INCH-POUND

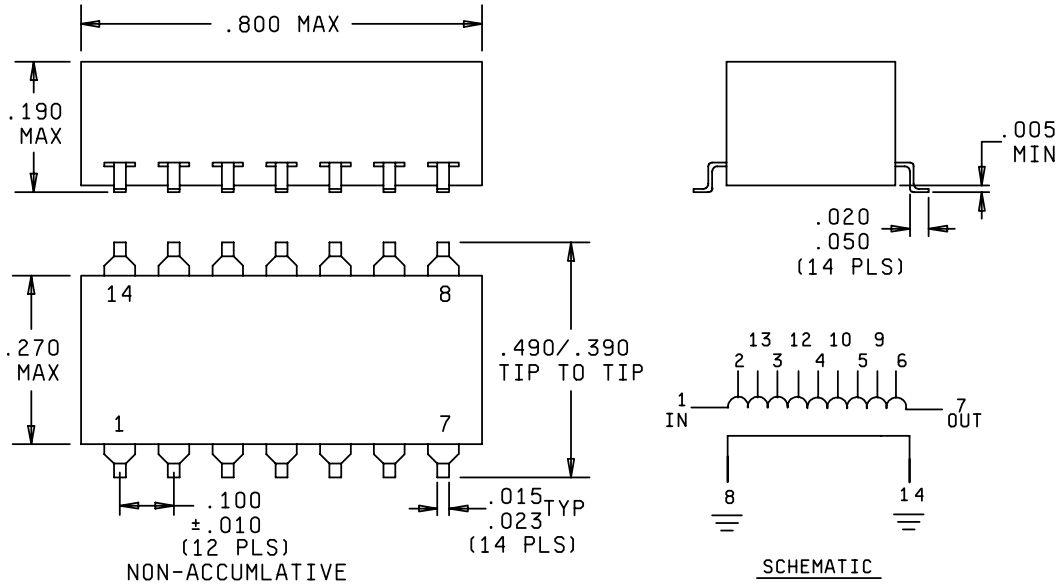
MIL-PRF-83531/4A
w/AMENDMENT 1
22 November 2005
SUPERSEDING
MIL-PRF-83531/4
15 December 1998

PERFORMANCE SPECIFICATION SHEET

DELAY LINES, 10-TAP, DUAL-IN-LINE, 14-PIN, SURFACE MOUNT DEVICE

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-83531.



Inches	mm	Inches	mm
0.005	0.13	0.100	2.54
0.010	0.25	0.190	4.83
0.015	0.38	0.270	6.86
0.020	0.51	0.390	9.91
0.023	0.58	0.490	12.45
0.050	1.27	0.800	20.32

FIGURE 1. Case and mounting dimensions.

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Pin 11 is not connected.
4. Terminal dimensions are prior to hot solder dip.
5. Schematic is for general information only.
6. Leads shall be free of case meniscus and other foreign material and shall be solderable for a minimum of 0.010 above the seating plane of the delay line.

FIGURE 1. Case and mounting dimensions. - Continued.

REQUIREMENTS:

Operating temperature: -55°C to +125°C.

Weight: 2.5 grams maximum.

Case material: Metal or plastic.

Terminal material: In accordance with MIL-PRF-83531.

Design and construction: See figure 1.

Total delay time: See table I.

Rise time: 25 percent of total delay, maximum.

Voltage attenuation: See table I.

Distortion: ± 15 percent at maximum delay.

Delay time variation with temperature: 100 ppm/°C maximum.

DC resistance (RDC):

RDC = impedance (attenuation/(1-attenuation))

Example: RDC = 50 (0.03/(1-0.03)) = 1.5 ohms

Nominal characteristic impedance: See table I.

Insulation resistance: In accordance with MIL-PRF-83531.

Input pulse:

Peak pulse voltage: 1 to 3 volts ± 5 percent.

Pulse width: Three times nominal total delay.

Duty cycle: 25 percent

Reflow Process: Devices shall be capable of withstanding industry standard reflow process provided the internal temperature rise does not exceed 217°C. The maximum dwell time at 217°C shall not exceed 60 seconds.

Thermal shock: In accordance with MIL-PRF-83531.

Tap accuracy and total accuracy:

Total delay 0 to 10: ± 0.5 ns.
Total delay 11 to 25: ±1 ns or 5 percent (whichever is greater).
Total delay 26 and up: ±2 ns or 5 percent (whichever is greater).

Part or Identifying Number (PIN): The PIN shall be as follows:

M83531	/04	-001
Screening level and basic specification	Specification sheet number (note zero)	Dash number (See table I)

Screening level “M” is for high reliability military applications. Screening level “C” is for general purpose military applications.

TABLE I. Part numbers and electrical characteristics.

Part number M83531/04- Nominal characteristic impedance (±10%)					1/ Total delay time (ns)	Maximum attenuation by impedance (percent)				
50Ω	100Ω	200Ω	360Ω	500Ω		50Ω	100Ω	200Ω	360Ω	500Ω
001	101	201	301	401	5	6	5	5	5	7
002	102	202	302	402	10	6	5	5	5	7
003	103	203	303	403	15	6	5	5	5	7
004	104	204	304	404	20	6	5	5	5	7
005	105	205	305	405	25	6	5	5	5	7
006	106	206	306	406	30	6	5	5	5	7
007	107	207	307	407	35	6	5	5	5	7
008	108	208	308	408	40	6	5	5	5	7
009	109	209	309	409	45	6	5	5	5	7
010	110	210	310	410	50	6	5	6	5	7
011	111	211	311	411	55	6	5	6	5	7
012	112	212	312	412	60	6	5	6	5	7
013	113	213	313	413	65	6	5	6	5	7
014	114	214	314	414	70	6	5	6	5	7
015	115	215	315	415	75	8	5	6	5	7
016	116	216	316	416	80	8	5	6	5	7
017	117	217	317	417	85	8	5	6	5	7
018	118	218	318	418	90	8	5	6	5	7
019	119	219	319	419	95	8	5	6	5	7
020	120	220	320	420	100	8	8	6	5	7
021	121	221	321	421	110	10	8	6	7	8
022	122	222	322	422	120	10	8	6	7	8
023	123	223	323	423	130	10	8	6	7	8
024	124	224	324	424	140	10	8	6	7	8
025	125	225	325	425	150	10	8	8	7	8
026	126	226	326		160	15	10	8	7	8
027	127	227	327		170	15	10	8	7	8
028	128	228	328		180	15	10	8	7	8
029	129	229	329		190	15	10	8	7	8
030	130	230	330		200	15	10	8	7	8
031	131	231	331		210	15	10	8	7	8
032	132	232	332		220	15	10	8	7	8
033	133	233			230	15	10	8	7	8
034	134	234			240	15	10	8	7	8
035	135	235			250	15	10	10	7	8
036	136	236			260	15	15	10	7	8
037	137	237			270	15	15	10	7	8
038	138	238			280	15	15	10	7	8
039	139	239			290	15	15	10	7	8
040	140	240			300	15	15	10	7	8
041	141	241			310	20	15	10	10	10
042	142	242			320	20	15	10	10	10
043	143	243			330	20	15	10	10	10
044	144	244			340	20	15	10	10	10
045	145	245			350	20	20	15	10	10

TABLE I. Part numbers and electrical characteristics - Continued.

Part number M83531/04-										
Nominal characteristic impedance (±10%)					1/ Total delay time (ns)	Maximum attenuation by impedance (percent)				
50Ω	100Ω	200Ω	360Ω	500Ω		50Ω	100Ω	200Ω	360Ω	500Ω
046	146	246			360	20	20	15	10	10
047	147	247			370	20	20	15	10	10
048	148	248			380	20	20	15	10	10
049	149	249			390	20	20	15	10	10
050	150	250			400	20	20	15	10	10
051	151				410	20	20	15	10	10
052	152				420	20	20	15	10	10
053	153				430	20	20	15	10	10
054	154				440	20	20	15	10	10
055	155				450	22	20	15	10	10
056	156				460	22	20	15	10	10
057	157				470	22	20	15	10	10
058	158				480	22	20	15	10	10
059	159				490	22	20	15	10	10
060	160				500	22	20	15	10	10

1/ Delay between successive taps shall be 1/10 of the nominal total delay time.

VERIFICATION:

Extent of qualification: The extent of qualifications shall be as specified in MIL-PRF-83531, for example:

Qualification and testing of M83531/04-001 and M83531/04-425 shall be sufficient to grant qualification approval to M83531/04-001 through M83531/04-425 inclusive.

Changes from previous issue: Marginal notations are mark with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - CR
Navy - EC
Air Force – 11
DLA- CC

Preparing activity:
DLA - CC

Review activities:
Air Force - 99
Navy – AS

(Project 5999-2006-002)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using ASSIST Online database at http://assist.daps.dla.mil.