NOTICE OF CHANGE

INCH-POUND

MIL-STD-1835B NOTICE 3 12 April 1999

DEPARTMENT OF DEFENSE

INTERFACE STANDARD FOR MICROCIRCUIT CASE OUTLINES

TO ALL HOLDERS OF MIL-STD-1835B:

1. THE FOLLOWING PAGES OF MIL-STD-1835B HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
11	3 September 1996	11	REPRINTED WITHOUT CHANGE
12	12 April 1999	12	3 September 1996
13	12 April 1999	13	3 September 1996
14	12 April 1999	14	3 September 1996
23	3 September 1996	23	REPRINTED WITHOUT CHANGE
24	12 April 1999	24	3 September 1996
25	12 April 1999	25	3 September 1996
26	12 April 1999	26	3 September 1996
27	12 April 1999	27	3 September 1996
28	3 September 1996	28	REPRINTED WITHOUT CHANGE
41	12 April 1999	41	3 September 1996
42	12 April 1999	42	3 September 1996

2. THE FOLLOWING ARE PEN AND INK CHANGES WITHIN THE STANDARD:

- a. Page 2. Paragraph 2.2. Delete "Electronic Industries Association" in 2 locations and replace with "Electronic Industries Alliance".
- b. Page 5. Paragraph 4.7.1c. Delete "numbers 4, 5, 6, 7, 8, and 9" and replace with "numbers 4, 5, 6, 7, and 8".
- c. Page 19. Footnote 3. Delete "Electronic Industries Association" and replace with "Electronic Industries Alliance".
- d. Page 19. Footnote 4. Delete "numbers 4, 5, 6, 7, 8, and 9" and replace with "numbers 4, 5, 6, 7, and 8".
- 3. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.
- 4. Holders of MIL-STD-1835B will verify that page changes and additions indicated above have been entered. This notice will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the standard is completely revised or canceled.

CONCLUDING MATERIAL

Custodians:

Army - CR Navy - EC Air Force - 11 NASA - NA DLA - CC Preparing activity: DLA - CC

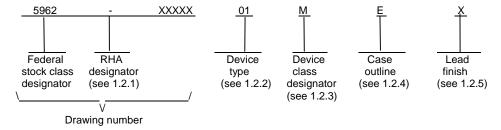
Review activities:

Army - AR, MI, SM Navy - AS, CG, MC, OS, SH Air Force - 19, 99 (Project 5962-1826)

Civil Agency Coordinating Activities: DOT-FAA(RD-650)

1. SCOPE

- 1.1 <u>Scope</u>. This drawing documents two product assurance class levels consisting of high reliability (device classes Q and M) and space application (device class V). A choice of case outlines and lead finishes are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of Radiation Hardness Assurance (RHA) levels are reflected in the PIN.
 - 1.2 PIN. The PIN is as shown in the following example:



- 1.2.1 RHA designator. Device classes Q and V RHA marked devices meet the MIL-PRF-38535 specified RHA levels and are marked with the appropriate RHA designator. Device class M RHA marked devices meet the MIL-PRF-38535, appendix A specified RHA levels and are marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.
 - 1.2.2 <u>Device type(s)</u>. The device type(s) identify the circuit function as follows:

Device type	Generic number	<u>Circuit function</u>
01	xxxxx	xxxxxxxxxxxxxx

1.2.3 <u>Device class designator</u>. The device class designator is a single letter identifying the product assurance level as follows:

Device class	Device requirements documentation
M	Vendor self-certification to the requirements for MIL-STD-883 compliant, non-JAN class level B microcircuits in accordance with MIL-PRF-38535, appendix A
Q or V	Certification and qualification to MIL-PRF-38535

1.2.4 <u>Case outline(s)</u>. The case outline(s) are as designated in MIL-STD-1835 and as follows:

Outline letter	Descriptive designator	<u>Terminals</u>	Package style
E	GDIP1-T16 or CDIP2-T16	16	Dual-in-Line
F	GDFP2-F16 or CDFP3-F16	16	Flat Package
Χ	CMGA2-P100G	100	Pin grid array
Υ	CDIP2-T16	16	Dual-in-line
2	CQCC1-N20	20	Leadless chip carrier

1.2.5 <u>Lead finish</u>. The lead finish is as specified in MIL-PRF-38535 for device classes Q and V or MIL-PRF-38535, appendix A for device class M.

FIGURE 2. Example of a (scope) page from a military detail specification showing the identification/specification of case outlines (packages).

TABLE VI. Package case outline list.

Descriptive package type designator	Case outline letter, Figure no., Configuration letter	<u>1</u> / Dimensions reference letter	<u>2</u> / θJC (°C/W)	Terminal count and row-to-row spacing (inch)	Terminal pitch (inch)	EIA similar package designation
3 2 3			, ,	, ,	(- /	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
		Fla	t pack style 4	<u>4</u> /		
GDFP1-F10 CDFP2-F10	H, 11, A H, 11, B	F-4 F-4	22	10 10	.050	MO-092 AA none
CDFP3-F10 GDFP1-F14	11, B D, 11, A	F-4A F-2		10 14	"	MO-098 AA MO-092 AB
CDFP2-F14	D, 11, B	F-2	"	14	"	none
CDFP3-F14 GDFP1-F16	11, B 11, A	F-2A F-13	 "	14 16	"	MO-098 AB MO-070 AA
GDFP2-F16	F, 11, A	F-5	11	16	ıı .	MO-070 AA MO-092 AC
CDFP3-F16	F, 11, B	F-5	"	16	"	none
CDFP4-F16	11, B	F-5A	"	16	"	MO-098 AC
GDFP1-F18	11, A	F-14	"	18	"	MO-070 AB
GDFP2-F18	11, A	F-10	"	18	"	MO-092 AD
GDFP1-F20	11, A	F-15	"	20	"	MO-070 AC
GDFP2-F20	S, 11, A	F-9	"	20	"	none
CDFP3-F20	S, 11, B	F-9	"	20	"	"
CDFP4-F20	11, B	F-9A	"	20	"	"
GDFP1-F24	11, A	F-16	"	24	"	MO-070 AD
GDFP2-F24	K, 11, A	F-6	"	24	"	"
CDFP3-F24	K, 11, B	F-6	"	24	"	none
CDFP4-F24	11, B	F-6A	"	24	"	"
GDFP1-F28	11, A	F-17	"	28	"	MO-070 AE
GDFP2-F28	11, A	F-11	"	28	"	"
CDFP3-F28	11, B	F-11A		28	"	none
CDFP4-F28	11, B	F-12	"	28	"	"
CDFP1-F32	11, B	F-18	"	32	"	MO-115 AA
GDFP1-F48	11, A	F-19	"	48	.025	MO-146 AA
GDFP1-F56	11, A	F-20	"	56	II.	MO-146 AB

See footnotes at end of table VII.

SUPERSEDES PAGE 12 OF MIL-STD-1835B

TABLE VI. Package case outline list - Continued

CDIP2-T8		Ca	ase out	lline	<u>1</u> /	<u>2</u> /	Ter	rminal		<u>3</u> /	1	
type designator Configuration letter reference letter (°C/W) spacing (inch) pitch (inch) package designation Dual-in-line package style 4/ Bull-in-line package style 4/ GDIP1-T8 P, 12, A D-4 28 B, 300 .100 MS-030 AA MS-015 AA ** CDIP2-T8 P, 12, C D-4 " 8, " " MS-015 AA ** MS-015 AA ** GDIP1-T14 C, 12, A D-1 " 14, " " MS-030 AB ** MS-015 AB ** GDIP1-T16 E, 12, A D-2 " 16, " " MS-030 AC ** MS-015 AB ** GDIP1-T16 E, 12, A D-2 " 16, " " MS-015 AB ** MS-015 AB ** GDIP1-T18 V, 12, A D-6 " 18, " " MS-030 AC ** ** MS-015 AD ** GDIP1-T20 R, 12, A D-8 " 20, " " MS-015 AD ** ** MS-030 AE ** GDIP1-T21 R, 12, A D-8 " 20, " " MS-015 AD ** ** MS-030 AE ** GDIP1-T22 W, 12, A D-7 " 22, " " MS-015 AG **	Descriptive		letter,	,			cou	nt and		EIA		
Dual-in-line package style 4/ Superior Dual-in-line package style 4/ Superior Dual-in-line package style 4/ Superior S	package	F	igure n	10.,	Dimensions	θ JC	row-	-to-row	Terminal	similar		
Dual-in-line package style 4/	type	Co	Configuration		reference		sp	acing	pitch	package		
CDIP1-T8	designator	_			letter	(°C/W)	(iı	nch)	(inch)	designation		
CDIP1-T8											1	
CDIP2-T8	Dual-in-line package style 4/											
CDIP2-16 F. 1.2 C D-4 S. NS-015 AA S. CDIP2-T14 C. 1.2 A D-1 " 14, " " MS-030 AB S. CDIP2-T14 C. 1.2 C D-1 " 14, " " MS-030 AB S. CDIP2-T14 C. 1.2 C D-2 " 16, " " MS-030 AC S. CDIP2-T16 E. 1.2 C D-2 " 16, " " MS-030 AC S. CDIP2-T16 E. 1.2 C D-2 " 16, " " MS-030 AC S. CDIP2-T18 V. 1.2 A D-6 " 18, " " MS-030 AD S. CDIP2-T18 V. 1.2 C D-6 " 18, " " MS-030 AD S. CDIP2-T20 R. 1.2 C D-8 " 20, " " MS-030 AE S. CDIP2-T20 R. 1.2 C D-8 " 20, " " MS-030 AE S. CDIP2-T22 W. 1.2 C D-7 " 2.2 400 " MS-031 AA S. CDIP2-T22 W. 1.2 C D-7 " 2.2 " MS-015 BB S. CDIP2-T22 W. 1.2 C D-7 " 2.2 " MS-015 BB S. CDIP2-T24 J. 1.2 A D-3 " 24, 600 " MS-032 AA, MO-103 AA S. CDIP2-T24 J. 1.2 A D-9 " 24, 300 " MS-030 AF S. S. CDIP2-T24 L. 1.2 A D-9 " 24, 300 " MS-030 AF S. CDIP4-T24 L. 1.2 A D-9 " 24, 400 " none CDIP4-T24 L. 1.2 A D-11 " 24, 400 " none CDIP4-T24 L. 1.2 A D-10 " 28, 600 " MS-032 AB, S. MS-015 AB S. CDIP2-T28 1.2 A D-10 " 28, 600 " MS-032 AB, S. MS-015 AB S. CDIP2-T28 1.2 A D-16 " 28, " " MS-015 AB S. CDIP2-T32 1.2 A D-16 " 32, " " MS-015 CC CDIP1-T32 1.2 A D-16 " 32, " " MS-015 CC CDIP1-T32 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T34 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T34 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T34 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T34 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T34 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T34 1.2 A D-16 " 32, " " MS-015 CE CDIP1-T36 1.2 A D-14 " 48, " " mone CDIP1-T36 1.2 A D-12 " 50, 90	GDIP1-T8	P,	12,	Α	D-4	28	8,	.300	.100	MS-030 AA	*	
CDIP2-T14	CDIP2-T8	P,	12,	С	D-4	"	8,	"	"	MS-015 AA		
CDIP2-T16 E, 12, A D-2 " 16, " MS-015 AC	GDIP1-T14	C,	12,	Α	D-1	"	14,	"	"	MS-030 AB	*	
CDIP2-T16 E, 12, A D-2 16,	CDIP2-T14	C,	12,	С	D-1	"	14,	"	"	MS-015 AB		
CDIP2-T18	GDIP1-T16	E,	12,	Α	D-2	"	16,	"	"	MS-030 AC	*	
CDIP2-T18	CDIP2-T16	E,	12,	С	D-2	"	16,	"	"	MS-015 AC		
GDIP1-T20	GDIP1-T18	٧,	12,	Α	D-6	"	18,	"	"	MS-030 AD	*	
SDIP1-T20 R, 12, A D-6 20,	CDIP2-T18	٧,	12,	С	D-6	"	18,	"	"	MS-015 AD		
CDIP1-T22	GDIP1-T20	R,	12,	Α	D-8	"	20,	"	"	MS-030 AE	*	
CDIP2-T22 W, 12, A D-7 22, " MS-015 BB SDIP1-T24 J, 12, A D-3 " 24, 600 " MS-032 AA, MO-103 AA CDIP2-T24 J, 12, A D-9 " 24, 300 " MS-015 CA SDIP1-T24 L, 12, A D-9 " 24, 300 " MS-015 AG SDIP1-T24 L, 12, A D-11 " 24, " " MS-015 AG SDIP1-T24 L, 12, A D-11 " 24, " " MS-015 BB SDIP1-T28 L, A D-11 " 24, " " MS-015 BC SDIP1-T28 L, A D-10 " 28, 600 " MS-032 AB, MO-103 AB SDIP1-T28 L, C D-15 " 28, " " MS-015 CB SDIP1-T32 L, A D-16 " 28, " " MS-015 AB SDIP1-T32 L, A D-16 " 32, 600 " MS-032 AC, MO-103 AD SDIP1-T32 L, A D-16 " 32, " " MS-015 CC SDIP1-T40 Q, 12, A D-5 " 40, " " MS-015 CE SDIP1-T48 L, A D-15 " 40, " " MS-015 CE SDIP1-T48 L, A D-16 " 32, " " MS-015 CE SDIP1-T48 L, A D-16 " 32, " " MS-015 CE SDIP1-T40 Q, 12, A D-5 " 40, " " MS-032 AD, MO-103 AD SDIP1-T48 L, A D-14 " 48, " " MS-015 CE SDIP1-T48 L, A D-14 " 48, " " MS-015 CE SDIP1-T48 L, A D-14 " 48, " " MS-015 CF SDIP1-T48 L, A D-12 " 50, 900 " none SDIP1-T50 L, A D-12 "	CDIP2-T20	R,	12,	С	D-8	"	20,	II .	"	MS-015 AE		
GDIP1-T24	GDIP1-T22	W,	12,	Α	D-7	"	22,	.400		MS-031 AA	*	
GDIP1-T24	CDIP2-T22	W,	12,	С	D-7	"	22,	II .	"	MS-015 BB		
CDIP2-T24 J, 12, C D-3 " 24, " " MS-015 CA MS-015 CA GDIP3-T24 L, 12, A D-9 " 24, 300 " MS-030 AF * CDIP4-T24 L, 12, C D-9 " 24, " " MS-015 AG GDIP5-T24 12, A D-11 " 24, 400 " none CDIP6-T24 12, C D-11 " 24, " " MS-015 BC GDIP1-T28 12, A D-10 " 28, 600 " MS-032 AB, MO-103 AB MS-015 CB CDIP3-T28 12, C D-16 " 28, 300 " MS-015 CB CDIP3-T28 12, A D-15 " 28, 300 " MS-015 CB CDIP3-T28 12, A D-15 " 28, 300 " MS-032 AC, MO-103 AB GDIP1-T32 12, A D-16 " 32, 600 " MS-032 AC, MO-103 AD MS-015 CC GDIP1-T32 12, A D-16 " 32, 600 " MS-032 AC, MO-103 AD MS-015 CC GDIP1-T40 Q, 12, C D-16 " 32, " " MS-032 AD, MO-103 AC MS-015 CC GDIP1-T48 12, A D-14 " 48, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none MS-015 CF GDIP1-T48 12, A D-14 " 48, " " NO-10 CE GDIP1-T48 12, A D-14 " 48, " " NO-10 CE GDIP1-T48 12, A D-12 " 50, 900 " none CDIP2-T35 12, A D-12 " 50, 900 " NO-103 AC MS-015 DA	GDIP1-T24	J,	12,	Α	D-3	"	24,	.600		MS-032 AA,	*	
CDIP2-T24										MO-103 AA		
CDIP4-T24 L, 12, C D-9 " 24, " " MS-015 AG GDIP5-T24 12, A D-11 " 24, .400 " none CDIP6-T24 12, C D-11 " 24, " " MS-015 BC GDIP1-T28 12, A D-10 " 28, .600 " MS-032 AB, MO-103 AB * CDIP2-T28 12, C D-10 " 28, " " MS-015 CB * CDIP3-T28 12, C D-15 " 28, .300 " MS-015 AH * GDIP4-T28 12, A D-15 " 28, .300 " MS-015 AH * GDIP1-T32 12, A D-16 " 32, .600 " MS-032 AC, MO-103 AC * CDIP2-T32 12, C D-16 " 32, " " MS-015	CDIP2-T24	J,	12,	С	D-3	"	24,	II	II	MS-015 CA		
GDIP5-T24	GDIP3-T24	L,	12,	Α	D-9	"	24,	.300	II	MS-030 AF	*	
CDIP6-T24	CDIP4-T24	L,	12,	С	D-9	"	24,	"	"	MS-015 AG		
CDIP1-T28	GDIP5-T24		12,	Α	D-11	"	24,	.400	"	none		
CDIP2-T28	CDIP6-T24		12,	С	D-11	"	24,	"	"	MS-015 BC		
CDIP2-T28 12, C D-10 " 28, " " MS-015 CB CDIP3-T28 12, C D-15 " 28, 300 " MS-015 AH GDIP4-T28 12, A D-15 " 28, " " MS-030 AG, " GDIP1-T32 12, A D-16 " 32, 600 " MS-032 AC, MO-103 AD CDIP2-T32 12, C D-16 " 32, " " MS-015 CC GDIP1-T40 Q, 12, A D-5 " 40, " " MS-032 AD, MO-103 AC CDIP2-T40 Q, 12, C D-5 " 40, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, 900 " none CDIP2-T50 12, C D-12 " 50, " " MS-015 DA	GDIP1-T28	T	12,	Α	D-10	"	28,	.600	"	MS-032 AB,	*	
CDIP3-T28												
GDIP4-T28 12, A D-15 " 28, " " MS-030 AG, MO-103 AG, MO-103 AG, MO-103 AG, MO-103 AD * GDIP1-T32 12, C D-16 " 32, " " MS-032 AC, MO-103 AD * CDIP2-T32 12, C D-16 " 32, " " MS-015 CC GDIP1-T40 Q, 12, A D-5 " 40, " " MS-032 AD, MO-103 AC * CDIP2-T40 Q, 12, C D-5 " 40, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, " " MS-015 DA					_	"						
GDIP1-T32			12,	С		"					340	
CDIP2-T32 12, C D-16 " 32, " " MS-015 CC GDIP1-T40 Q, 12, A D-5 " 40, " " MS-032 AD, MO-103 AC CDIP2-T40 Q, 12, C D-5 " 40, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, 900 " none CDIP2-T50 12, C D-12 " 50, " " MS-015 DA	GDIP4-T28		12,	Α	D-15	"	28,	"	"	 	*	
GDIP1-T40 Q, 12, A D-5 " 40, " MS-032 AD, MO-103 AC * CDIP2-T40 Q, 12, C D-5 " 40, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, .900 " none CDIP2-T50 12, C D-12 " 50, " MS-015 DA	GDIP1-T32		12,	Α	D-16	"	32,	.600	"		*	
GDIP1-140 Q, 12, A D-5 40, MO-103 AC CDIP2-T40 Q, 12, C D-5 " 40, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, .900 " none CDIP2-T50 12, C D-12 " 50, " " MS-015 DA	CDIP2-T32		12,	С	D-16	"	32,	"	"	MS-015 CC		
CDIP2-T40 Q, 12, C D-5 " 40, " " MS-015 CE GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, .900 " none CDIP2-T50 12, C D-12 " 50, " MS-015 DA	GDIP1-T40	Q,	12,	Α	D-5	"	40,	"	"		*	
GDIP1-T48 12, A D-14 " 48, " " none CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, .900 " none CDIP2-T50 12, C D-12 " 50, " " MS-015 DA	CDIP2-T40	Q,	12,	С	D-5	"	40,	"	"			
CDIP2-T48 12, C D-14 " 48, " " MS-015 CF GDIP1-T50 12, A D-12 " 50, .900 " none CDIP2-T50 12, C D-12 " 50, " " MS-015 DA						"		"	"		1	
GDIP1-T50 12, A D-12 " 50, .900 " none CDIP2-T50 12, C D-12 " 50, " " MS-015 DA						"		11	"			
CDIP2-T50 12, C D-12 " 50, " " MS-015 DA						"		.900	"		1	
						"			"			
	CDIP1-T64		12,	С	D-13	"	64,	"		MS-015 DB	1	

See footnotes at end of table VII.

SUPERSEDES PAGE 13 OF MIL-STD-1835B

TABLE VI. Package case outline list - Continued.

Descriptive package	Case outline letter, Figure no.,	<u>1</u> / Dimensions	<u>2</u> / θ _{JC}	Terminal count and row-to-row	Terminal	3/ EIA similar	
type designator	Configuration letter	reference letter	(°C/W)	spacing (inch)	pitch (inch)	package designation	
		C	Can style <u>4</u> /		'		
MACY1-X8	G, 13	A1	70	8	α, β 45°	MO-002 AL	
MACY1-X10	I, 13	A2	65	10	α, β 36°	MO-006 AF	
MACY1-X12	13	A3	65	12	α, β 30°	MO-006 AG	
MACY1-X3	13	A4		3	α 45° , β 90°	TO-5, TO-39	
		Square leadle	ess chip carri	er style 4/			
CQCC1-N16	15	C-1	20	16	.050	MS-004 CA	
CQCC2-N16	"	C-1A	"	16	"	" "	
CQCC1-N20	2, "	C-2	"	20	"	MS-004 CB	
CQCC2-N20	"	C-2A	"	20	"	" "	
CQCC1-N24	"	C-3	"	24	"	MS-004 CH	
CQCC2-N24	"	C-3A	"	24	"	" "	
CQCC1-N28	3, "	C-4	"	28	"	MS-004 CC	
CQCC2-N28	"	C-4A	"	28	"	" "	
CQCC1-N44	"	C-5	"	44	"	MS-004 CD	
CQCC1-N52	"	C-6	"	52	"	MS-004 CE	
CQCC1-N68	"	C-7	"	68	"	MS-004 CF	
CQCC1-N84	"	C-8	"	84	"	MS-004 CG	
22224 N/2	,	Rectangular lea		-	050	LNO 040 AA	
CQCC1-N18	15	C-9	20	18	.050	MO-042 AA	
CQCC2-N18	"	C-9A	"	18	"		
CQCC3-N18	"	C-10	"	18	",	MO-041 AC	
CQCC4-N18	 	C-10A		18			
CQCC3-N20	"	C-13	"	20	" "	MO-041 AD	
CQCC4-N20		C-13A		20	ļ		
CQCC3-N28	"	C-11	"	28	"	M0-041 AA	
CQCC4-N28	"	C-11A	"	28	"		
CQCC1-N32	"	C-12	"	32	"	MO-041 AB	
CQCC2-N32	"	C-12A	"	32	"		
CDCC1-N4	"	C-14	"	4	"	MO-041 BA	
CDCC1-N6	"	C-15	"	6	"	MO-041 BB	

See footnotes at end of table VII.

SUPERSEDES PAGE 14 OF MIL-STD-1835B

5.2.7 <u>Coplanarity deviation</u>. The coplanarity deviation of all terminal contact points, as defined by the device seating plane, shall be determined for surface mounted devices. Measurements shall be made from the device seating plane (see figure 9). Regardless of package size, any device with one or more terminals that exceed the specified coplanarity deviations shall constitute a failure.

ANY FORMED LEAD OR LEADLESS SURFACE MOUNTED DEVICE

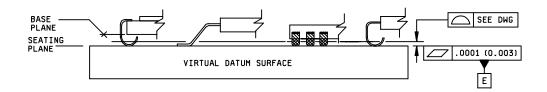
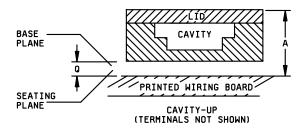


FIGURE 9. Coplanarity deviation.

5.2.8 <u>Package cavity orientation</u>. Unless otherwise specified herein, for most packages, cavity orientation (see figure 10) is standard in the "cavity-up" position. When a particular package style includes optional cavity orientation, such as cavity-down, the cavity-down option shall be specified by adding a suffix D to the terminal-count part of the descriptive type designator (see figure 1).



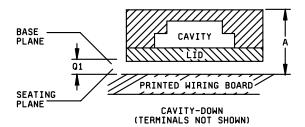
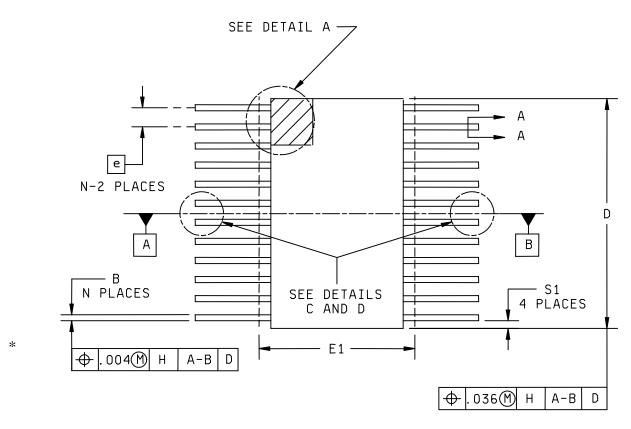
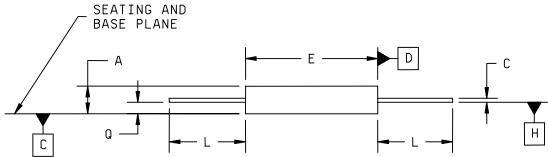


FIGURE 10. Package cavity orientation.

5.2.9 Package drawings. Detailed package drawings and dimensional requirements shall be as specified on figures 11 through 23.

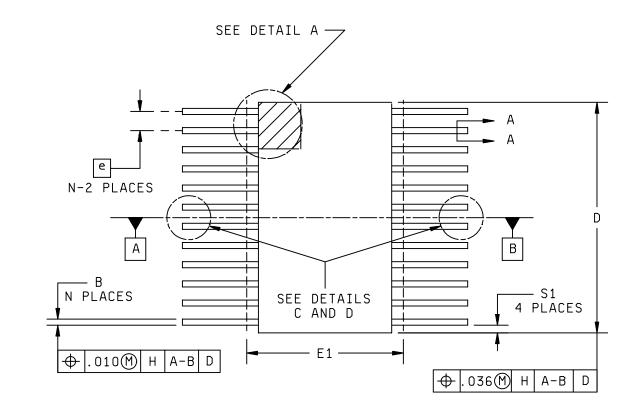


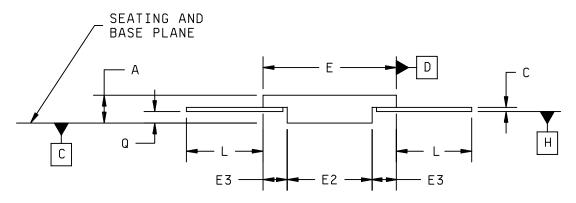


Configuration A Ceramic, glass sealed

FIGURE 11. Flat pack style.

SUPERSEDES PAGE 24 OF MIL-STD-1835B

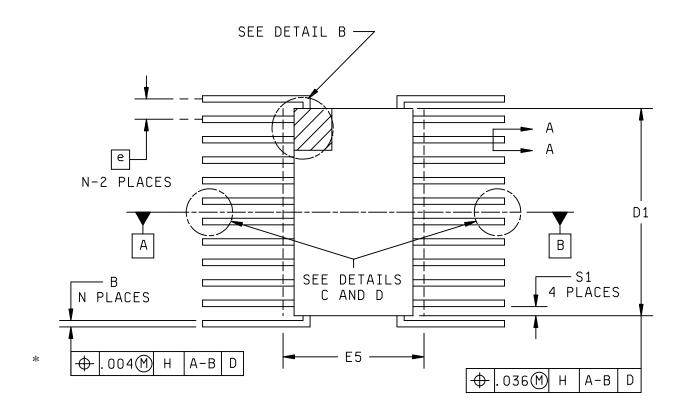


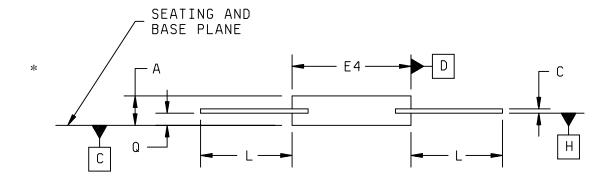


Configuration B Ceramic, metal-sealed, bottom-brazed leads

FIGURE 11. Flat pack style - Continued.

SUPERSEDES PAGE 25 OF MIL-STD-1835B

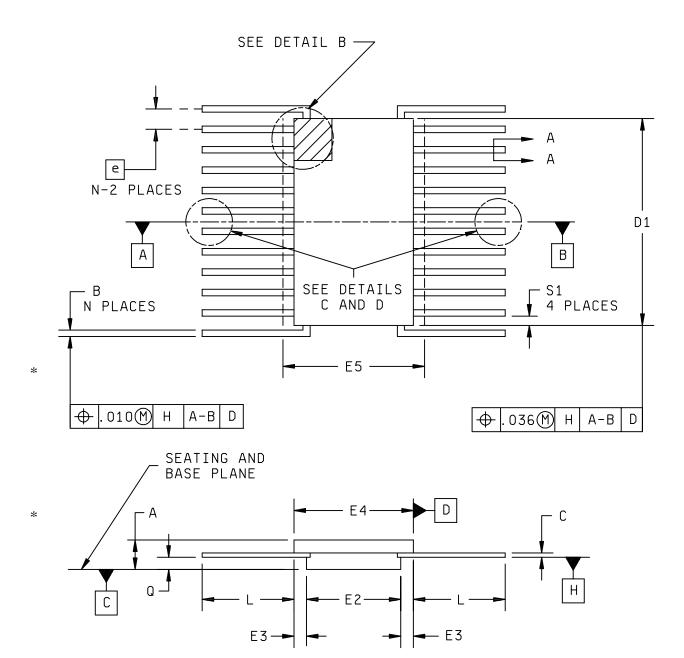




Configuration C Ceramic, glass sealed, spider leads

FIGURE 11. Flat pack style - Continued.

SUPERSEDES PAGE 26 OF MIL-STD-1835B



Configuration D
Ceramic, metal-sealed, bottom-brazed spider leads

FIGURE 11. Flat pack style - Continued.

SUPERSEDES PAGE 27 OF MIL-STD-1835B

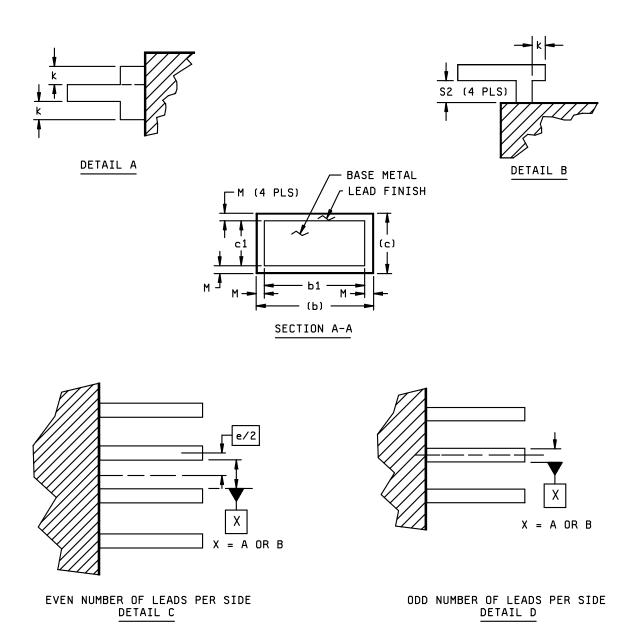


FIGURE 11. Flat pack style - Continued.

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<u>1</u> /			19 ig. A		F-20 Config. A			
Symbol	Min	Nom	Max	Note	Min	Nom	Max	Note
Α	.075	.098	.120		.075	.098	.120	
b	.008	.010	.014		.008	.010	.014	
b1	.008	.010	.012		.008	.010	.012	
C	.004	.006	.009		.004	.006	.009	
c1	.004	.005	.006		.004	.005	.006	
D			.640	3			.740	3
D1								
Е	.370	.380	.390		.370	.380	.390	
E1			.410	3			.410	3
E2								
E3								
E4								
E5		l						
е		.025 BSC				.025 BSC		
k	.003	.005	.007	2	.003	.005	.007	2
L	.250	.310	.370		.250	.310	.370	
Q	.026	.035	.045	11	.026	.035	.045	11
S1	.005			6	.005			
S2								
α								
M			.0015				.0015	
N		48				56		

^{1/} Symbols in this column that are not on a configuration drawing are not applicable to that configuration; this is further noted when a line is blank in the MIN MAX columns.

FIGURE 11. Flat pack style - Continued.

SUPERSEDES PAGE 41 OF MIL-STD-1835B

<u>1</u> /			19		F-20				
		Cont	fig. A	Τ		Conf	fig. A		
Symbol	Min	Nom	Max	Note	Min	Nom	Max	Note	
Α	1.91	2.49	3.01		1.91	2.49	3.01		
b	0.20	0.25	0.36		0.20	0.25	0.36		
b1	0.20	0.25	0.30	Ì	0.20	0.25	0.30		
С	0.10	0.15	0.23		0.10	0.15	0.23		
c1	0.10	0.13	0.15		0.10	0.13	0.15		
D			16.26	3			18.80	3	
D1									
Е	9.40	9.65	9.91		9.40	9.65	9.91		
E1			10.41	3			10.41	3	
E2									
E3									
E4		ļ							
E5							_		
е		0.64 BSC				0.64 BSC			
k	0.08	0.13	0.18	2	0.08	0.13	0.18	2	
L	6.35	7.87	9.40		6.35	7.87	9.40		
Q	0.66	0.89	1.14	11	0.66	0.89	1.14	11	
S1	0.25			6	0.25			6	
S2									
α		ļ							
М			0.04				0.04		
N		48				56			

^{1/} Symbols in this column that are not on a configuration drawing are not applicable to that configuration; this is further noted when a line is blank in the MIN MAX columns.

FIGURE 11. Flat pack style - Continued.