

INTRODUCTION

The following information applies to all packages unless otherwise specified on individual package outline drawings.

General

1. Dimensions shown are metric units (millimeters), except those in parentheses which are English units (inches).
2. Lead spacing shall be measured within this zone.
 - a. Shoulder and lead tip dimensions are to centerline of leads.
3. Tolerances non-cumulative
4. Thermal resistance values are determined by utilizing the linear temperature dependence of the forward voltage drop across the substrate diode in a digital device to monitor the junction temperature rise during known power application across VCC and ground. The values are based upon 120 mils square die for plastic packages and a 90 mils square die in the smallest available cavity for hermetic packages. All units were solder mounted to P.C. boards, with standard stand-off, for measurement.

Plastic Only

5. Lead material: Alloy 42 or equivalent, solder dipped.
6. Body material: Plastic
7. Round hole in top corner denotes lead No. 1.
8. Body dimensions do not include molding flash.

Hermetic Only

9. Lead material
 - a. Alloy 52—gold plated, or solder dipped.
 - b. ASTM alloy F-15 (KOVAR) or equivalent—gold plated, tin plated, or solder dipped.
 - c. ASTM alloy F-30 (Alloy 42) or equivalent—tin plated.
 - d. ASTM alloy F-15 (KOVAR) or equivalent—gold plated.
 - e. ASTM alloy F-15 (KOVAR) or equivalent—tin plated.
10. Body Material
 - a. 1010 Steel—nickel plated or tin plate over nickel.
 - b. Eyelet, ASTM alloy F-15 or equivalent—gold or tin plated.
 - c. Eyelet, ASTM alloy F-15 or equivalent—gold or tin plated, glass body.
 - d. Ceramic with glass seal at leads.
 - e. BeO ceramic with glass seal at leads.
 - f. Ceramic with ASTM alloy F-15 or equivalent.
11. Lid Material
 - a. 1010 steel, nickel plated, or tin-plate over nickel, weld seal.
 - b. Nickel or tin plated nickel, weld seal.
 - c. Ceramic, glass seal.
 - d. ASTM alloy F-15 or equivalent, gold plated.
 - e. BeO Ceramic with glass seal.
 - f. Translucent Al₂O₃, glass seal.

PLASTIC PACKAGES

NO. OF LEADS	PACKAGE CODE	θ_{ja}/θ_{jc} (°C/W)	DESCRIPTION ¹	PAGE
Standard Dual-in-Line				
8	NE	162/65		3
14	NH	150/65	TO-116/MO-001	3
16	NJ	137/53	MO-001	3
18	NK	135/53		3
20	NL	135/53		3
22	NM	120/53		3
24	NN	116/53	MO-015	4
28	NQ	116/53	MO-015	4
40	NW ³	110/50	MO-015	4
Power Dual-in-Line				
14	NHA ²	95/33	Butterfly	3
16	NJA ²	95/33	Butterfly	3
18	NKA ^{2,3}	90/26	Butterfly	3
20	NLA ^{2,3}	90/26	Butterfly	3
24	NNA ²	60/23	Butterfly	4
28	NQA ²	56/21	Butterfly	4
Power				
3	S	200/70	TO-92	5
3	U	75/3	TO-220	5
3 + GND	GB ³	95/15	Single-in-Line (SIL)	5
4 + GND	GC ³	95/15	Single-in-Line (SIL)	5
12 + GND	PH/PHA ³	95/15	Batwing	5

12. Signetics symbol, angle cut, or lead tab denotes Lead No. 1.
13. Recommended minimum offset before lead bend.
14. Maximum glass climb .010 inches.
15. Maximum glass climb or lid skew is .010 inches.
16. Typical four places.
17. Dimension also applies to seating plane.

HERMETIC PACKAGES

NO. OF LEADS	PACKAGE CODE	θ_{ja}/θ_{jc} (°C/W)	DESCRIPTION ¹	PAGE
Metal Headers				
2	DA	TBD	TO-3 Solid Header	6
3	DB	TBD	TO-39 Solid Header, Short Can	6
4	DC	TBD	TO-72 Solid Header	6
4	DE	TBD	TO-72 Glass Filled Header	6
8	T	150/25	TO-99 Header (.200 Dia.)	7
10	K	150/25	TO-100 Header, Short Can	7
10	L	150/25	TO-100 Header, Tall Can	7
Flat Packs				
10	WF	240/50	Flat Ceramic	8
14	WH	205/50	Flat Ceramic	8
16	WJ	200/50	Flat Ceramic	8
24	WN	155/40	Flat Ceramic	8
16	RJ/RJA	133/30	Flat Ceramic, BeO	8
18	RKA ³	TBD	Flat Ceramic, BeO	—
24	RNA	TBD	Flat Ceramic, BeO	8
28	RQA	TBD	Flat Ceramic, BeO	9
40	RWA	TBD	Flat Ceramic, BeO	9
10	QF	230/55	Flat Ceramic	9
14	QH	185/45	Flat Ceramic	9
16	QJ	170/45	Flat Ceramic	9
24	QN	155/44	Flat Ceramic	9
10	QFA	230/55	Flat Ceramic Laminate	10
14	QHA	185/45	Flat Ceramic Laminate	10
16	QJA	170/45	Flat Ceramic Laminate	10
24	QNA	155/44	Flat Ceramic Laminate	10
Cerdip Family				
14	FH	110/30	Dual in-Line Ceramic	11
16	FJ	100/30	Dual-in-Line Ceramic	11
18	FK	93/27	Dual-in-Line Ceramic	11
22	FM	75/27	Dual-in-Line Ceramic	11
24	FN	60/26	Dual-in-Line Ceramic	11
Laminated Ceramic, Side Brazed Lead				
8	IEA	100/30	Dip Laminate	12
14	IHA	95/25	Dip Laminate	12
16	IJA	90/25	Dip Laminate	12
18	IKA	88/25	Dip Laminate	12
22	IMA	80/25	Dip Laminate	12
24	INC/IND	65/25	Dip Laminate	12
28	IQA	60/25	Dip Laminate	13
40	IWA	55/25	Dip Laminate	13
50	IZA	TBD	Dip Laminate	13

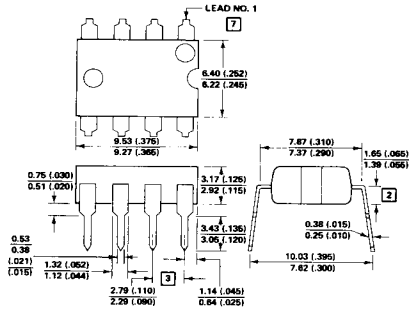
NOTES

1. Dual-in-Line packages unless otherwise described
2. Package outline is the same as corresponding standard Dual-in-Line package with identical number of leads
3. Package not yet available, scheduled for 1977 release

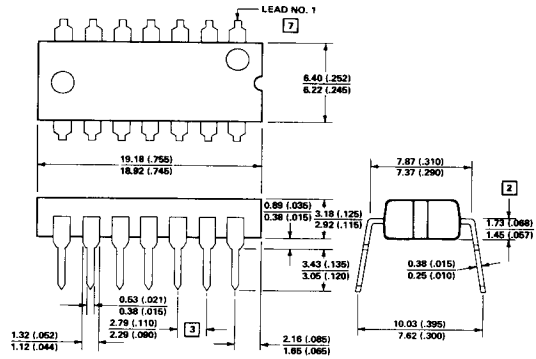
PACKAGES

PLASTIC: Standard and Power Dual-In-Line

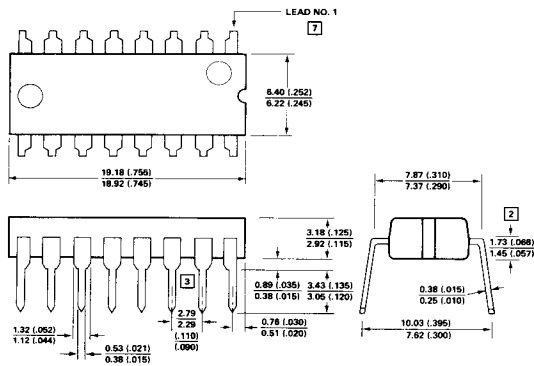
NE Package



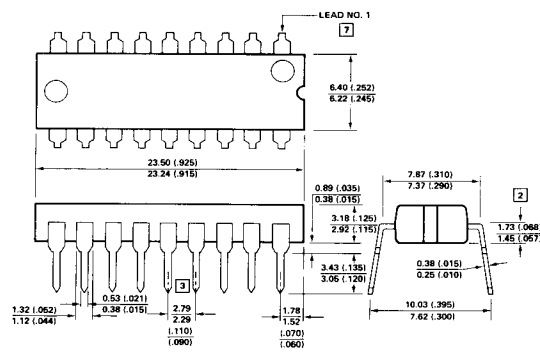
NH Package and NHA Package



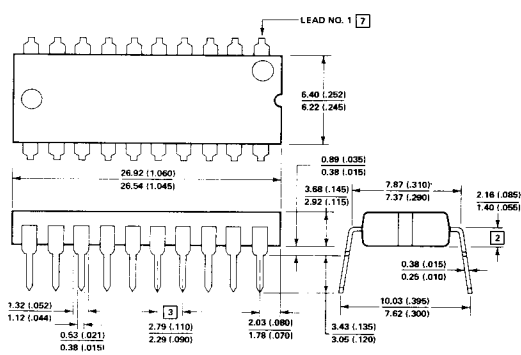
NJ Package and NJA Package



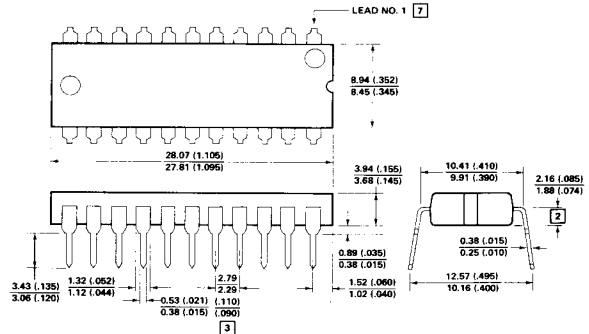
NK Package and NKA Package



NL Package and NLA Package



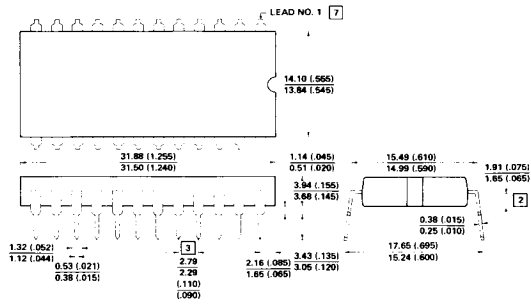
NM Package



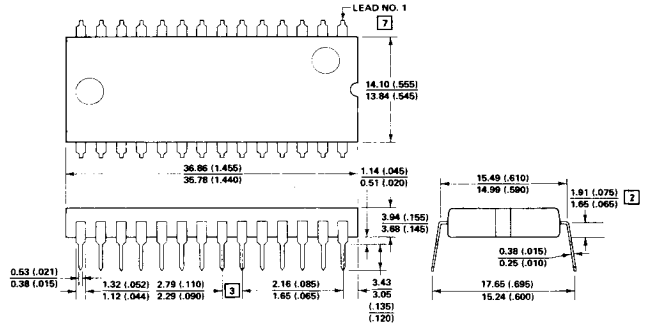
PACKAGES

PLASTIC: Standard and Power Dual-In-Line (cont'd.)

NN Package and NNA Package



NQ Package and NQA Package



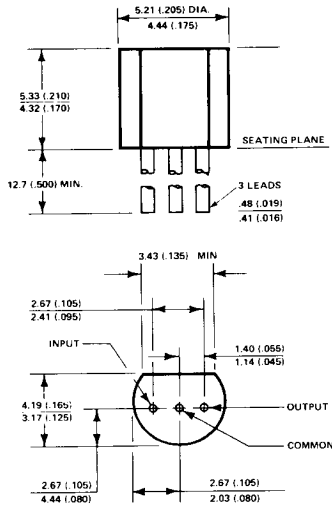
NW Package

Package not yet available
Scheduled for 1977 release

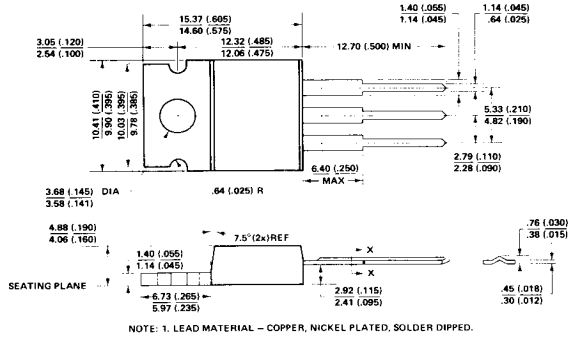
PACKAGES

PLASTIC: Power (Not Dual-In-Line)

S Package



U Package



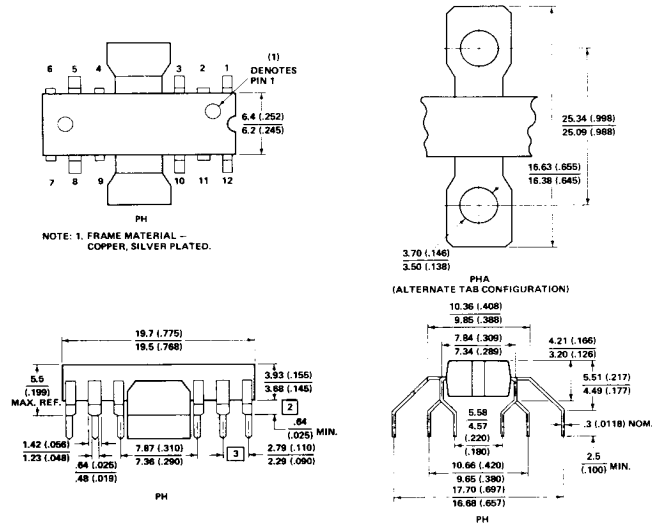
GB Package

Package not yet available
Scheduled for 1977 release

GC Package

Package not yet available
Scheduled for 1977 release

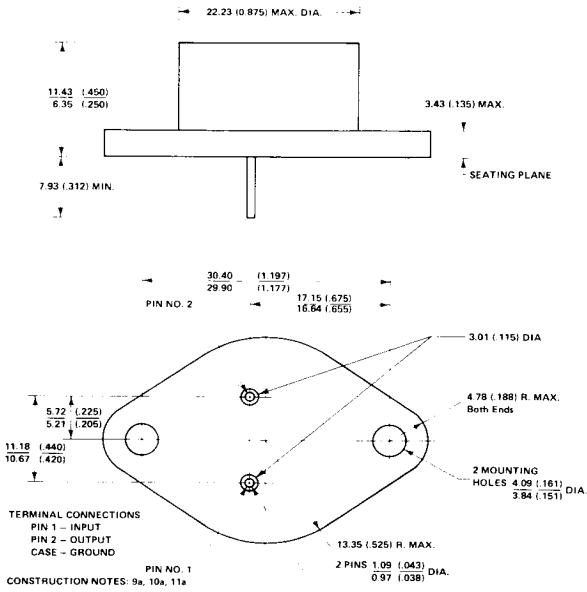
PH/PHA Package



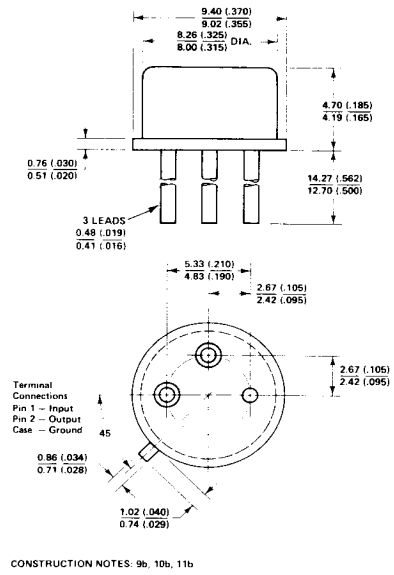
PACKAGES

HERMETIC: Metal Headers

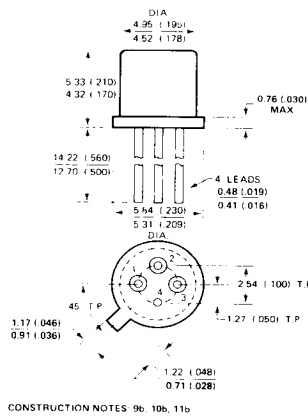
DA Package



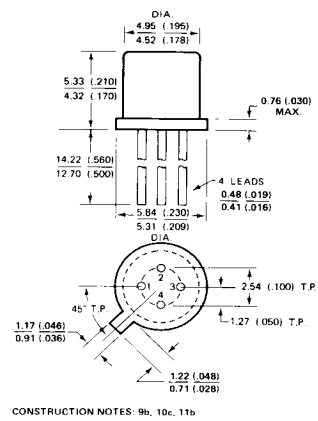
DB Package



DC Package



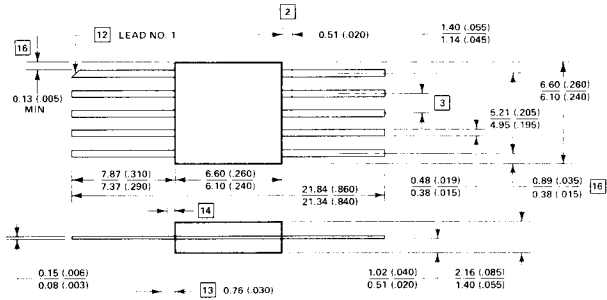
DE Package



PACKAGES

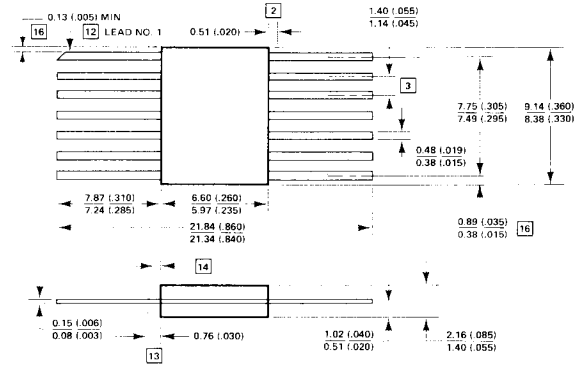
HERMETIC: Flat Packs

WF Package



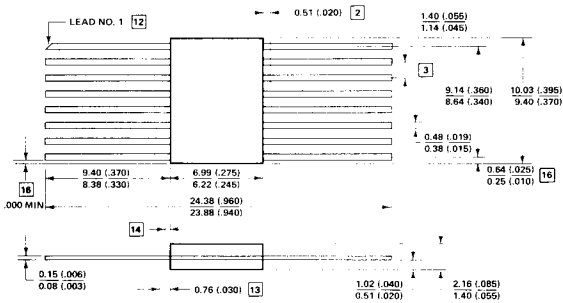
CONSTRUCTION NOTES: 9c, 10d, 11c

WH Package



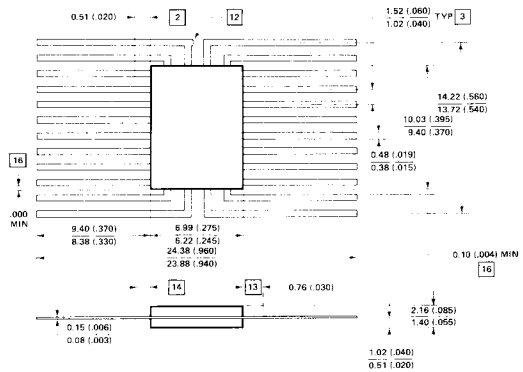
CONSTRUCTION NOTES: 9c, 10d, 11c

WJ Package



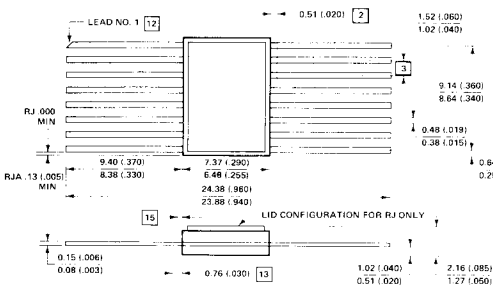
CONSTRUCTION NOTES: 9c, 10d, 11c

WN Package



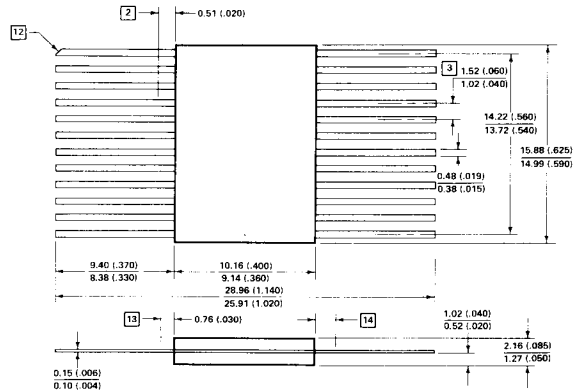
CONSTRUCTION NOTES: 9c, 10d, 11c

RJ and RJA Package



RJA CONSTRUCTION NOTES: 9c, 10c, 11a
RJ CONSTRUCTION NOTES: 9d, 10c, 11d

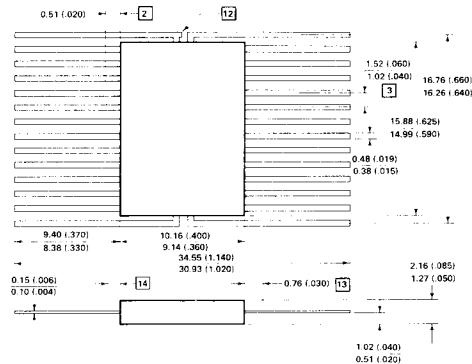
RNA Package



PACKAGES

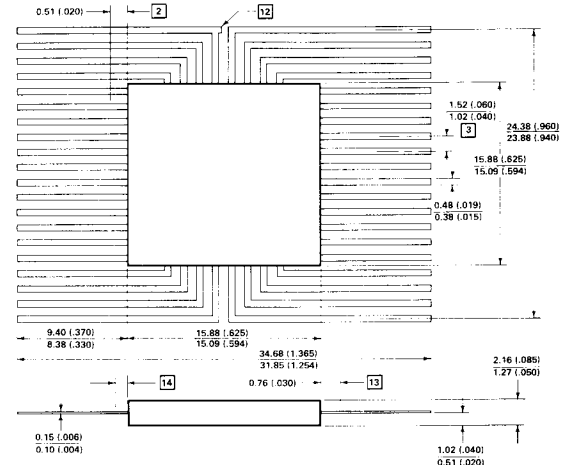
HERMETIC: Flat Packs (cont'd.)

RQA Package



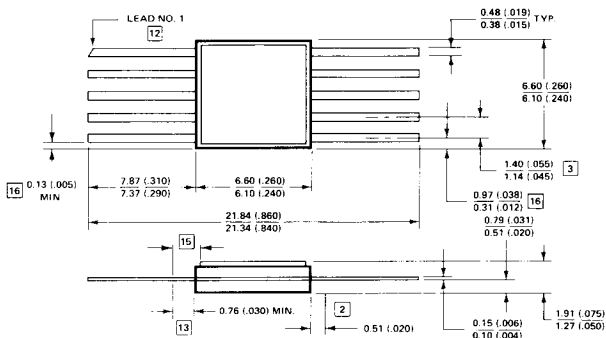
CONSTRUCTION NOTES: 9c, 10e, 11e

RWA Package



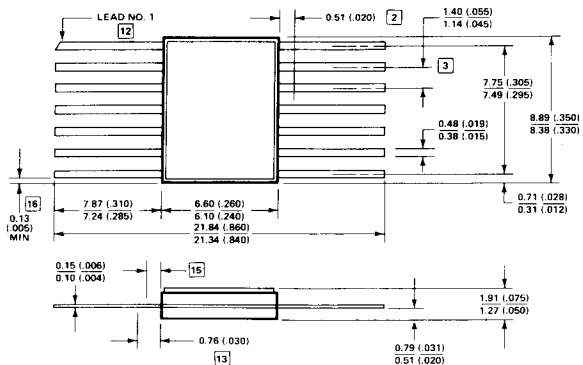
CONSTRUCTION NOTES: 9c, 10e, 11e

QF Package



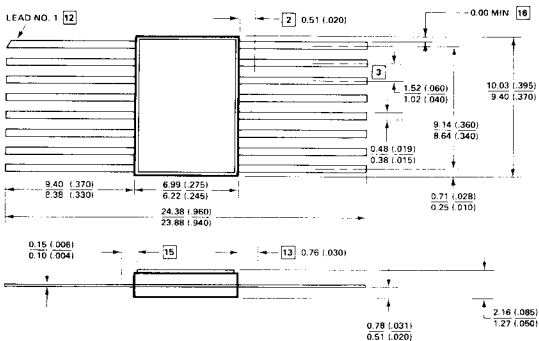
CONSTRUCTION NOTES: 9d, 10d, 11c

QH Package



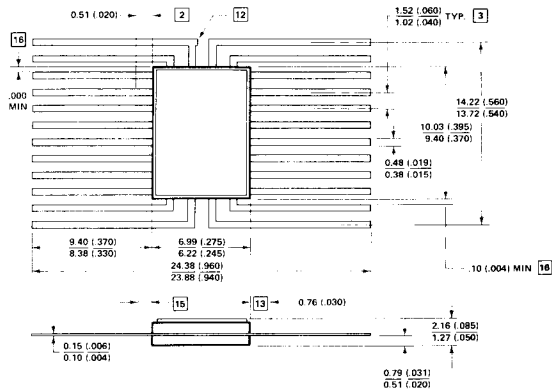
CONSTRUCTION NOTES: 9d, 10d, 11c

QJ Package



CONSTRUCTION NOTES: 9d, 10d, 11c

QN Package

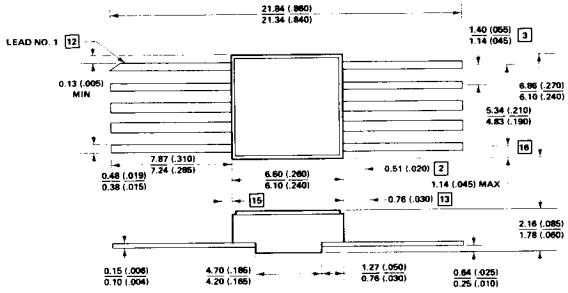


CONSTRUCTION NOTES: 9c, 10d, 11c

PACKAGES

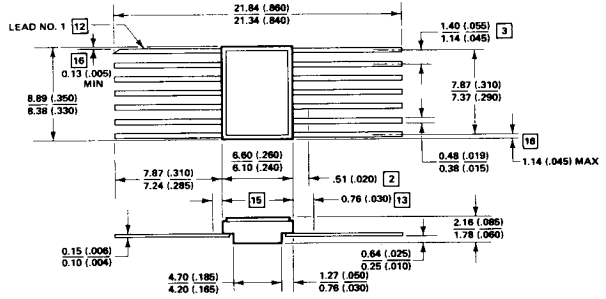
HERMETIC: Flat Packs (cont'd.)

QFA Package



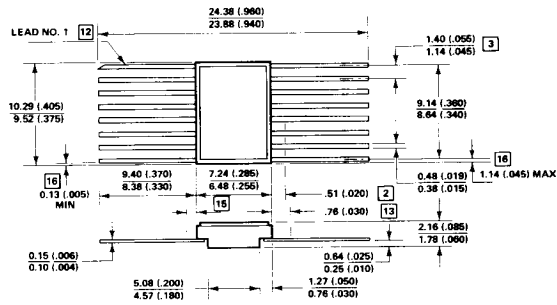
CONSTRUCTION NOTES: 9d, 10f, 11c

QHA Package



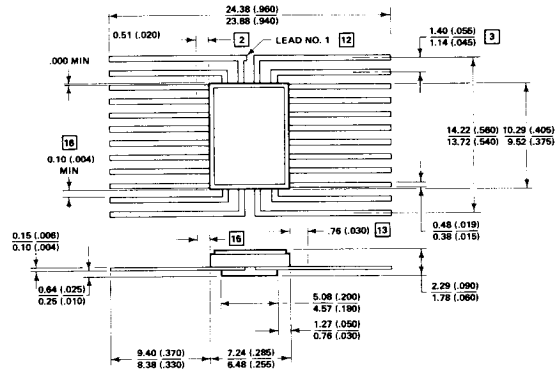
CONSTRUCTION NOTES: 9d, 10f, 11c

QJA Package



CONSTRUCTION NOTES: 9d, 10f, 11c

QNA Package



CONSTRUCTION NOTES: 9d, 10f, 11c

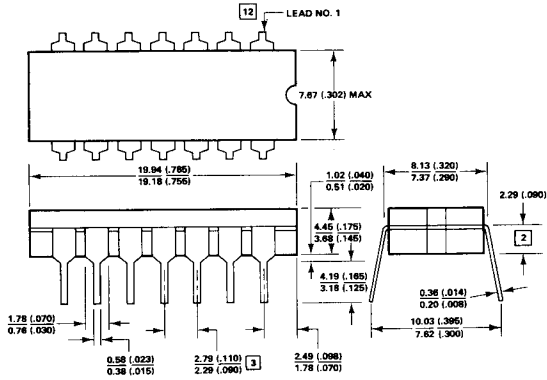
RKA Package

Package not yet available
Scheduled for 1977 release

PACKAGES

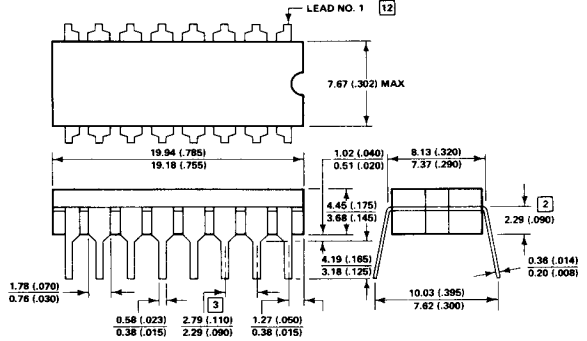
HERMETIC: Cerdip

FH Package



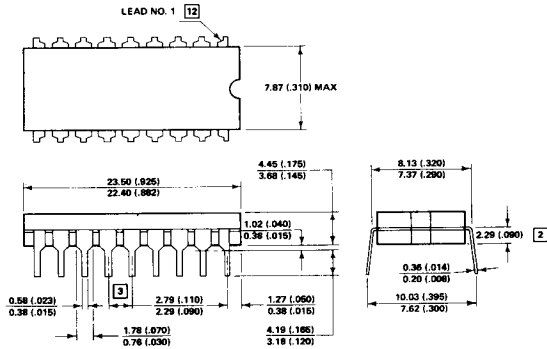
CONSTRUCTION NOTES: 9c, 10d, 11c

FJ Package



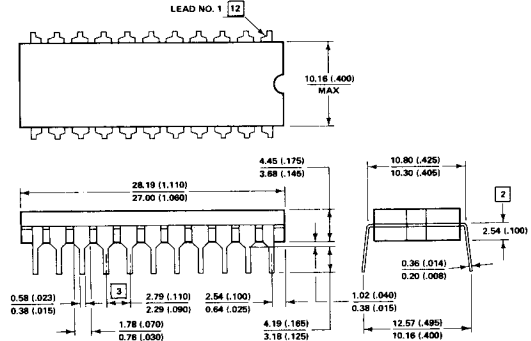
CONSTRUCTION NOTES: 9c, 10d, 11c

FK Package



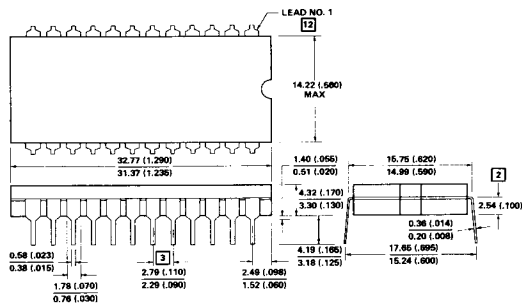
CONSTRUCTION NOTES: 9c, 10d, 11c

FM Package



CONSTRUCTION NOTES: 9c, 10d, 11c

FN Package

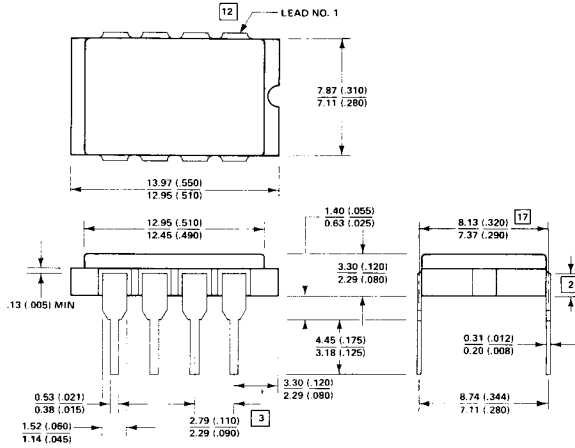


CONSTRUCTION NOTES: 9c, 10d, 11c

PACKAGES

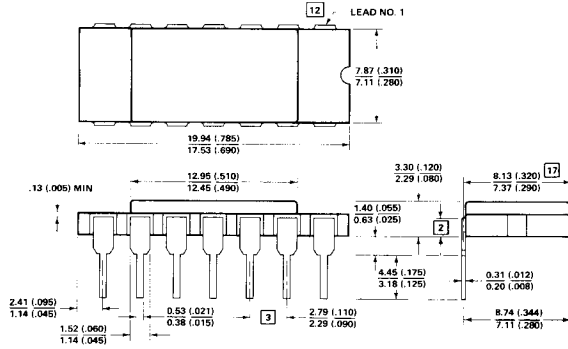
HERMETIC: Laminated Ceramic, Side Brazed Lead

IEA Package



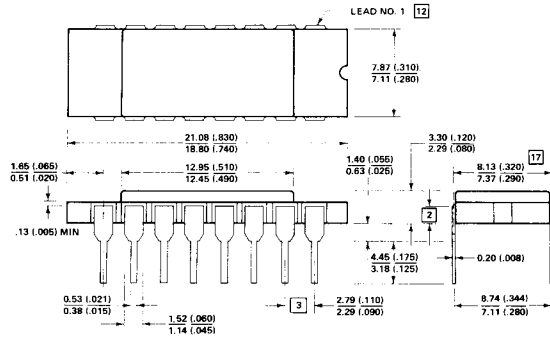
CONSTRUCTION NOTES: 9a, 10f, 11c

IHA Package



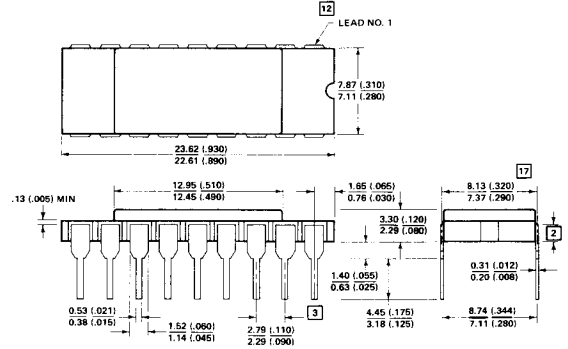
CONSTRUCTION NOTES: 9a, 10f, 11c

IJA Package



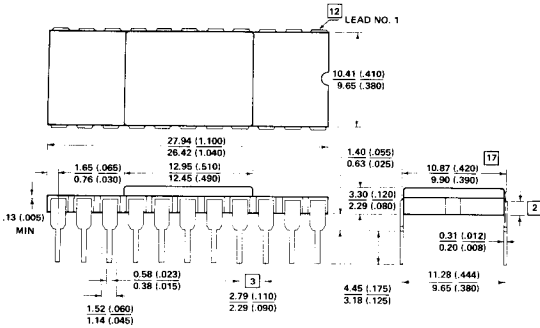
CONSTRUCTION NOTES: 9a, 10f, 11c

IKA Package



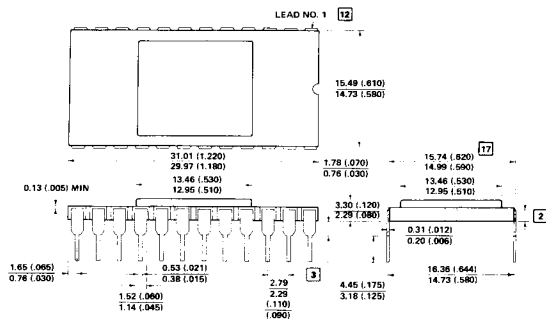
CONSTRUCTION NOTES: 9a, 10f, 11c

IMA Package



CONSTRUCTION NOTES: 9a, 10f, 11c

INC Package and IND Package

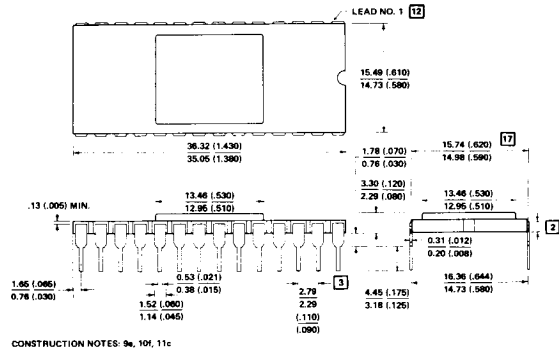


CONSTRUCTION NOTES: 9a, 10f, 11c, 11f (IND)

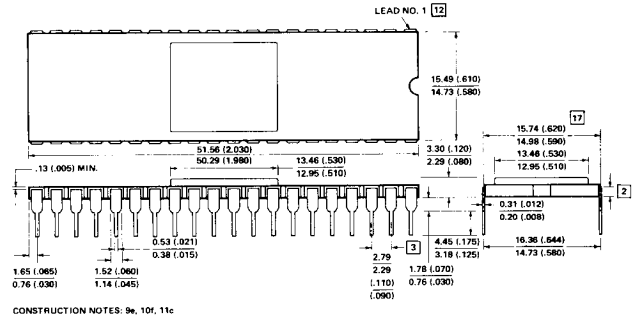
PACKAGES

HERMETIC: Laminated Ceramic, Side Brazed Lead (cont'd.)

IQA Package



IWA Package



IZA Package

