



Packaging

Product Specification

PS007226-0408



Warning: DO NOT USE IN LIFE SUPPORT

LIFE SUPPORT POLICY

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As used herein

Life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

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**ISO 9001:2000
FS 507510**

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Ordering Codes

Orders placed for Zilog[®] components must include the component part number as displayed in [Figure 1](#), [Figure 2](#) on page 2 or [Figure 3](#) on page 3. [Figure 4](#) on page 3 displays the ARM part numbering scheme. The part number in [Figure 1](#) consists of a 'Z' followed by a six-character alphanumeric product identifier, a two-letter package designator, a three-digit speed designator, a letter identifying the operating temperature range, and a letter identifying the environmental flow. If the component is a ROM device, an 'R' follows the environmental flow designator with a four-character alphanumeric special lot code.

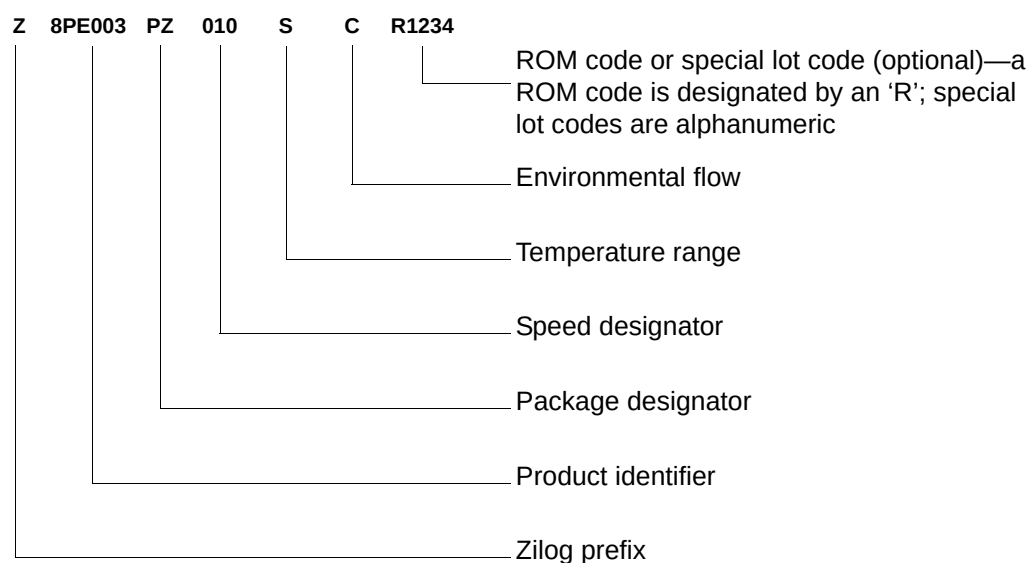


Figure 1. Current Part-Numbering Scheme

Package Designators

- AZ—Low-Profile Quad Flat Package
- FZ—Plastic Quad Flat Package
- HZ—Shrink Small Outline Package
- NA—Low-Profile Ball Grid Array (LBGA)
- NP—Ball Grid Array (Plastic)
- PZ—Plastic Dual In-Line Package
- QN—Quad Flat No Lead (QFN)
- SZ—Small Outline Integrated Circuit

VZ—Plastic Leaded Chip Carrier

Temperature Range

E—Extended Temperature: -40°C to $+105^{\circ}\text{C}$

S—Standard Temperature: 0°C to $+70^{\circ}\text{C}$

Environmental Flow

C—Plastic Standard

D—Plastic Stressed

G—Green Package

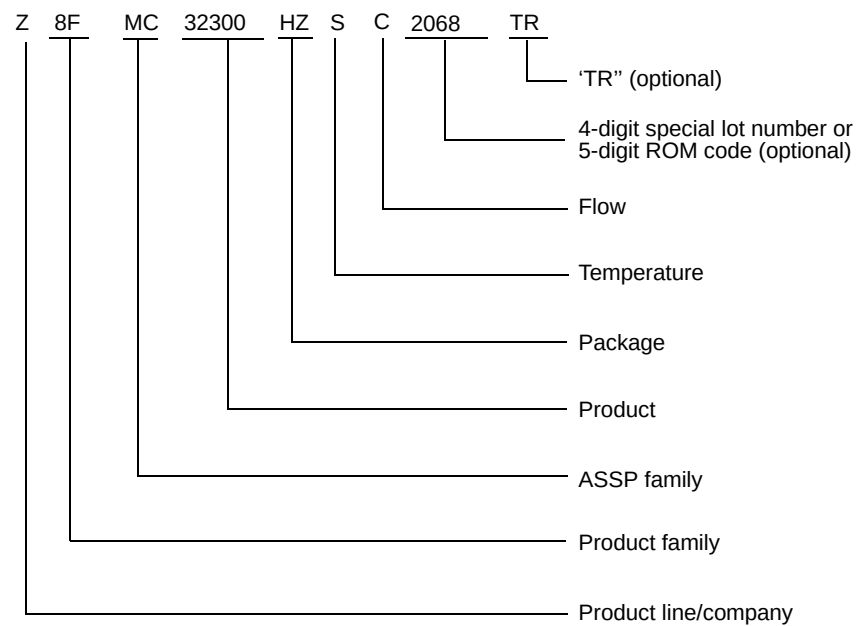


Figure 2. Motor Control Part-Numbering Scheme

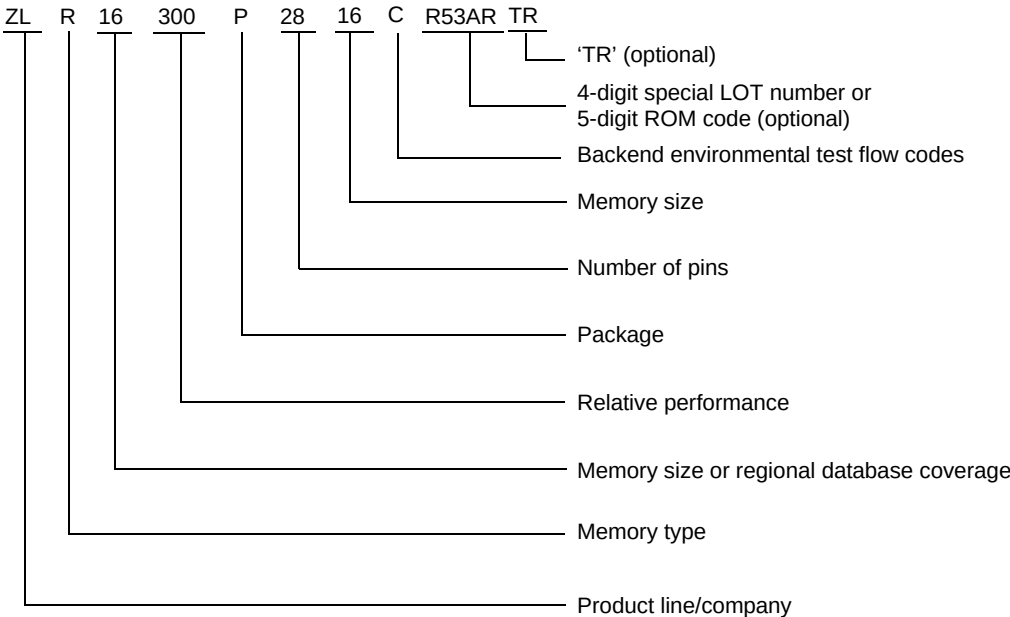


Figure 3. IR Part-Numbering Scheme

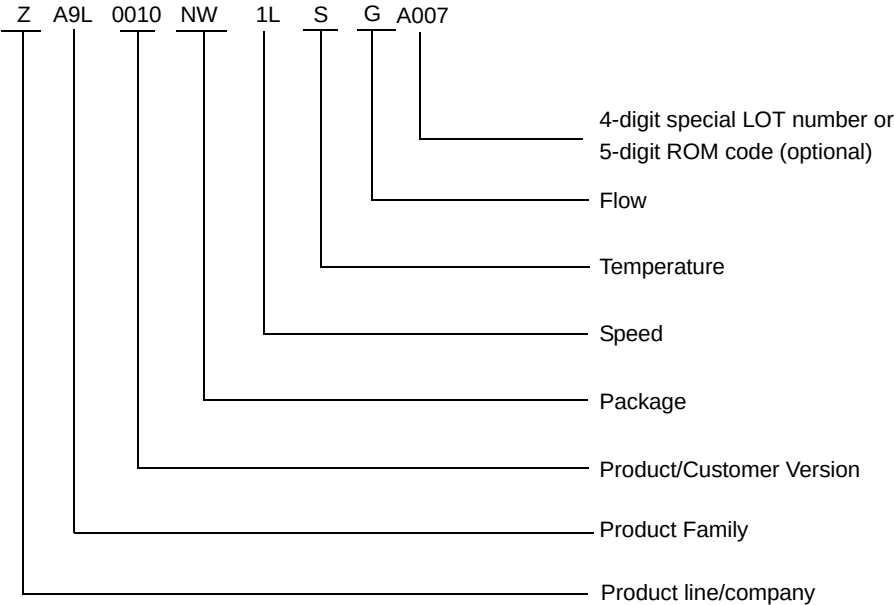


Figure 4. ARM Part Numbering Scheme

Figure 5 displays the previous part-numbering scheme. The previous part number consisted of a 'Z,' followed by a five-character alphanumeric product identifier, a two-digit speed designator, a letter identifying the package, a letter identifying the operating temperature range, and a letter identifying the environmental flow. If the component is a ROM device, an 'R' follows the environmental flow designator with a four-character alphanumeric special lot code.

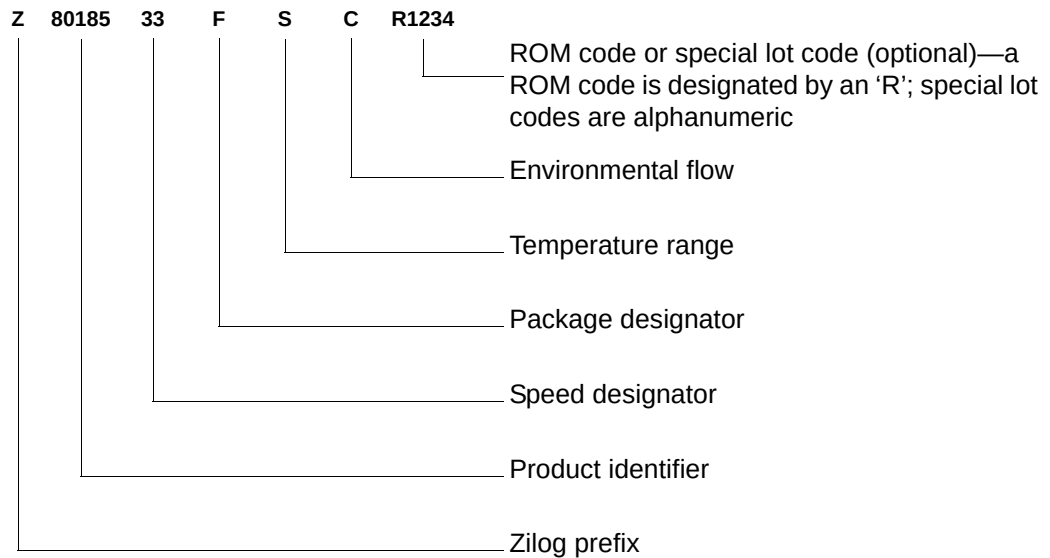


Figure 5. Previous Part-Numbering Scheme

Package Designators

- A—Low-Profile Quad Flat Package
- F—Plastic Quad Flat Package
- H—Shrink Small Outline Package
- P—Plastic Dual In-Line Package
- Q—Quad Flat No Lead
- S—Small Outline Integrated Circuit
- V—Plastic Leaded Chip Carrier

Temperature Range

Same as previous. See [Temperature Range](#) on page 2.

Environmental Flow

Same as previous. See [Environmental Flow](#) on page 2.

Tape, Reel, Tray, and Tube Counts

The following table describes the tape, reel, tray, and tube counts for various lead types.

Lead Type	Unit Packing Quantity	Tape and Reel	Dry Pack
PDIP 8 LEAD	50/RAIL		
PDIP 14 LEAD	25/RAIL		
PDIP 18 LEAD	20/RAIL		
PDIP 20 LEAD	18/RAIL		
PDIP 22 LEAD	17/RAIL		
PDIP 28 LEAD	15/RAIL		
PDIP 40 LEAD	10/RAIL		
PDIP 48 LEAD	8/RAIL		
SDIP 42 LEAD	15/RAIL		
SDIP 52 LEAD	10/RAIL		
SDIP 64 LEAD	8/RAIL		
PLCC 28 LEAD	39/RAIL	750/REEL	936/BAG
PLCC 44 LEAD	25/RAIL	500/REEL	500/BAG
PLCC 68 LEAD	20/RAIL	250/REEL	400/BAG
PLCC 84 LEAD	15/RAIL	250/REEL	225/BAG
QFP 80L 14 x 20 x 2.7	66/TRAY	450/REEL	660/BAG
QFP 100L 14 x 20 x 2.7	66/TRAY	450/REEL	660/BAG
QFP 144L 28 x 28 x 3.42	24/TRAY		240/BAG
LQFP 32L 7 x 7 x 1.4	250/TRAY	2000/REEL	2500/BAG
LQFP 44L 10 x 10 x 1.4	160/TRAY	1500/REEL	1600/BAG

Lead Type	Unit Packing Quantity	Tape and Reel	Dry Pack
LQFP 64L 10 x 10x 1.4	160/TRAY	1500/REEL	1600/BAG
LQFP 64L 14 x 14 x 1.4	90/TRAY	1500/REEL	900/BAG
LQFP 100L 14 x 14 x1.4	90/TRAY	1500/REEL	900/BAG
LQFP 144L 20 x 20 x 1.4	60/TRAY		600/BAG
SOIC 8L 150 mil	96/RAIL	3000/REEL	9600/BAG
SOIC 18L 300 mil	40/RAIL	2000/REEL	1000/BAG
SOIC 20L 300 mil	38/RAIL	1800/REEL	950/BAG
SOIC 28L 300 mil	27/RAIL	1800/REEL	1080/BAG
SSOP 20L 5.3 mm	67/RAIL	2000/REEL	1675/BAG
SSOP 28L 5.3 mm	47/RAIL	2000/REEL	1175/BAG
SSOP 48L	30/RAIL	1000/REEL	1200/BAG
144 LBGA 13 x 13	160/TRAY		1600/BAG
256 LBGA 17 x 17	90/TRAY		900/BAG
8 QFN 5 x 6 x 0.9 mm	490/TRAY	6000/REEL	4900/BAG
20 QFN 5 x 5 x 0.9 mm	490/TRAY	6000/REEL	4900/BAG
28 QFN 5 x 5 x 0.9 mm	490/TRAY	6000/REEL	4900/BAG
32 QFN 5 x 5 x 0.9 mm	490/TRAY	6000/REEL	4900/BAG
44 QFN 7 x 7 mm	260/TRAY		2600/BAG

Solderability

Unless otherwise noted, the solderability uses current revision of MIL-STD-883.

Mark Permanency (For Ink Mark)

Unless otherwise noted, the following applies:

1 part by volume isopropyl alcohol and 3 parts by volume mineral spirits.

3X soak, 1 minute duration each soak.

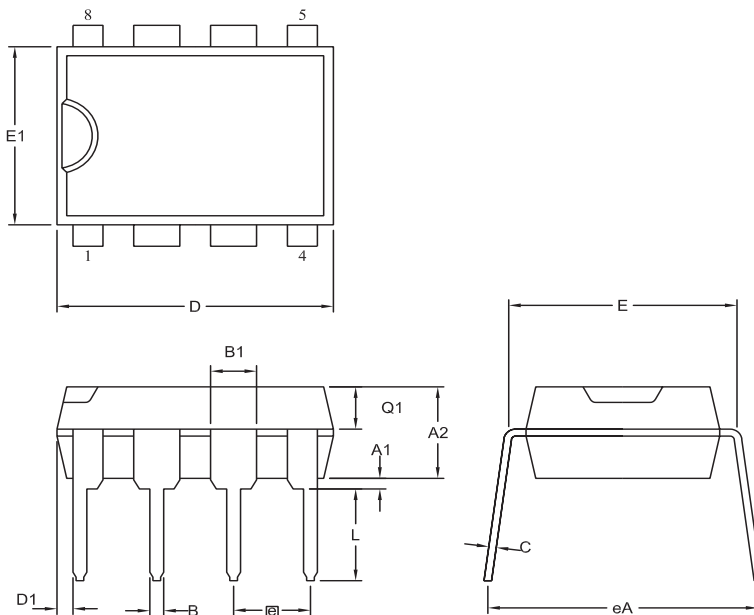
Mech. brush after each soak.

Plastic Dual In-Line Packages (PDIPs)

Zilog® offers the following plastic dual in-line packages (PDIPs):

- 8-lead (Figure 6)
- 14-lead (Figure 7 on page 9)
- 18-lead (Figure 8 on page 9)
- 20-lead (Figure 9 on page 10)
- 22-lead (Figure 10 on page 10)
- 28-lead (Figure 11 on page 11)
- 40-lead (Figure 12 on page 12)
- 48-lead (Figure 13 on page 12)

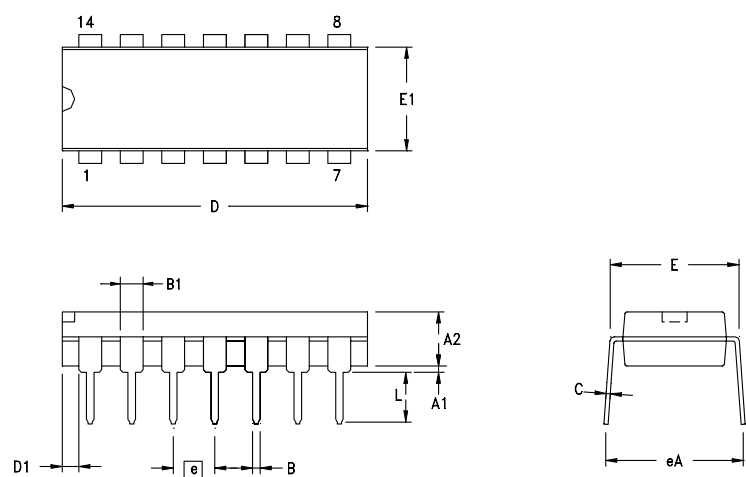
► **Note:** Zilog does not recommend this package for new designs and recommends using the 8-lead SOIC package (Figure 35 on page 31) instead.



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.38	0.81	0.015	0.032
A2	3.25	3.81	0.128	0.150
B	0.38	0.53	0.015	0.021
B1	1.40	1.65	0.055	0.065
C	0.20	0.30	0.008	0.012
D	9.02	9.78	0.355	0.385
E	7.62	8.26	0.300	0.325
E1	6.10	6.60	0.240	0.260
e	2.54 BSC		0.100 BSC	
eA	7.87	9.14	0.310	0.360
L	3.18	3.43	0.125	0.135
Q1	1.40	1.65	0.055	0.065
D1	0.46	-	0.018	-

CONTROLLING DIMENSIONS : MM.

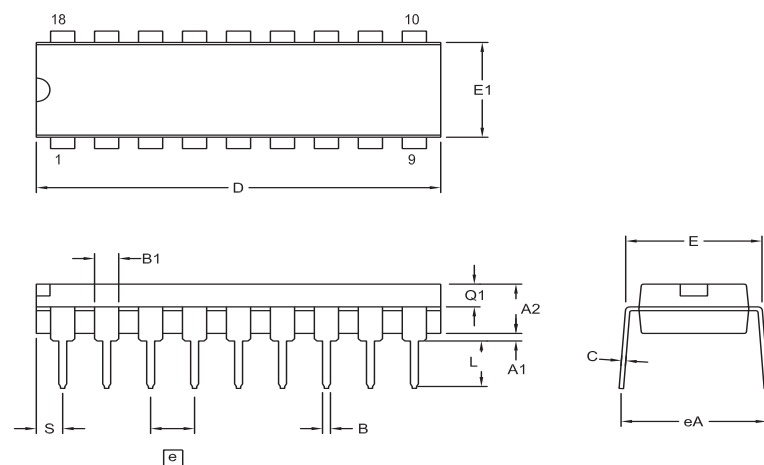
Figure 6. 8-Lead Plastic Dual In-Line Package



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.38	—	.015	—
A2	3.25	3.43	.128	.135
B	0.36	0.53	.014	.021
B1	1.14	1.78	.045	.070
C	0.20	0.36	.008	.014
D	18.67	19.69	.735	.775
E	7.62	8.26	.300	.325
E1	6.22	6.48	.245	.255
e	2.54 BSC		.100 BSC	
eA	7.87	9.14	.310	.360
L	3.18	3.81	.125	.150
D1	1.27	—	.005	—

CONTROLLING DIMENSIONS: INCH

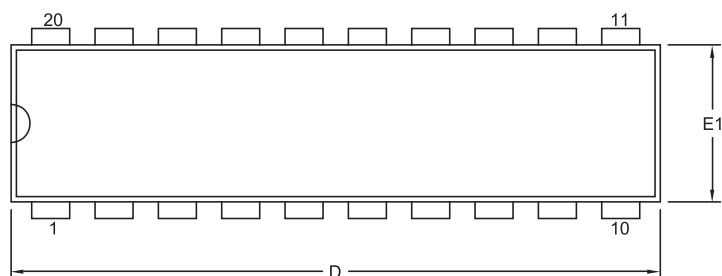
Figure 7. 14-Lead Plastic Dual In-Line Package



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.51	0.81	.020	.032
A2	3.25	3.68	.128	.145
B	0.38	0.53	.015	.021
B1	1.14	1.65	.045	.065
C	0.23	0.38	.009	.015
D	22.35	23.37	.880	.920
E	7.62	8.13	.300	.320
E1	6.22	6.48	.245	.255
e	2.54 BSC		.100 BSC	
eA	7.87	9.40	.310	0.370
L	3.18	3.81	.125	.150
Q1	1.47	1.65	.058	.065
S	0.89	1.65	.035	.065

CONTROLLING DIMENSIONS: INCH

Figure 8. 18-Lead Plastic Dual In-Line Package



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.38	0.81	0.015	0.032
A2	3.25	3.68	0.128	0.145
B	0.41	0.51	0.016	0.020
B1	1.27	1.78	0.050	0.070
C	0.20	0.30	0.008	0.012
D	25.40	26.92	1.000	1.060
E	7.49	8.26	0.295	0.325
E1	6.10	6.65	0.240	0.262
Ⓢ	2.54 BSC		0.100 BSC	
eA	7.87	9.14	0.310	0.360
L	3.18	3.43	0.125	0.135
Q1	1.42	1.65	0.056	0.065

CONTROLLING DIMENSIONS : INCH

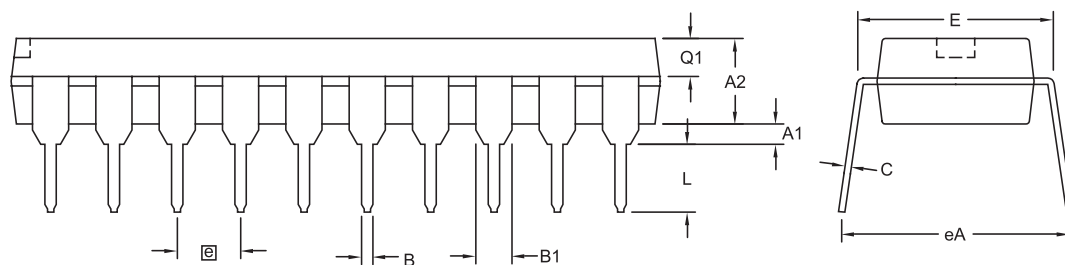
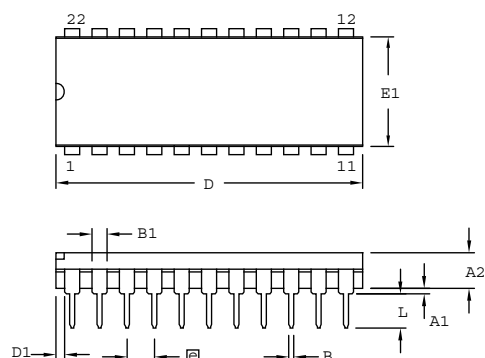


Figure 9. 20-Lead Plastic Dual In-Line Package

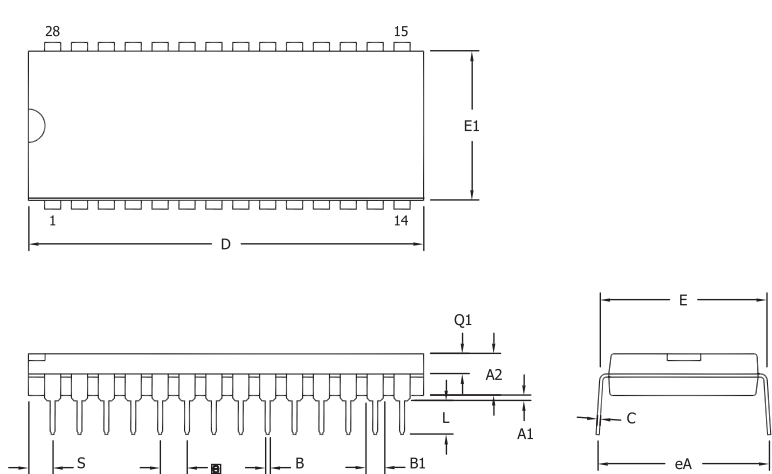


SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.38	1.02	0.015	0.040
A2	3.68	3.94	0.145	0.155
B	0.36	0.56	0.014	0.022
B1	1.14	1.65	0.045	0.065
C	0.23	0.38	0.009	0.015
D	27.60	28.45	1.065	1.120
E	9.91	10.80	0.390	0.425
E1	8.38	9.40	0.330	0.370
e	2.54 BSC		0.100 BSC	
eA	10.67	11.94	0.420	0.470
L	2.92	4.10	0.115	0.160
D1	0.13	-	0.005	-

CONTROLLING DIMENSIONS: INCH

Figure 10. 22-Lead Plastic Dual In-Line Package

► **Note:** See preferred package 28-Lead Migration (Figure 54 on page 51).



SYMBOL	OPT #	MILLIMETER		INCH	
		MIN	MAX	MIN	MAX
A1		0.38	1.02	.015	.040
A2		3.18	4.19	.125	.165
B		0.38	0.53	.015	.021
B1	01	1.40	1.65	.055	.065
	02	1.14	1.40	.045	.055
C		0.23	0.38	.009	.015
D	01	36.58	37.34	1.440	1.470
	02	35.31	35.94	1.390	1.415
E		15.24	15.75	.600	.620
E1	01	13.59	14.10	.535	.555
	02	12.83	13.08	.505	.515
[e]		2.54 TYP		.100 BSC	
eA		15.49	16.76	.610	.660
L		3.05	3.81	.120	.150
Q1	01	1.40	1.91	.055	.075
	02	1.40	1.88	.055	.074
S	01	1.52	2.29	.060	.090
	02	1.02	1.52	.040	.060

CONTROLLING DIMENSIONS : INCH

OPTION TABLE	
OPTION #	PACKAGE
01	STANDARD
02	IDF

Note: ZILOG supplies both options for production, Component layout
PCB design should cover bigger option 01.

Figure 11. 28-Lead Plastic Dual In-Line Package

► **Note:** See preferred package 40-/44-/48-Lead migration (Figure 55 on page 51).

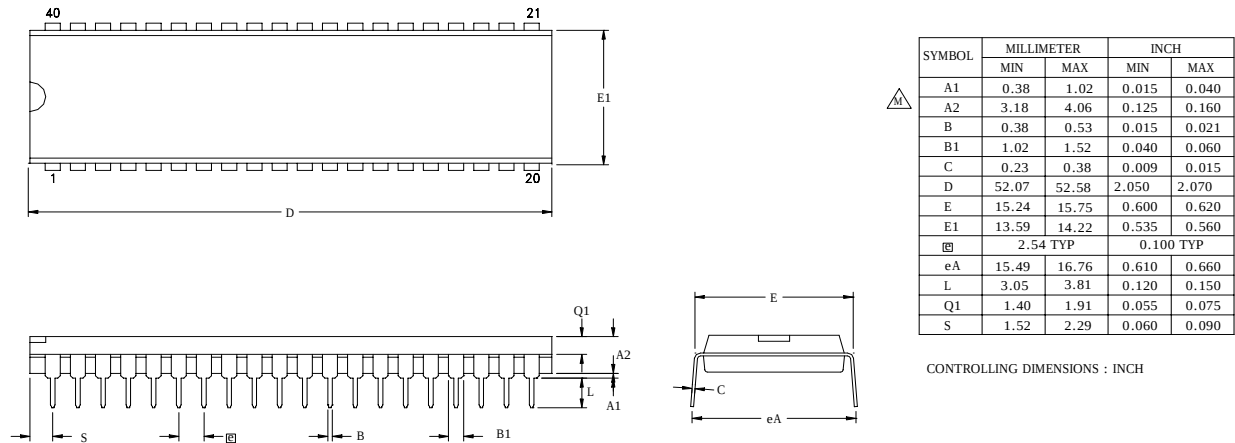


Figure 12. 40-Lead Plastic Dual In-Line Package

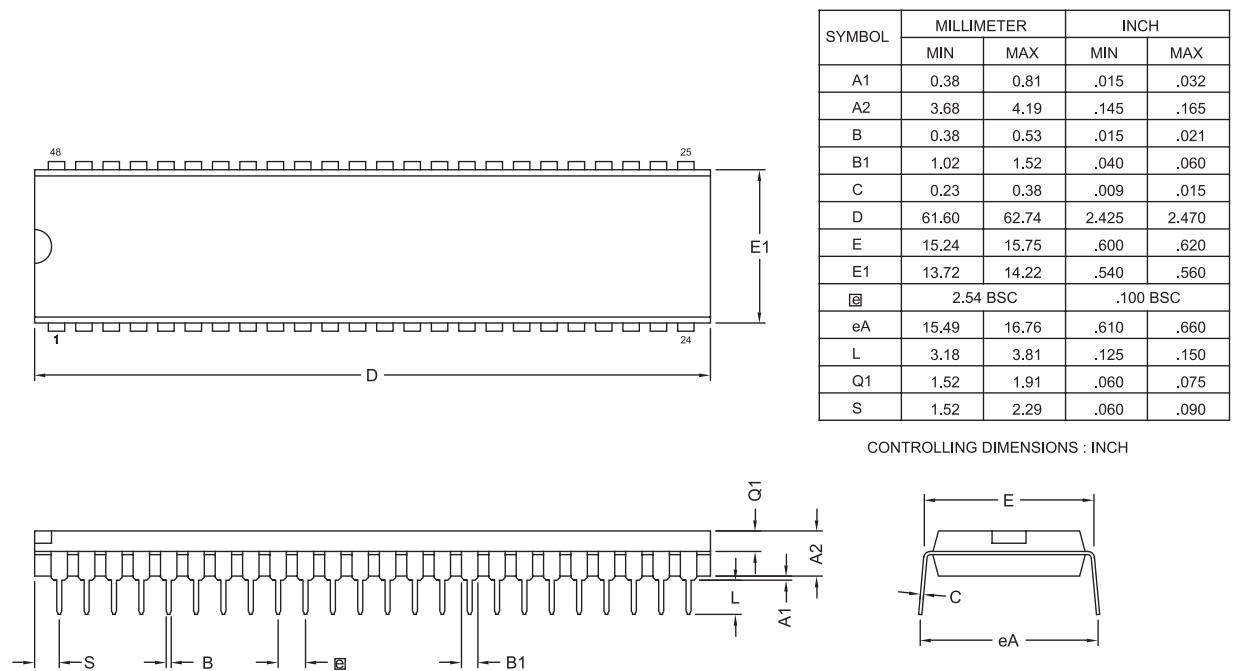
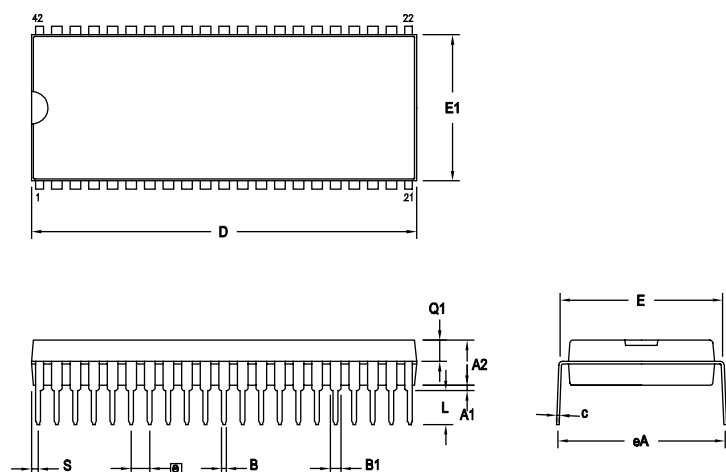


Figure 13. 48-Lead Plastic Dual In-Line Package

Shrink Dual In-Line Packages (SDIPs)

Zilog offers the following shrink dual in-line packages (SDIPs):

- 42-lead (Figure 14)
- 52-lead (Figure 15 on page 14)
- 64-lead (Figure 16 on page 15)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.51		0.020	
A2	3.25	3.94	0.128	0.155
B	0.38	0.56	0.015	0.022
B1	0.89	1.14	0.035	0.045
C	0.20	0.30	0.008	0.012
D	36.70	36.96	1.445	1.455
E	15.24	15.75	0.600	0.620
E1	13.58	13.97	0.535	0.550
Ⓢ	1.778 TYP		.070 TYP	
eA	15.49	17.02	0.610	0.670
L	3.05	3.43	0.120	0.135
Q1	1.40	1.91	0.055	0.075
S	0.51	0.76	0.020	0.030

CONTROLLING DIMENSIONS : INCH

Figure 14. 42-Lead Shrink Dual In-Line Package

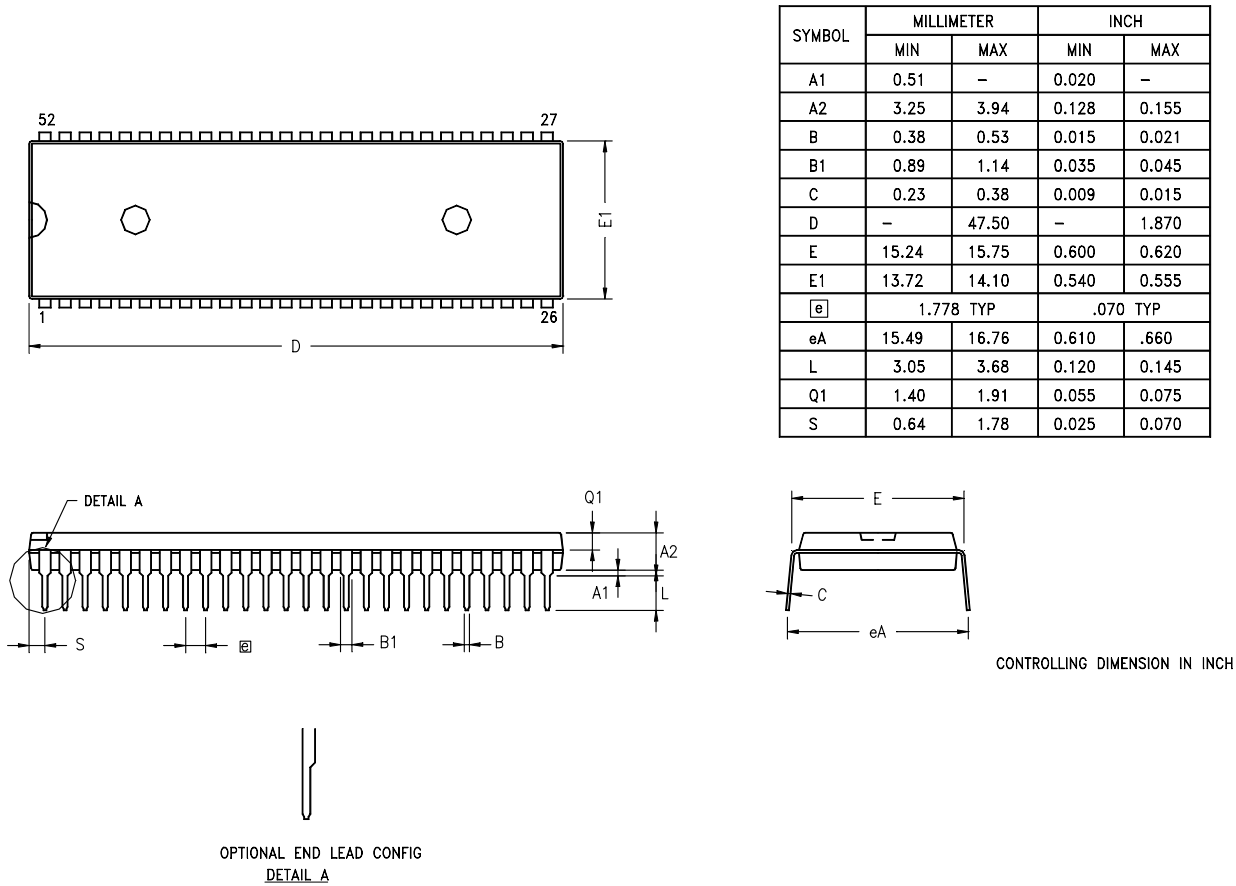


Figure 15. 52-Lead Shrink Dual In-Line Package

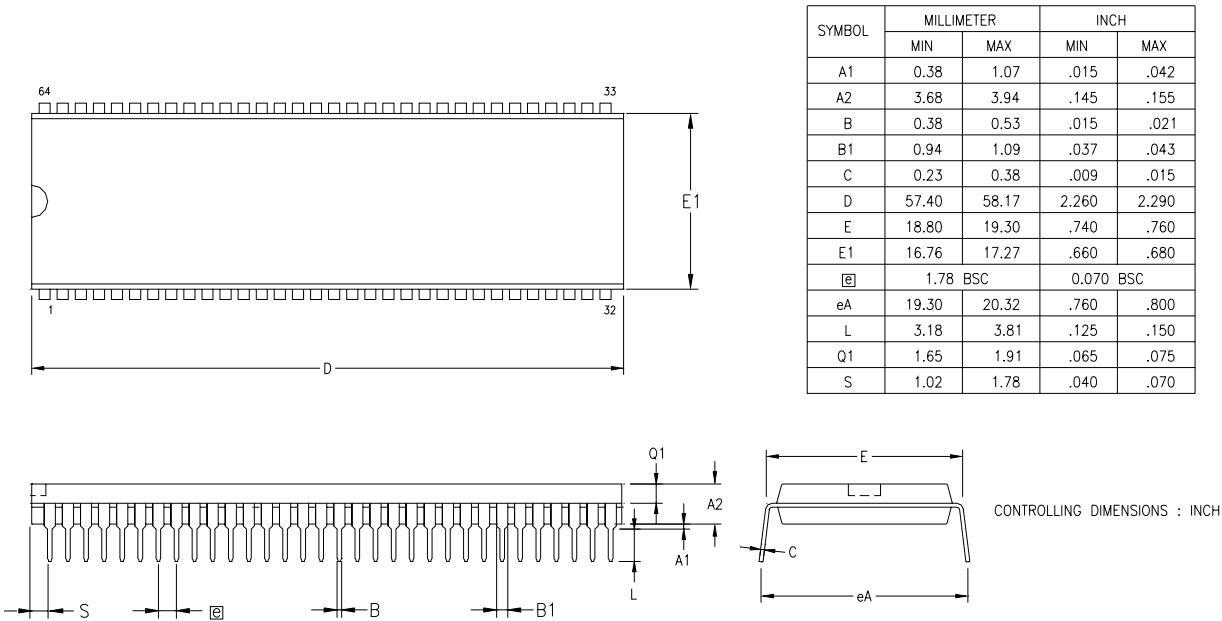


Figure 16. 64-Lead Shrink Dual In-Line Package

Plastic Leaded Chip Carriers (PLCCs)

Zilog offers the following plastic leaded chip carriers (PLCCs):

- 28-lead (Figure 17)
- 44-lead (Figure 18 on page 17)
- 68-lead (Figure 19 on page 18)
- 84-lead (Figure 20 on page 18)

► **Note:** See preferred package 28-Lead migration (Figure 54 on page 51).

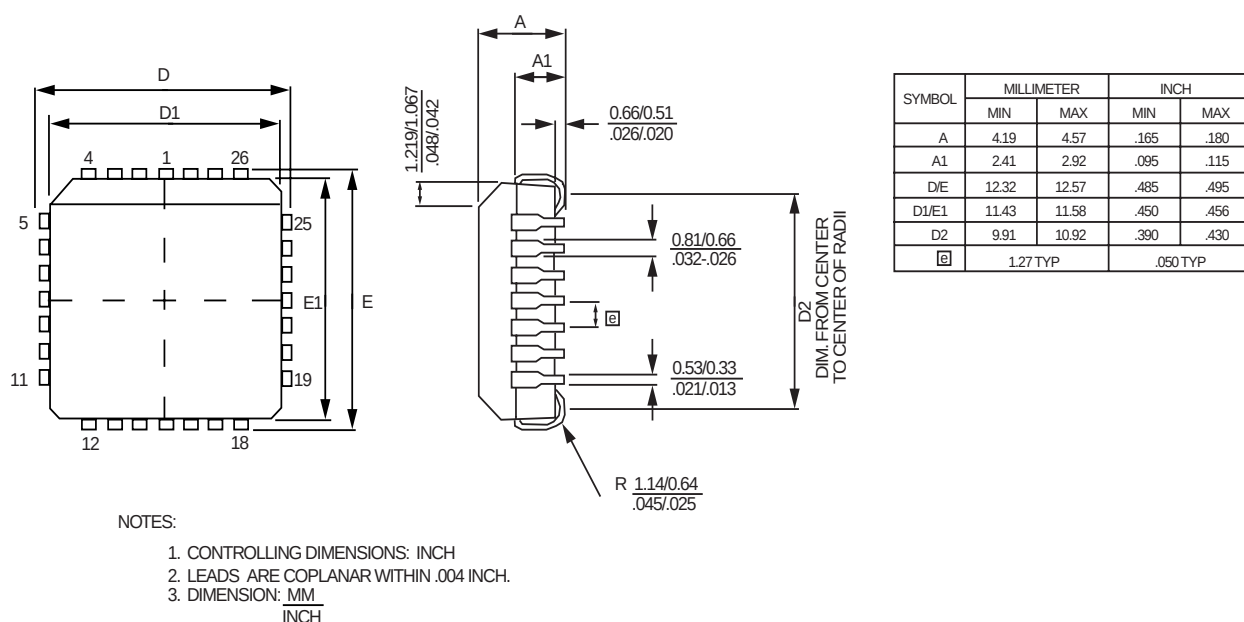
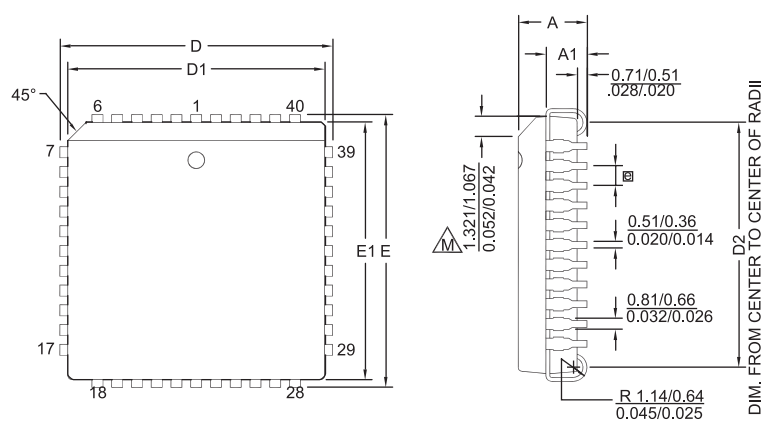


Figure 17. 28-Lead Plastic Leaded Chip Carrier

► **Note:** See preferred package 40-/44-/48-lead migration (Figure 55 on page 51).



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	4.27	4.57	0.168	0.180
A1	2.41	2.92	0.095	0.115
D/E	17.40	17.65	0.685	0.695
D1/E1	16.51	16.66	0.650	0.656
D2	15.24	16.00	0.600	0.630
⊠	1.27 BSC		0.050 BSC	

NOTES:
1. CONTROLLING DIMENSION : INCH
2. LEADS ARE COPLANAR WITHIN 0.004".
3. DIMENSION : MM
INCH

Figure 18. 44-Lead Plastic Leaded Chip Carrier

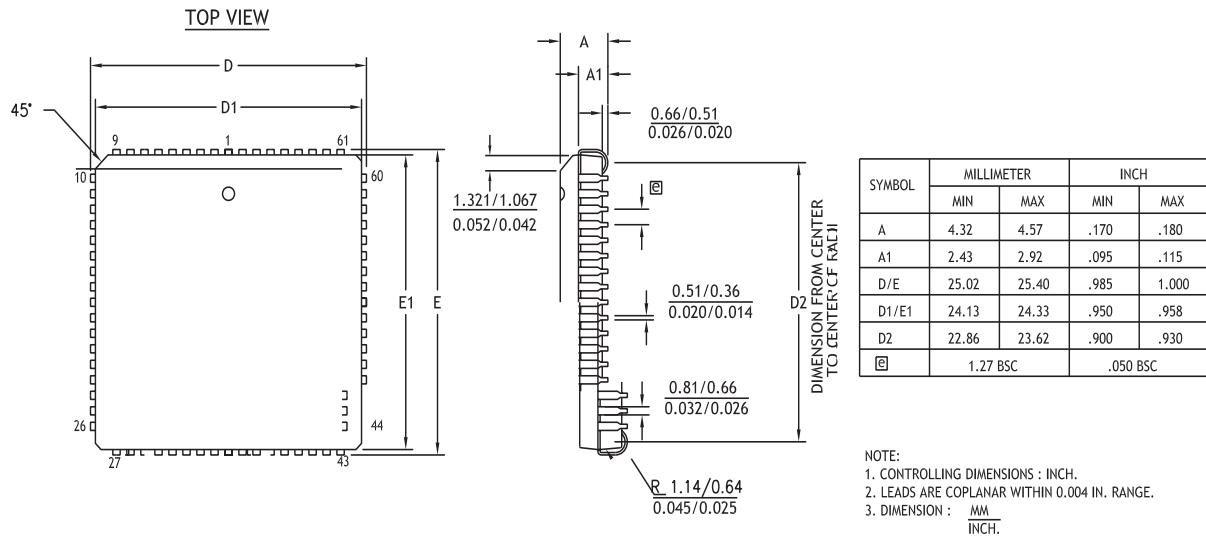


Figure 19. 68-Lead Plastic Leaded Chip Carrier

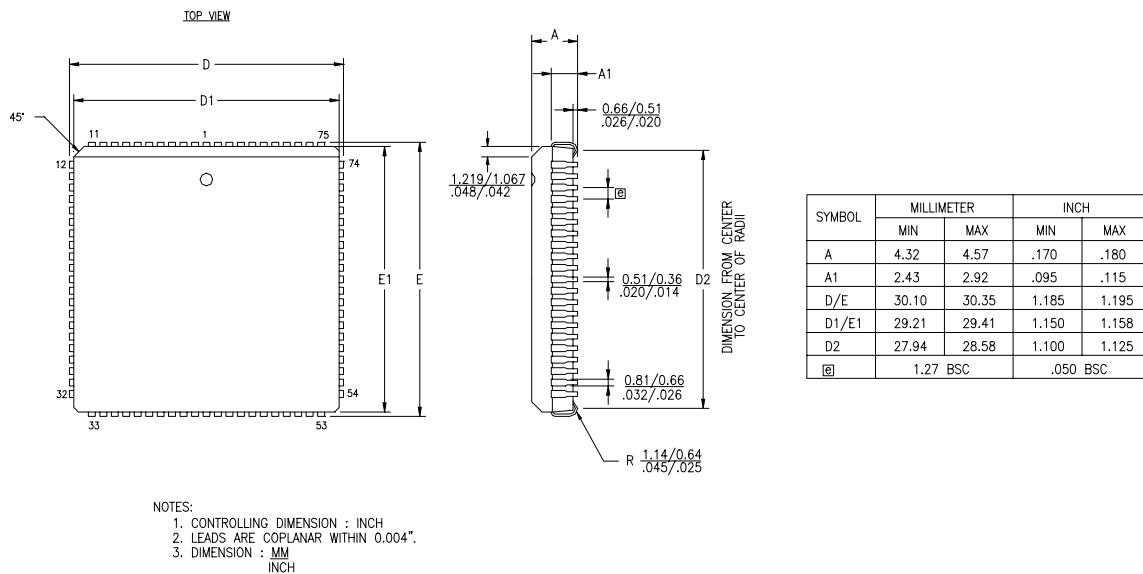
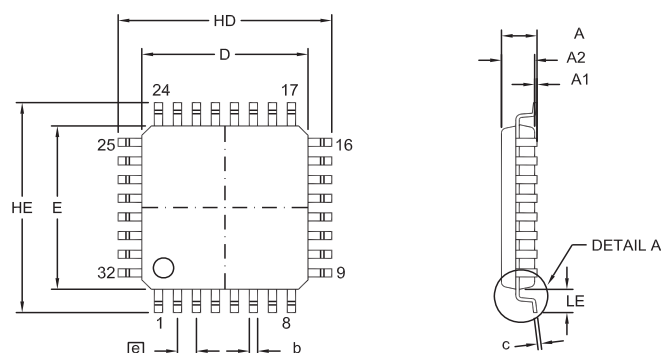


Figure 20. 84-Lead Plastic Leaded Chip Carrier

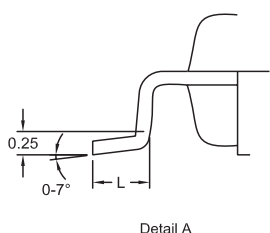
Low-Profile Quad Flat Packages (LQFPs)

Zilog offers the following low-profile quad flat packages (LQFPs):

- 32-lead (Figure 21)
- 44-lead (Figure 22 on page 20)
- 64-lead (Figure 23 on page 21 and Figure 24 on page 22)
- 100-lead (Figure 25 on page 23)
- 144-lead (Figure 26 on page 24)

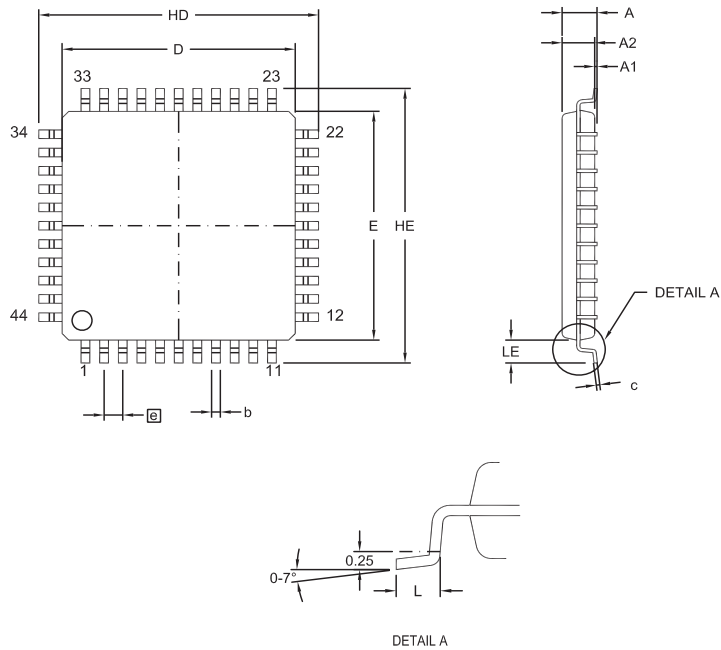


SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	1.40	1.60	0.055	0.063
A1	0.05	0.15	0.002	0.006
A2	1.35	1.45	0.053	0.057
b	0.30	0.45	0.012	0.018
c	0.09	0.20	0.004	0.008
HD	8.75	9.25	0.344	0.364
D	6.90	7.10	0.272	0.280
HE	8.75	9.25	0.344	0.364
E	6.90	7.10	0.272	0.280
□	0.80 BSC		0.031 BSC	
L	0.45	0.75	0.018	0.030
LE	1.00 REF		0.039 REF	



1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : .10mm
0.004"

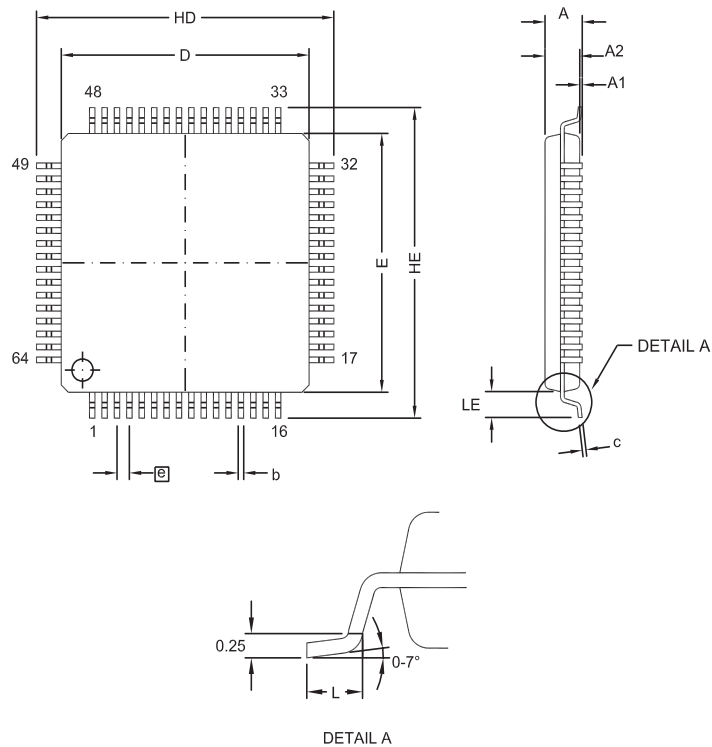
Figure 21. 32-Lead Plastic Low-Profile Quad Flat Package (7 x 7 x 1.4 mm)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	1.40	1.60	0.055	0.063
A1	0.05	0.15	0.002	0.006
A2	1.35	1.45	0.053	0.057
b	0.30	0.45	0.012	0.018
c	0.09	0.20	0.004	0.008
HD	11.75	12.25	0.463	0.482
D	9.90	10.10	0.390	0.398
HE	11.75	12.25	0.463	0.482
E	9.90	10.10	0.390	0.398
Ⓢ	0.80 BSC		0.031 BSC	
L	0.45	0.75	0.018	0.030
LE	1.00 REF		0.039 REF	

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : $\frac{.10\text{mm}}{0.004^{\circ}}$

Figure 22. 44-Lead Plastic Low-Profile Quad Flat Package (10 x 10 x 1.4 mm)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	1.40	1.60	0.055	0.063
A1	0.05	0.15	0.002	0.006
A2	1.35	1.45	0.053	0.057
b	0.17	0.27	0.007	0.011
c	0.09	0.20	0.004	0.008
HD	11.75	12.25	0.463	0.482
D	9.90	10.10	0.390	0.398
HE	11.75	12.25	0.463	0.482
E	9.90	10.10	0.390	0.398
Ⓜ	0.50 BSC		0.0197 BSC	
L	0.45	0.75	0.018	0.030
LE	1.00 REF		0.039 REF	

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : $\frac{0.10\text{mm}}{0.004''}$

Figure 23. 64-Lead Plastic Low-Profile Quad Flat Package (10 x 10 x 1.4 mm)

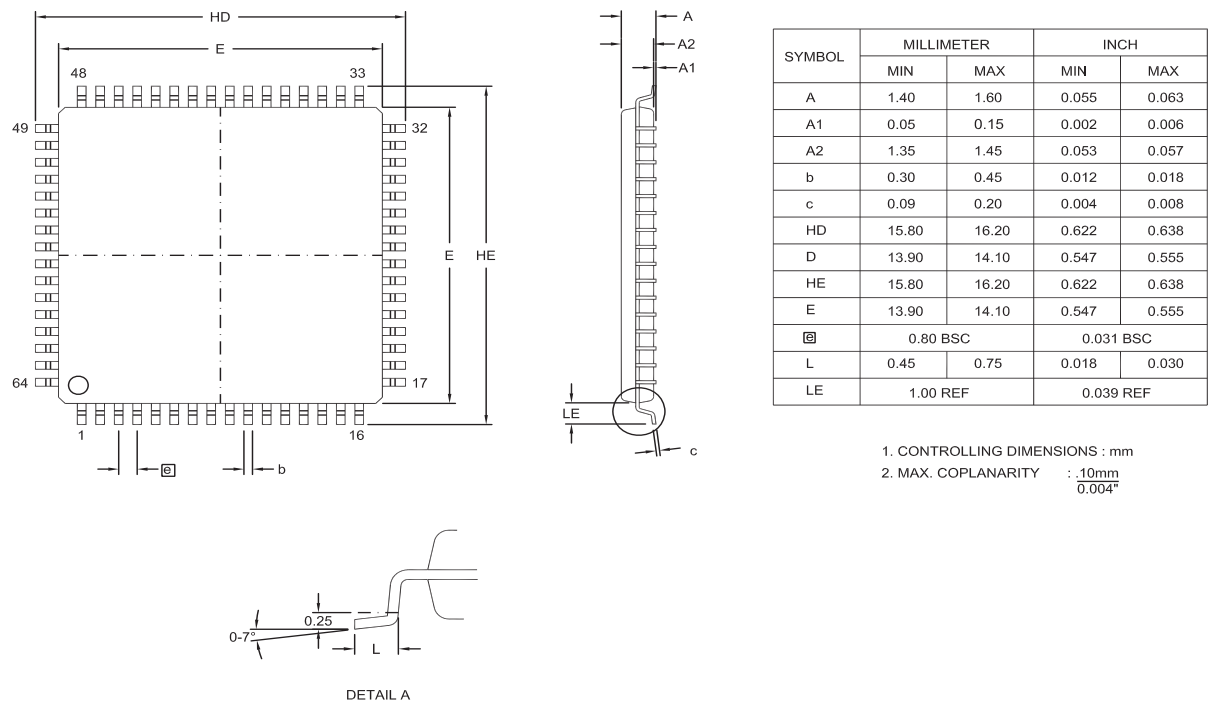


Figure 24. 64-Lead Plastic Low-Profile Quad Flat Package (14 x 14 x 1.4 mm)

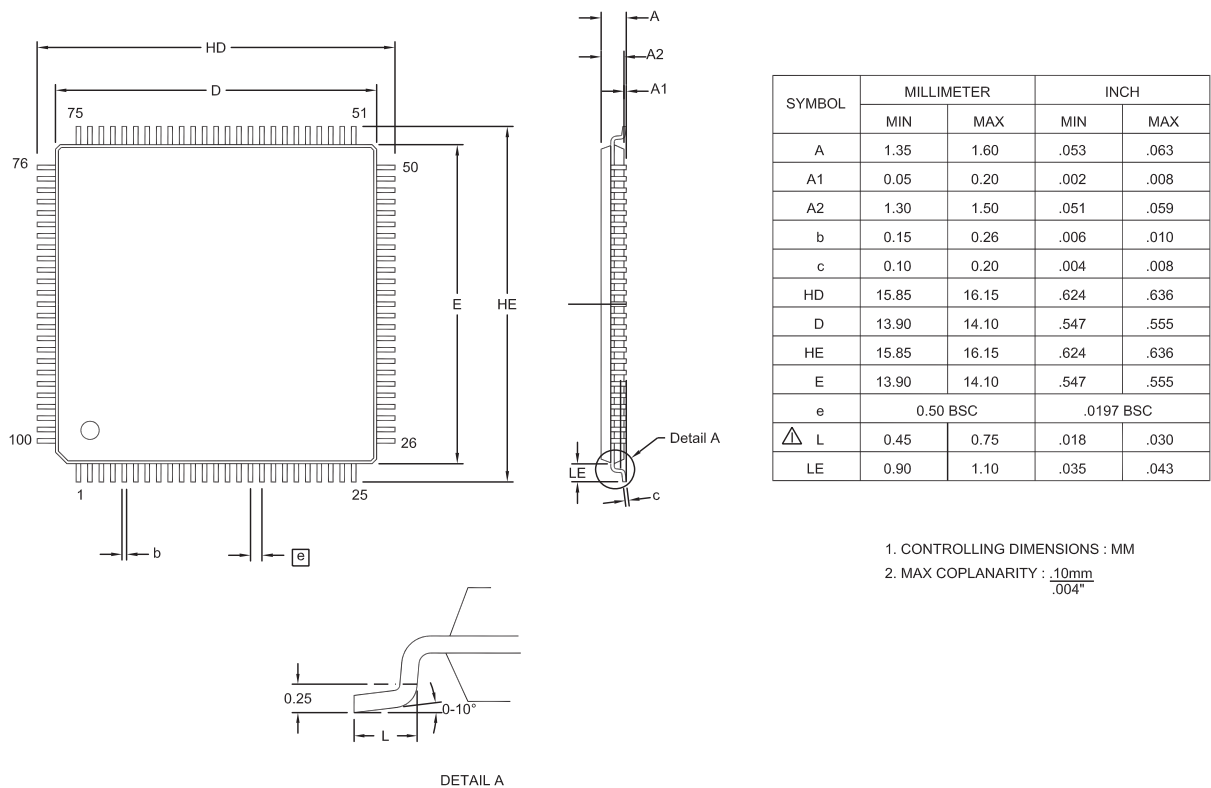


Figure 25. 100-Lead Plastic Low-Profile Quad Flat Package

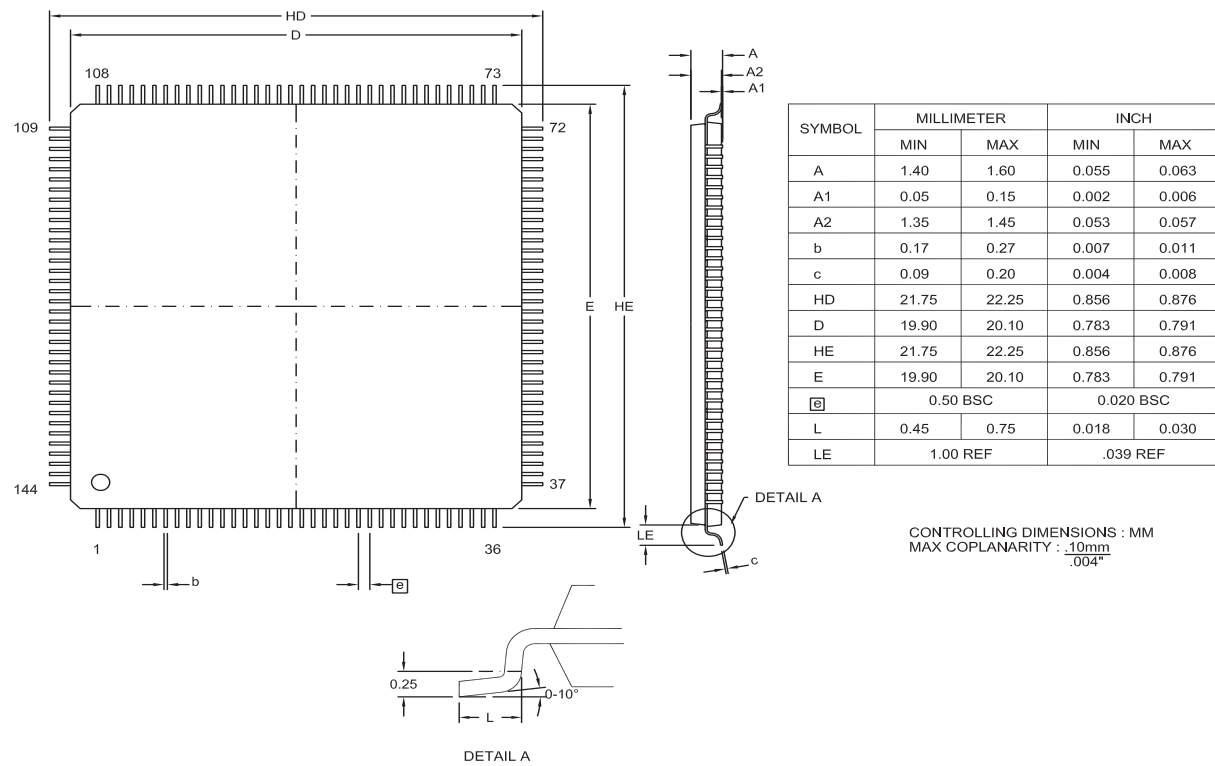
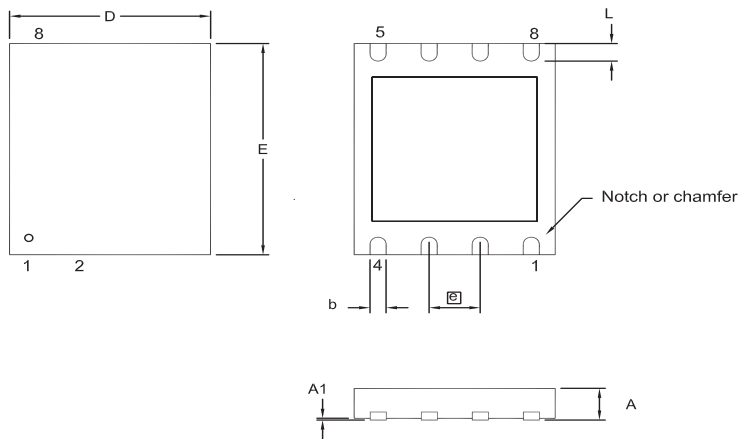


Figure 26. 144-Lead Plastic Low-Profile Quad Flat Package

Quad Flat No Lead (QFNs)

Zilog offers the following quad flat no lead (QFNs) packages:

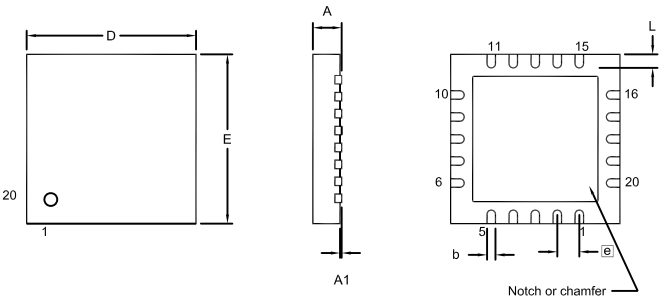
- 8 QFN (Figure 27)
- 20 QFN (Figure 28 on page 26)
- 28 QFN (Figure 29 on page 26)
- 32 QFN (Figure 30 on page 27)
- 44 QFN (Figure 31 on page 27)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.032	0.039
A1	0	0.05	0	0.002
b	0.35	0.45	0.014	0.018
$\triangle D$	4.90	5.10	0.193	0.201
$\triangle E$	5.90	6.10	0.232	0.240
$\square$	1.27 BSC		0.050 BSC	
L	0.50	0.70	0.020	0.028

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : 0.08 mm
0.003"

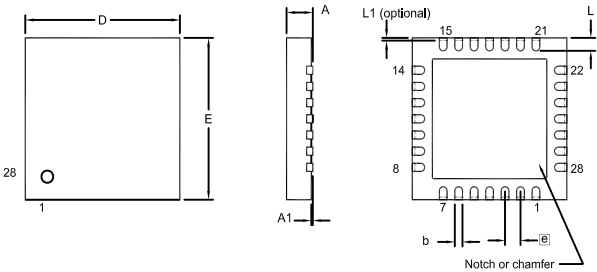
Figure 27. 8 Quad Flat No Lead (5 x 6 x 0.9 mm)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	0,80	1,00	0,031	0,039
A1	-	0,05	-	0,002
b	0,25	0,35	0,010	0,014
D	4,95	5,05	0,195	0,199
E	4,95	5,05	0,195	0,199
□	0,65 BSC		0,026 BSC	
L	0,35	0,45	0,014	0,018

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : 0,08 mm
0,003"

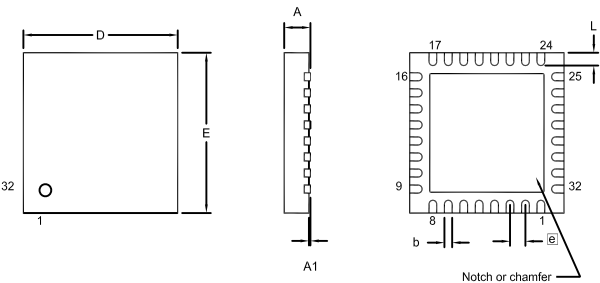
Figure 28. 20 Quad Flat No Lead (5 x 5 x 0.9 mm)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	0,80	1,00	0,031	0,039
A1	-	0,05	-	0,002
b	0,18	0,30	0,007	0,012
△ D	4,95	5,05	0,195	0,199
△ E	4,95	5,05	0,195	0,199
□	0,50 BSC		0,020 BSC	
L	0,35	0,65	0,014	0,026
△ L1	0,03	0,15	0,001	0,006

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : 0,08 mm
0,003"

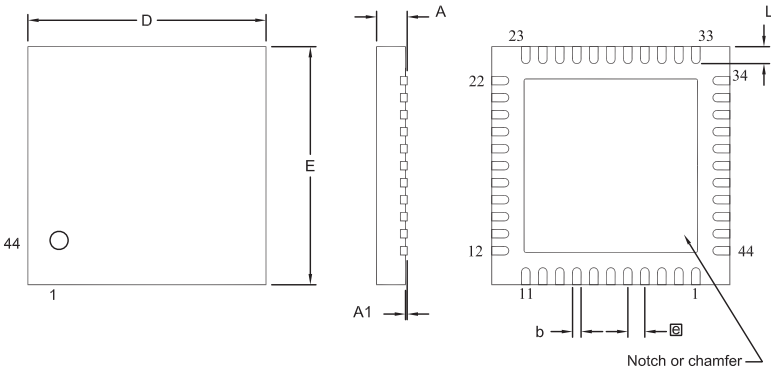
Figure 29. 28 Quad Flat No Lead (5 x 5 x 0.9 mm)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	0,80	1,00	0,031	0,039
A1	-	0,05	-	0,002
b	0,18	0,30	0,007	0,012
Δ D	4,95	5,05	0,195	0,199
Δ E	4,95	5,05	0,195	0,199
$\square$	0,50 BSC		0,020 BSC	
L	0,35	0,45	0,014	0,018

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : 0,08 mm
0,003°

Figure 30. 32 Quad Flat No Lead (5 x 5 x 0.9 mm)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	0.70	1.00	0.028	0.039
A1	-	0.05	-	0.002
b	0.18	0.30	0.007	0.012
D	6.90	7.10	0.272	0.280
E	6.90	7.10	0.272	0.280
$\square$	0.50 BSC		0.020 BSC	
L	0.35	0.65	0.014	0.026

1. CONTROLLING DIMENSIONS : mm
2. MAX. COPLANARITY : 0,08 mm
0,003°

Figure 31. 44 Quad Flat No Lead (7 x 7 mm)

Plastic Quad Flat Packages (QFPs)

Zilog offers the following plastic quad flat packages (QFPs):

- 80-lead (Figure 32 on page 28)
- 100-lead (Figure 33 on page 29)
- 144-lead (Figure 34 on page 30)

► **Note:** Zilog does not recommend this package for new designs and recommends using the 44-lead LQFP (Figure 22 on page 20) or 48-lead SSOP (Figure 41 on page 37) instead. The 44-lead LQFP is a drop-in replacement for the 44-lead QFP; no board layout changes are needed for this switch. See preferred package 40-/44-/48-Lead migration (Figure 55 on page 51).

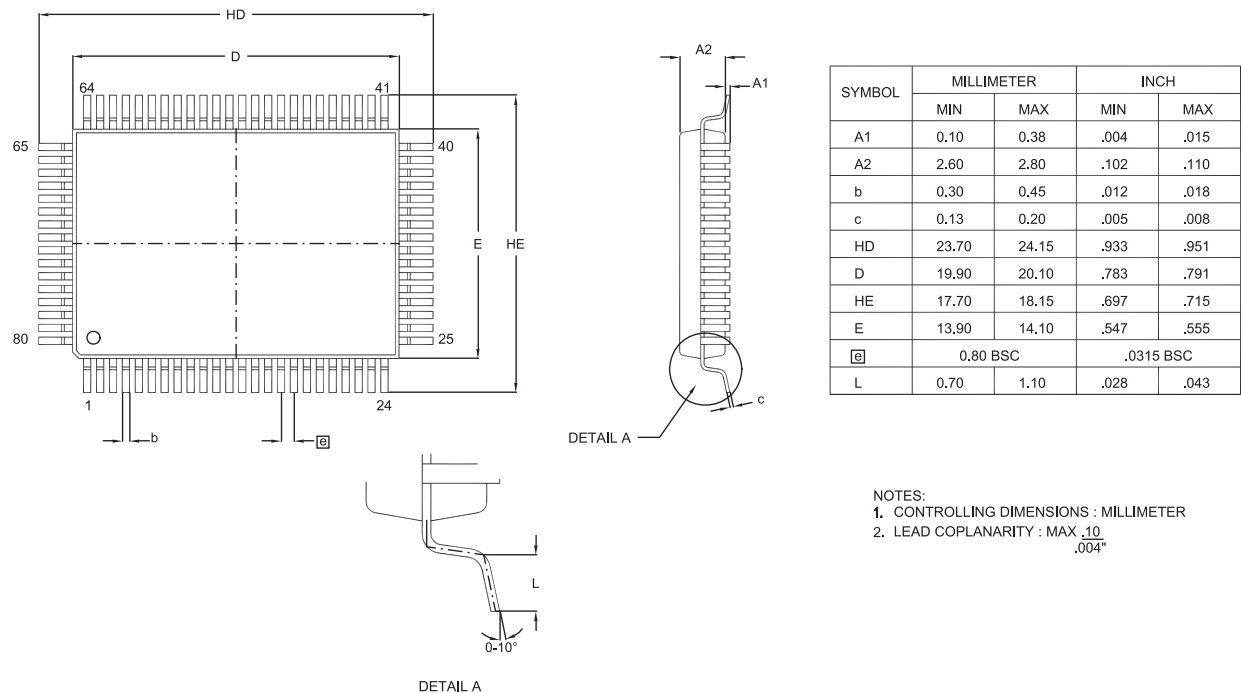
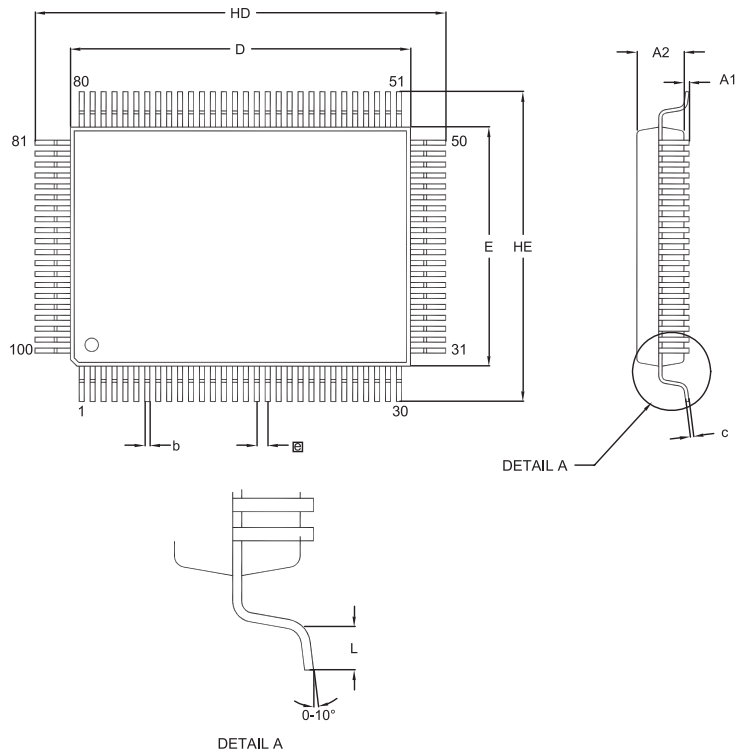


Figure 32. 80-Lead Plastic Quad Flat Package



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A1	0.10	0.38	.004	.015 Δ
A2	2.60	2.90	.102	.114
b	0.25	0.40	.010	.016
c	0.13	0.20	.005	.008
HD	23.70	24.15	.933	.951
D	19.90	20.10	.783	.791
HE	17.70	18.15	.697	.715
E	13.90	14.10	.547	.555
$\square$	0.65 BSC		.0256 BSC	
L	0.70	1.10	.028	.043

NOTES:
1. CONTROLLING DIMENSIONS : MILLIMETER
2. MAX COPLANARITY : .10
.004

Figure 33. 100-Lead Plastic Quad Flat Package

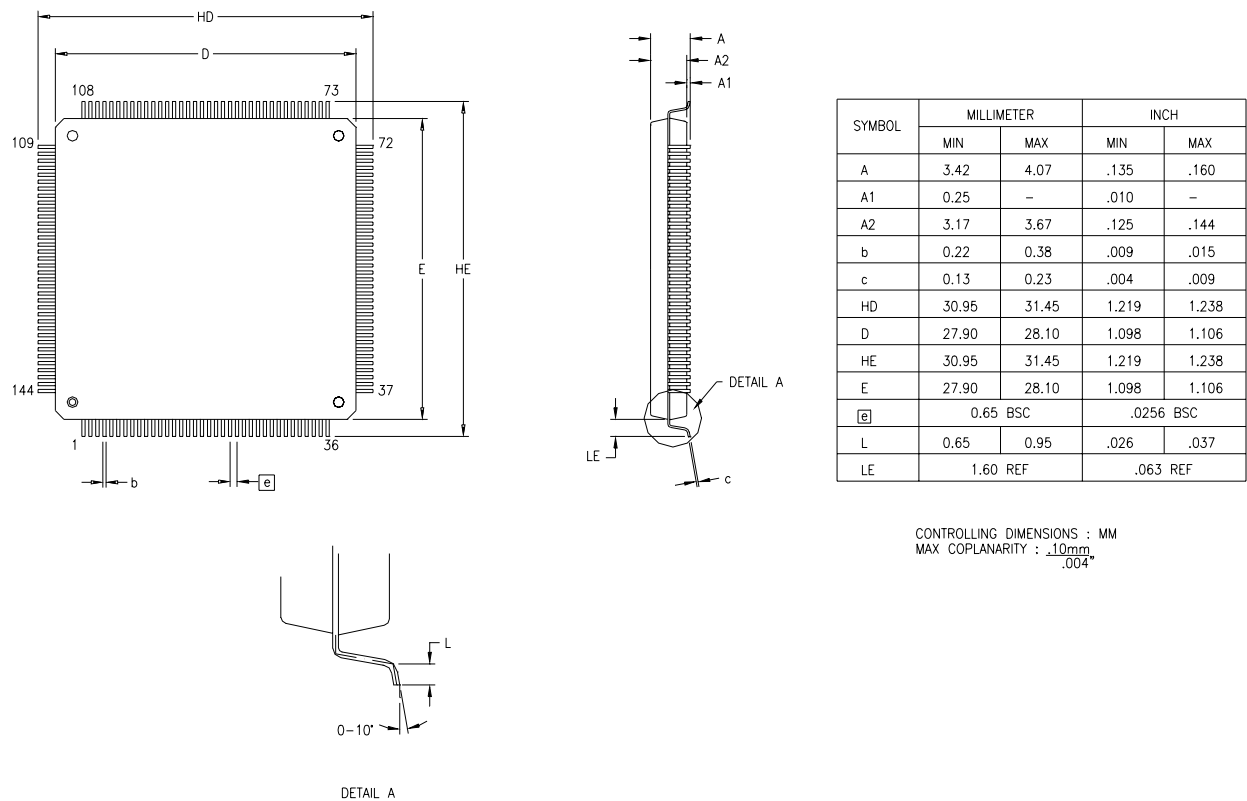
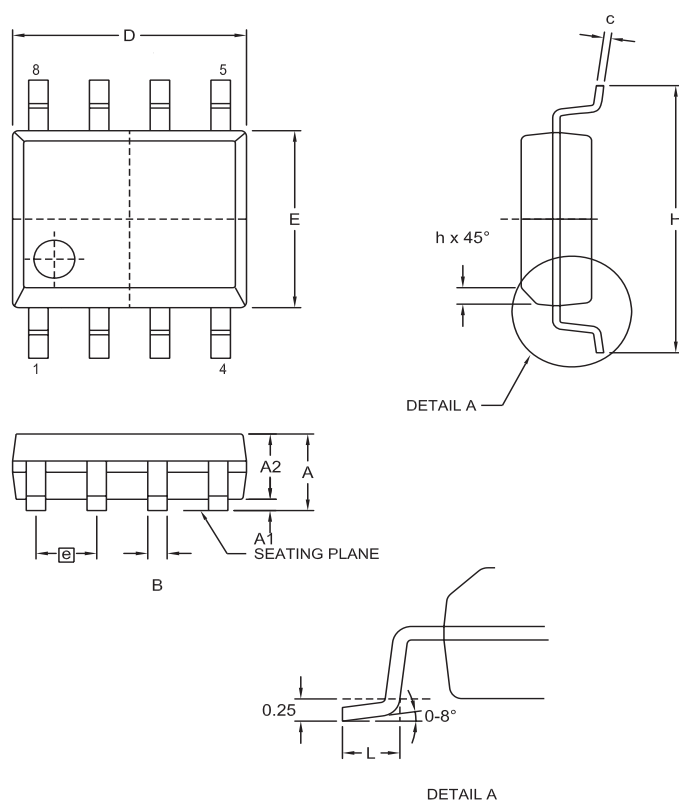


Figure 34. 144-Lead Plastic Quad Flat Package

Small Outline Integrated Circuits (SOICs)

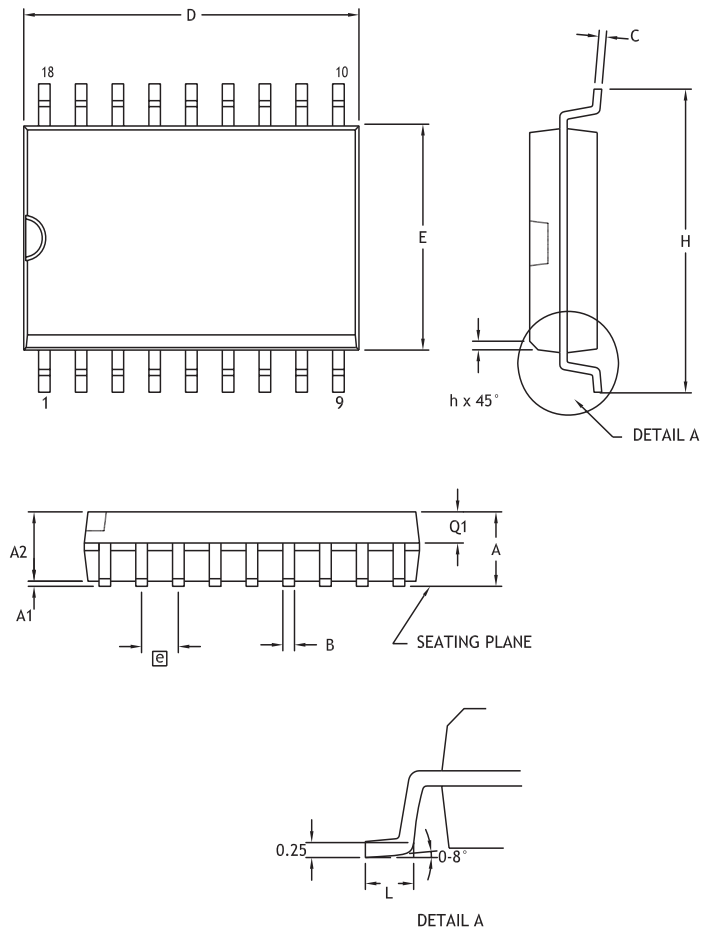
Zilog offers the following small outline integrated circuits (SOICs):

- 8-lead (Figure 35)
- 18-lead (Figure 36 on page 32)
- 20-lead (Figure 37 on page 33)
- 28-lead (Figure 38 on page 34)



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	1.55	1.73	0.061	0.068
A1	0.10	0.25	0.004	0.010
A2	1.40	1.55	0.055	0.061
B	0.36	0.48	0.014	0.019
C	0.18	0.25	0.007	0.010
D	4.80	4.98	0.189	0.196
E	3.81	3.99	0.150	0.157
Ⓢ	1.27 BSC		.050 BSC	
H	5.84	6.15	0.230	0.242
h	0.25	0.40	0.010	0.016
L	0.41	0.89	0.016	0.035

Figure 35. 8-Lead Small Outline Integrated Circuit



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	2.40	2.65	0.094	0.104
A1	0.10	0.30	0.004	0.012
A2	2.24	2.44	0.088	0.096
B	0.36	0.46	0.014	0.018
C	0.23	0.30	0.009	0.012
D	11.40	11.75	0.449	0.463
E	7.40	7.60	0.291	0.299
□	1.27 BSC		0.050 BSC	
H	10.00	10.65	0.394	0.419
h	0.30	0.50	0.012	0.020
L	0.60	1.00	0.024	0.039
Q1	0.97	1.07	0.038	0.042

CONTROLLING DIMENSIONS : MM
LEADS ARE COPLANAR WITHIN .004 INCH.

Figure 36. 18-Lead Small Outline Integrated Circuit

► **Note:** For a smaller footprint, use the 20-lead SSOP package (Figure 39 on page 35).

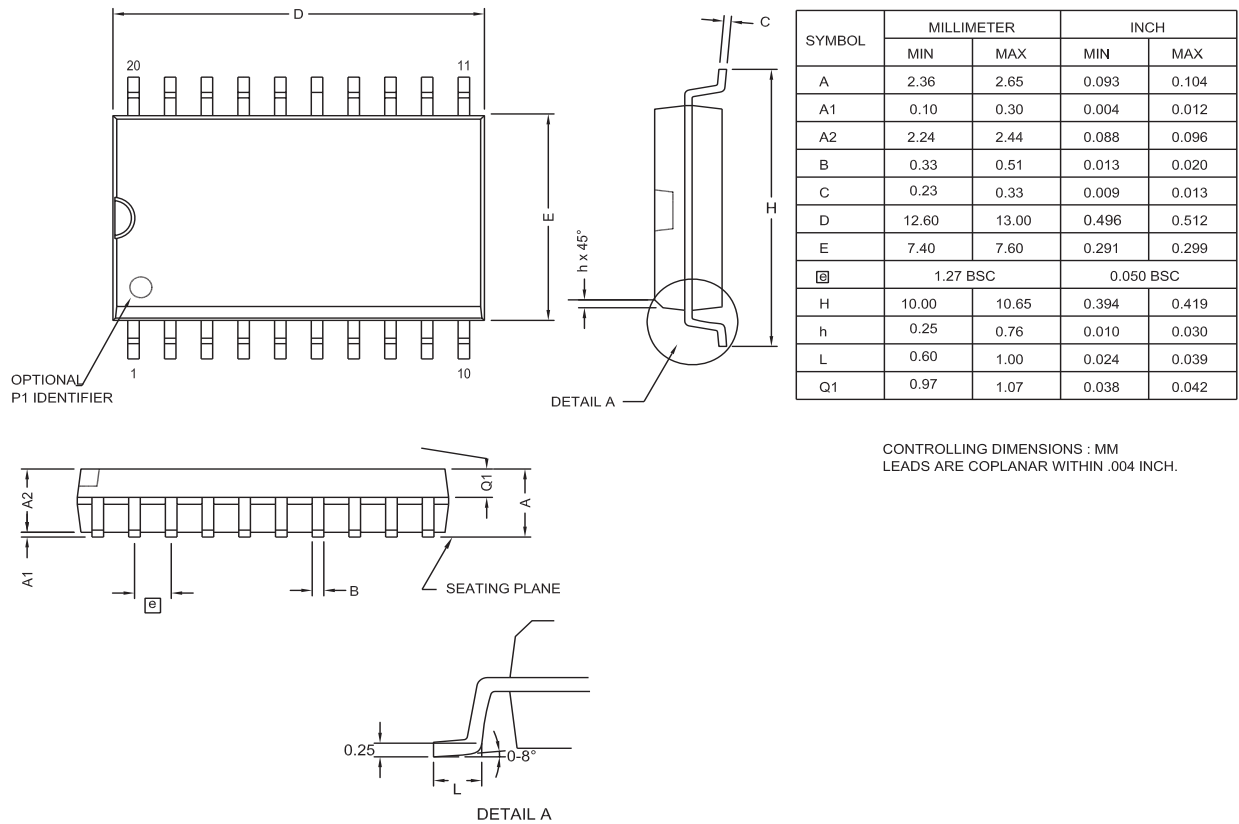


Figure 37. 20-Lead Small Outline Integrated Circuit

► **Note:** For a smaller footprint, use the 28-lead SSOP package (Figure 40 on page 36) instead.

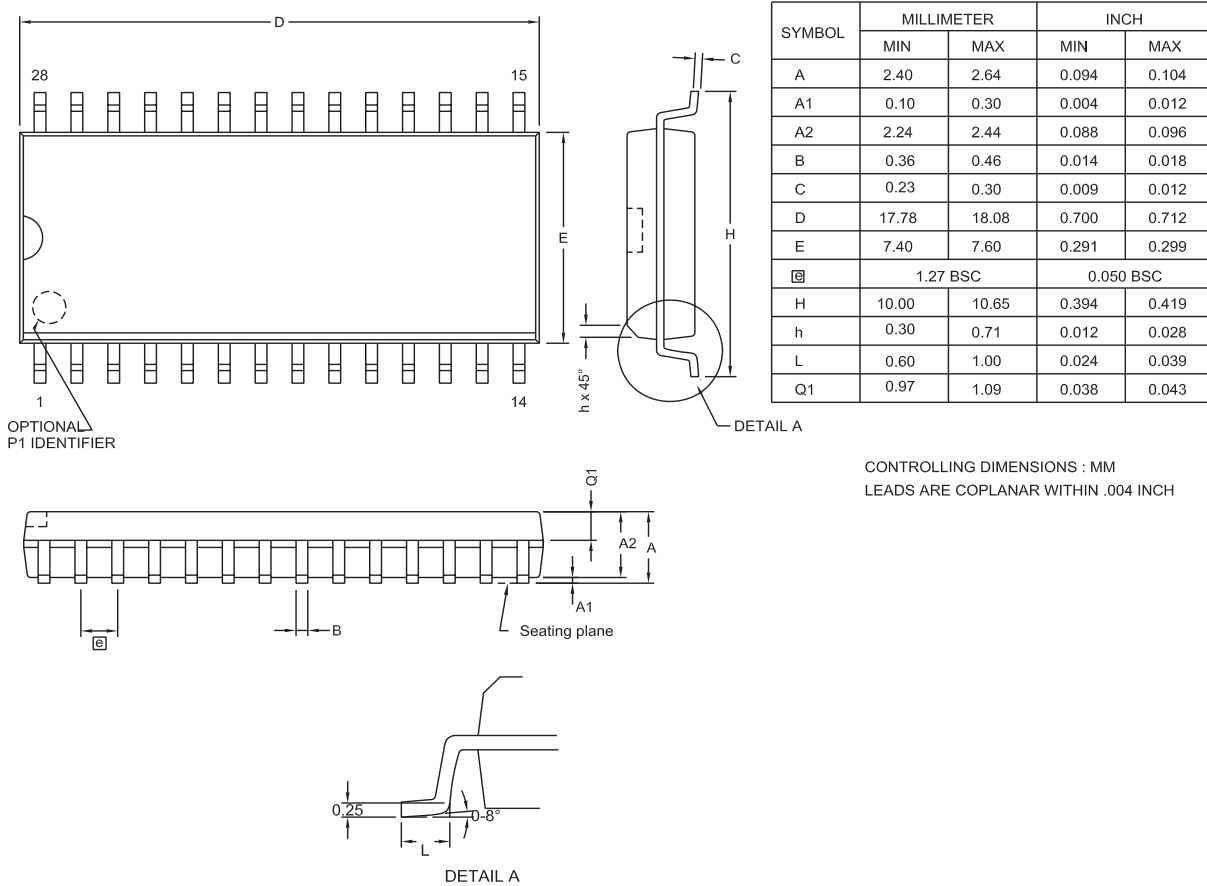
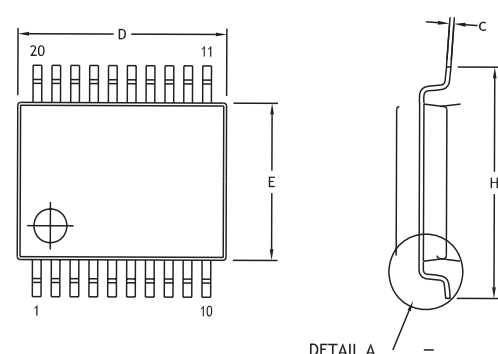


Figure 38. 28-Lead Small Outline Integrated Circuit

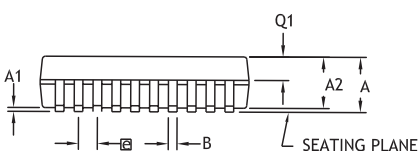
Shrink Small Outline Packages (SSOPs)

Zilog offers the following shrink small outline packages (SSOPs):

- 20-lead (Figure 39)
- 28-lead (Figure 40 on page 36)
- 48-lead (Figure 41 on page 37)



SYMBOL	MILLIMETER			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.73	1.85	1.98	0.068	0.073	0.078
A1	0.05	0.13	0.21	0.002	0.005	0.008
A2	1.68	1.73	1.83	0.066	0.068	0.072
B	0.25	0.30	0.38	0.010	0.012	0.015
C	0.13	0.15	0.22	0.005	0.006	0.009
D	7.07	7.20	7.33	0.278	0.283	0.289
E	5.20	5.30	5.38	0.205	0.209	0.212
Q	0.65 BSC			0.0256 BSC		
H	7.65	7.80	7.90	0.301	0.307	0.311
L	0.55	0.75	0.95	0.022	0.030	0.037
Q1	0.74	0.78	0.82	0.029	0.031	0.032



CONTROLLING DIMENSIONS : MM
LEADS ARE COPLANAR WITHIN .004 INCH.

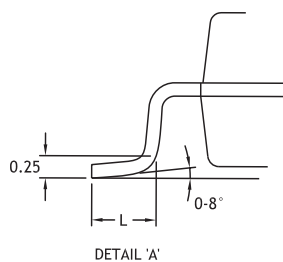
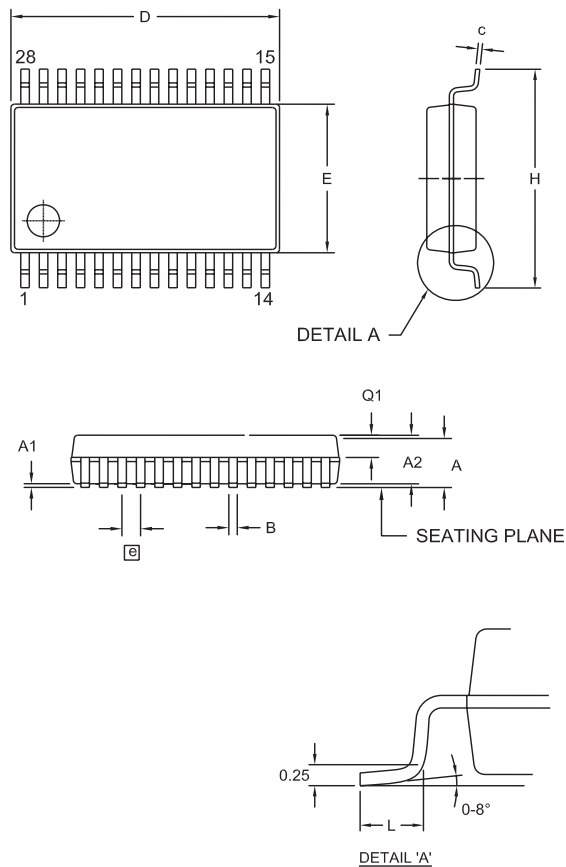
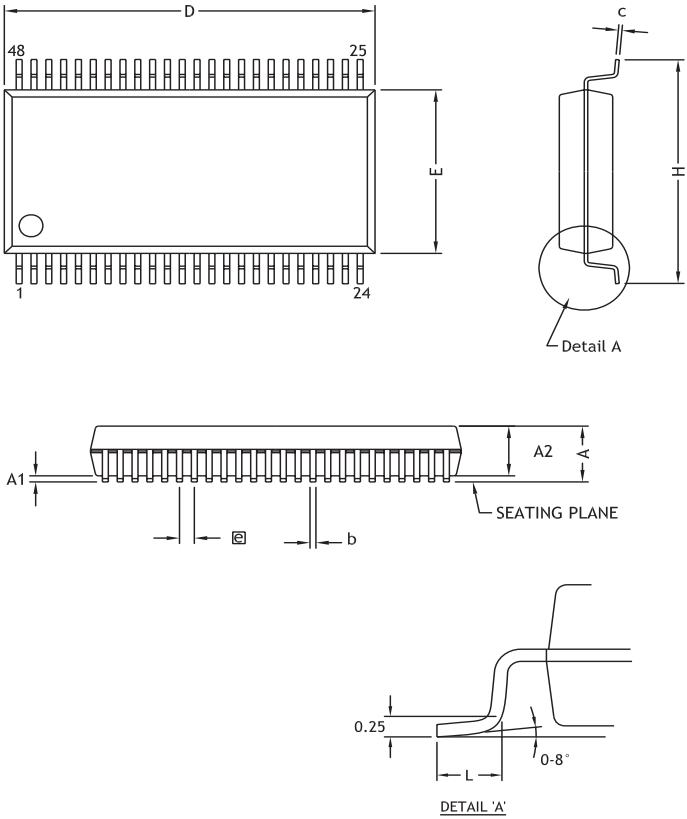


Figure 39. 20-Lead Shrink Small Outline Package



CONTROLLING DIMENSIONS : MM
LEADS ARE COPLANAR WITHIN .004 INCH.

Figure 40. 28-Lead Shrink Small Outline Package



SYMBOL	MILLIMETER		INCH	
	MIN	MAX	MIN	MAX
A	2.41	2.79	0.095	0.110
A1	0.23	0.38	0.009	0.015
A2	2.18	2.39	0.086	0.094
b	0.20	0.34	0.008	0.0135
c	0.13	0.25	0.005	0.010
D	15.75	16.00	0.620	0.630
E	7.39	7.59	0.291	0.299
Ⓢ	0.635 BSC		0.025 BSC	
H	10.16	10.41	0.400	0.410
L	0.51	1.016	0.020	0.040

CONTROLLING DIMENSIONS : MM
LEADS ARE COPLANAR WITHIN .004 INCH

Figure 41. 48-Lead Shrink Small Outline Package

Low-Profile Ball Grid Arrays (LBGAs)

Zilog offers the following low-profile ball grid arrays (LBGAs):

- 144-lead (Figure 42)
- 196-lead (Figure 43 on page 39)
- 256-lead (Figure 44 on page 40)

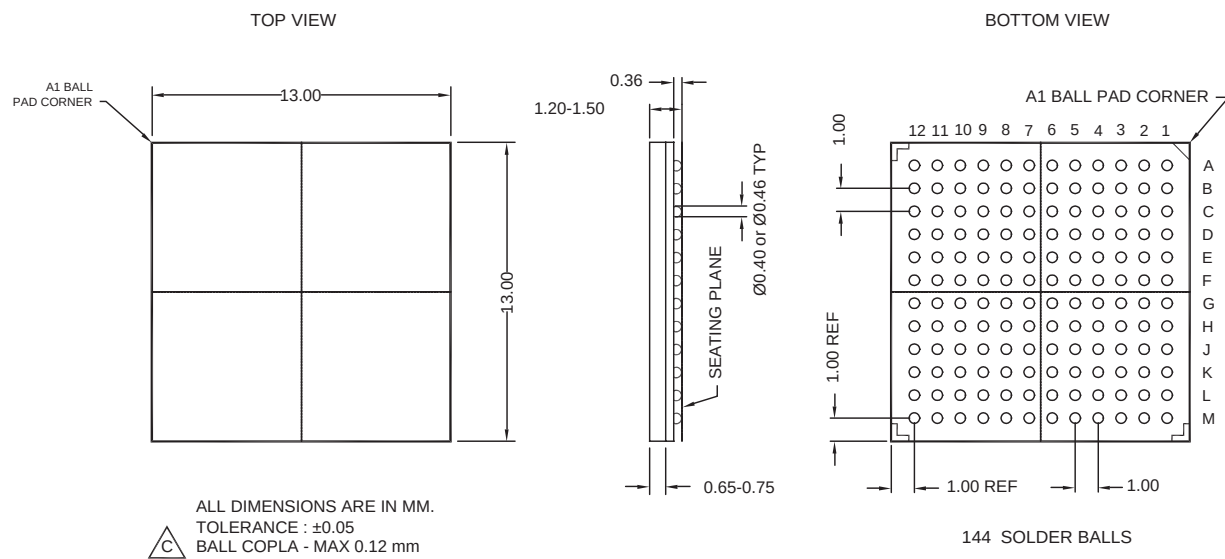


Figure 42. 144-Lead Low-Profile Ball Grid Array

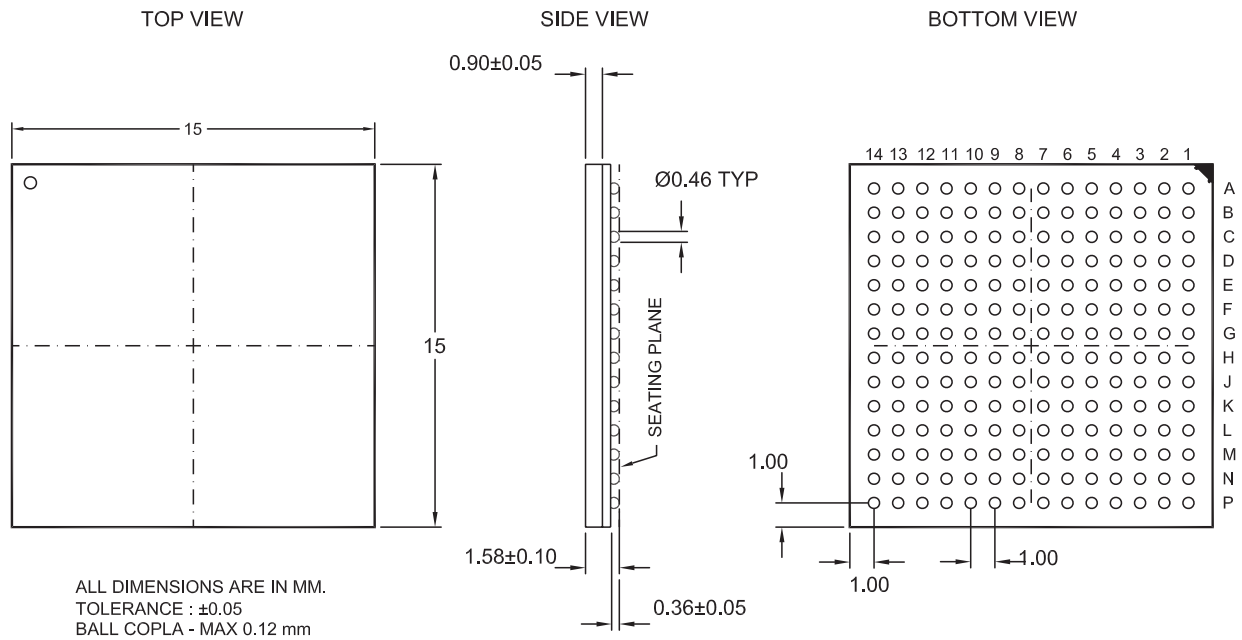


Figure 43. 196-Lead Low-Profile Ball Grid Array (15 x 15 mm, 1.0 mm pitch)

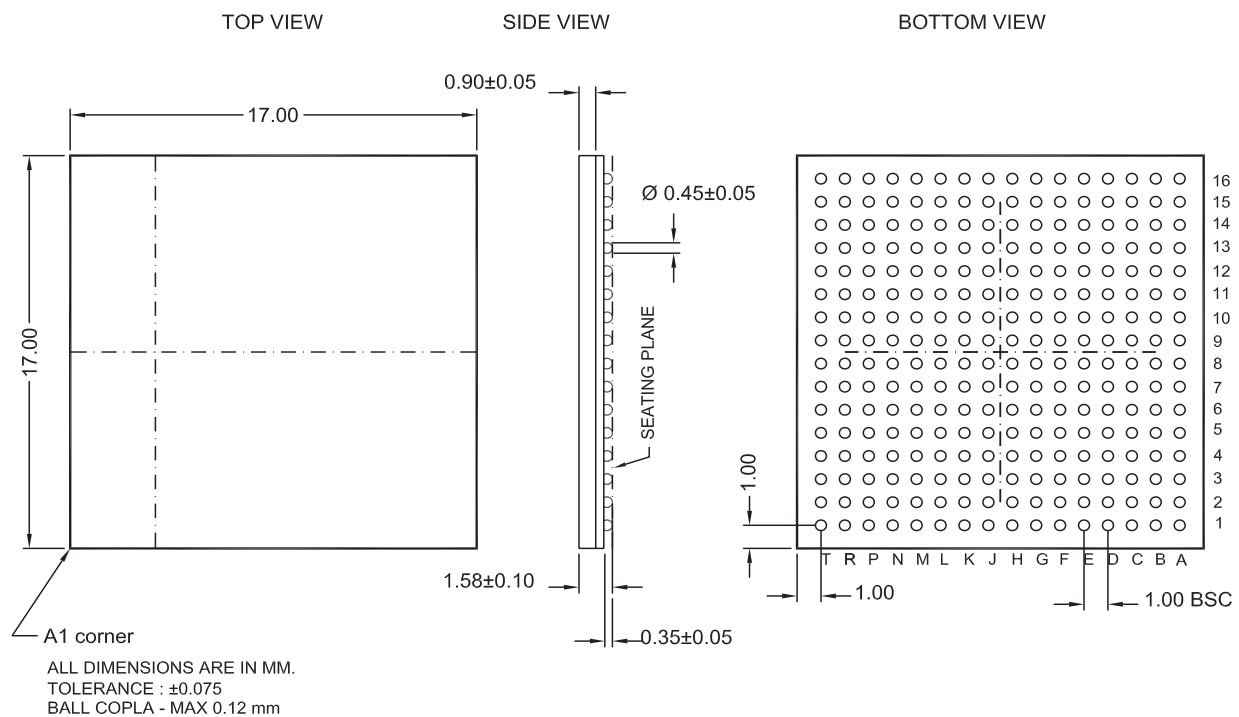


Figure 44. 256-Lead Low-Profile Ball Grid Array (17 x 17 mm, 1.0 mm pitch)

Transceiver Packages

Zilog offers the following transceiver packages:

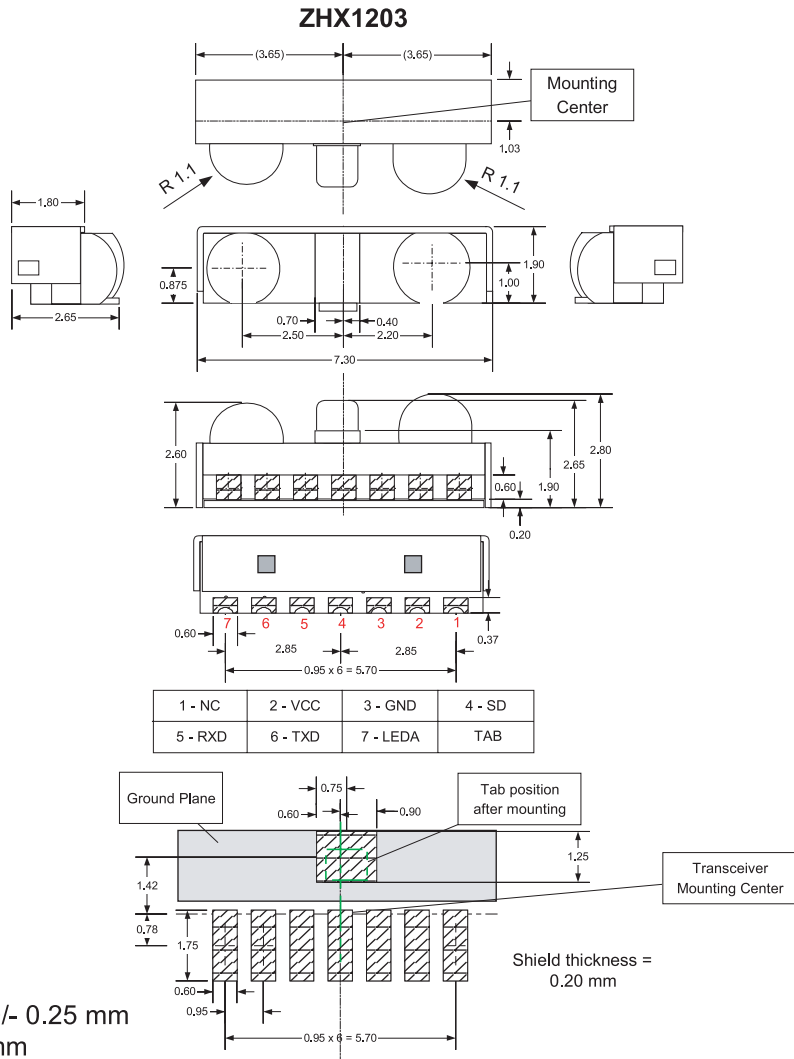
- ZHX1203 ([Figure 45](#) on page 42)
- ZHX1223TB ([Figure 46](#) on page 43)
- ZHX1403 ([Figure 47](#) on page 44)
- ZHX1423 ([Figure 48](#) on page 45)
- ZHX1810 ([Figure 49](#) on page 46 and [Figure 50](#) on page 47)
- ZHX1820 ([Figure 51](#) on page 48 and [Figure 52](#) on page 49)

Lead Type, Carrier Tape Size, and Reel Quantity

The following table describes the carrier tape size and reel quantity for the transceiver packages.

Lead Type	Carrier Tape Size (mm)	Reel Quantity
ZHX1010	16	2000
ZHX1010-01	24	500
ZHX1403/1203	16	3500
ZHX1810/Z8HX1820	16	2000
	16	2000
ZHX1223/1423	16	2500

Quantity: 3500 pieces per reel



Tolerances for 0.x or 0.xx are +/- 0.25 mm
Tolerance for 0.xxx is +/- 0.13 mm

Figure 45. ZHX1203 Transceiver

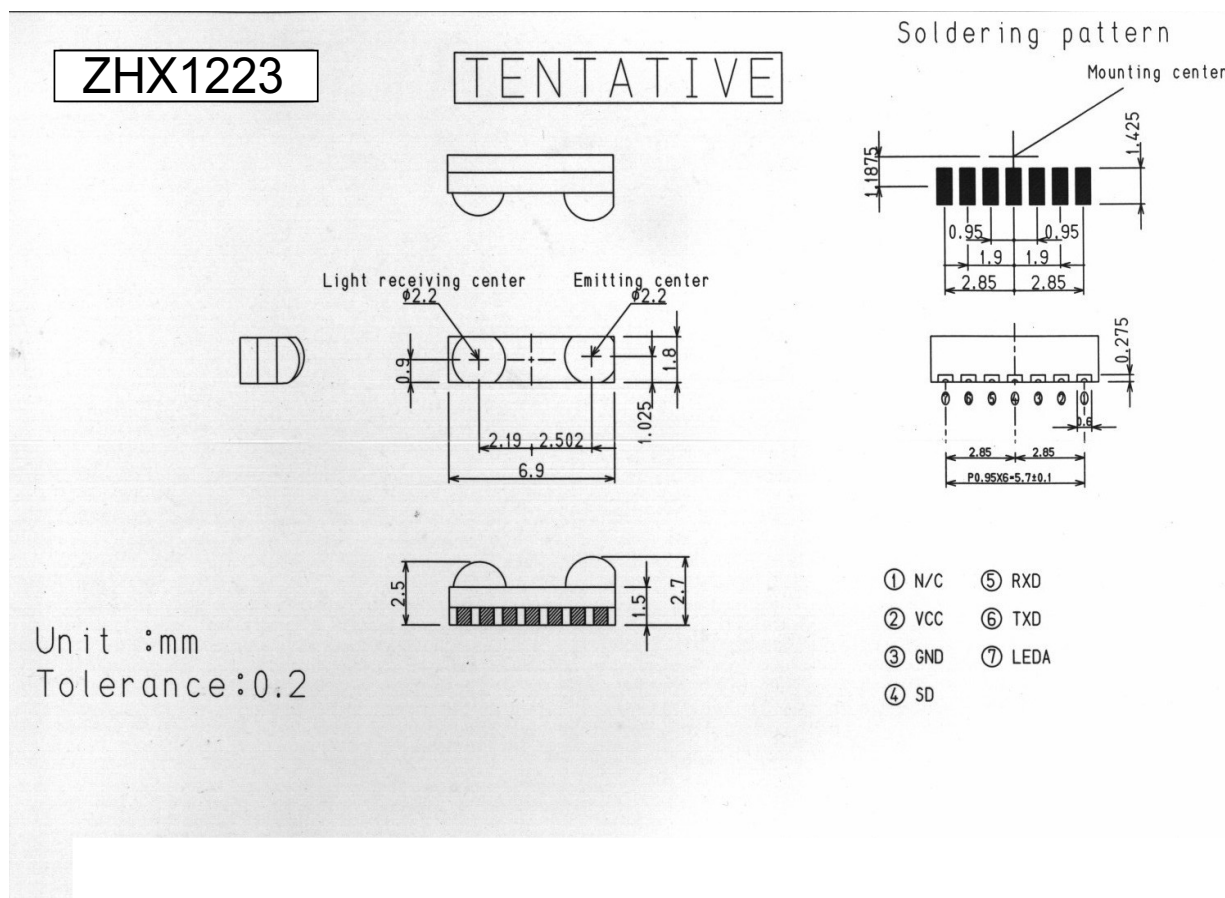


Figure 46. ZHX1223 Mechanical Specification

Quantity: 3500 pieces per reel

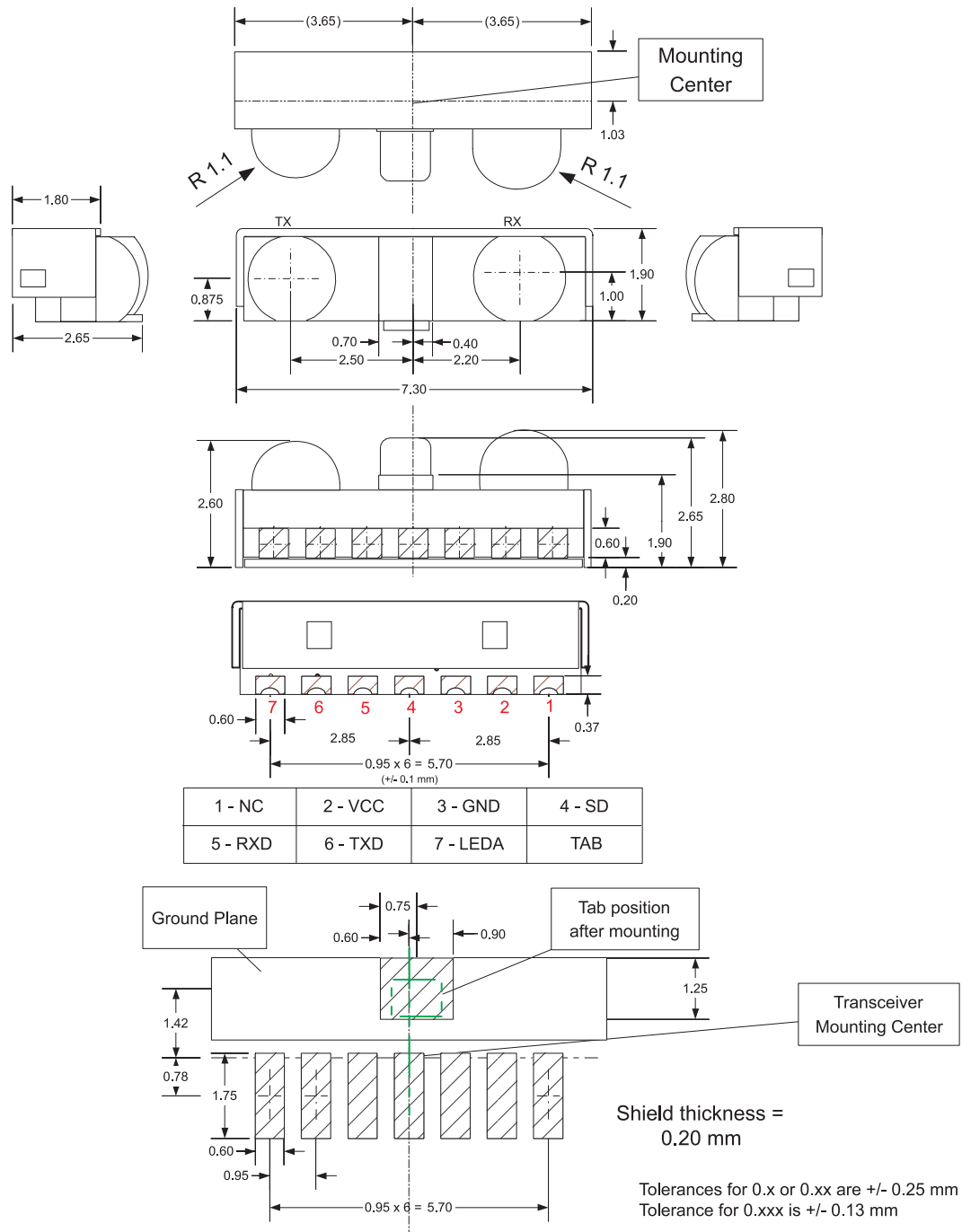


Figure 47. ZHX1403 Transceiver

Quantity: 2500 pieces per reel

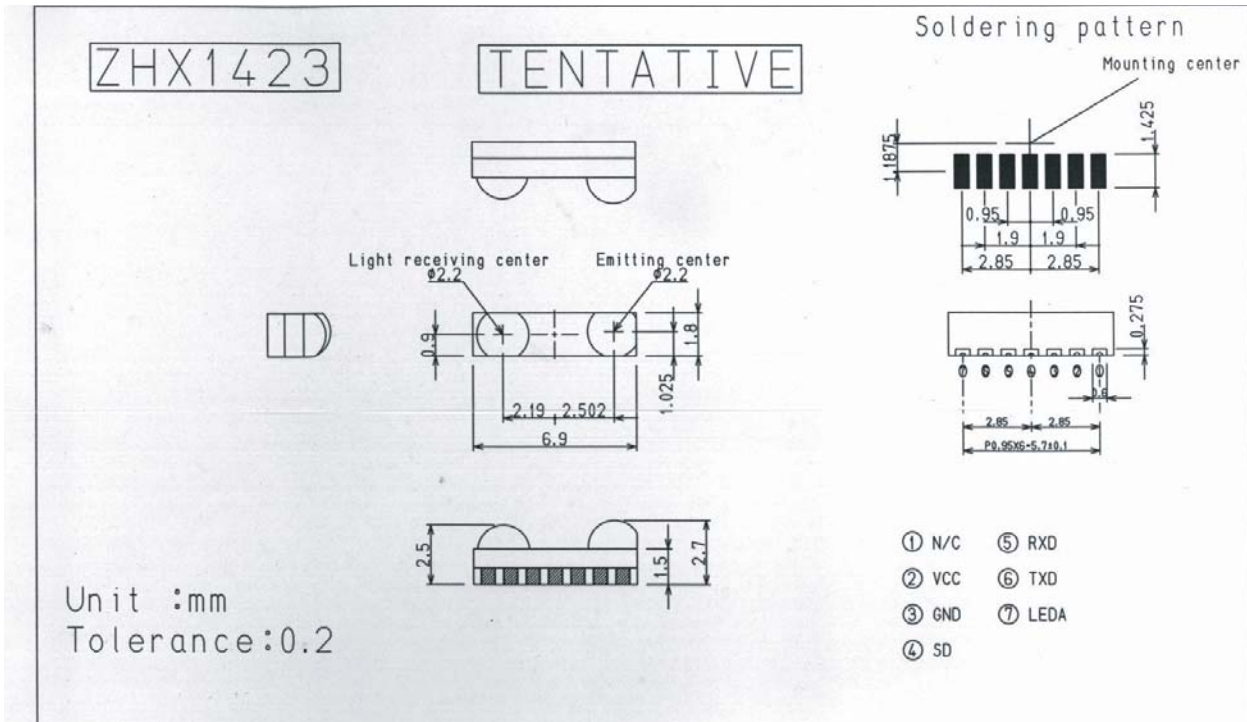


Figure 48. ZHX1423 Transceiver

To achieve the lowest possible costs and lead times, Zilog® maintains multiple assembly facilities. [Figure 49](#) and [Figure 50](#) on page 47 display the mechanical drawings for the ZHX1810 transceivers. These devices, which display the minor mechanical differences, are functionally equivalent in every way and meet all Zilog and IrDA standards and specifications. All ZHX1810 devices use the identical solder pad layout. Although reels are never mixed, Zilog reserves the right to ship from either facility in order to meet the delivery requirements. When designing an IrDA subsystem, you must allow mechanical clearance for all versions of the IrDA transceiver.

Quantity: 2000 pieces per reel

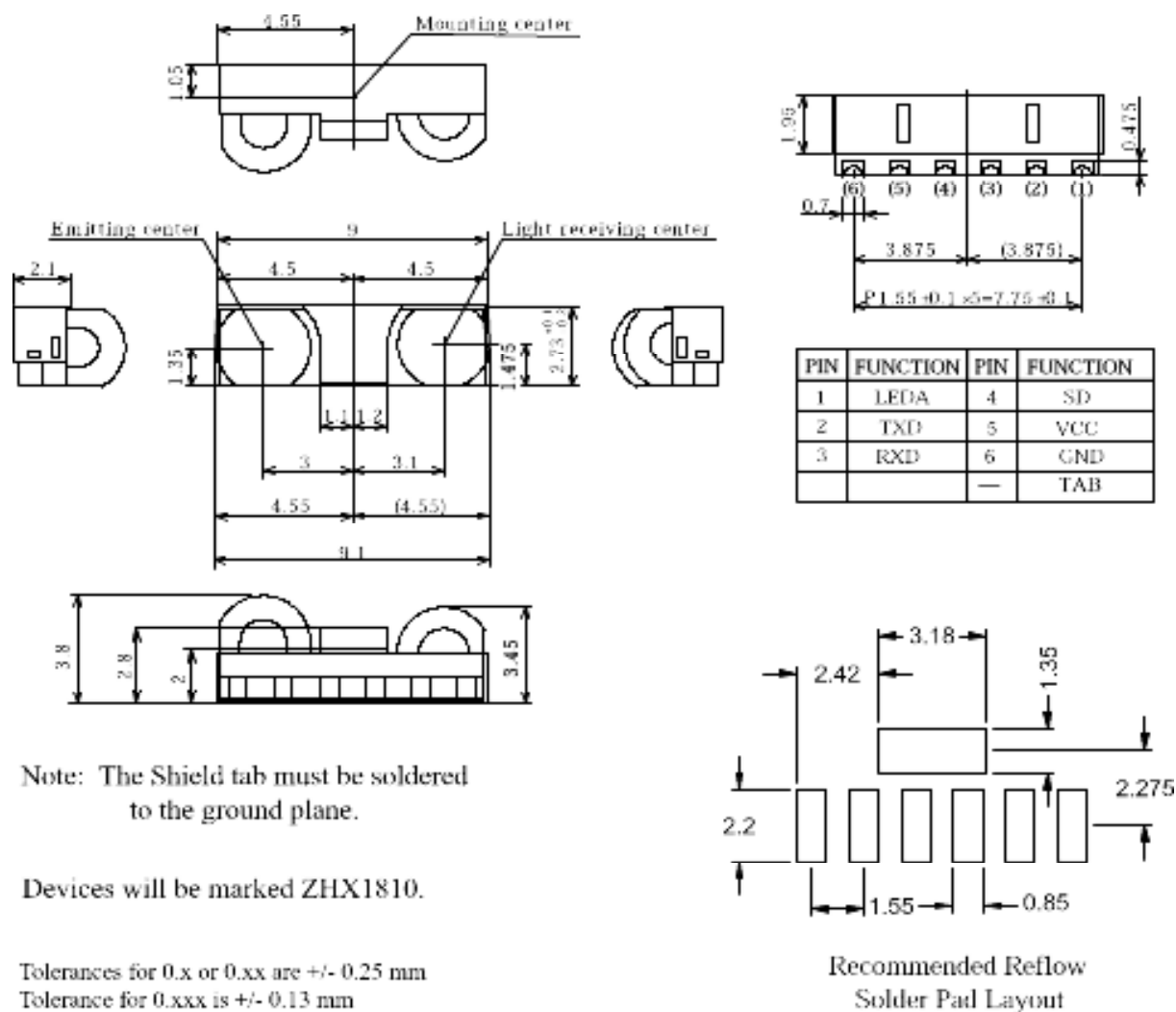
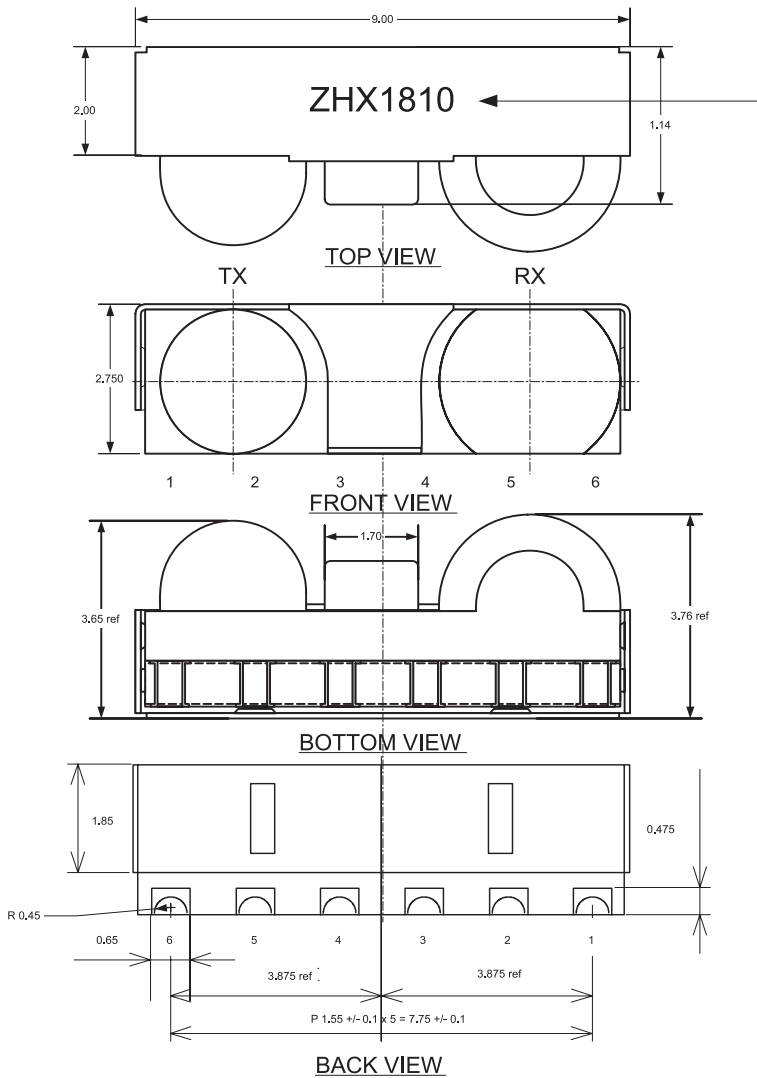


Figure 49. ZHX1810 Transceiver

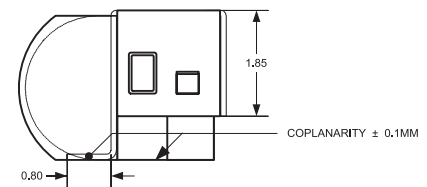
Quantity: 2000 pieces per reel



Notes:

Marking can be either embossed or using permanent black ink - Font - Arial.

SIDE VIEW



PIN	FUNCTION	PIN	FUNCTION
1	LEDA	4	SD
2	TXD	5	VCC
3	RXD	6	GND

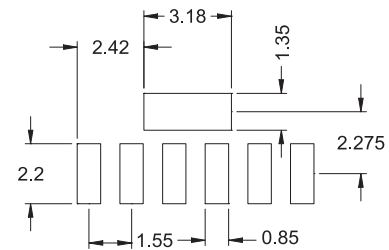


Figure 50. Alternate ZHX1810 Transceiver

Quantity: 2000 units per reel. For more information, refer to *Taping and Packing of IrDA Devices (MAC8000)*.

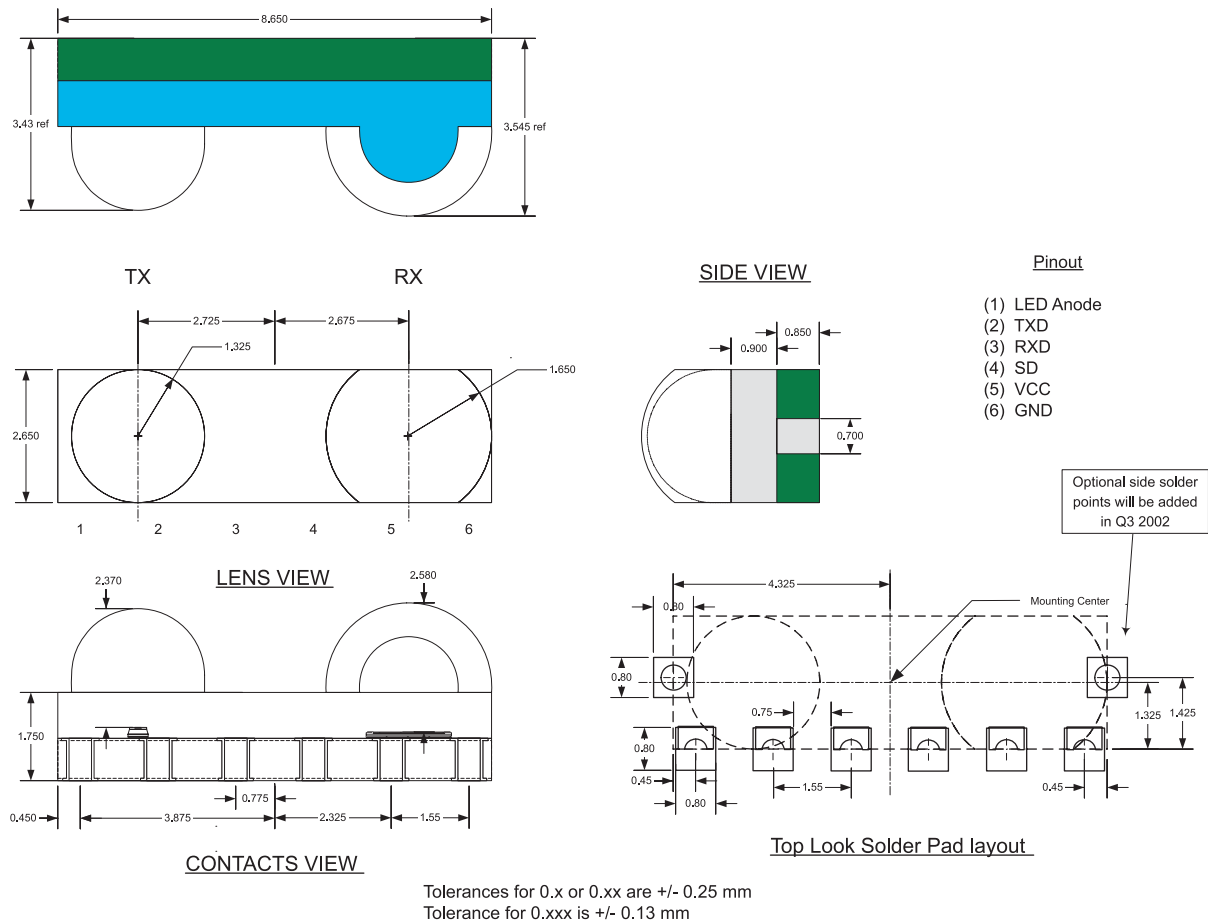
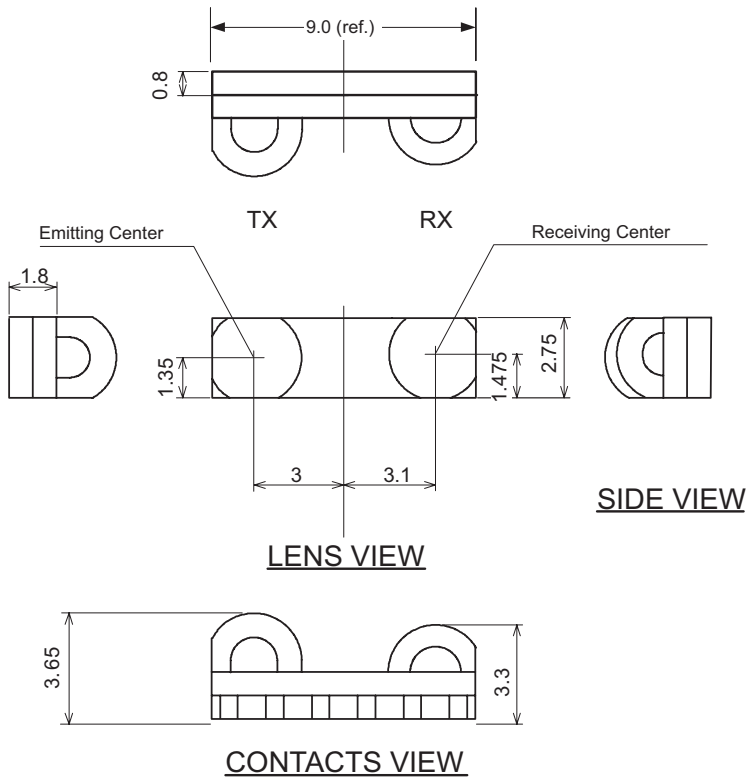
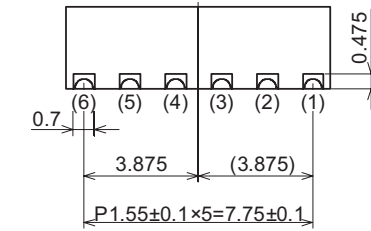


Figure 51. ZHX1820 Transceiver



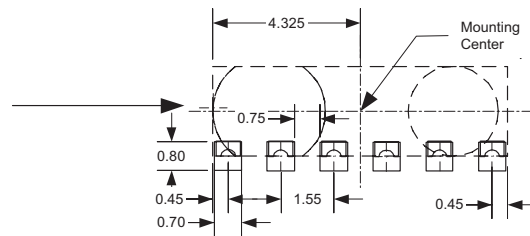
Units: mm
Tolerance: +/- 0.2

Note that this style has a larger emitter lens than receive lens



PIN	FUNCTION	PIN	FUNCTION
1	LEDA	4	SD
2	TXD	5	VCC
3	RXD	6	GND

This style does not have side solder vias



Top Look Solder Pad layout

Figure 52. Alternate ZHX1820 Transceiver

Preferred Package Migration

Zilog offers the following migration packages:

- 18-/20-lead (Figure 53)
- 28-lead (Figure 54 on page 51)
- 40-/44-/48-lead (Figure 55 on page 51)
- 100-/144-lead (Figure 56 on page 52)

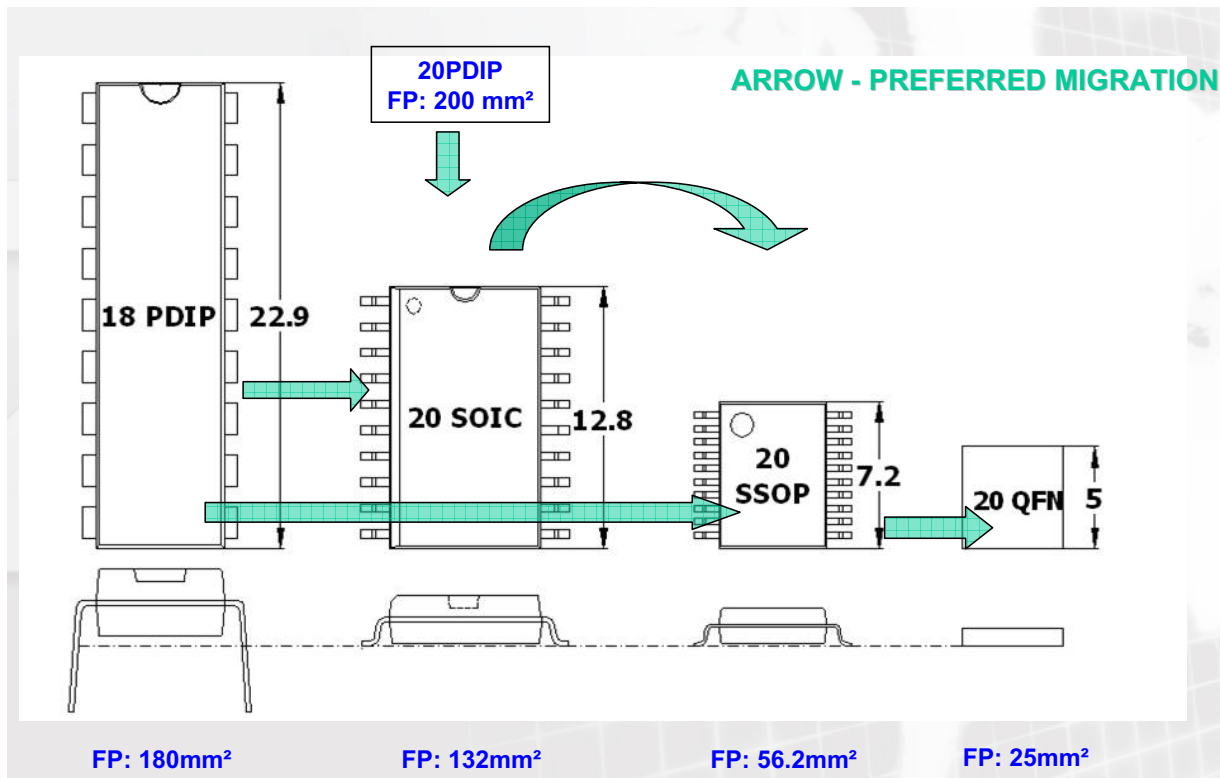


Figure 53. 18-/20-Lead Migration

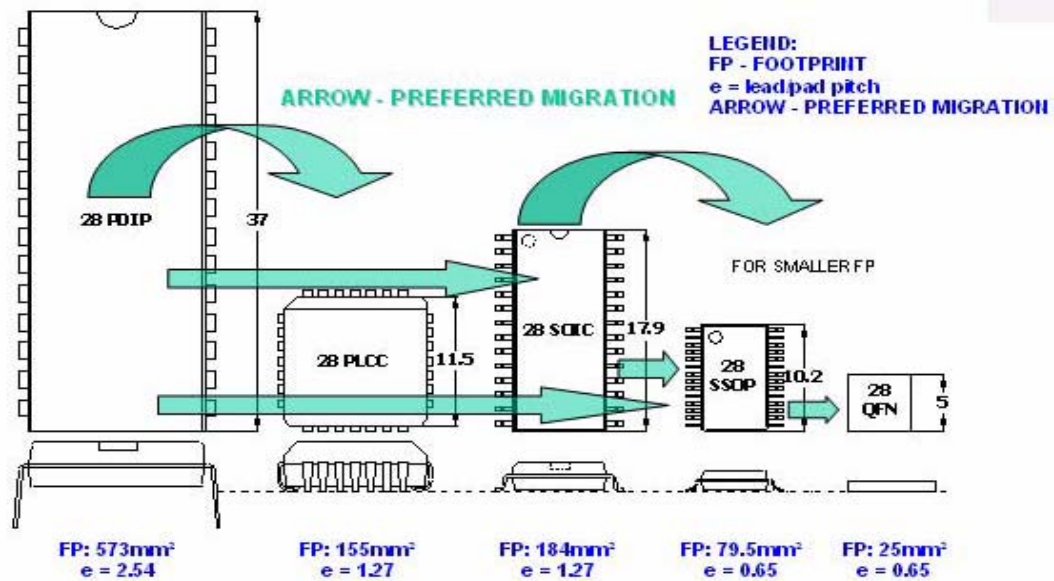


Figure 54. 28-Lead Migration

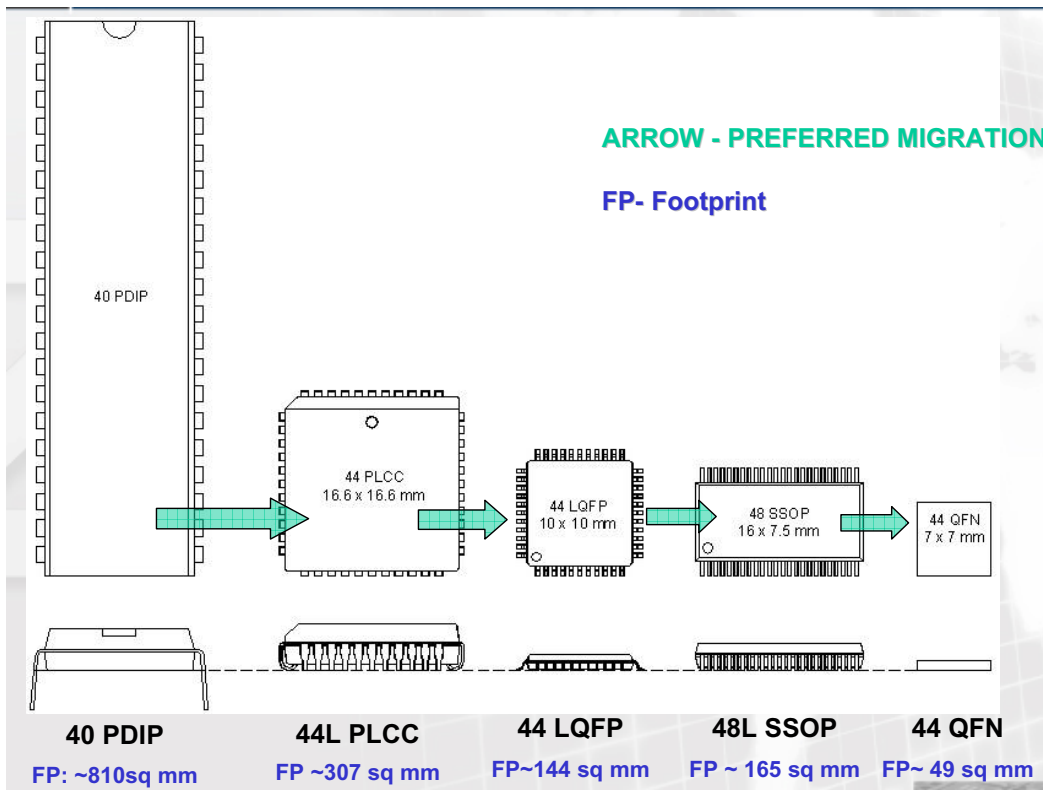


Figure 55. 40-/44-/48-Lead Migration

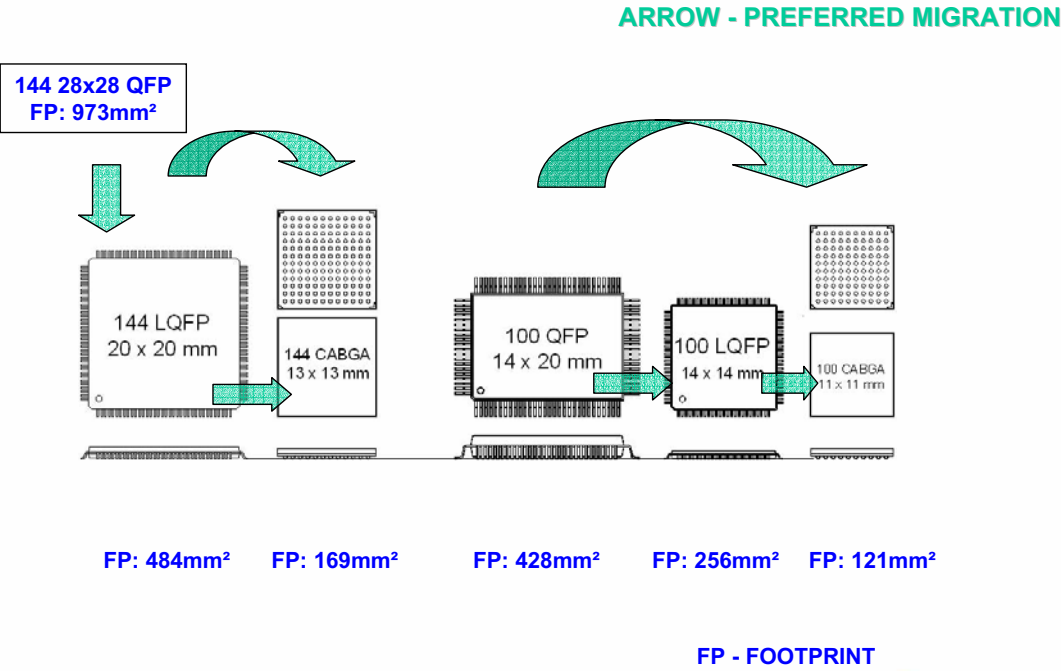


Figure 56. 100-/144-Lead Migration

Change Log

The following change notices are incorporated in this document:

Date	Control Number	Drawing Number
04/09/08	21011	MKT71C1150-00 Rev. Obs
06/15/07	20985	MKT71C1178-00 Rev. D MKT71C1156-00 Rev. I MKT71C1164-00 Rev. G MKT71C1154-00 Rev. H
06/15/07	20984	MKT71C1168-00 Rev. F MKT71C1190-00 Rev. B MKT71C1202-00 Rev. B MKT71C1182-00 Rev. D MKT71C1176-00 Rev. D MKT71C1159-00 Rev. I MKT71C1173-00 Rev. D
06/15/07	20980	MKT71C1180-00 Rev. C
02/20/07	20976	MKT71C1167-00 Rev. H
01/29/07	20972	MKT71C1000-00
12/05/06	20961	MKT71C1200-00
08/29/06	20911	MKT71C0002-00 Rev. I
08/29/06	20935	MKT71C1177-00 Rev. D
08/29/06	20923	MKT71C1200-00 Rev. B
08/29/06	20937	MKT71C1203-00 Rev. C
10/31/05	20859	MKT71C1206-00 Rev. A
10/31/05	20874	MKT71C0005-00 Rev. M
9/9/05	20856	MKT71C1203-00 Rev. B
9/9/05	20856	MKT71C1204-00 Rev. C
9/9/05	20856	MKT71C1205-00 Rev. C
9/12/05	20809	MKT71C1204-00 Rev. A
9/12/05	20809	MKT71C1205-00 Rev. A
9/12/05	20809	MKT71C1194-00 Rev. OBS
9/12/05	20809	MKT71C1199-00 Rev. OBS
2/2/05	20773	MKT71C1198-00 Rev. A

Date	Control Number	Drawing Number
2/2/05	20787	MKT71C1200-00 Rev. A MKT71C1201-00 Rev. A
2/2/05	20797	MKT71C1202-00 Rev. A
8/16/04	20720	MKT71C1194-00 Rev. A
6/9/04	20712	N/A
6/9/04	20721	MKT71C1160-00 Rev. OBS MKT71C1169-00 Rev. OBS MKT71C1174-00 Rev. OBS MKT71C1175-00 Rev. OBS MKT71C1183-00 Rev. OBS MKT71C1186-00 Rev. OBS MKT71C1188-00 Rev. OBS MKT71C1191-00 Rev. OBS
11/12/03	N/A	MKT71C1192-00 Rev. OBS MKT71C1187-00 Rev. OBS MKT71C1193-00 Rev. C
9/8/03	N/A	MKT71C0004-00 Rev. M
6/9/03	N/A	MKT71C1189-00 Rev. OBS MKT71C1193-00 Rev. B
8/23/02	N/A	MKT71C0719-00 Rev. E
5/16/02	N/A	MKT71C0006-00 Rev. H MKT71C1151-00 Rev. L
5/15/02	N/A	MKT71C1001-00 Rev. M MKT71C1153-00 Rev. N MKT71C1164-00 Rev. E MKT71C1192-00 Rev. A MKT71C1193-00 Rev. A

Date	Control Number	Drawing Number
5/14/02	N/A	MKT71C0101-00 Rev. OBS MKT71C0110-00 Rev. OBS MKT71C0115-00 Rev. OBS MKT71C0116-00 Rev. OBS MKT71C0119-00 Rev. OBS MKT71C0123-00 Rev. OBS MKT71C0124-00 Rev. OBS MKT71C0130-00 Rev. OBS MKT71C0133-00 Rev. OBS MKT71C0181-00 Rev. OBS MKT71C0183-00 Rev. OBS MKT71C0184-00 Rev. OBS MKT71C0185-00 Rev. OBS MKT71C0196-00 Rev. OBS MKT71C0199-00 Rev. OBS MKT71C0803-00 Rev. OBS MKT71C0804-00 Rev. OBS MKT71C0805-00 Rev. OBS MKT71C0806-00 Rev. OBS MKT71C0807-00 Rev. OBS
1/26/01	52951	MKT71C1187-00
1/26/01	52958	MKT71C1159-00 MKT71C1167-00 MKT71C1173-00 MKT71C1176-00 MKT71C1182-00 MKT71C1186-00
12/5/00	52855	MKT71C1191-00
10/25/00	52592	MKT71C1187-00
10/25/00	52667	MKT71C1153-00
8/24/00	51671	MKT71C1188-00
8/24/00	51989	MKT71C1190-00
8/24/00	51672	MKT71C1189-00
8/23/00	19026	MKT71C0002-00
8/23/00	16970	MKT71C1172-00
8/22/00	51015	MKT71C1177-00

Customer Support

For answers to technical questions about the product, documentation, or any other issues with Zilog's offerings, please visit Zilog's Knowledge Base at <http://www.zilog.com/kb>.

For any comments, detail technical questions, or reporting problems, please visit Zilog's Technical Support at <http://support.zilog.com>.