requirements for a family of active 5-tap, 14-pin DIP compatible, TTL interfaced delay lines.

1.2 Part or Identifying Number (PIN). The PIN shall be as shown in the following example:



2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications. Unless otherwise specified, the following specifications, of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

- DOD-D-1000 - Drawing, Engineering and Associated List.
- MIL-S-19491 - Semiconductor Devices, Packaging of.
- MIL-D-83532 - Delay Lines, Active, General Specification for.

(Copies of specifications required by manufacturers in connection with specific acquisition functions should be obtained from Defense Printing Service Detachment Office, Bldg. 4D (Customer Service), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing shall take precedence. Nothing in this drawing, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Drawing precedence. This drawing takes precedence over documents referred to herein and shall be interpreted in accordance with DOD-D-1000.

3.2 Case material. In accordance with MIL-D-83532.

3.3 Terminal material. In accordance with MIL-D-83532.

3.4 Design and dimensions. See figure 1.

3.5 Temperature coefficient of delay. 550 PPM/°C maximum.

3.6 PIN's and delay times. See table I.

3.7 Delay tolerance. ±2 ns or 5 percent, whichever is greater.

3.8 Rise time. 4 ns maximum.

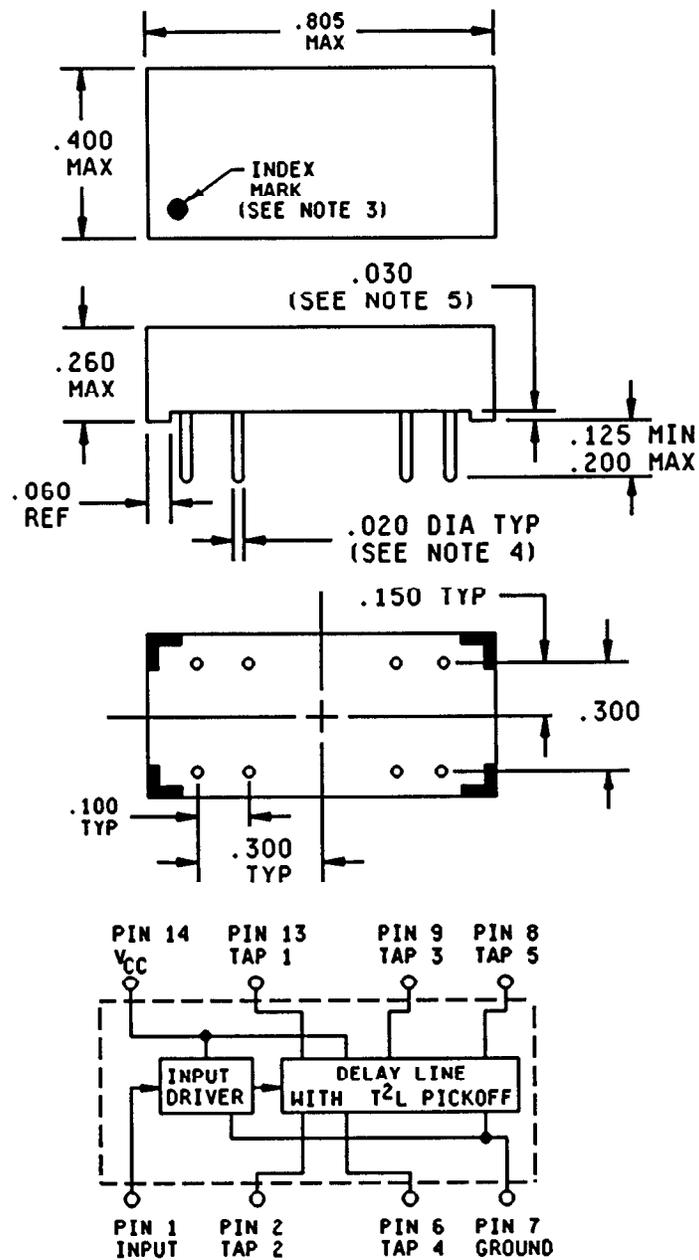
3.9 Pulse width. Input pulse width of 40 percent minimum of total delay.

3.10 Supply voltage (V<sub>CC</sub>). 4.50 to 5.50 V dc.

3.11 Supply current (I<sub>CC</sub>).

Constant "0" in - 60 mA typically.  
Constant "1" in - 20 mA typically.

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Inches	mm
.002	0.05
.010	0.25
.018	0.46
.020	0.51
.030	0.76
.060	1.52
.100	2.54
.125	3.18
.150	3.81
.200	5.08
.260	6.60
.300	7.62
.400	10.16
.805	20.44

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Contrasting index mark represents location of pin one.
4. Flat pins are optional. If used, dimensions shall be .018 ±.002 by .010 ±.002. The .018 side shall be parallel to the case length.
5. Location and shape of standoffs are optional. Height shall be as indicated.
6. Unless otherwise indicated, tolerance is ±.005 (0.13 mm).
7. Leads shall be free of case meniscus and other foreign material and shall be solderable for a minimum of .010 inch (0.25 mm) above the seating plane of the delay line.

FIGURE 1. Design and dimensions.

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- 3.12 Logic 1 input voltage. 2 V minimum; 5.5 V maximum.
- 3.13 Logic 0 input voltage. 0.8 V maximum.
- 3.14 Logic 1 input current. 2.4 V = 50  $\mu$ A maximum; 5.5 V = 1 mA maximum.
- 3.15 Logic 0 input current. -2 mA maximum.
- 3.16 Logic 1, V<sub>OUT</sub>. 2.4 V minimum.
- 3.17 Logic 0, V<sub>OUT</sub>. 0.4 V maximum.
- 3.18 Logic 1 fan-out. 20/tap maximum (1 tap is capable of driving 20 TTL inputs).
- 3.19 Logic 0 fan-out. 10/tap maximum (1 tap is capable of driving 10 TTL inputs).
- 3.20 Thermal shock. In accordance with MIL-D-83532.
- 3.21 Sealing. In accordance with MIL-D-83532.
- 3.22 Terminal strength. In accordance with MIL-D-83532.
- 3.23 Vibration. In accordance with MIL-D-83532.
- 3.24 Shock. In accordance with MIL-D-83532.
- 3.25 Moisture resistance. In accordance with MIL-D-83532.
- 3.26 Solderability. In accordance with MIL-D-83532.

TABLE I. PIN's and delay times.

PIN 85013-	Delay time (ns)				
	Tap 1	Tap 2	Tap 3	Tap 4	Output
01	5	10	15	20	25
02	6	12	18	24	30
03	7	14	21	28	35
04	8	16	24	32	40
05	9	18	27	36	45
06	10	20	30	40	50
07	15	30	45	60	75
08	20	40	60	80	100
09	25	50	75	100	125
10	30	60	90	120	150
11	35	70	105	140	175
12	40	80	120	160	200
13	45	90	135	180	225
14	50	100	150	200	250
15	60	120	180	240	300
16	70	140	210	280	350
17	80	160	240	320	400
18	90	180	270	360	450
19	100	200	300	400	500

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3.27 Resistance to solvents. In accordance with MIL-D-83532.

3.28 Operating temperature range. -55°C to +125°C.

3.29 Marking. In accordance with MIL-D-83532, except that the PIN shall be as specified in 1.2 herein. JAN marking is not applicable.

3.30 Workmanship. In accordance with MIL-D-83532.

4. QUALITY ASSURANCE PROVISIONS

4.1 Qualification inspection. Not applicable.

4.2 Quality conformance inspection.

4.2.1 Inspection of product for delivery. Inspection of product for delivery shall consist of compliance with the group A inspection for level A as specified in MIL-D-83532.

4.2.2 Inspection of packaging. The sampling and inspection of the preservation, packing, and container marking shall be in accordance with the requirements for semiconductor devices in MIL-S-19491.

4.3 Optional certification to group A tests. The acquiring activity, at its discretion, may accept from the manufacturer a statement of compliance with the group A requirements in lieu of the manufacturer performing the group A tests (see 6.2c).

4.4 DESC Certificate of Compliance. Each manufacturer desiring to be listed as a suggested source of supply (see 6.3) shall submit a DESC Certificate of Compliance to DESC-ELDM (see 6.4). This certificate shall state that the manufacturer's product meets all the requirements of this drawing.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with the provisions specified for semiconductor devices in MIL-S-19491.

6. NOTES

6.1 Intended use. Devices conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for OEM application.

6.2 Ordering data. The contract or purchase order should specify the following:

- a. Complete PIN (see 1.2).
- b. Requirement for the manufacturer to include one copy of the quality conformance inspection data with each shipment of parts.
- c. Whether the manufacturer performs the group A tests or provides a statement of compliance with the group A requirements (see 4.3).
- d. Requirement for the manufacturer to notify the acquiring activity in the event of a change in the product.
- e. Requirements for packaging and packing.

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6.3 Suggested sources of supply. Suggested sources of supply are listed below. Additional sources will be added as they become available. This table is not a qualified products list or an approved source list. The vendors indicated have submitted government Certificates of Compliance to DESC-ELDM; however, parts may be ordered from any manufacturer who agrees to supply parts which conform to all the requirements of this drawing.

PIN 85013-	Similar vendor PIN 1/					
	CAGE 00222	CAGE 50965	CAGE 16714	CAGE 22519	CAGE 62694	CAGE 20933
01	96-84-01	8013-01	DSP013-01	DDU6-8823-1	L-28-551	00T444
02	96-84-02	8013-02	DSP013-02	DDU6-8823-2	L-28-552	00T445
03	96-84-03	8013-03	DSP013-03	DDU6-8823-3	L-28-553	00T446
04	96-84-04	8013-04	DSP013-04	DDU6-8823-4	L-28-554	00T447
05	96-84-05	8013-05	DSP013-05	DDU6-8823-5	L-28-555	00T448
06	96-84-06	8013-06	DSP013-06	DDU6-8823-6	L-28-556	00T449
07	96-84-07	8013-07	DSP013-07	DDU6-8823-7	L-28-557	00T450
08	96-84-08	8013-08	DSP013-08	DDU6-8823-8	L-28-558	10T549
09	96-84-09	8013-09	DSP013-09	DDU6-8823-9	L-28-559	10T550
10	96-84-10	8013-10	DSP013-10	DDU6-8823-10	L-28-560	10T551
11	96-84-11	8013-11	DSP013-11	DDU6-8823-11	L-28-561	10T552
12	96-84-12	8013-12	DSP013-12	DDU6-8823-12	L-28-562	10T553
13	96-84-13	8013-13	DSP013-13	DDU6-8823-13	L-28-563	10T554
14	96-84-14	8013-14	DSP013-14	DDU6-8823-14	L-28-564	10T555
15	96-84-15	8013-15	DSP013-15	DDU6-8823-15	L-28-565	10T556
16	96-84-16	8013-16	DSP013-16	DDU6-8823-16	L-28-566	10T557
17	96-84-17	8013-17	DSP013-17	DDU6-8823-17	L-28-567	10T558
18	96-84-18	8013-18	DSP013-18	DDU6-8823-18	L-28-568	10T559
19	96-84-19	8013-19	DSP013-19	DDU6-8823-19	L-28-569	10T560

1/ CAUTION: Do not use vendor part numbers for item acquisition or marking. The similar vendor product may not satisfy all the requirements of this drawing.

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<u>Vendor CAGE number</u>	<u>Vendor name and address</u>
00222	ESC Electronics Corporation 534 Bergen Blvd. Palisades Park, NJ 07650-2397
50965	Princeton Advanced Components, Inc. 860 State Road Princeton, NJ 08540-1416
16714	Rhombus Industries 15801 Chemical Lane Huntington Beach, CA 92649-1595
22519	Data Delay Devices, Inc. 3 Mt. Prospect Avenue Clifton, NJ 07013-1916
62694	JBM Electronics, Inc. 1 Commerce Drive Bedford, NH 03110-8107
20933	Kappa Technologies, Inc. 1443 Pinewood Street Rahway, NJ 07065-5587

6.4 Assistance. Questions or comments pertaining to this drawing should be addressed to DESC-ELDM, 1507 Wilmington Pike, Dayton, OH 45444-5765, telephone (513) 296-5255; fax (513) 296-8868.

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