

Each Atmel datasheet includes an Ordering Information section which specifies the package types available. This section provides size specifications and outlines for all package types.⁽¹⁾

| Package | Description | See Page |
|---------|--|----------|
| 32A | 32-lead, Low-profile (1.4 mm) Plastic Quad Flat Package (LQFP) | 5 |
| 44A | 44-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP) | 5 |
| 48A | 48-lead, Low-profile (1.4 mm) Plastic Quad Flat Package (LQFP) | 5 |
| 64A | 64-lead Thin (1.0 mm) Plastic Quad Flat Package (TQFP) | 5 |
| 100A | 100-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP) | 6 |
| 144A | 144-lead, Low-profile (1.4 mm) Plastic Quad Flat Package (LQFP) | 6 |
| 32B | 32-lead, 0.600" Wide, Ceramic Side Braze Dual Inline (Side Braze) | 6 |
| 40B | 40-lead, 0.600" Wide, Ceramic Side Braze Dual Inline (Side Braze) | 6 |
| 352B | 352-ball Ball Grid Array (BGA) | 7 |
| 432B | 432-ball Ball Grid Array (BGA) | 7 |
| 8C | 8-lead, 0.230" Wide, Leadless Array Package (LAP) | 7 |
| 8C1 | 8-lead, 0.300" Wide, Leadless Array Package (LAP) | 7 |
| 14C1 | 14-ball, Plastic Chip-scale Ball Grid Array (CBGA) | 8 |
| 24C1 | 24-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 8 |
| 24C2 | 24-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 8 |
| 24C3 | 24-ball, Plastic Chip-scale Ball Grid Array (CBGA) | 8 |
| 42C1 | 42-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 9 |
| 42C2 | 42-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 9 |
| 44C1 | 44-ball, Plastic Chip-scale Ball Grid Array (CBGA) | 9 |
| 48C1 | 48-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 9 |
| 48C2 | 48-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 10 |
| 48C3 | 48-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 10 |
| 72C1 | 72-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 10 |
| 120C1 | 120-ball, Plastic Chip-scale Ball Grid Array Package (CBGA) | 10 |
| 16D3 | 16-lead, 0.300" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 11 |
| 20D3 | 20-lead, 0.300" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 11 |

Note: 1. Dimensions shown do not include lead plating or mold flash.



Standard Package Outlines





| Package | Description | See Page |
|----------------|--|-----------------|
| 24D3 | 24-lead, 0.300" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 11 |
| 24D6 | 24-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 11 |
| 28D6 | 28-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 12 |
| 32D6 | 32-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 12 |
| 40D6 | 40-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip) | 12 |
| 24DW3 | 24-lead, 0.300" Wide, WIndowed, Ceramic Dual Inline Package (Cerdip) | 12 |
| 24DW6 | 24-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) | 13 |
| 28DW6 | 28-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) | 13 |
| 32DW6 | 32-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) | 13 |
| 40DW6 | 40-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) | 13 |
| 42DW6 | 42-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip) | 14 |
| 28F | 28-lead, Non-windowed, Ceramic Bottom-brazed Flat Package (Flatpack) | 14 |
| 32F | 32-lead, Non-wIndowed, Ceramic Bottom-brazed Flat Package (Flatpack) | 14 |
| 20J | 20-lead, Plastic J-leaded Chip Carrier (PLCC) | 14 |
| 28J | 28-lead, Plastic J-leaded Chip Carrier (PLCC) | 15 |
| 32J | 32-lead, Plastic J-leaded Chip Carrier (PLCC) | 15 |
| 44J | 44-lead, Plastic J-leaded Chip Carrier (PLCC) | 15 |
| 68J | 68-lead, Plastic J-leaded Chip Carrier (PLCC) | 15 |
| 84J | 84-lead, Plastic J-leaded Chip Carrier (PLCC) | 16 |
| 32K | 32-lead, Non-windowed, Ceramic J-leaded Chip Carrier (JLCC) | 16 |
| 44K | 44-lead, Non-windowed, Ceramic J-leaded Chip Carrier (JLCC) | 16 |
| 28KW | 28-lead, Windowed, Ceramic J-leaded Chip Carrier (JLCC) | 16 |
| 32KW | 32-lead, Windowed, Ceramic J-leaded Chip Carrier (JLCC) | 17 |
| 44KW | 44-lead, Windowed, Ceramic J-leaded Chip Carrier (JLCC) | 17 |
| 68KW | 68-lead, Windowed, Ceramic J-leaded Chip Carrier (JLCC) | 17 |
| 20L | 20-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC) | 17 |
| 28L | 28-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC) | 18 |
| 32L | 32-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC) | 18 |
| 44L | 44-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC) | 18 |
| 28LW | 28-pad, Windowed, Ceramic Leadless Chip Carrier (LCC) | 18 |
| 32LW | 32-pad, Windowed, Ceramic Leadless Chip Carrier (LCC) | 19 |
| 44LW | 44-pad, Windowed, Ceramic Leadless Chip Carrier (LCC) | 19 |
| 8M | 8-lead, 0.118" Wide, Miniature Small Outline (MSOP) | 19 |
| 48M1 | 48-ball, Micro Ball Grid Array Package (μ BGA) | 19 |
| 8P3 | 8-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP) | 20 |



| Package | Description | See Page |
|---------|--|----------|
| 16P3 | 16-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP) | 20 |
| 20P3 | 20-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP) | 20 |
| 24P3 | 24-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP) | 20 |
| 28P3 | 28-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP) | 21 |
| 24P6 | 24-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP) | 21 |
| 28P6 | 28-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP) | 21 |
| 32P6 | 32-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP) | 21 |
| 40P6 | 40-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP) | 22 |
| 42P6 | 42-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP) | 22 |
| 44Q | 44-lead, Plastic Gull Wing Quad Flat Package (PQFP) | 22 |
| 100Q | 100-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP) | 22 |
| 132Q | 132-lead, Bumpered Plastic Gull Wing Quad Flat Package (BQFP) | 23 |
| 136Q | 136-lead, Plastic Gull Wing Quad Flat Package (PQFP) | 23 |
| 144Q | 144-lead, Plastic Gull Wing Quad Flat Package (PQFP) | 23 |
| 160Q | 160-lead, Plastic Gull Wing Quad Flat Package (PQFP) | 23 |
| 208Q | 208-lead, Plastic Gull Wing Quad Flat Package (PQFP) | 24 |
| 240Q | 240-lead, Plastic Gull Wing Quad Flat Package (PQFP) | 24 |
| 100Q1 | 100-lead Plastic Quad Flat Package (PQFP) | 24 |
| 100Q2 | 100-lead Plastic Quad Flat Package (PQFP) | 24 |
| 304Q | 304Q, 304-lead, Plastic Gull Wing Quad Flat Pack (PQFP) | 25 |
| 28R | 28-lead, 0.330" Wide, Plastic Gull Wing Small Outline (SOIC) | 25 |
| 32R | 32-lead, 0.440" Wide, Plastic Gull Wing Small Outline (SOIC) | 25 |
| 40R | 40-lead, 0.440" Wide, Plastic Gull Wing Small Outline (SOIC) | 25 |
| 44R | 44-lead, 0.525" Wide, Plastic Gull Wing Small Outline (SOIC) | 26 |
| 100RQ | 100-lead, Rectangular Plastic Gull Wing Quad Flat Pack (RQFP) | 26 |
| 14S | 14-lead, 0.150" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC) | 26 |
| 16S | 16-lead, 0.300" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC) | 26 |
| 16S1 | 16-lead, 0.150" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC) | 27 |
| 16S2 | 16-lead, 0.300" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC) | 27 |
| 20S | 20-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC) | 27 |
| 24S | 24-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC) | 27 |
| 28S | 28-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC) | 28 |
| 8S1 | 8-lead, 0.150" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC) | 28 |
| 8S2 | 8-lead, 0.210" Wide, Plastic Gull Wing Small Outline (EIAJ SOIC) | 28 |

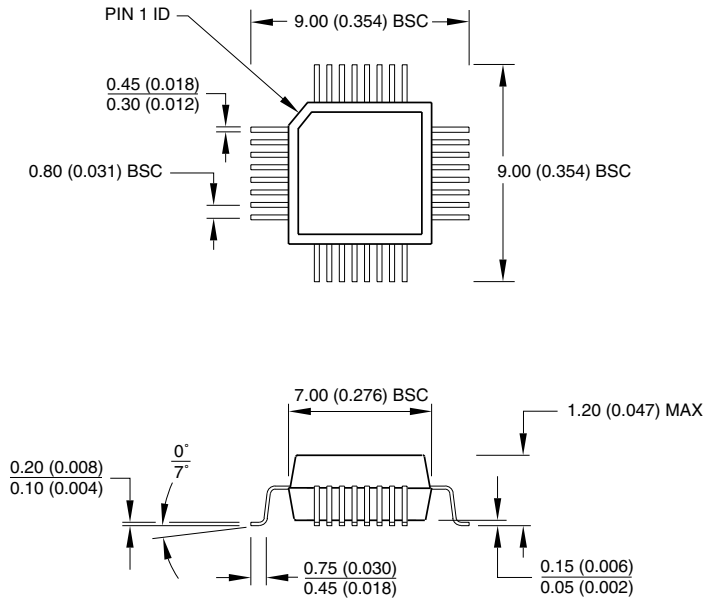


| Package | Description | See Page |
|----------------|---|-----------------|
| 8T | 8-lead, Plastic Thin Shrink Small Outline Package (TSSOP) | 28 |
| 14T | 14-lead, 0.170" Wide, Thin Shrink Small Outline Package (TSSOP) | 29 |
| 20T | 20-lead, 0.170" Wide, Thin Shrink Small Outline Package (TSSOP) | 29 |
| 28T | 28-lead, Plastic Thin Small Outline Package (TSOP) | 29 |
| 32T | 32-lead, Plastic Thin Small Outline Package (TSOP) | 29 |
| 40T | 40-lead, Plastic Thin Small Outline Package (TSOP) | 30 |
| 48T | 48-lead, Plastic Thin Small Outline Package (TSOP) | 30 |
| 86T | 86-lead, Plastic Thin Small Outline Package (TSOP) | 30 |
| 28U | 28-pin, Ceramic Pin Grid Array (PGA) | 30 |
| 30U | 30-pin, Ceramic Pin Grid Array (PGA) | 31 |
| 48U | 48-ball, Micro Ball Grid Array Package (μ BGA) | 31 |
| 180U | 180-pin, Ceramic Pin Grid Array (PGA) | 31 |
| 68UW | 68-pin, Ceramic Pin Grid Array (PGA) | 31 |
| 32V | 32-lead, Plastic Thin Small Outline Package (VSOP) | 32 |
| 40V | 40-lead, Plastic Thin Small Outline Package (VSOP) | 32 |
| 20X | 20-lead, 4.4 mm Wide, Plastic Thin Shrink Small Outline (TSSOP) | 32 |
| 24X | 24-lead, 4.4 mm Wide, Plastic Thin Shrink Small Outline (TSSOP) | 32 |
| 20Y | 20-lead, 5.3 mm Wide, Plastic Shrink Small Outline (SSOP) | 33 |



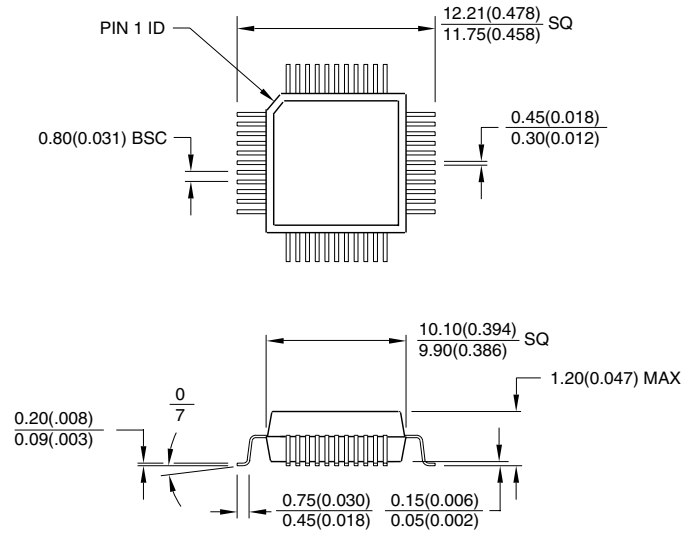
Packaging Information

32A, 32-lead, Low-profile (1.4 mm) Plastic Quad Flat Package (LQFP)
 Dimensions in Millimeters and (Inches)*
 JEDEC STANDARD MS-026 ACB



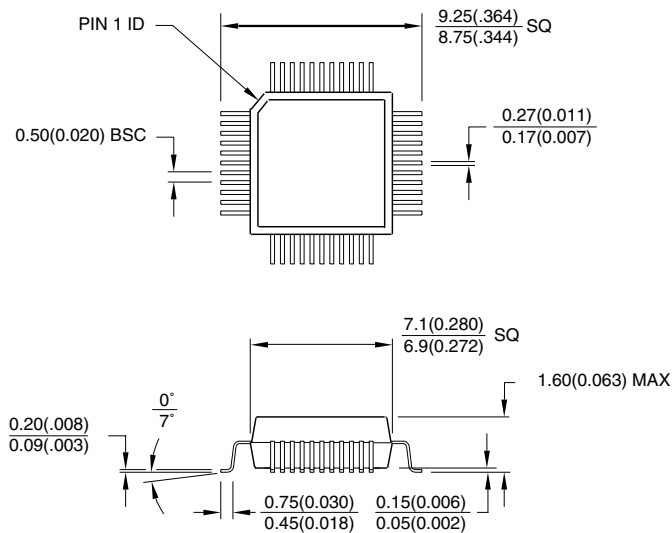
*Controlling dimensions: millimeters

44A, 44-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP)
 Dimensions in Millimeters and (Inches)*
 JEDEC STANDARD MS-026 ACB



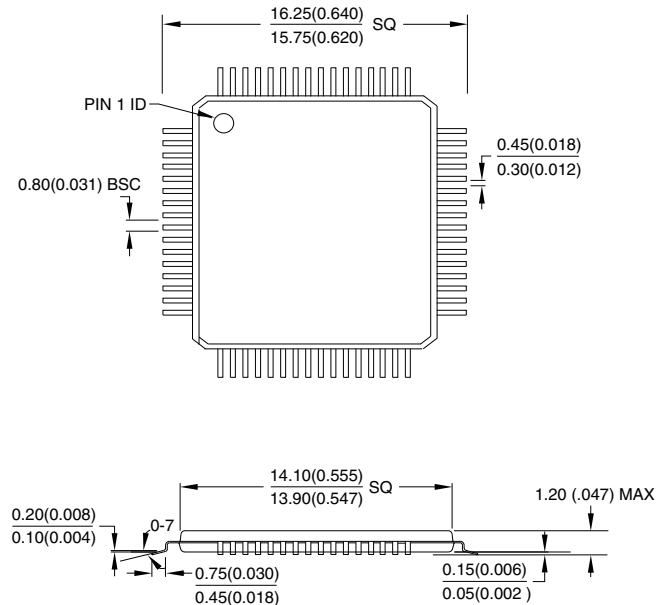
*Controlling dimension: millimeters

48A, 48-lead, Low-profile (1.4 mm) Plastic Quad Flat Package (LQFP)
 Dimensions in Millimeters and (Inches)*
 JEDEC STANDARD MS-026 ACB



*Controlling dimension: millimeters

64A, 64-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP)
 Dimensions in Millimeters and (Inches)*
 JEDEC STANDARD MS-026 AEB

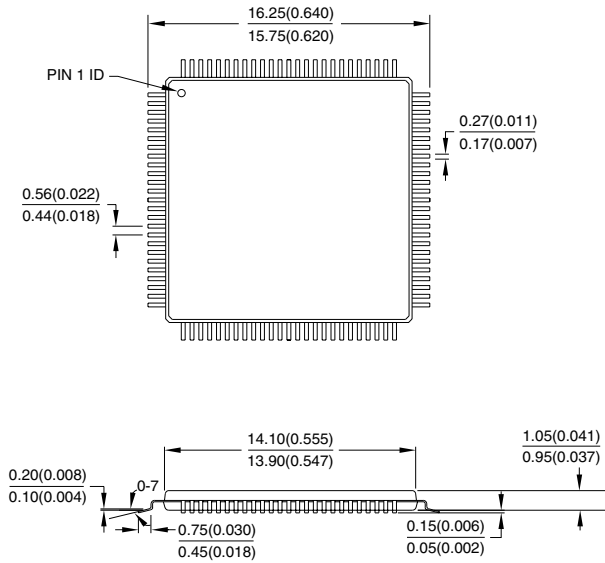


*Controlling dimension: millimeters

Packaging Information

100A, 100-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP)

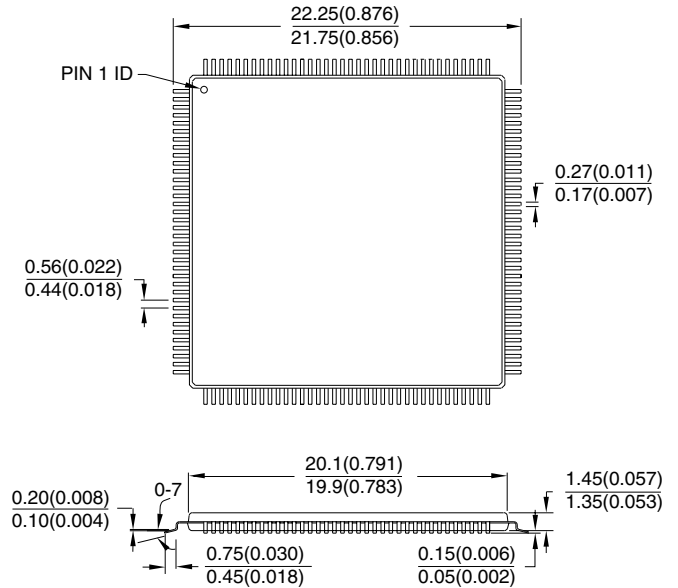
Dimensions in Millimeters and (Inches)*
JEDEC STANDARD MS-026 AED



*Controlling dimension: millimeters

144A, 144-lead, Low-profile (1.4 mm) Plastic Quad Flat Package (LQFP)

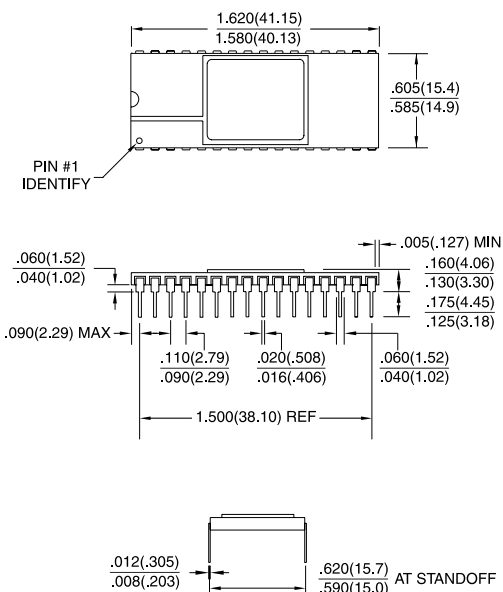
Dimensions in Millimeters and (Inches)*
JEDEC STANDARD MS-026 BFB



*Controlling dimension: millimeters

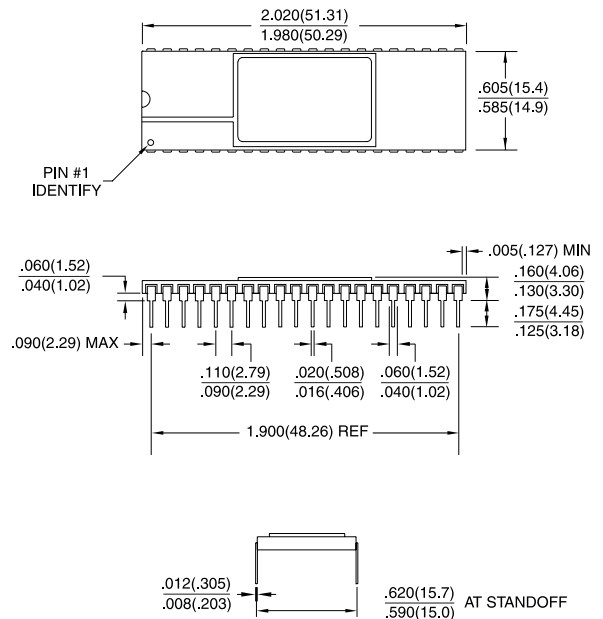
32B, 32-lead, 0.600" Wide, Ceramic Side Braze Dual Inline (Side Braze)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 D-16 CONFIG C



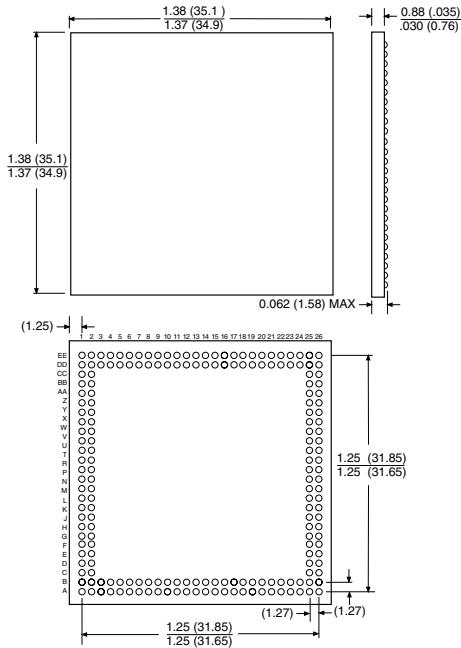
40B, 40-lead, 0.600" Wide, Ceramic Side Braze Dual Inline (Side Braze)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 D-5 CONFIG C

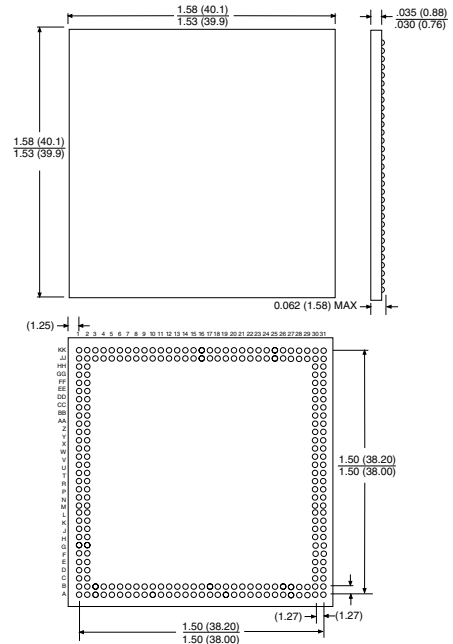


Packaging Information

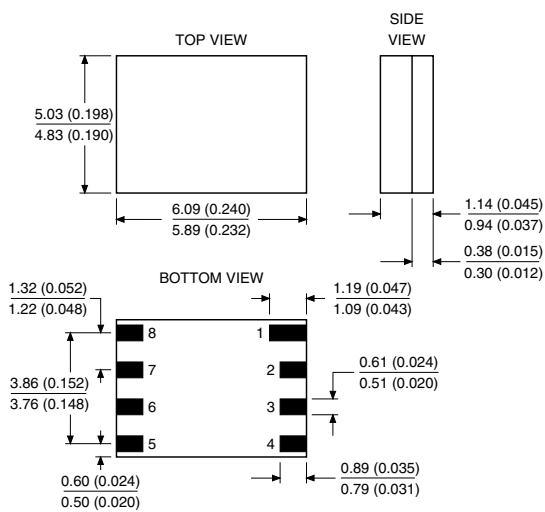
352B, 352-ball Ball Grid Array (BGA)
Dimensions in (Millimeters) and Inches



432B, 432-ball Ball Grid Array (BGA)
Dimensions in (Millimeters) and Inches

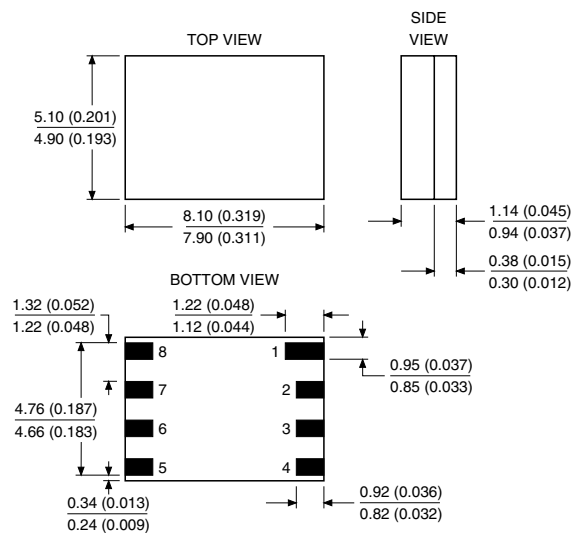


8C, 8-lead, 0.230" Wide, Leadless Array Package (LAP)
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

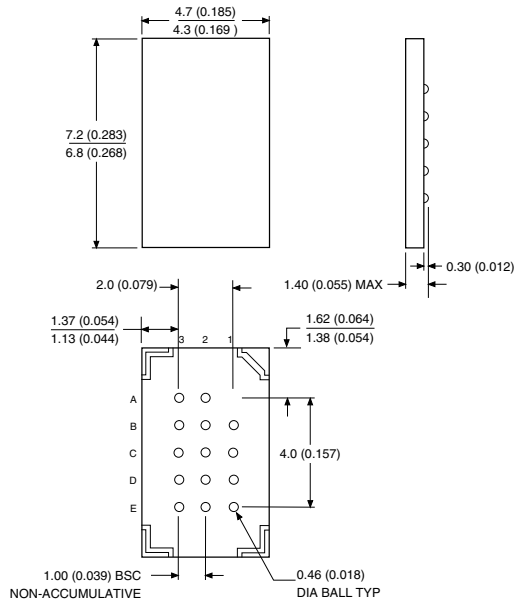
8C1, 8-lead 0.300" Wide, Leadless Array Package (LAP)
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

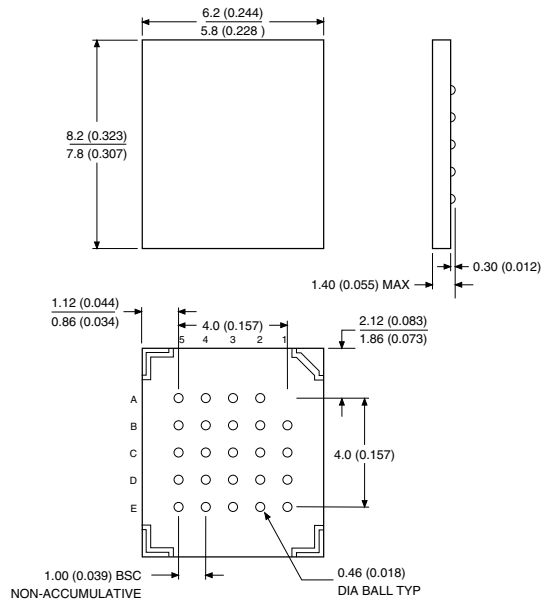
Packaging Information

14C1, 14-ball (3 x 5 array) 1.0 mm Pitch,
4.5 x 7.0 mm Plastic Chip-scale Ball Grid
Array (CBGA)
Dimensions in Millimeters and (Inches)*



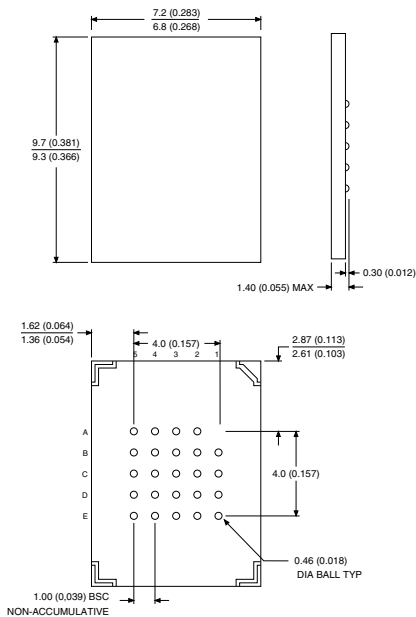
* Controlling dimension: millimeters

24C1, 24-ball (5 x 5 Array), 1.0 mm Pitch, 8 x 6 mm
Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



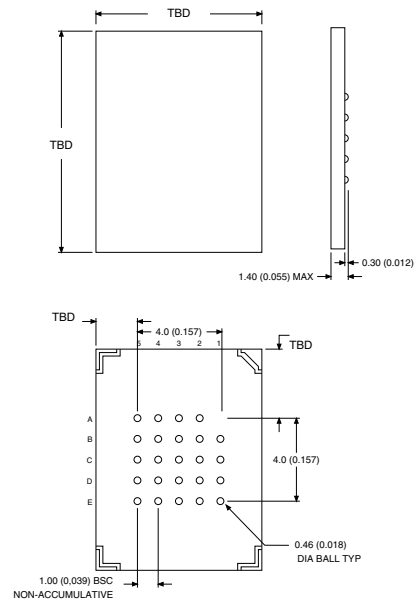
* Controlling dimension: millimeters

24C2, 24-ball (5 x 5 Array), 1.0 mm Pitch, 7 x 9.5 mm
Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

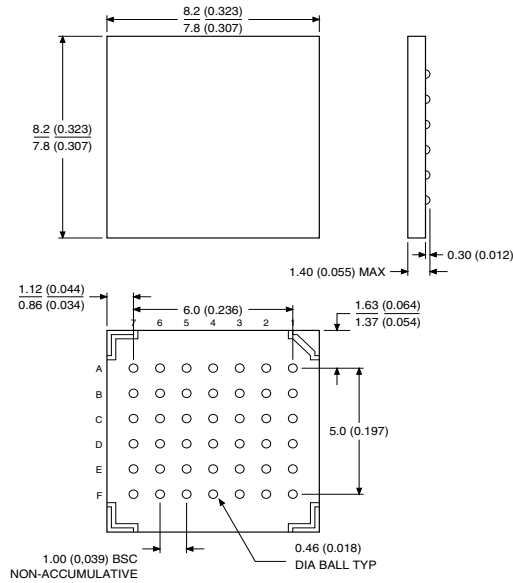
24C3, 24-Ball (5 x 5 array), 1.0 mm Pitch,
Plastic Chip-scale Ball Grid Array (CBGA)
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

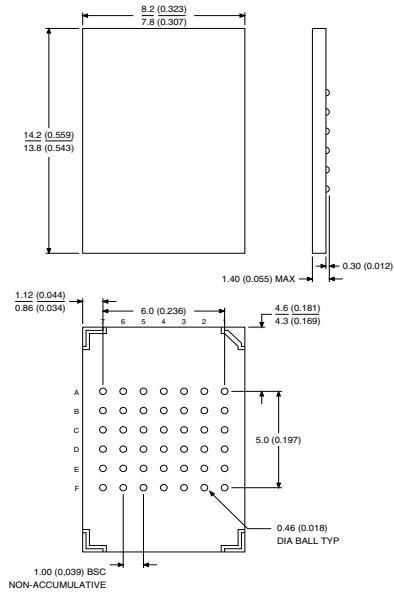
Packaging Information

42C1, 42-ball (7 x 6 Array), 1.0 mm Pitch, 8 x 8 mm Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



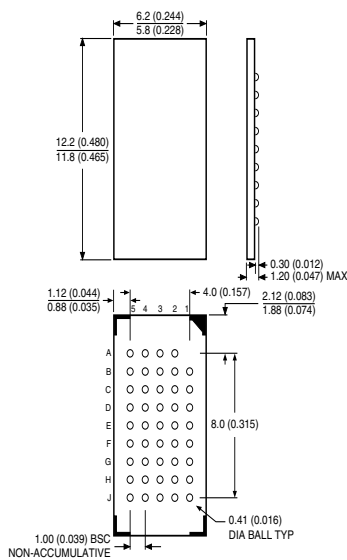
*Controlling dimension: millimeters

42C2, 42-ball (7 x 6 Array), 1.0 mm Pitch, 8 x 14 mm Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



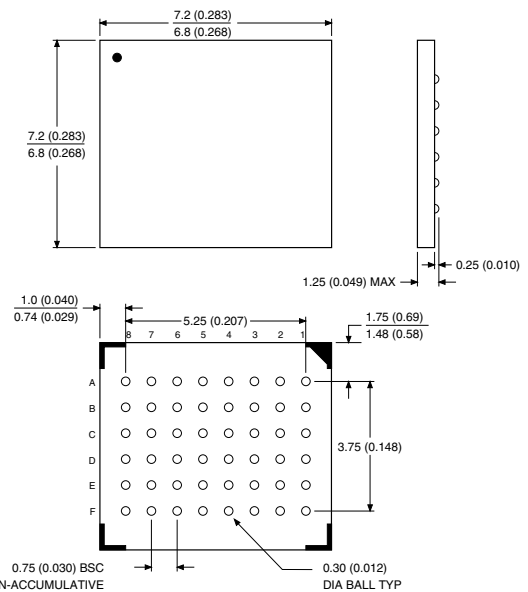
*Controlling dimension: millimeters

44C1, 44-ball (5 x 9 array), 1.0 mm Pitch, Plastic Chip-scale Ball Grid Array (CBGA)
Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

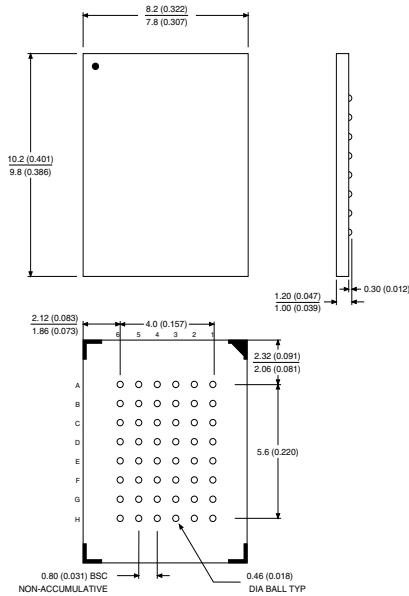
48C1, 48-ball (8 x 6 Array), 0.75 mm Pitch, 7 x 7 mm Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

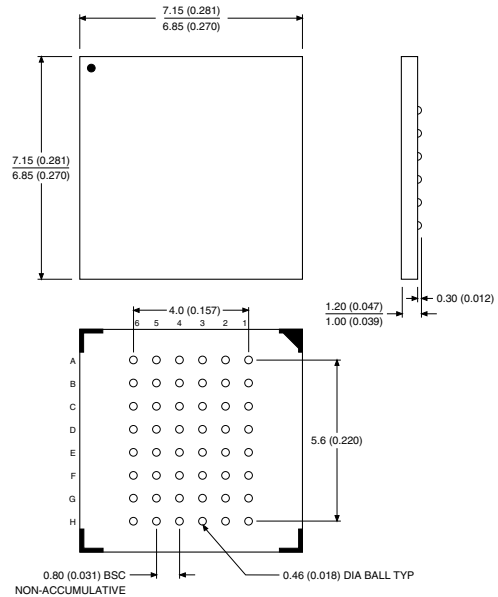
Packaging Information

48C2, 48-ball (6 x 8 Array), 0.80 mm Pitch, 8 x 10 mm Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



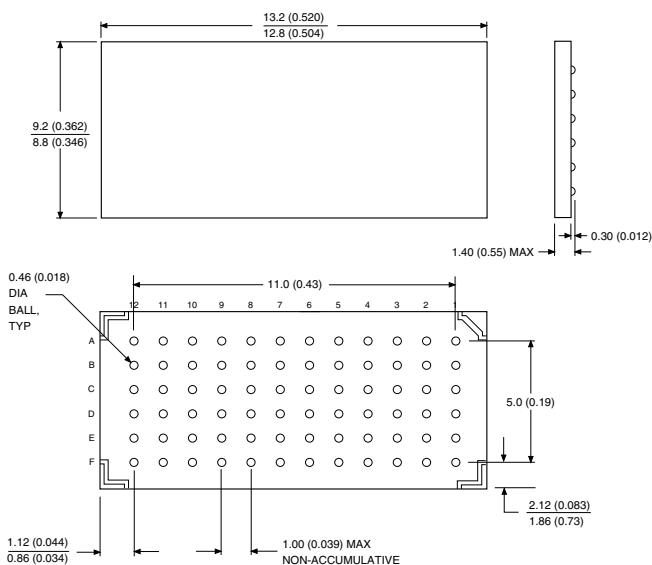
*Controlling dimension: millimeters

48C3, 48-ball (6 x 8 Array), 0.80 mm Pitch, 7 x 7 mm Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



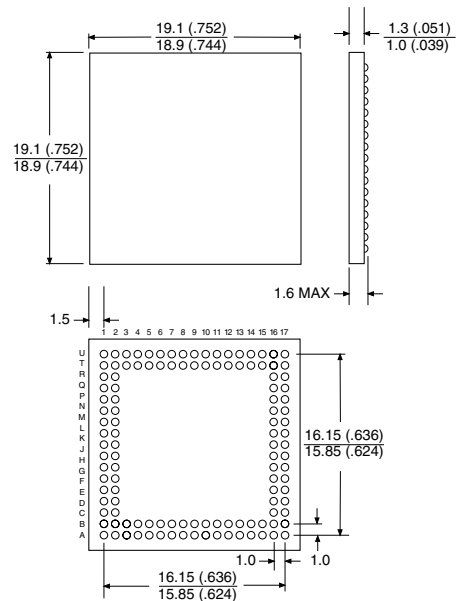
*Controlling dimension: millimeters

72C1, 72-ball (12 x 6 Array), 1.0 mm Pitch, 13 x 9 mm Plastic Chip-scale Ball Grid Array Package (CBGA)
Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

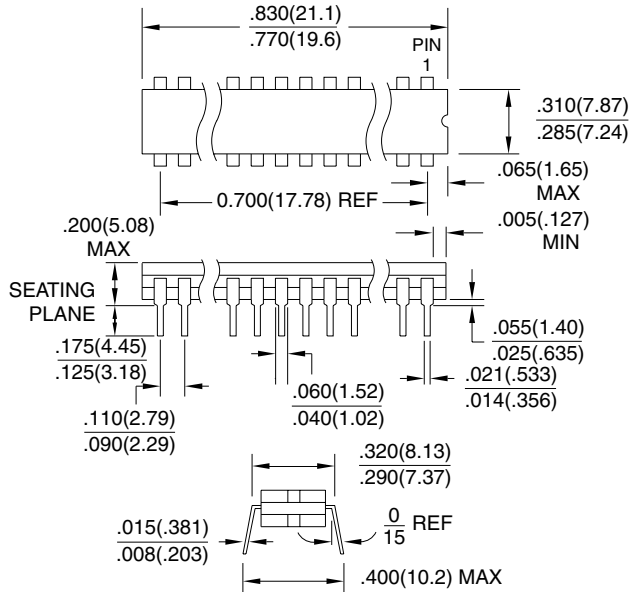
120C1, 120-ball (17 x 17 Array), 1.0 Pitch, 19 x 19 mm Ceramic Multi-die Ball Grid Array Package (CerMBGA)
Dimensions in Millimeters and (Inches)*



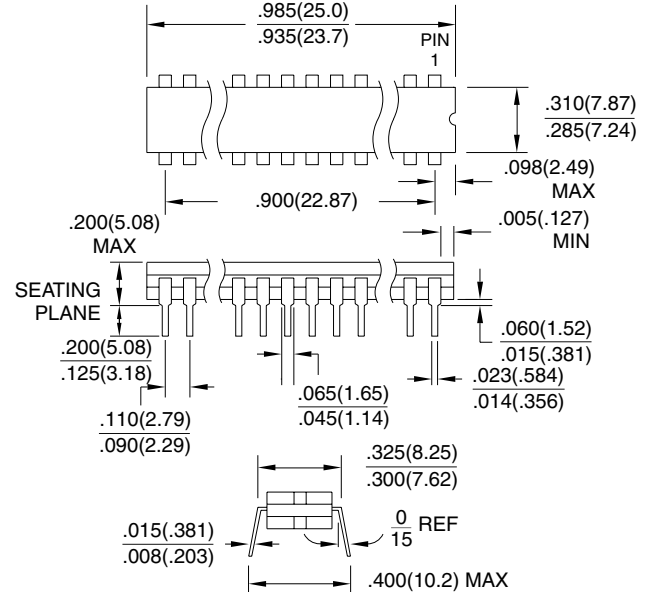
*Controlling dimension: millimeters

Packaging Information

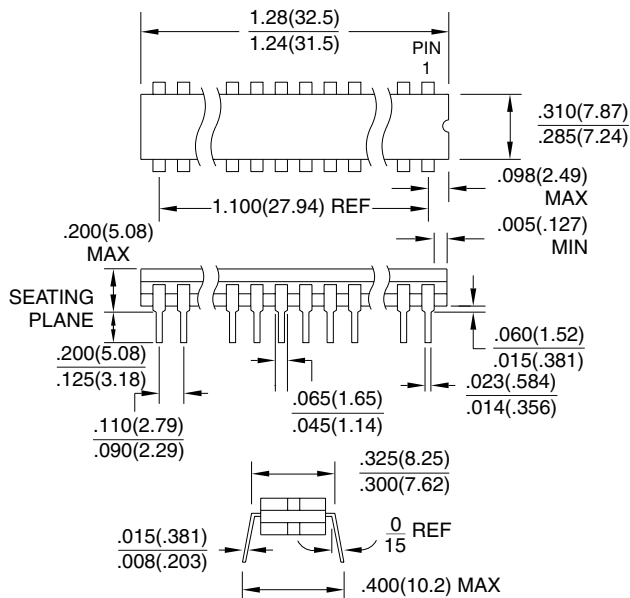
16D3, 16-lead, 0.300" Wide, Non-windowed,
Ceramic Dual Inline Package (Cerdip)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 D-2 CONFIG A



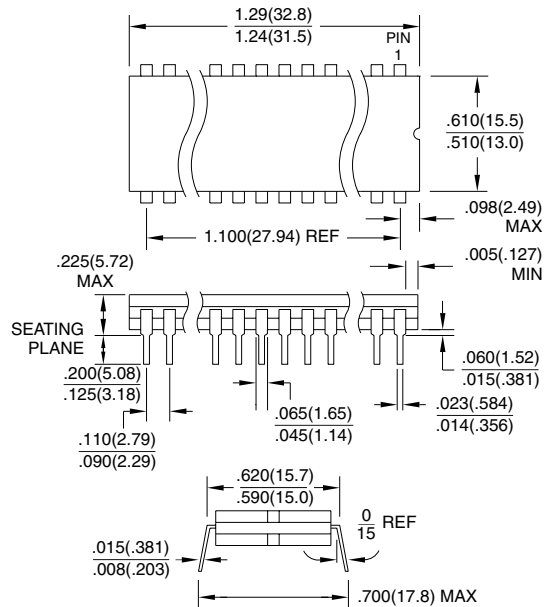
20D3, 20-lead, 0.300" Wide, Non-windowed,
Ceramic Dual Inline Package (Cerdip)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 D-8 CONFIG A



24D3, 24-lead, 0.300" Wide, Non-windowed,
Ceramic Dual Inline Package (Cerdip)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 D-9 CONFIG A

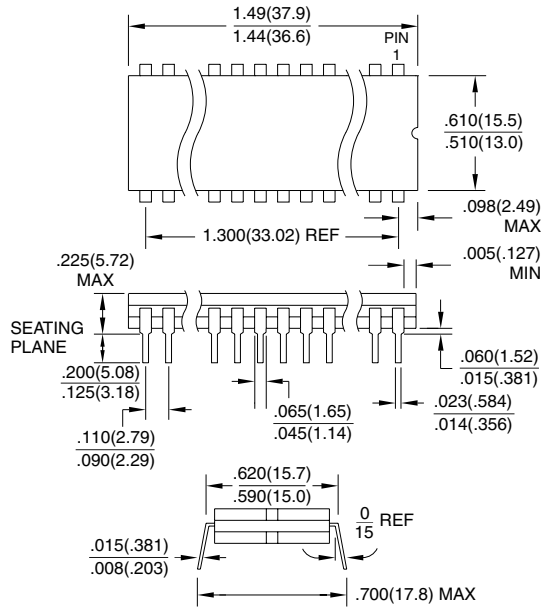


24D6, 24-lead, 0.600" Wide, Non-windowed,
Ceramic Dual Inline Package (Cerdip)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 D-3 CONFIG A

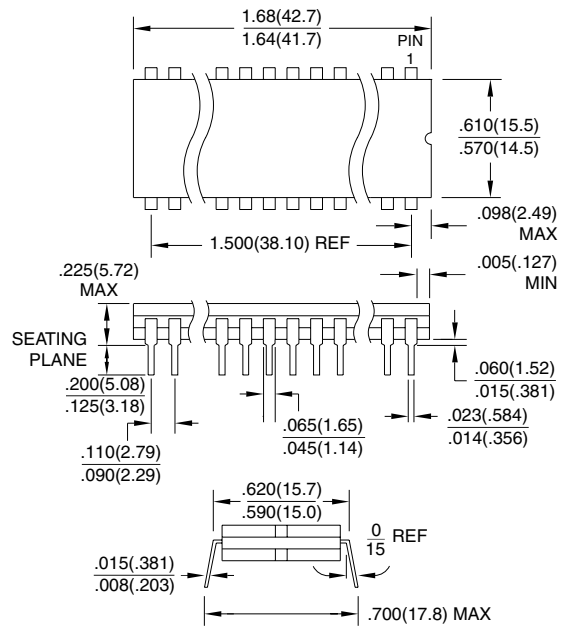


Packaging Information

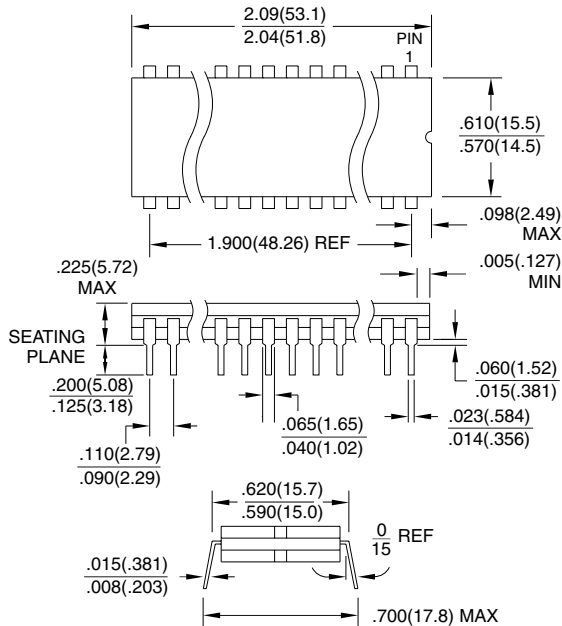
28D6, 28-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-10 CONFIG A



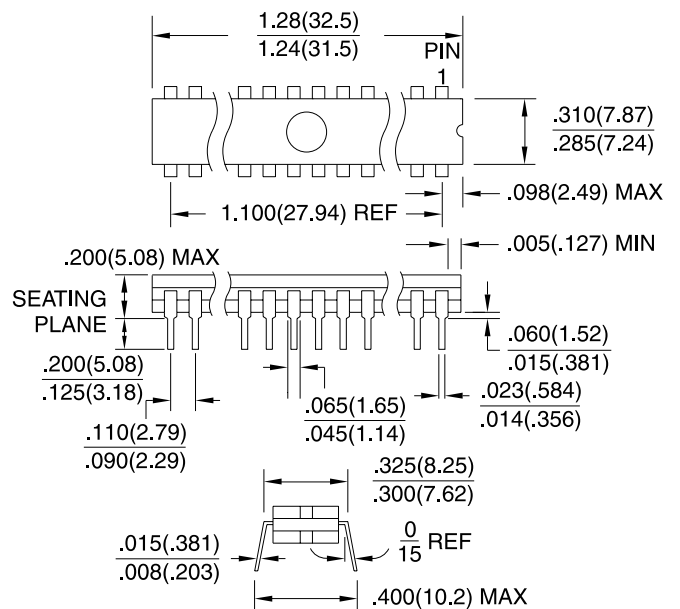
32D6, 32-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-16 CONFIG A



40D6, 40-lead, 0.600" Wide, Non-windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-5 CONFIG A

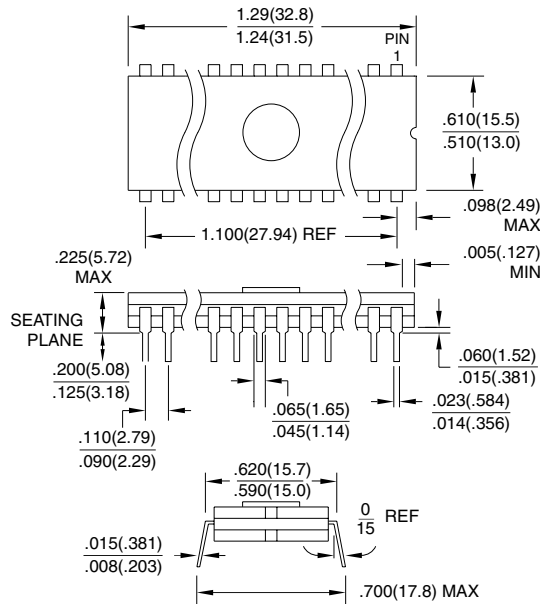


24DW3, 24-lead, 0.300" Wide, Windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-9 CONFIG A

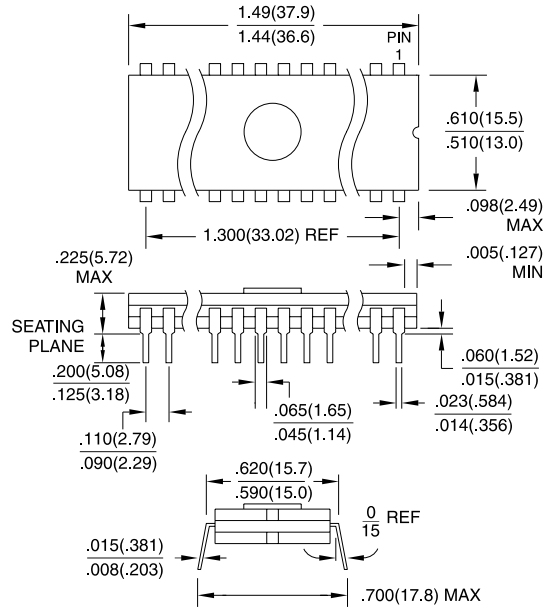


Packaging Information

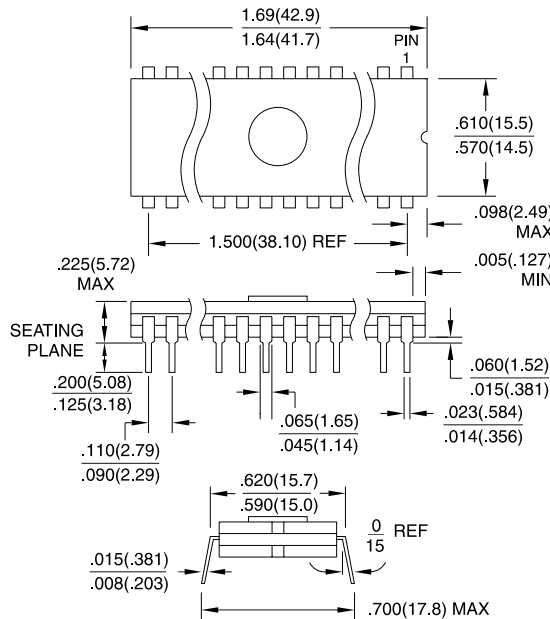
24DW6, 24-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-3 CONFIG A



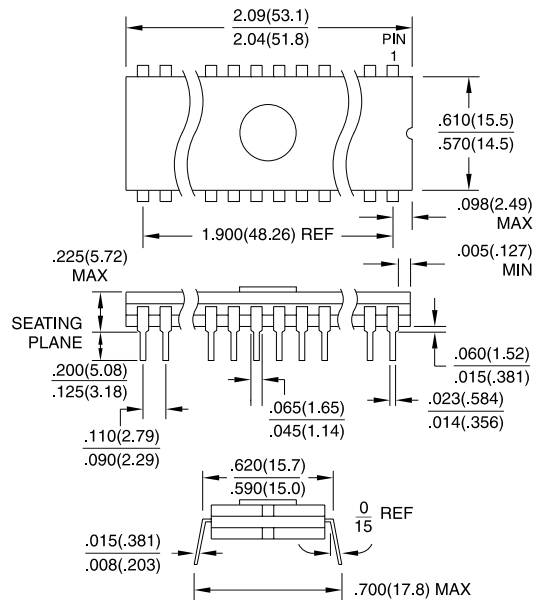
28DW6, 28-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-10 CONFIG A



32DW6, 32-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-16 CONFIG A

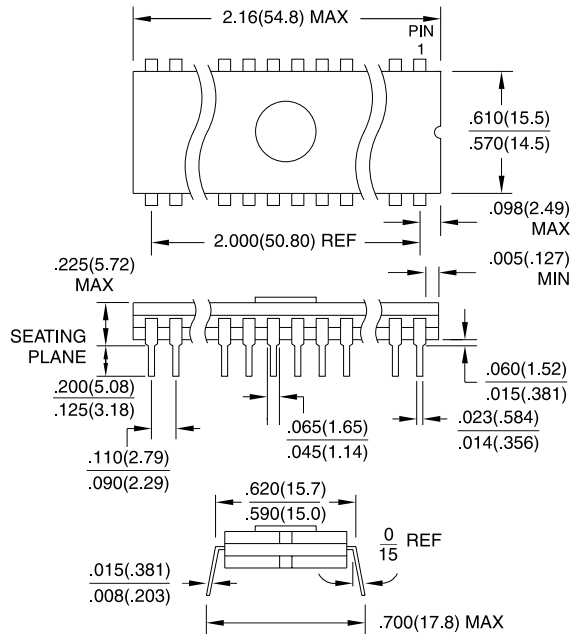


40DW6, 40-lead, 0.600" Wide, Windowed, Ceramic Dual Inline Package (Cerdip)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 D-5 CONFIG A

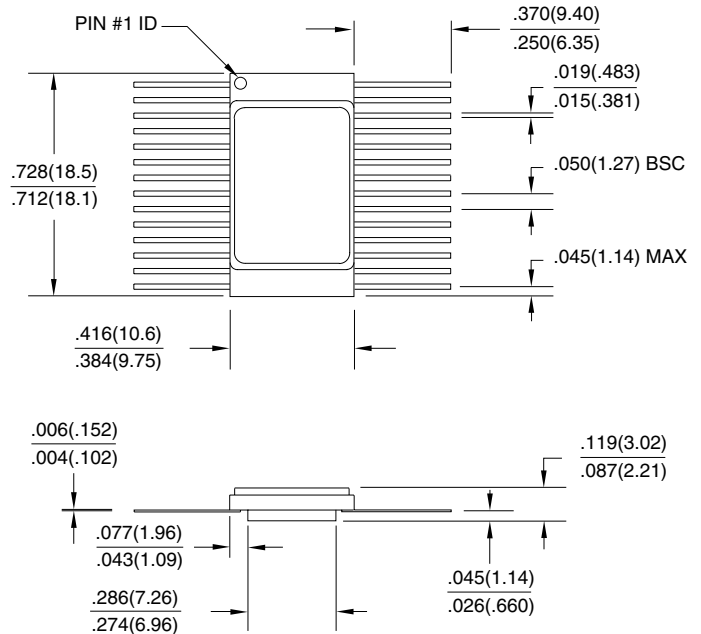


Packaging Information

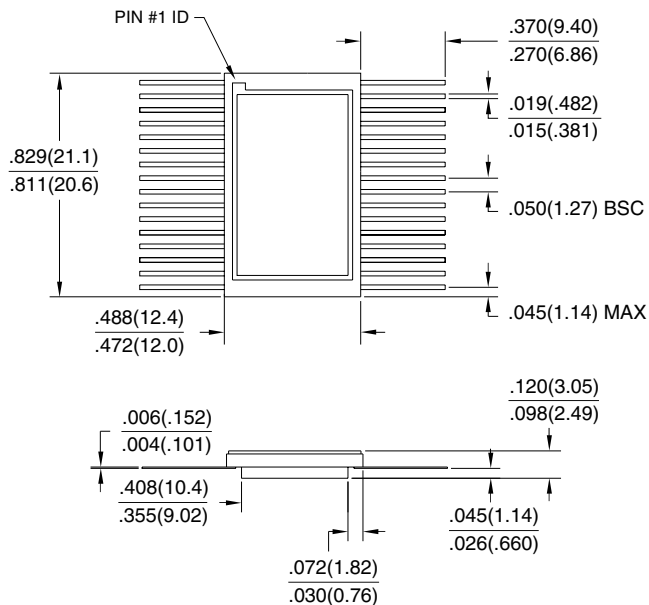
42DW6, 42-lead, 0.600" Wide, Windowed, Ceramic Dual In-line Package (Cerdip)
 Dimensions in Inches and (Millimeters)



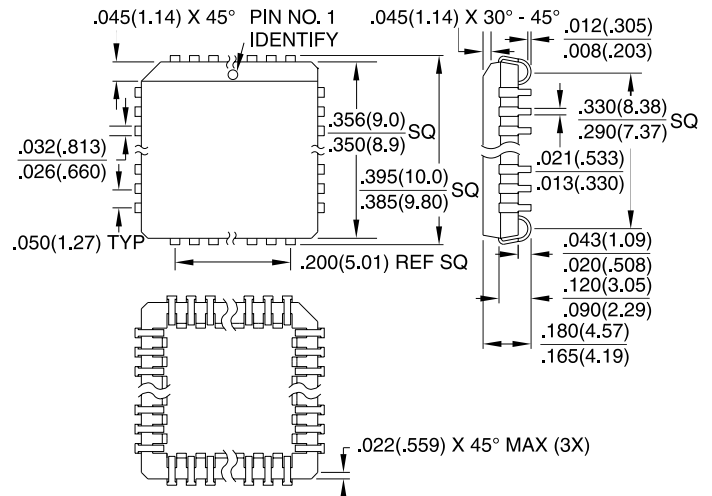
28F, 28-lead, Non-windowed, Ceramic Bottom-Brazed Flat Package (Flatpack)
 Dimensions in Inches (Millimeters)
 MIL-STD-1835 F-12 CONFIG B



32F, 32-lead, Non-windowed, Ceramic Bottom-Brazed Flat Package (Flatpack)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 F-18 CONFIG B
 JEDEC OUTLINE MO-115

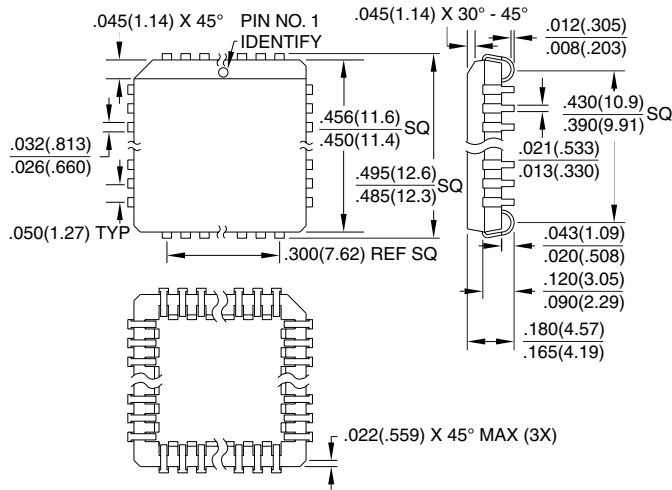


20J, 20-lead, Plastic J-leaded Chip Carrier (PLCC)
 Dimensions in Inches and (Millimeters)
 JEDEC STANDARD MS-018 AA

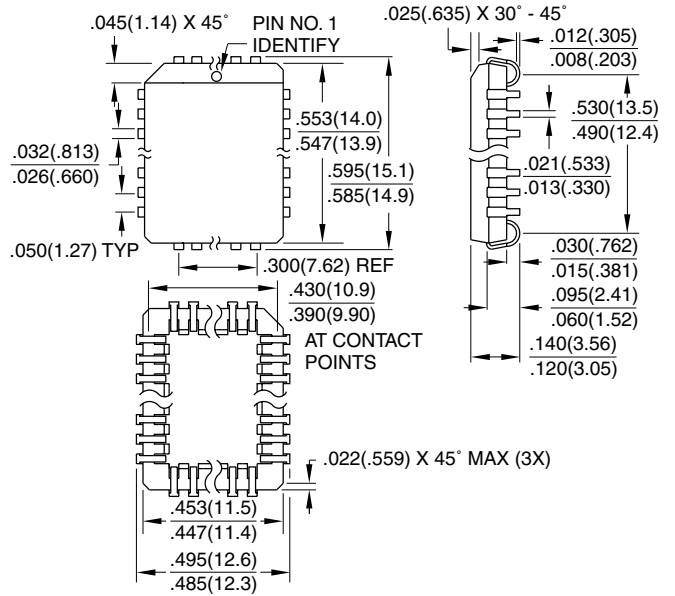


Packaging Information

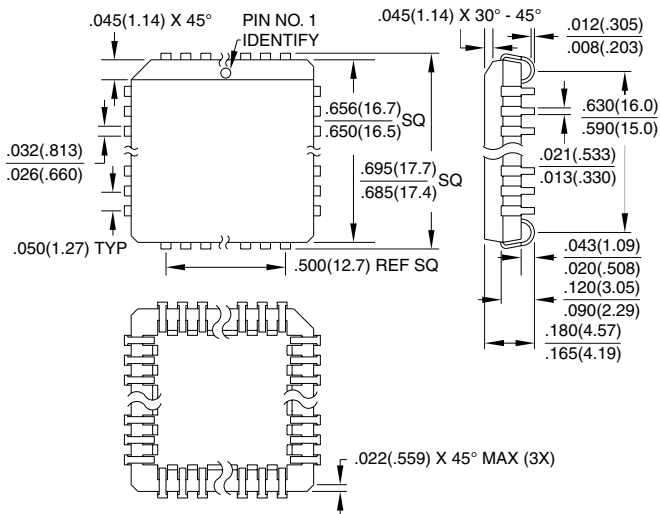
28J, 28-lead, Plastic J-leaded Chip Carrier (PLCC)
 Dimensions in Inches and (Millimeters)
 JEDEC STANDARD MS-018 AB



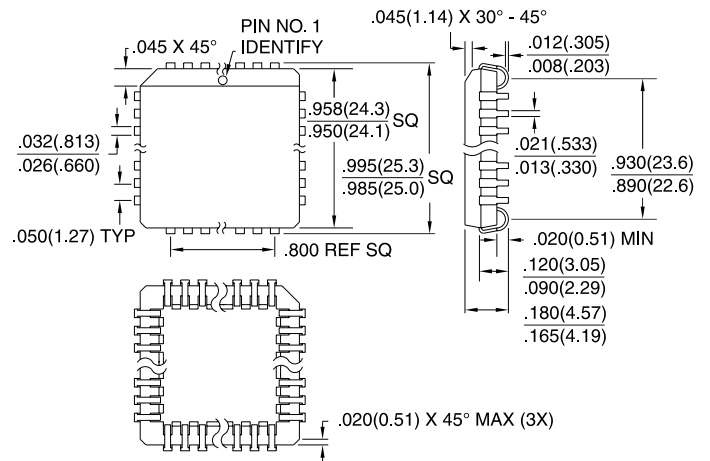
32J, 32-lead, Plastic J-leaded Chip Carrier (PLCC)
 Dimensions in Inches and (Millimeters)
 JEDEC STANDARD MS-016 AE



44J, 44-lead, Plastic J-leaded Chip Carrier (PLCC)
 Dimensions in Inches and (Millimeters)
 JEDEC STANDARD MS-018 AC

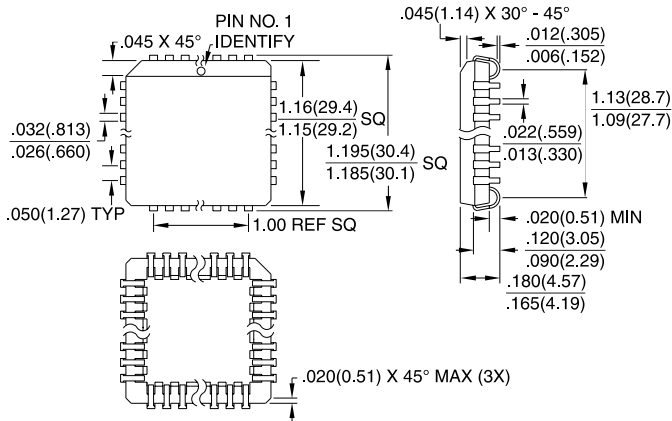


68J, 68-lead, Plastic J-leaded Chip Carrier (PLCC)
 Dimensions in Inches and (Millimeters)
 JEDEC STANDARD MS-018 AE

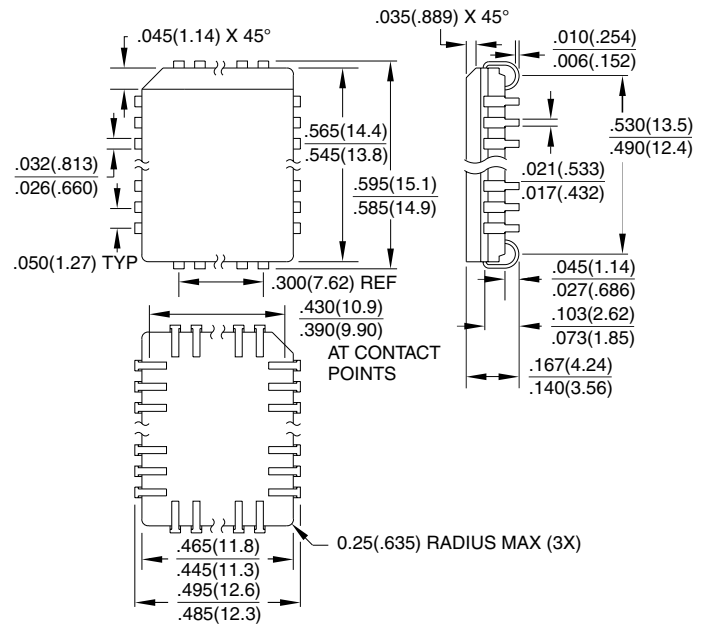


Packaging Information

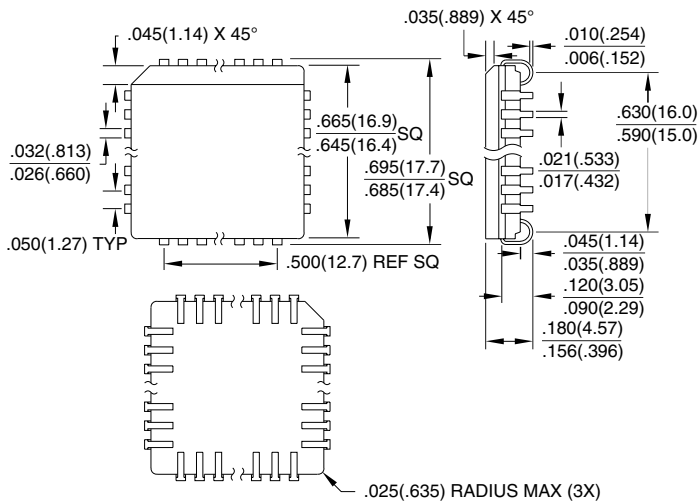
84J, 84-lead, Plastic J-led Chip Carrier (PLCC)
 Dimensions in Inches and (Millimeters)
 JEDEC STANDARD MS-018 AF



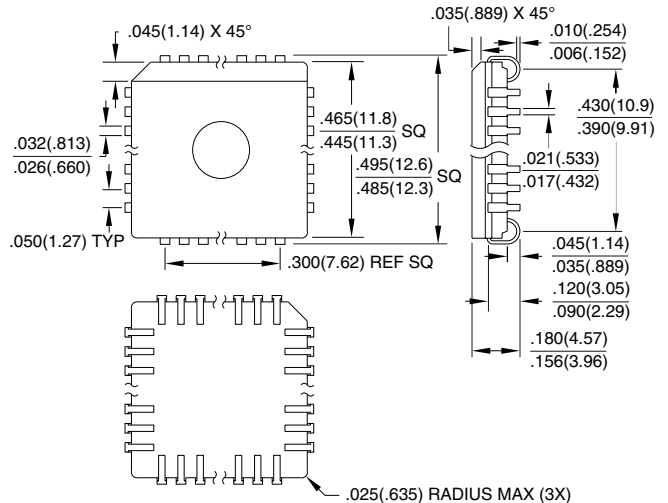
32K, 32-lead, Non-windowed, Ceramic J-led Chip Carrier (JLCC)
 Dimensions in Inches and (Millimeters)



44K, 44-lead, Non-windowed, Ceramic J-led Chip Carrier (JLCC)
 Dimension in Inches and (Millimeters)

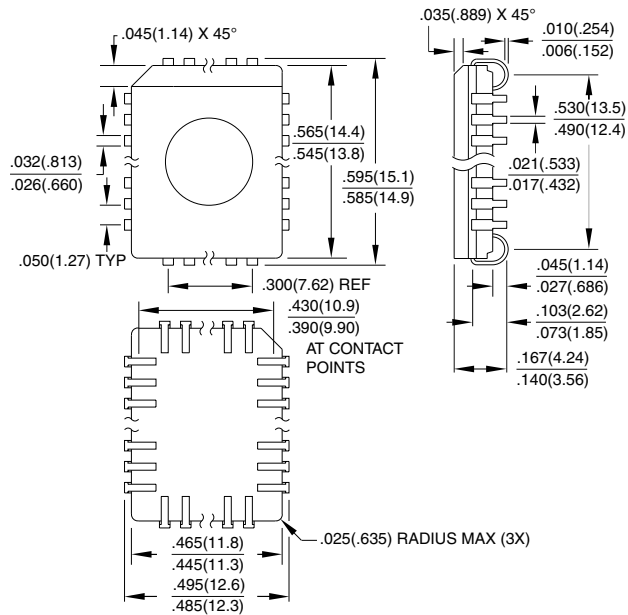


28KW, 28-lead, Windowed, Ceramic J-led Chip Carrier (JLCC)
 Dimensions in Inches and (Millimeters)
 MIL-STD-1835 C-J7
 JEDEC OUTLINE MO-087 AA

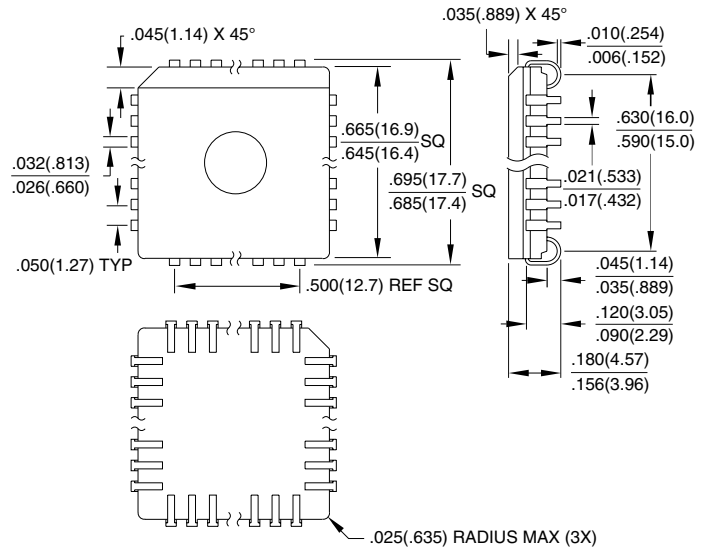


Packaging Information

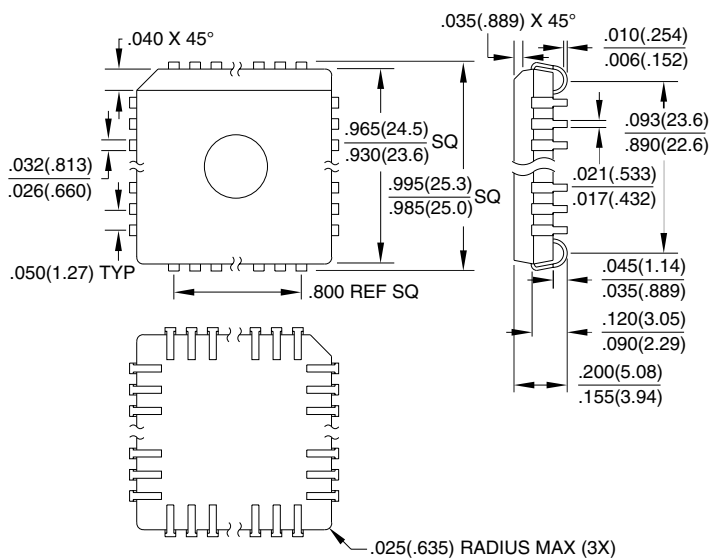
32KW, 32-lead, Windowed, Ceramic J-led Chip Carrier (JLCC)
Dimensions in Inches and (Millimeters)



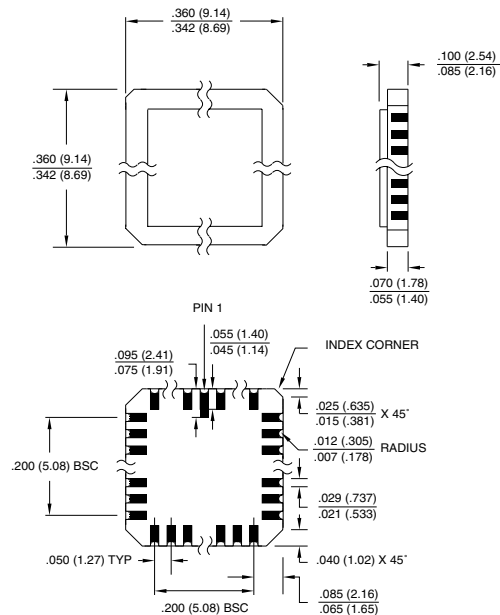
44KW, 44-lead, Windowed, Ceramic J-led Chip Carrier (JLCC)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 CJ1



68KW, 68-lead, Windowed, Ceramic J-led Chip Carrier (JLCC)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-J2
JEDEC OUTLINE MO-087 AD



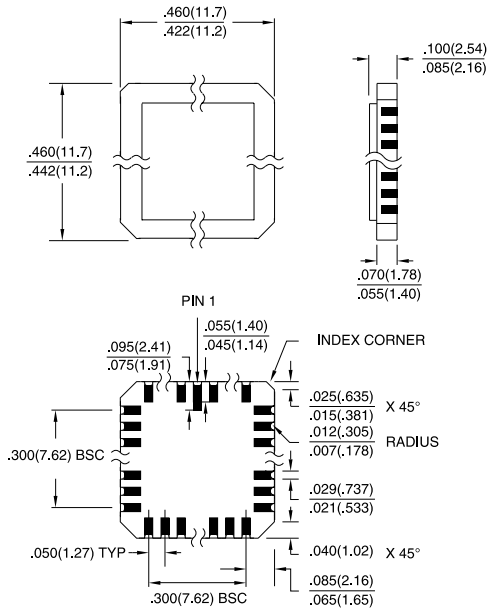
20L, 20-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC)
Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-2



Packaging Information

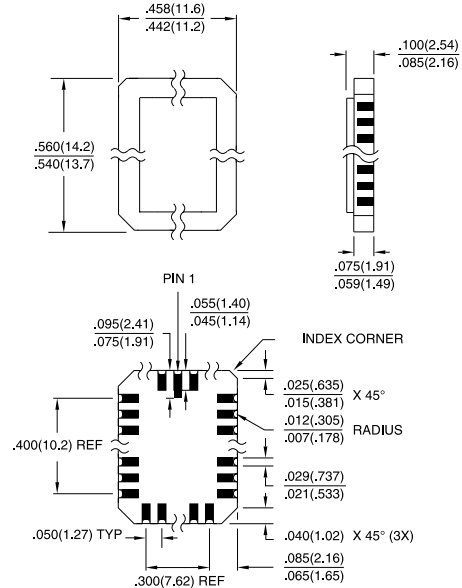
28L, 28-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-4



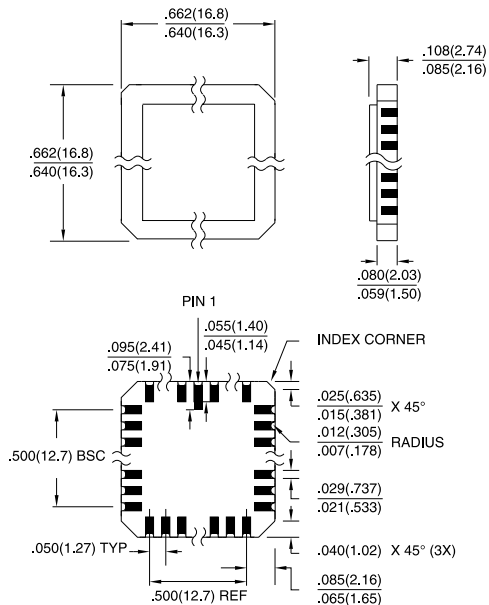
32L, 32-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-12



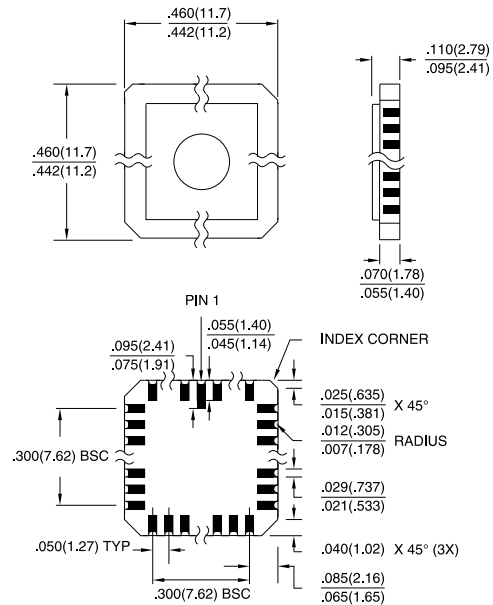
44L, 44-pad, Non-windowed, Ceramic Leadless Chip Carrier (LCC)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-5



28LW, 28-pad, Windowed, Ceramic Leadless Chip Carrier (LCC)

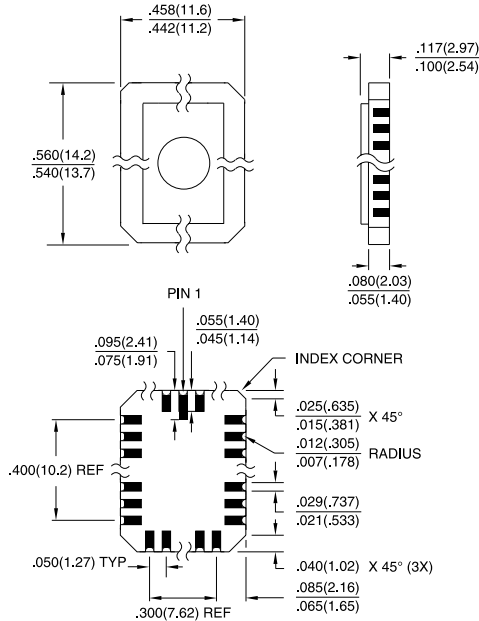
Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-4



Packaging Information

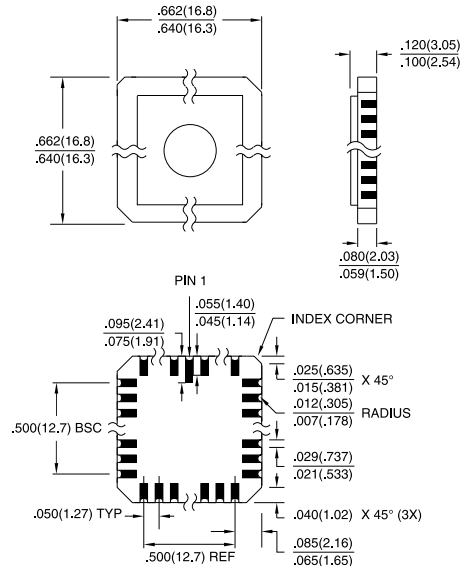
32LW, 32-pad, Windowed, Ceramic Leadless Chip Carrier (LCC)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-12



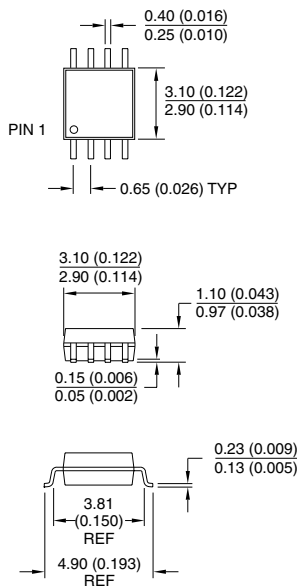
44LW, 44-pad, Windowed, Ceramic Leadless Chip Carrier (LCC)

Dimensions in Inches and (Millimeters)
MIL-STD-1835 C-5



8M, 8-lead, 0.118" Wide, Miniature Small Outline (MSOP)

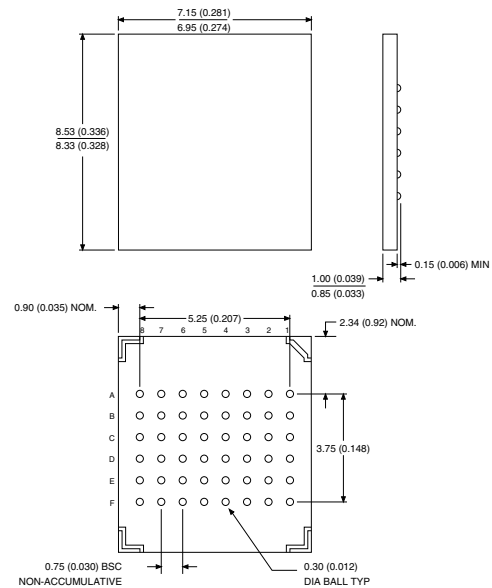
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

48M1, 48-ball, (8 x 6 Array), 0.75 mm Pitch, Micro Ball Grid Array (µBGA)

Dimensions in Millimeters and (Inches)*

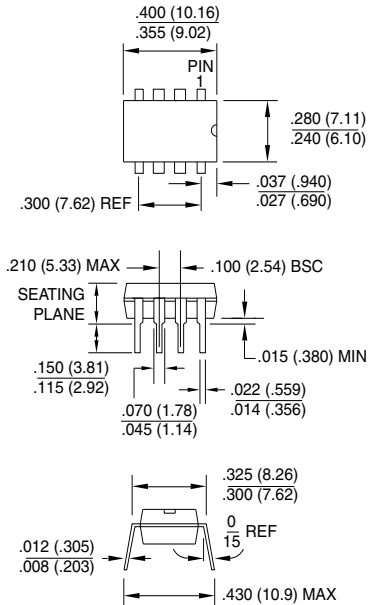


* Controlling dimension: millimeters

Packaging Information

8P3, 8-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP)

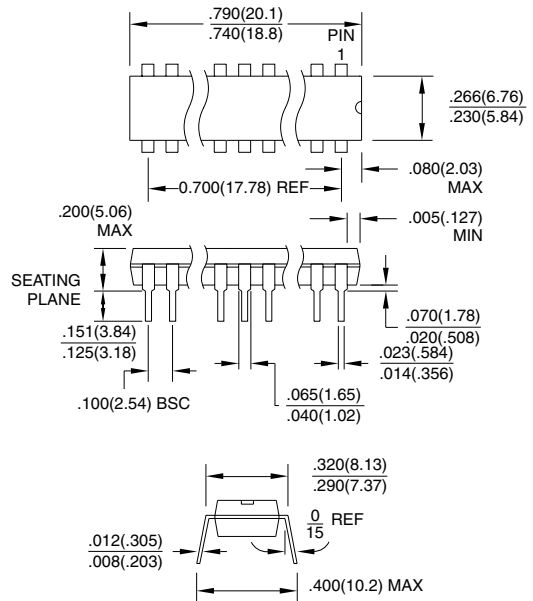
Dimensions in Inches and (Millimeters)



16P3, 16-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP)

Dimensions in Inches and (Millimeters)

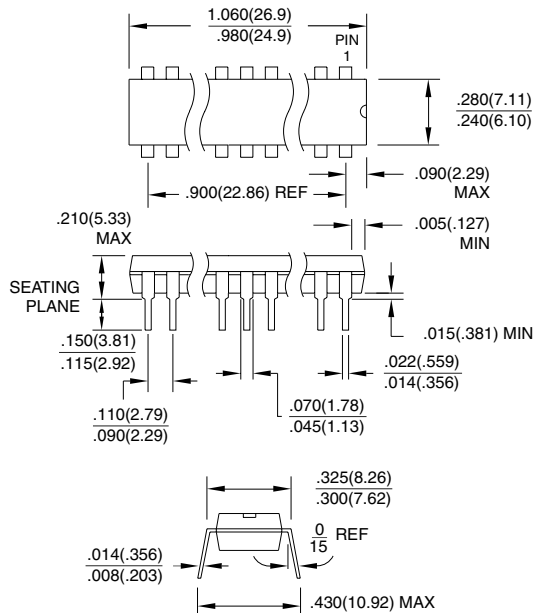
JEDEC STANDARD MS-001 BB



20P3, 20-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP)

Dimensions in Inches and (Millimeters)

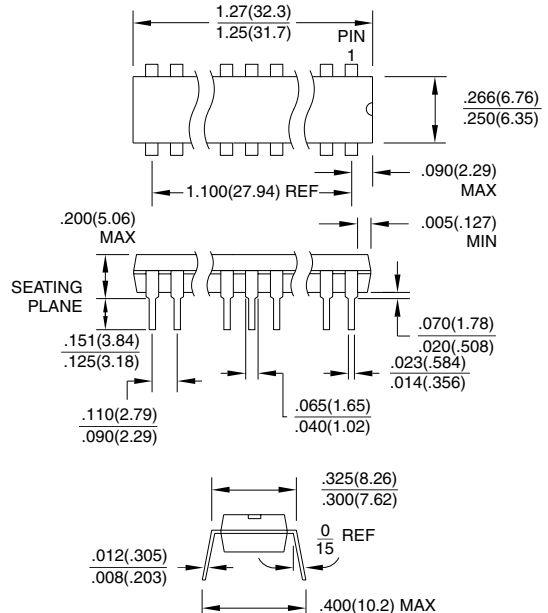
JEDEC STANDARD MS-001 AD



24P3, 24-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP)

Dimensions in Inches and (Millimeters)

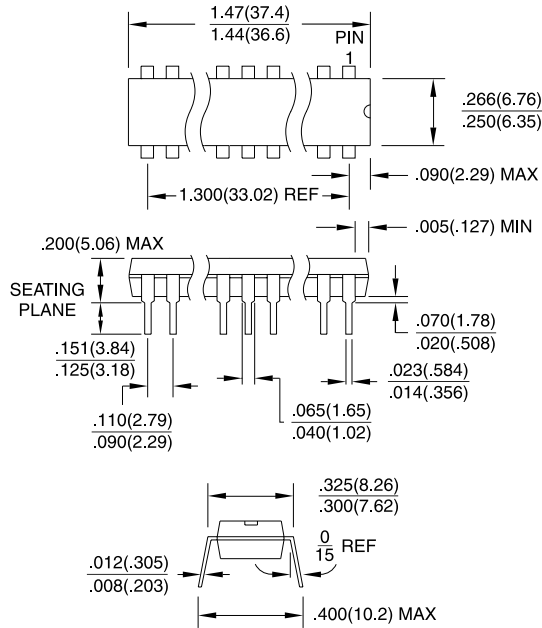
JEDEC STANDARD MS-001 AF



Packaging Information

28P3, 28-lead, 0.300" Wide, Plastic Dual Inline Package (PDIP)

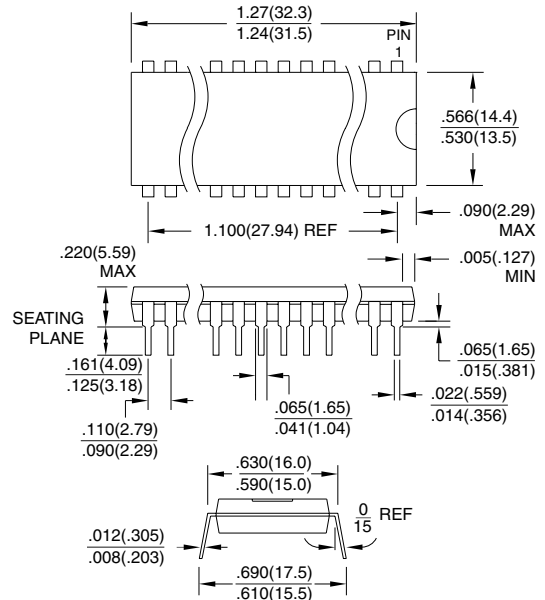
Dimensions in Inches and (Millimeters)



24P6, 24-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP)

Dimensions in Inches and (Millimeters)

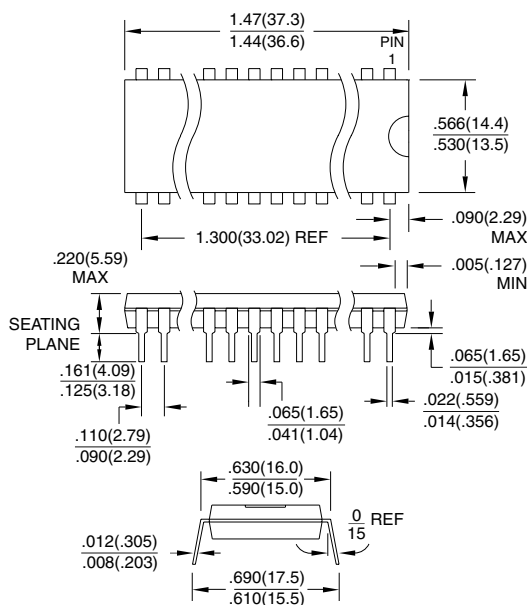
JEDEC STANDARD MS-011 AA



28P6, 28-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP)

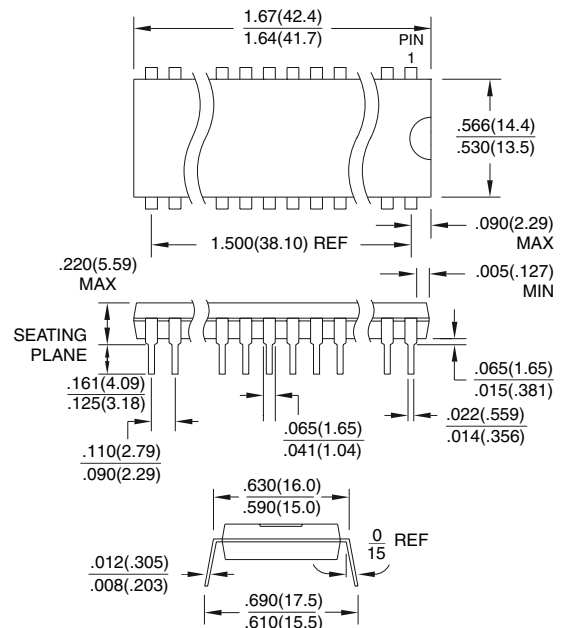
Dimensions in Inches and (Millimeters)

JEDEC STANDARD MS-011 AB



32P6, 32-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP)

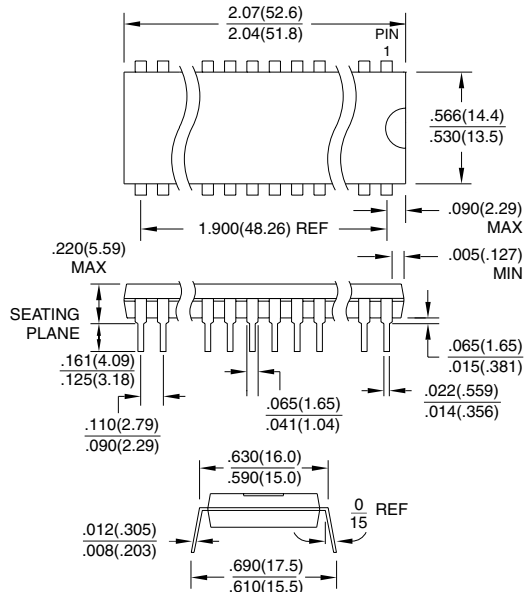
Dimensions in Inches and (Millimeters)



Packaging Information

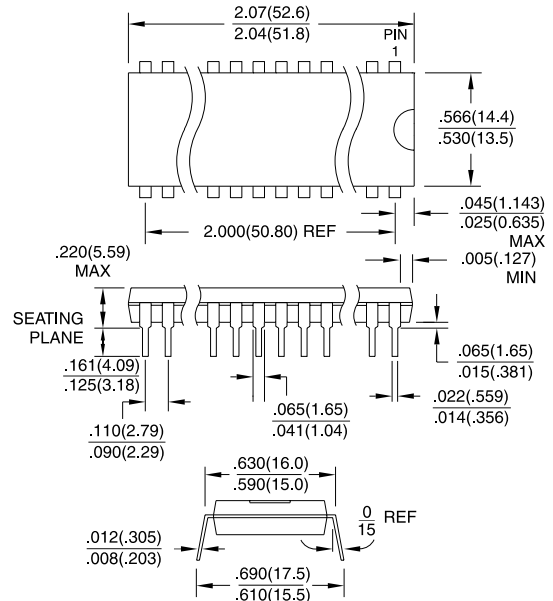
40P6, 40-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP)

Dimensions in Inches and (Millimeters)
JEDEC STANDARD MS-011 AC



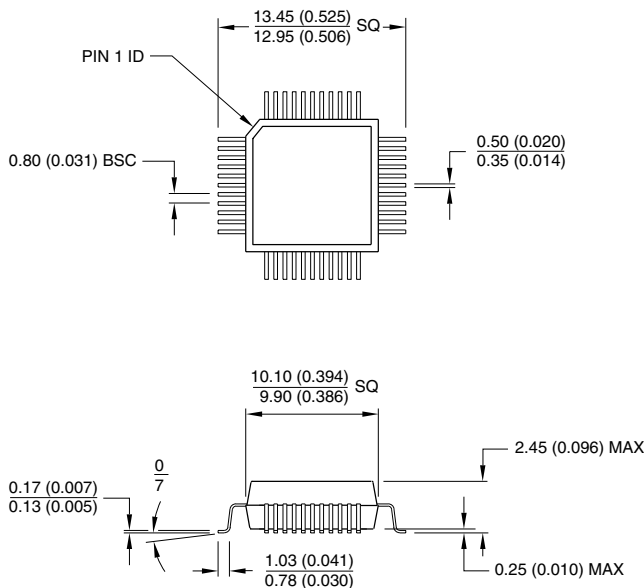
42P6, 42-lead, 0.600" Wide, Plastic Dual Inline Package (PDIP)

Dimensions in Inches and (Millimeters)



44Q, 44-lead, Plastic Quad Flat Package (PQFP)

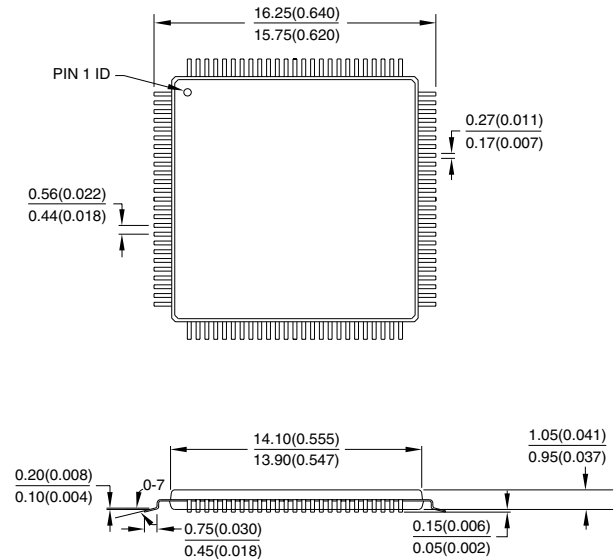
Dimensions in Millimeters and (Inches)*
JEDEC STANDARD MS-022 AB



* Controlling dimension: millimeters

100Q, 100-lead, Thin (1.0 mm) Plastic Quad Flat Package (TQFP)

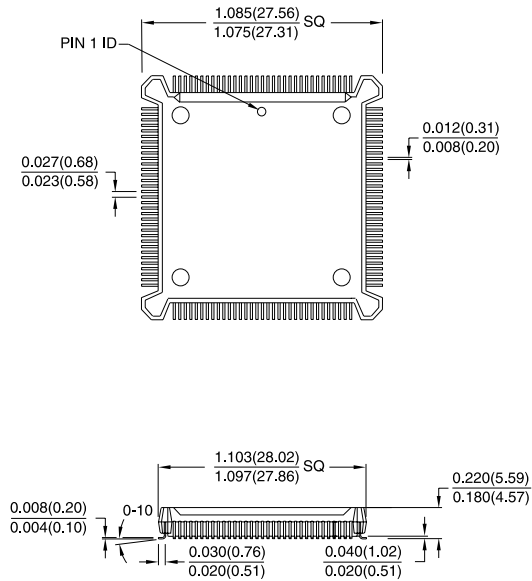
Dimensions in Millimeters and (Inches)*
JEDEC STANDARD MS-026 AED



*Controlling dimension: millimeters

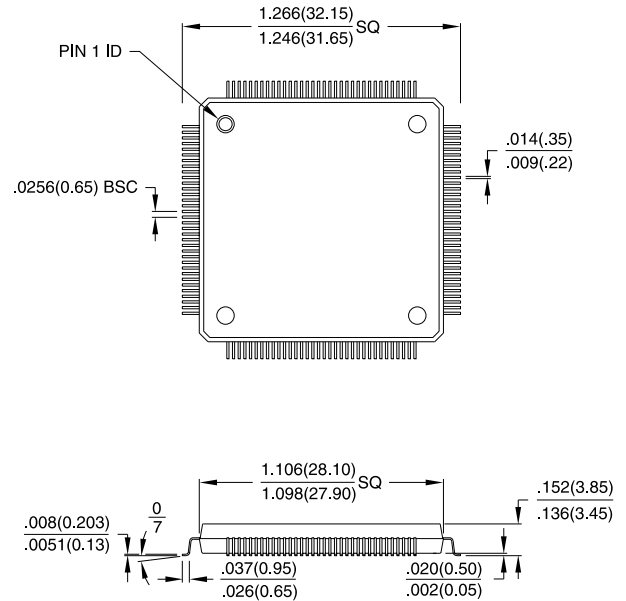
Packaging Information

132Q, 132-lead, Bumpered Plastic Quad Flat Package (BQFP)
Dimensions in Millimeters and (Inches)*



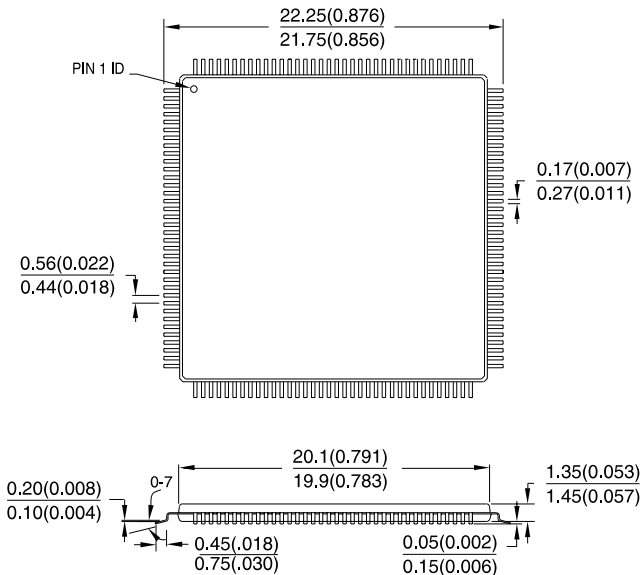
* Controlling dimension: millimeters

136Q, 136-lead, Plastic Quad Flat Package (PQFP)
Dimensions in Millimeters and (Inches)*



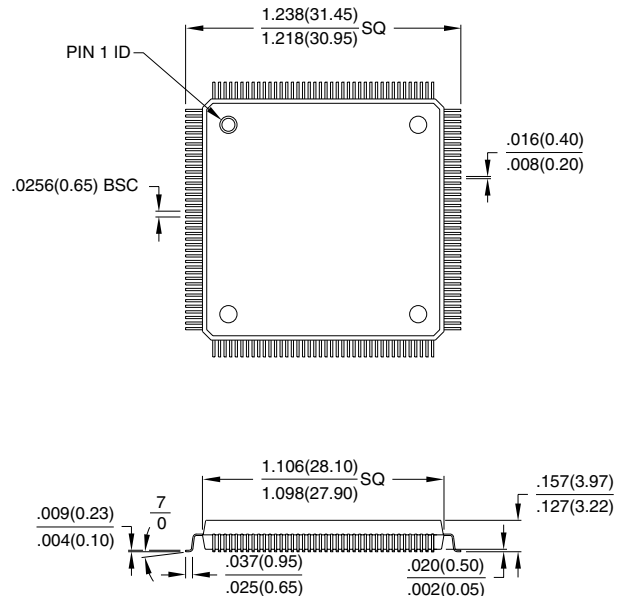
* Controlling dimension: millimeters

144Q, 144-lead, Plastic Gull Wing Quad Flat Package (PQFP)
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

160Q, 160-lead, Plastic Gull Wing Quad Flat Package (PQFP)
Dimensions in Millimeters and (Inches)*

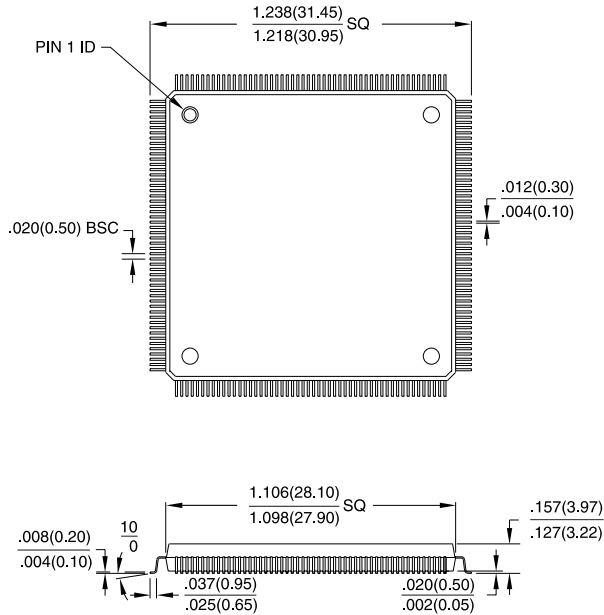


* Controlling dimension: millimeters

Packaging Information

208Q, 208-lead, Plastic Gull Wing Quad Flat Package (PQFP)

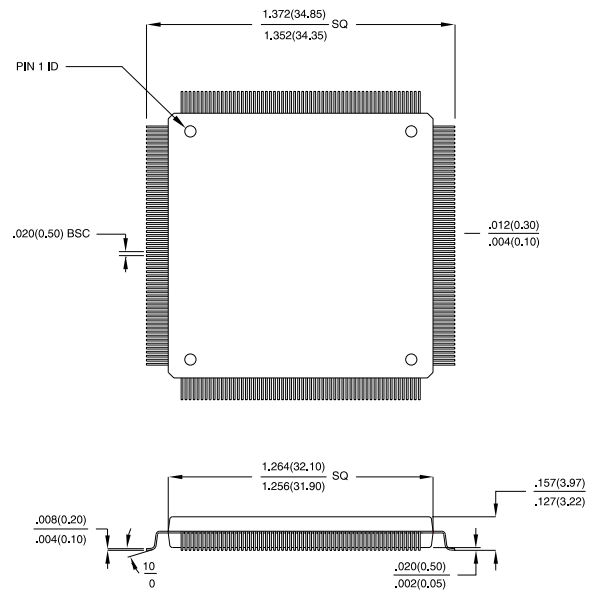
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

240Q, 240-lead, Plastic Gull Wing Quad Flat Package (PQFP)

Dimensions in Millimeters and (Inches)*

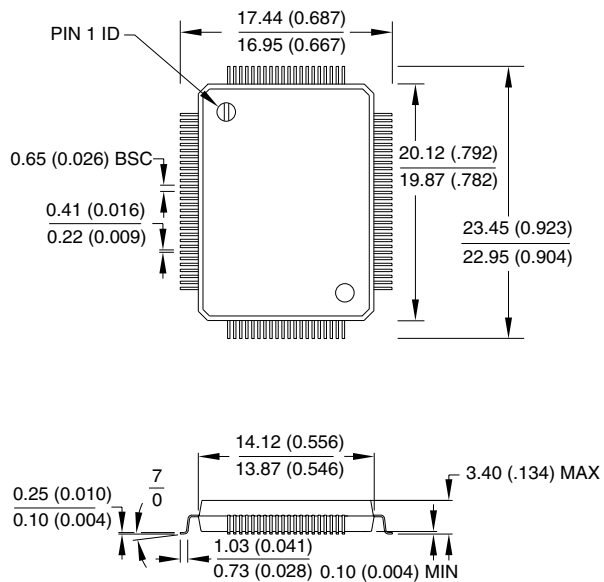


* Controlling dimension: millimeters

100Q1, 100-lead Plastic Quad Flat Package (PQFP)

Body +3.2 mm Footprint

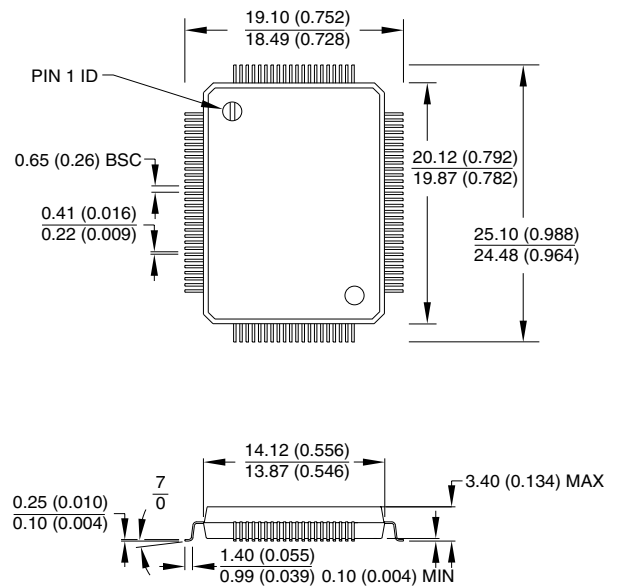
Dimensions in Millimeters and (Inches)*



* Controlling dimension: millimeters

100Q2, 100-lead Plastic Quad Flat Package (PQFP)

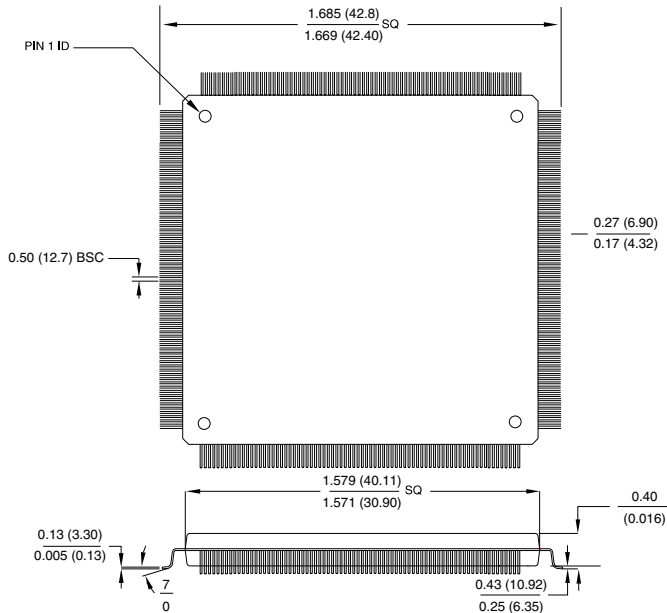
Dimensions in Millimeters and (Inches)*



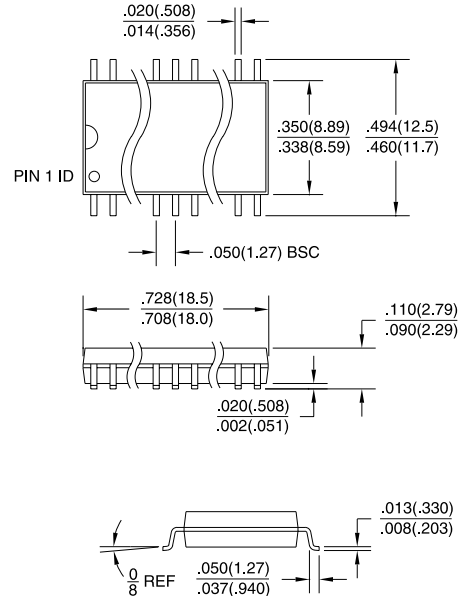
* Controlling dimension: millimeters

Packaging Information

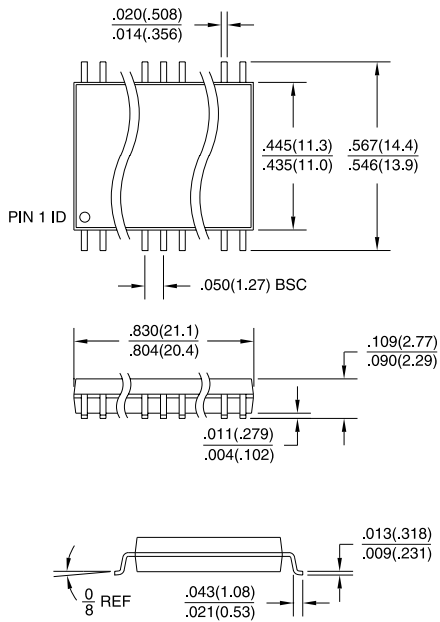
304Q, 304-lead, Plastic Gull Wing Quad Flat Pack (PQFP)
Dimensions in (Millimeters) and Inches



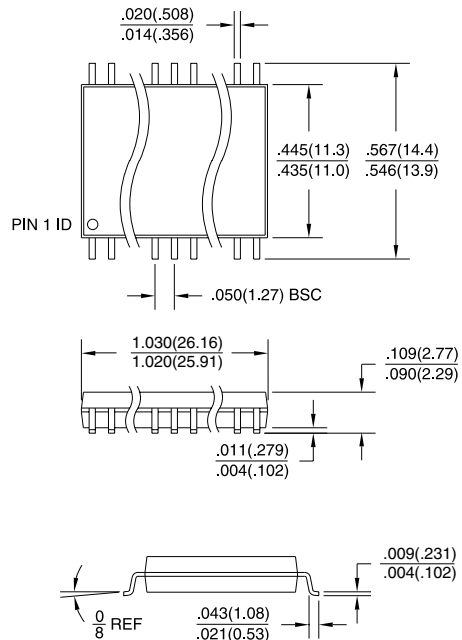
28R, 28-lead, 0.330" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)



32R, 32-lead, 0.440" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)

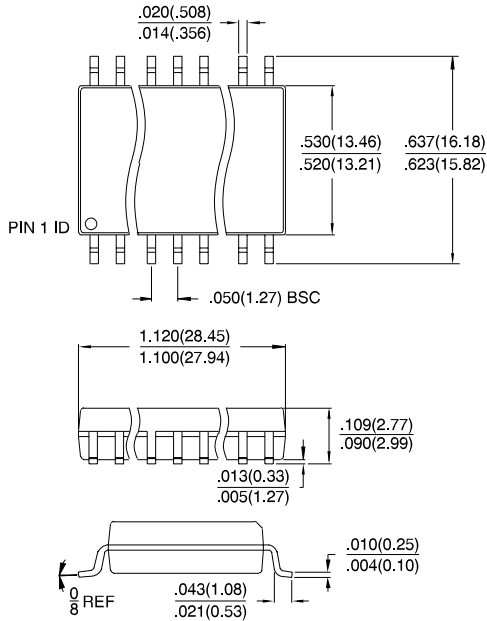


40R, 40-lead, 0.440" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)

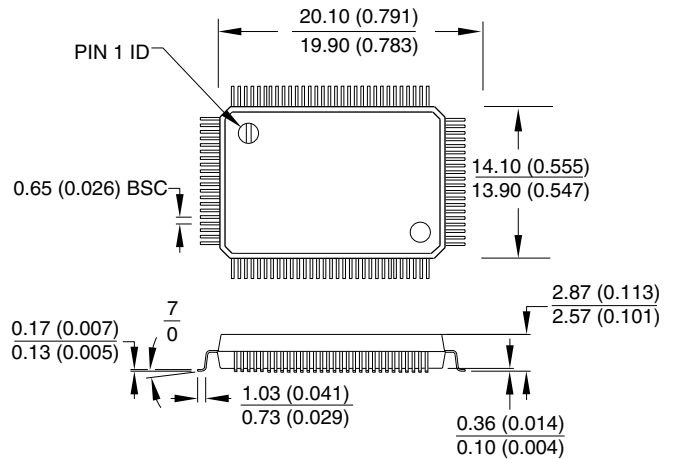


Packaging Information

44R, 44-lead, 0.525" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)

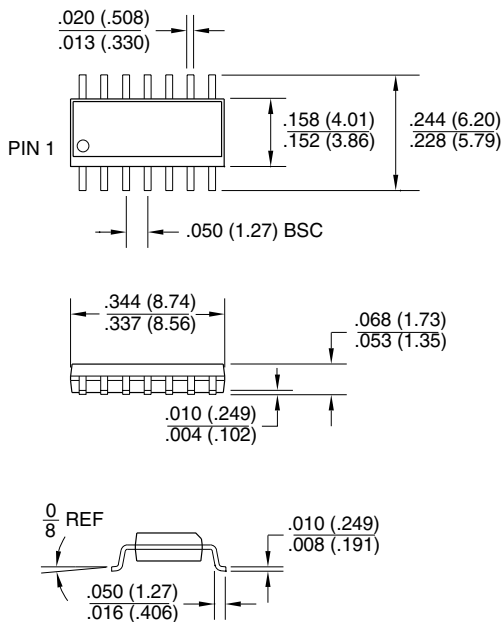


100RQ, 100-lead, Rectangular Plastic Gull Wing Quad Flat Pack (RQFP)
Dimensions in Millimeters and (Inches)*

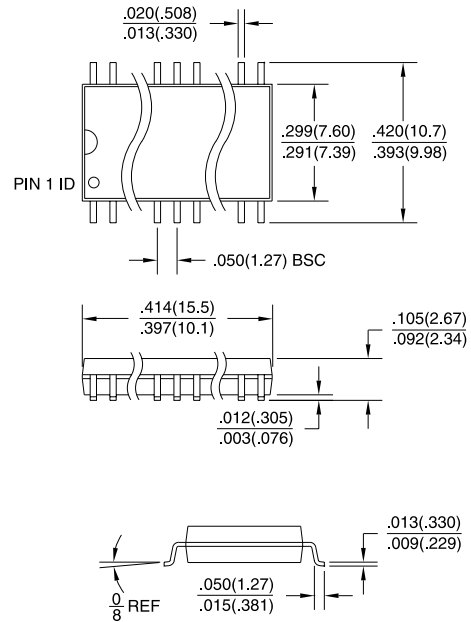


*Controlling dimension: millimeters

14S, 14-lead, 0.150" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC)
Dimensions in Inches and (Millimeters)

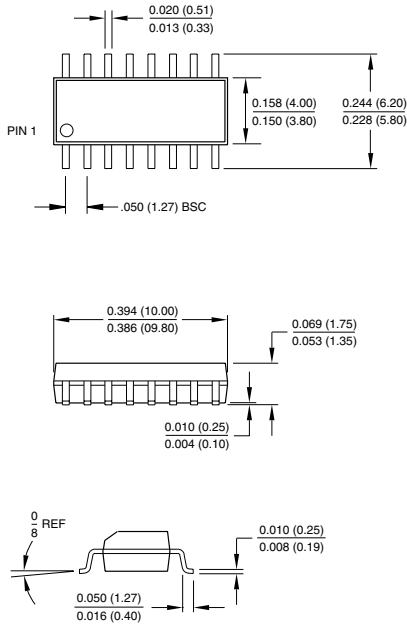


16S, 16-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)

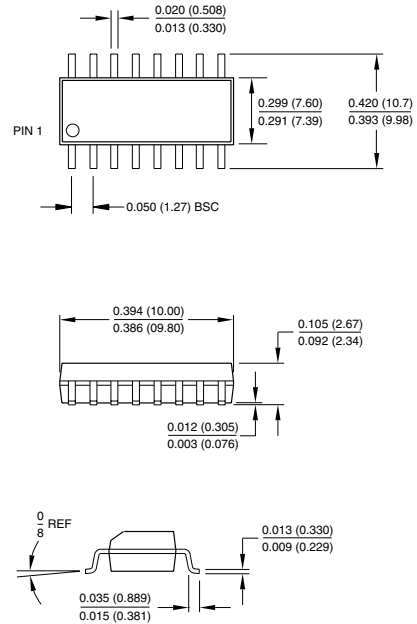


Packaging Information

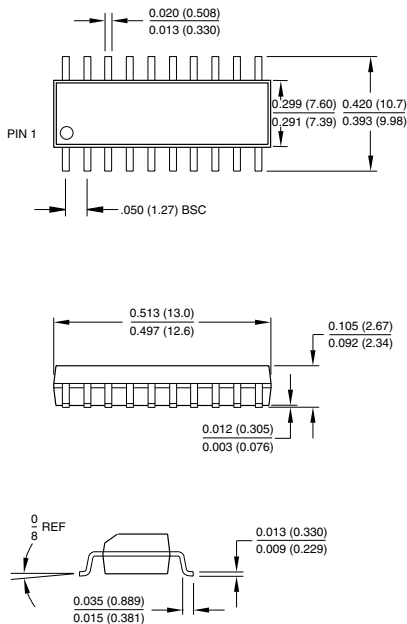
16S1, 16-lead, 0.150" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC)
Dimensions in Inches and (Millimeters)



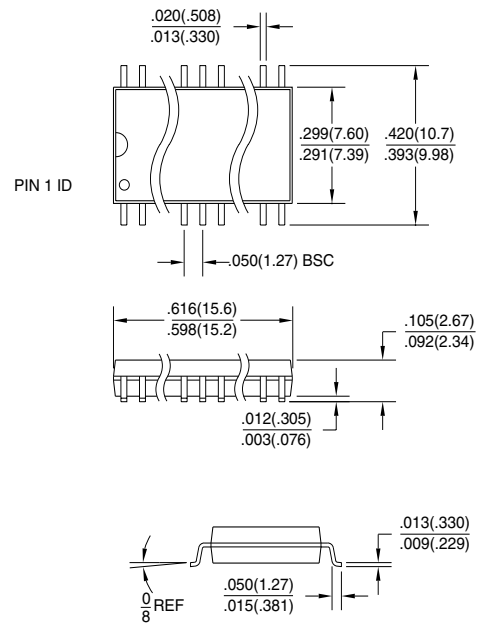
16S2, 16-lead, 0.300" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC)
Dimensions in Inches and (Millimeters)



20S, 20-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)

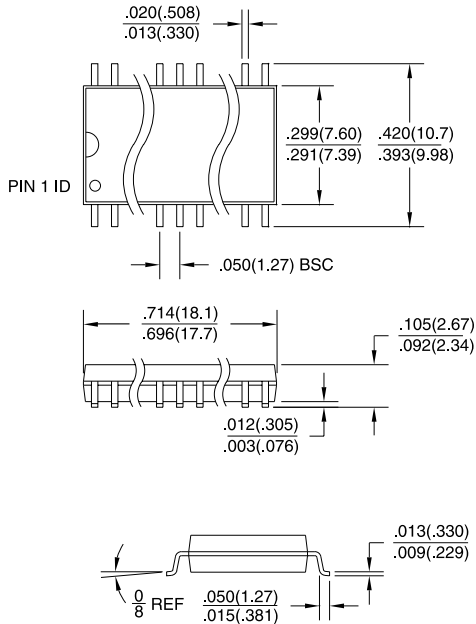


24S, 24-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC)
Dimensions in Inches and (Millimeters)

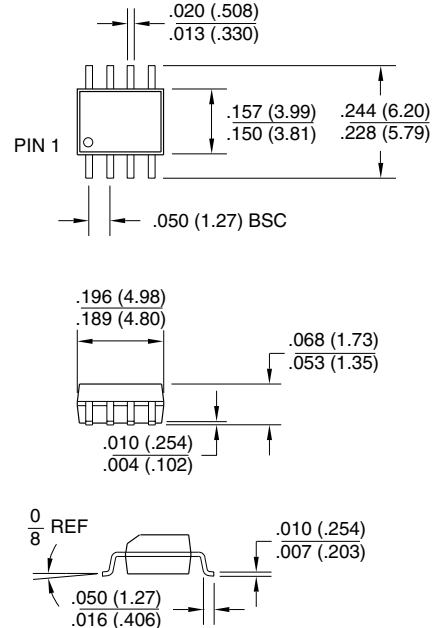


Packaging Information

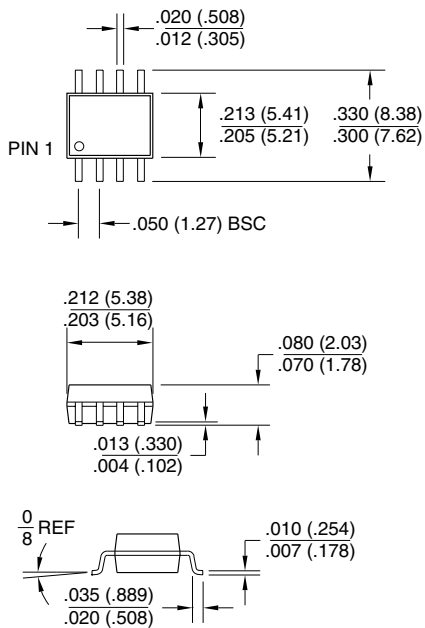
8S8, 28-lead, 0.300" Wide, Plastic Gull Wing Small Outline (SOIC)
 Dimensions in Inches and (Millimeters)



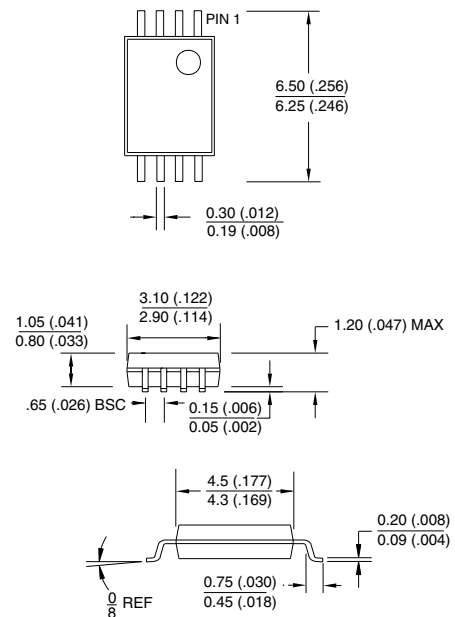
8S1, 8-lead, 0.150" Wide, Plastic Gull Wing Small Outline (JEDEC SOIC)
 Dimensions in Inches and (Millimeters)



8S2, 8-lead, 0.210" Wide, Plastic Gull Wing Small Outline (EIAJ SOIC)
 Dimensions in Inches and (Millimeters)



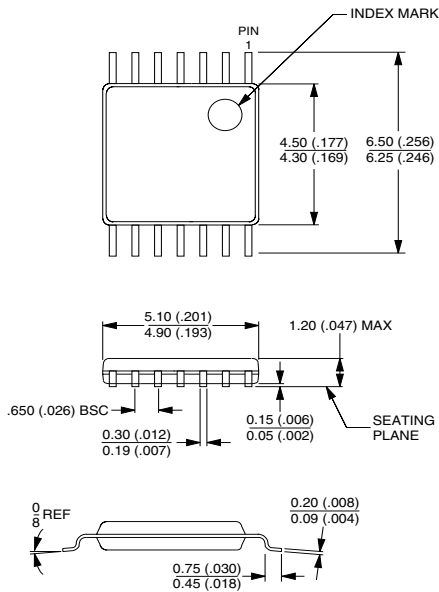
8T, 8-lead, Plastic Thin Shrink Small Outline Package (TSSOP)
 Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

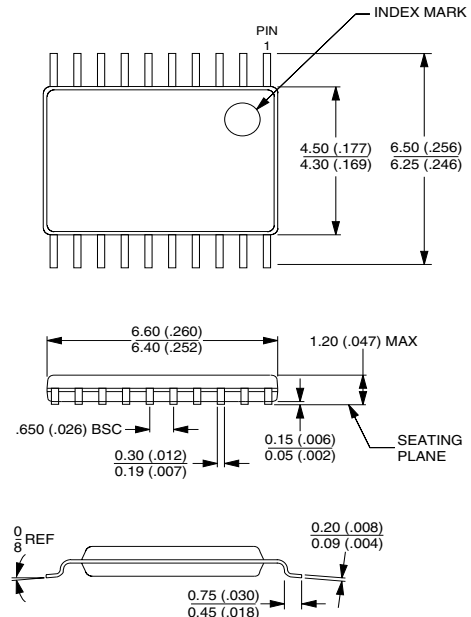
Packaging Information

14T, 14-lead, 0.170" Wide, Thin Shrink Small Outline Package (TSSOP)
Dimensions in Millimeters and (Inches)*



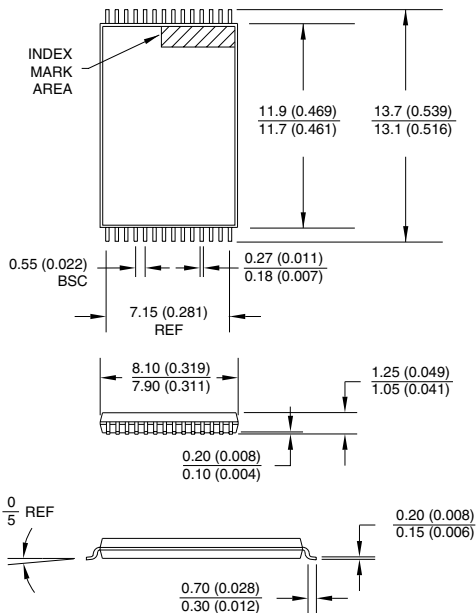
*Controlling dimension: millimeters

20T, 20-lead, 0.170" Wide, Thin Shrink Small Outline Package (TSSOP)
Dimensions in Millimeters and (Inches)*



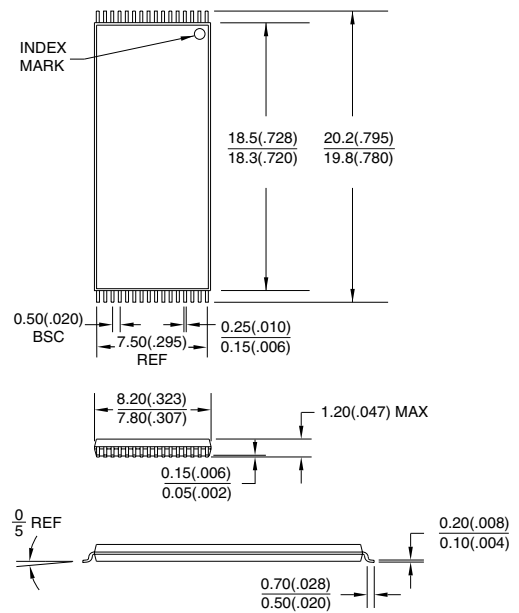
*Controlling dimension: millimeters

28T, 28-lead, Plastic Thin Small Outline Package (TSOP)
Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

32T, 32-lead, Plastic Thin Small Outline Package (TSOP)
JEDEC OUTLINE MO-142 BD
Dimensions in Millimeters and (Inches)*

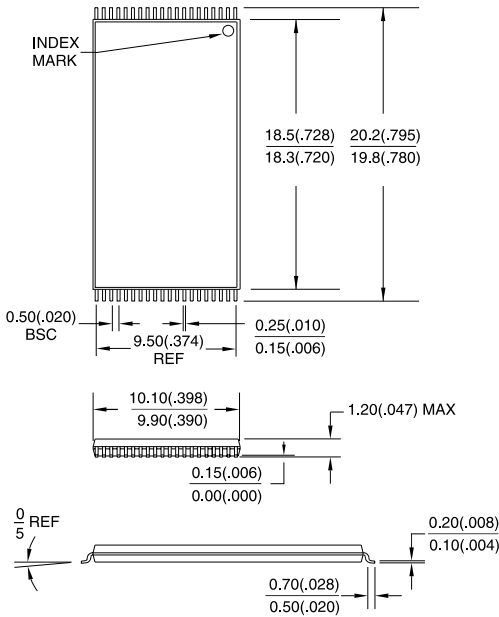


*Controlling dimension: millimeters

Packaging Information

40T, 40-lead, Plastic Thin Small Outline Package (TSOP)

Dimensions in Millimeters and (Inches)*

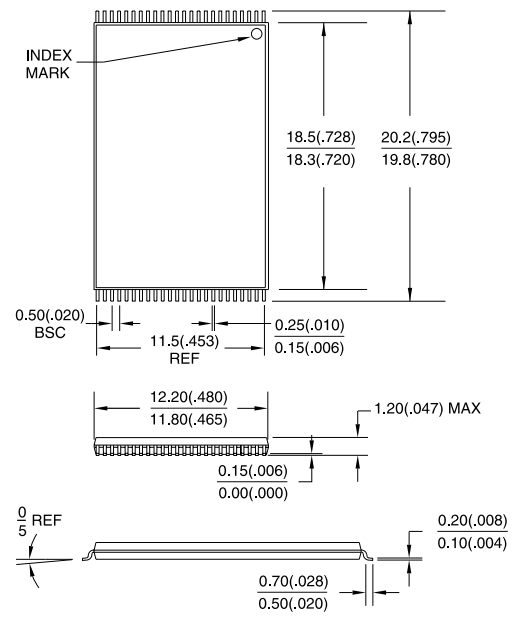


*Controlling dimension: millimeters

48T, 48-lead, Plastic Thin Small Outline Package (TSOP)

Dimensions in Millimeters and (Inches)*

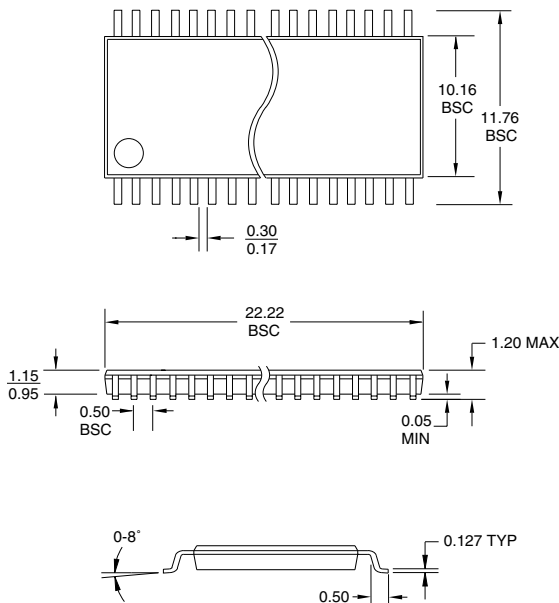
JEDEC OUTLINE MO-142 DD



*Controlling dimension: millimeters

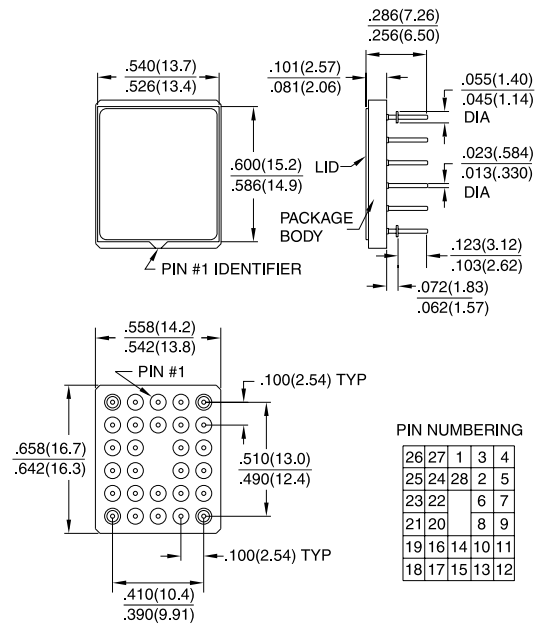
86T, 86-lead, Plastic Thin Small Outline Package (TSOP Type II)

Dimensions in Millimeters



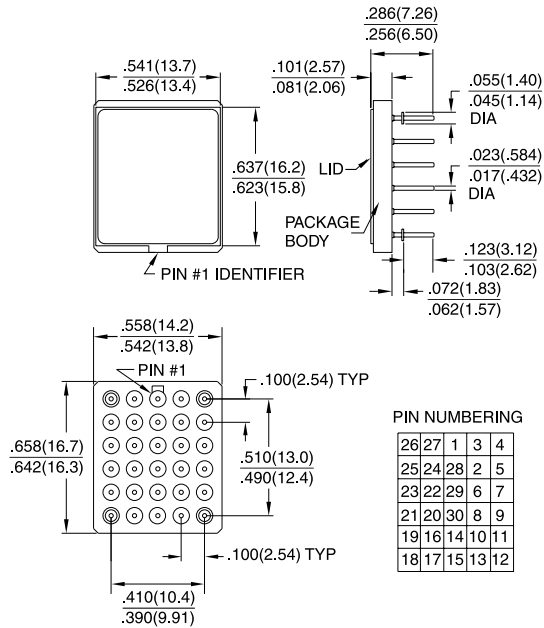
28U, 28-pin, Ceramic Pin Grid Array (PGA)

Dimensions in Inches and (Millimeters)

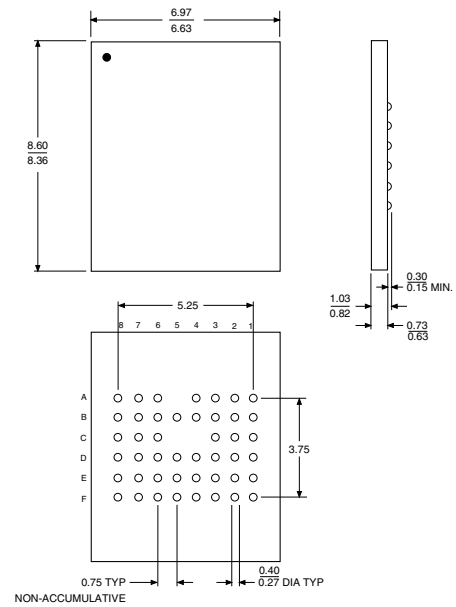


Packaging Information

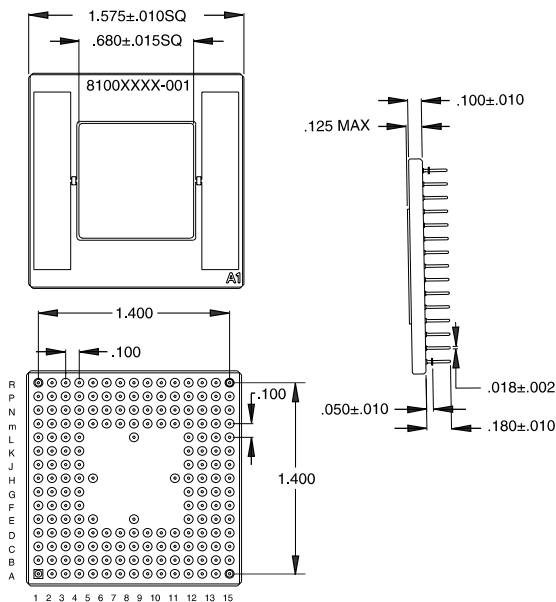
30U, 30-pin, Ceramic Pin Grid Array (PGA)
Dimensions in Inches and (Millimeters)



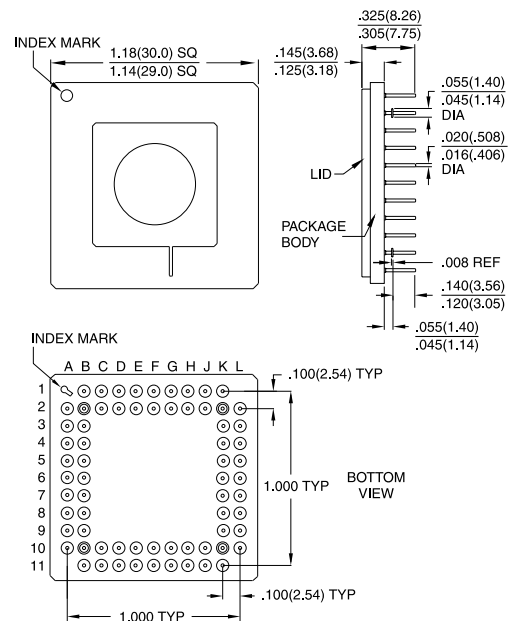
48U, 48-ball, Micro Ball Grid Array Package (μBGA)
Dimensions in Millimeters



180U, 180-pin, Ceramic Pin Grid Array (PGA)
Dimensions in Inches and (Millimeters)



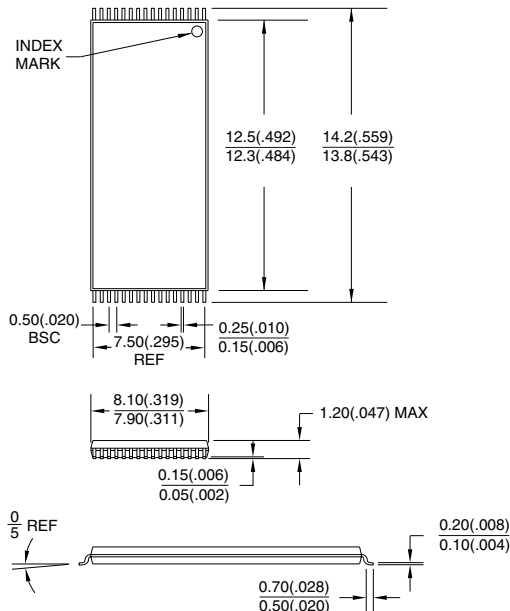
68UW, 68-pin, Ceramic Pin Grid Array (PGA)
Dimensions in Inches and (Millimeters)



Packaging Information

32V, 32-lead, Plastic Thin Small Outline Package (VSOP)

Dimensions in Millimeters and (Inches)*

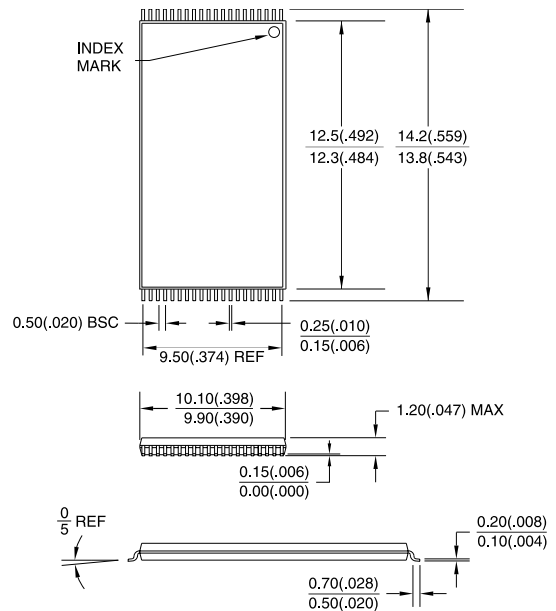


*Controlling dimension: millimeters

40V, 40-lead, Plastic Thin Small Outline Package (VSOP)

Dimensions in Millimeters and (Inches)*

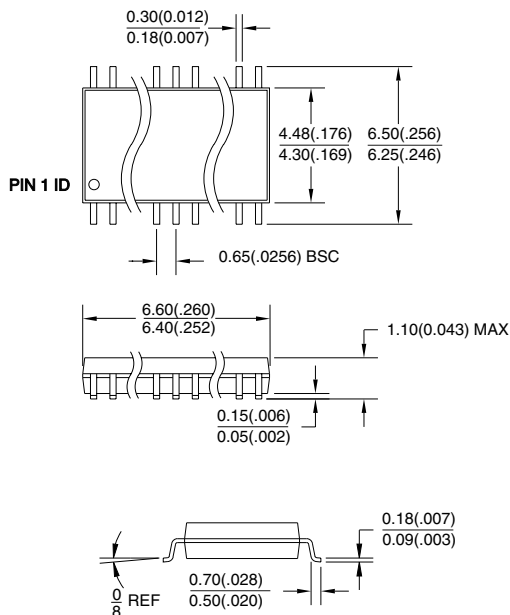
JEDEC OUTLINE MO-142 CA



*Controlling dimension: millimeters

20X, 20-lead, 4.4 mm Wide, Plastic Thin Shrink Small Outline (TSSOP)

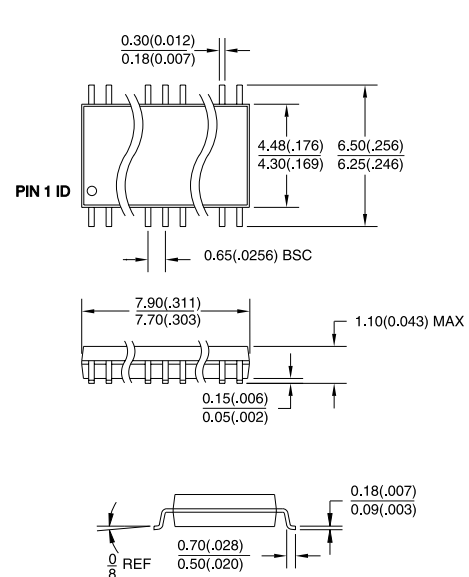
Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

24X, 24-lead, 4.4 mm Wide, Plastic Thin Shrink Small Outline (TSSOP)

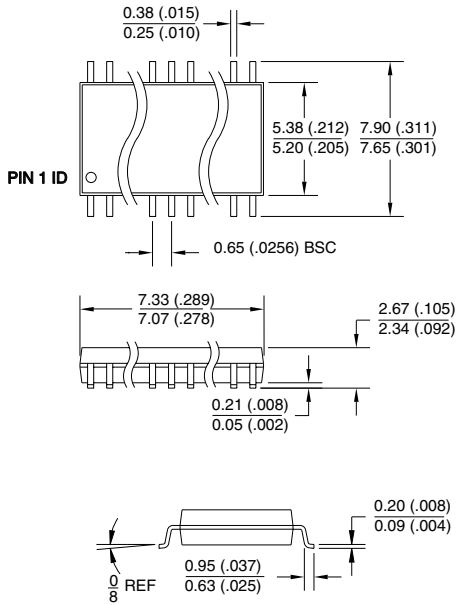
Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters

Packaging Information

20Y, 20-lead, 5.3 mm Wide, Plastic Shrink Small Outline (SSOP)
 Dimensions in Millimeters and (Inches)*



*Controlling dimension: millimeters



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