

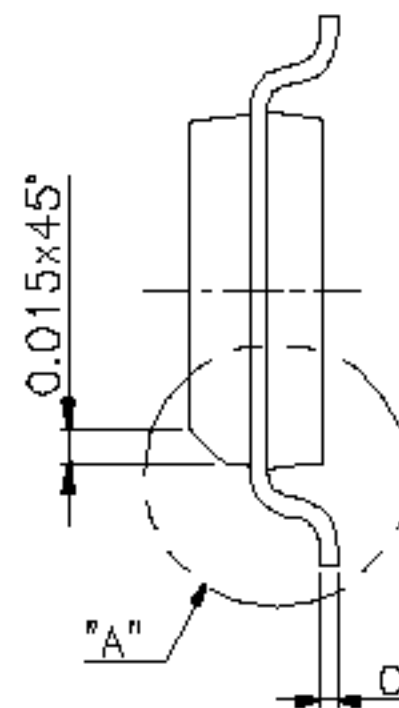
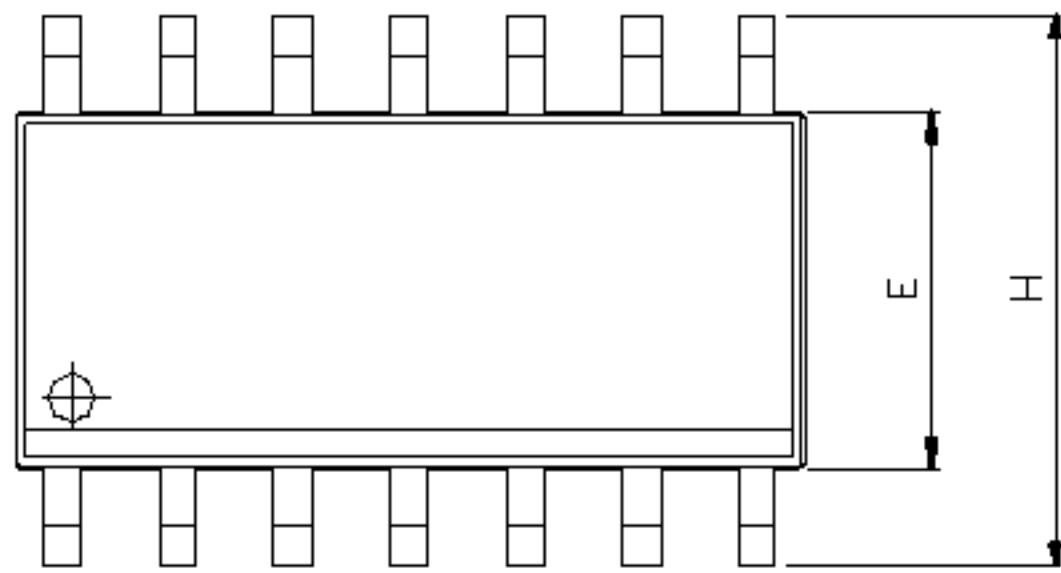
SYMBOLS	MIN.	NOM	MAX.
A	—	—	3.30
A1	0.25	—	—
A2	2.68	2.80	2.92
b	0.20	0.30	0.40
D	24.49	24.80	25.10
D1	19.90	20.00	20.10
e	0.50	0.65	0.8
E	18.48	18.80	19.10
E1	13.90	14.00	14.10
L	1.00	1.20	1.40
L1	2.21	2.40	2.59
θ°	0	—	12

UNIT : mm

NOTES:

1. JEDEC OUTLINE: MO-112 CC-1
2. DATUM PLANE [H] IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25 mm PER SIDE. DIMENSIONS D1 AND E1 DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE [H].
4. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION.

100 PIN QFP (4.8 mm)

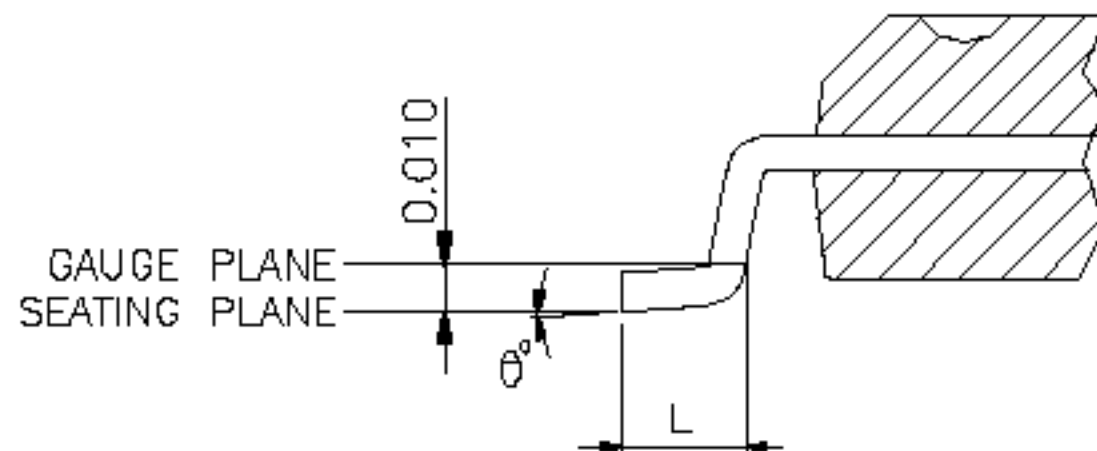
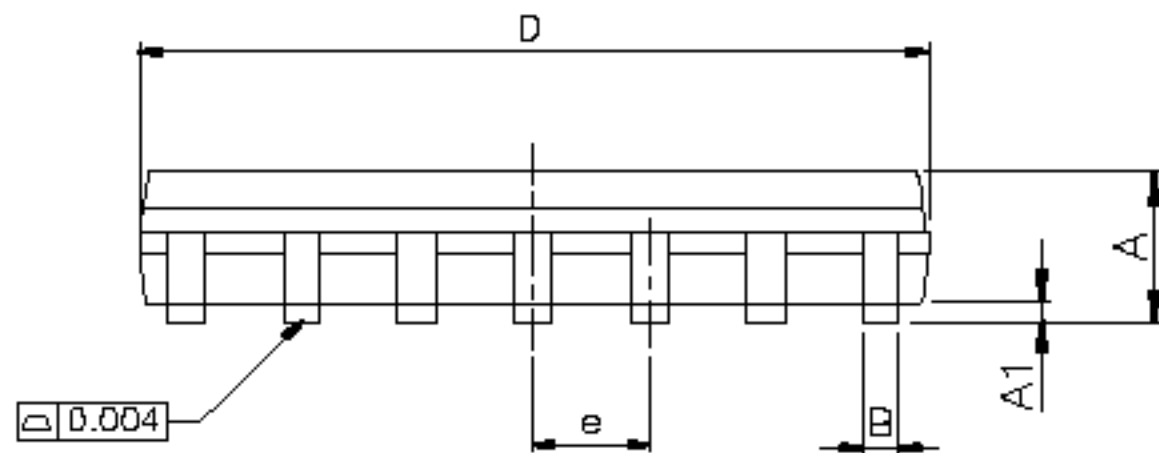


SYMBOLS	MIN.	NOM.	MAX.
A	0.058	0.064	0.068
A1	0.004	—	0.010
B	0.013	0.016	0.020
C	0.0075	0.008	0.0098
D	0.336	0.341	0.344
E	0.150	0.154	0.157
e	—	0.050	—
H	0.228	0.236	0.244
L	0.015	0.025	0.050
θ°	0°	—	8°

UNIT : INCH

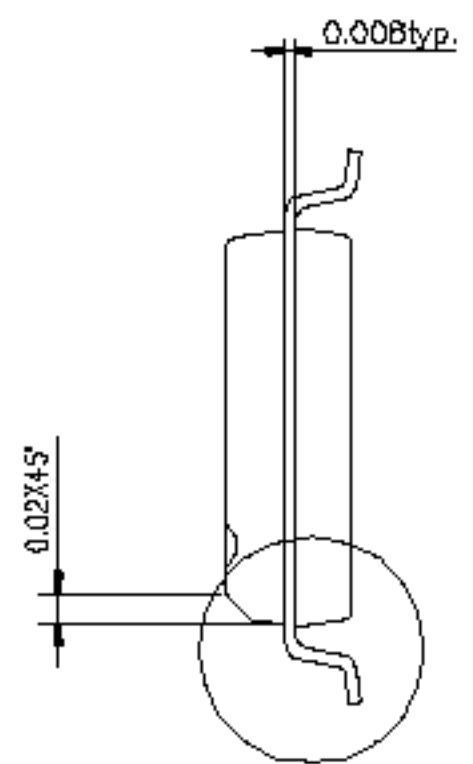
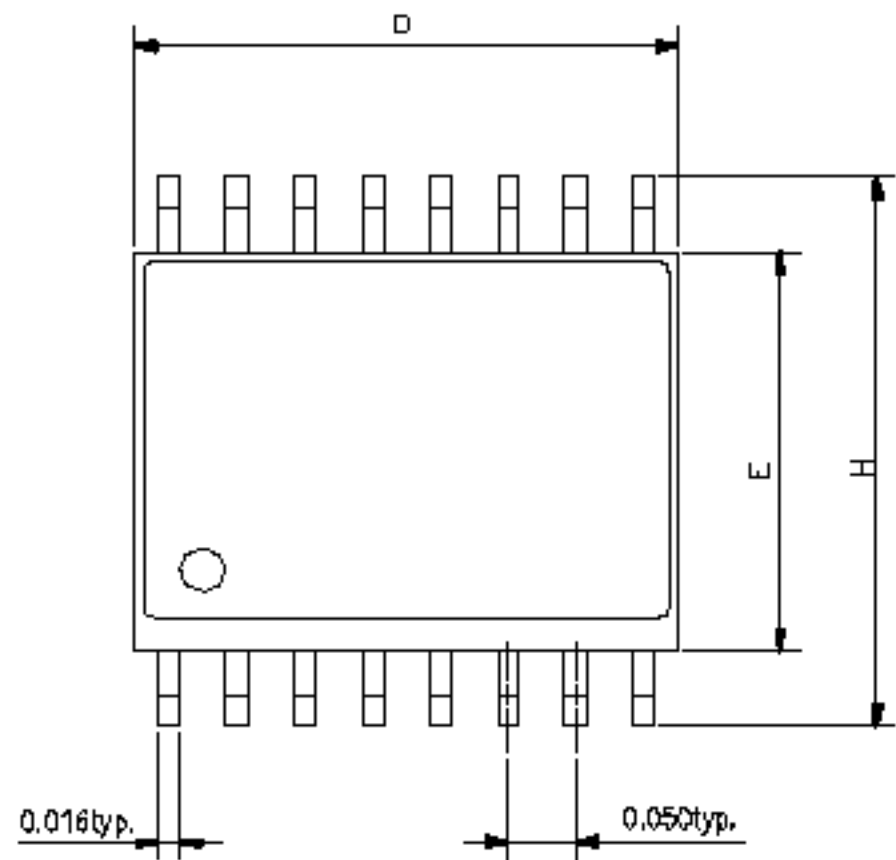
NOTES:

1. JEDEC OUTLINE : MS-012 AB
2. DIMENSIONS "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED .15mm (.006in) PER SIDE.
3. DIMENSIONS "E" DOES NOT INCLUDE INTER-LEAD FLASH, OR PROTRUSIONS. INTER-LEAD FLASH AND PROTRUSIONS SHALL NOT EXCEED .25mm (.010in) PER SIDE.



DETAIL : A

14 PIN SOP (150 mil)

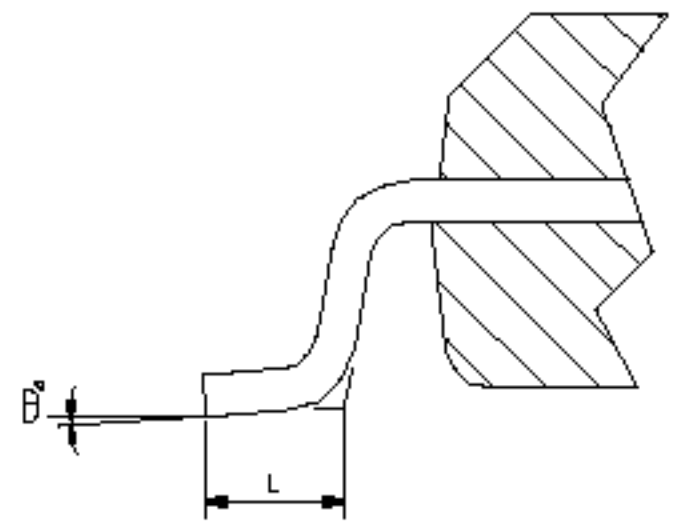
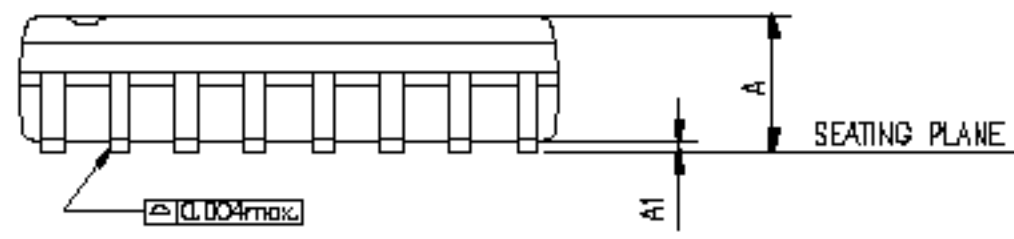


SYMBOLS	MIN.	MAX.
A	0.093	0.104
A1	0.004	0.012
D	0.398	0.413
E	0.291	0.299
H	0.394	0.419
L	0.016	0.050
θ°	0	8

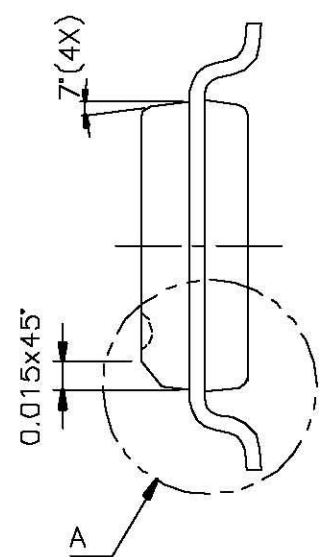
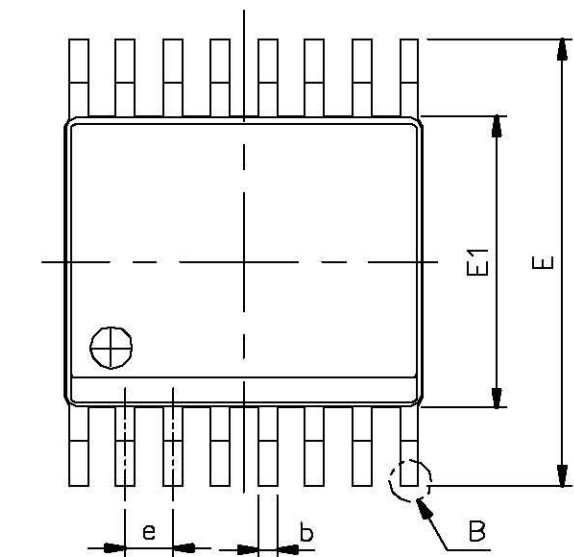
UNIT : INCH

NOTES:

1. JEDEC OUTLINE : MS-013 AA
2. DIMENSIONS "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED .15mm (.006in) PER SIDE.
3. DIMENSIONS "E" DOES NOT INCLUDE INTER-LEAD FLASH, OR PROTRUSIONS. INTER-LEAD FLASH AND PROTRUSIONS SHALL NOT EXCEED .25mm (.010in) PER SIDE.



16 PIN SOP (300mil)

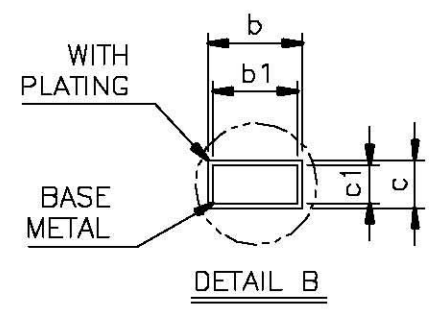
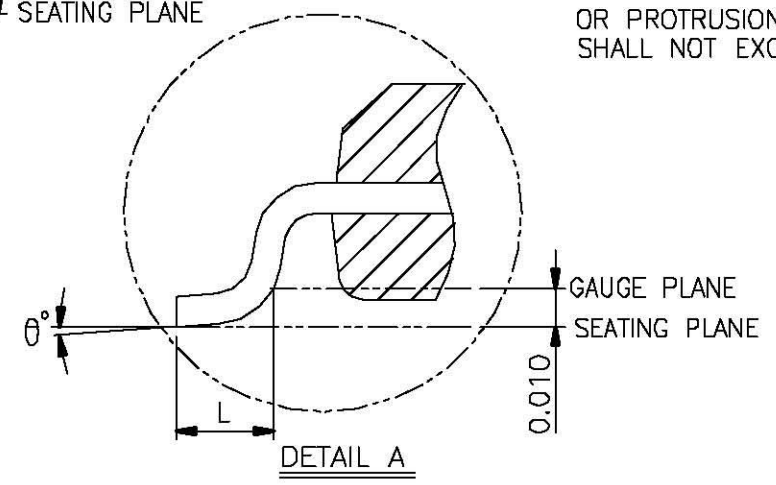
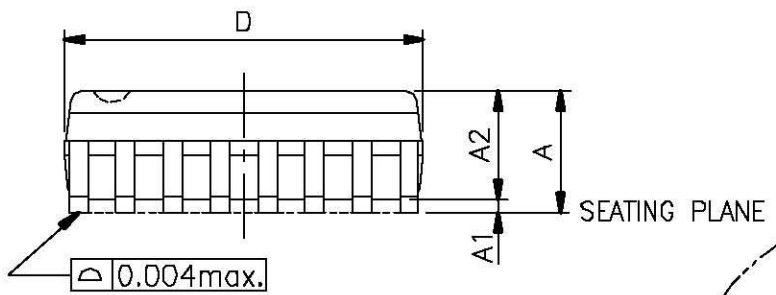


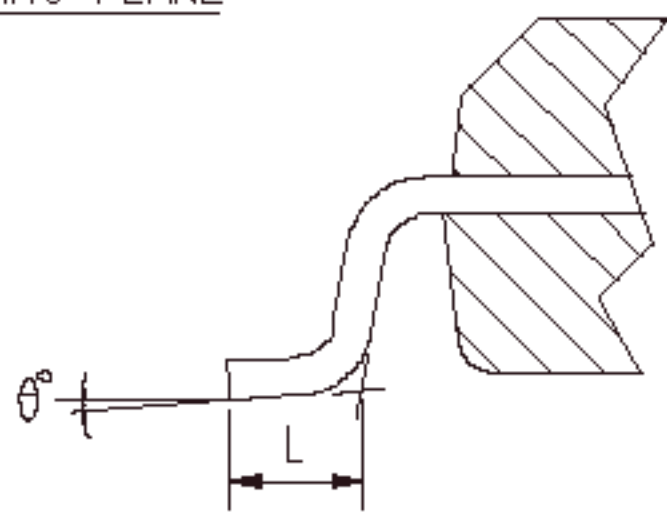
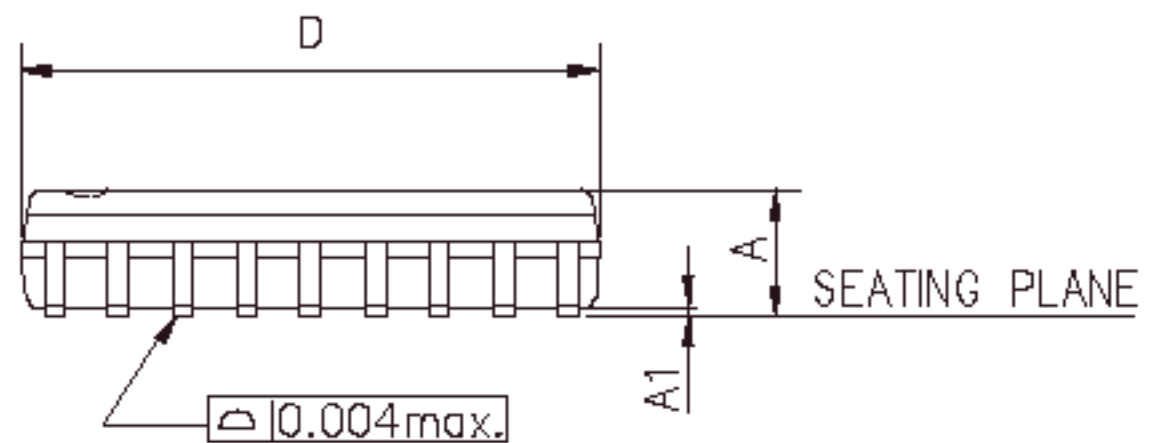
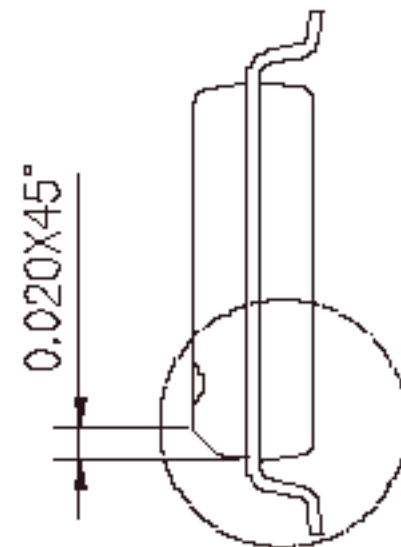
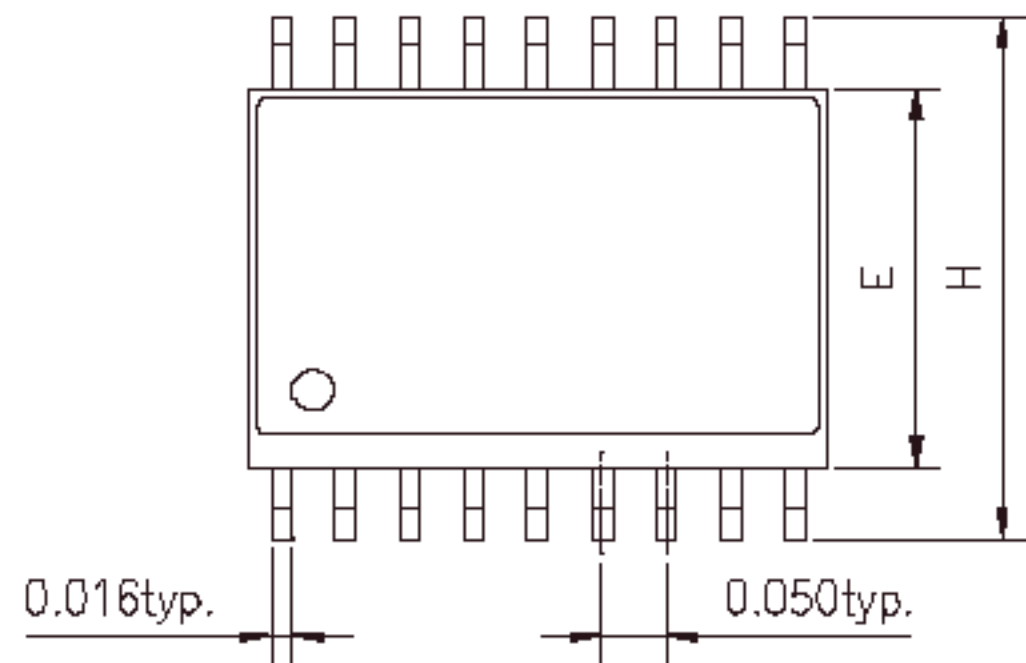
SYMBOLS	MIN.	MAX.
A	0.053	0.069
A1	0.004	0.010
A2	—	0.059
b	0.008	0.012
b1	0.008	0.011
c	0.007	0.010
c1	0.007	0.009
D	0.189	0.197
E1	0.150	0.157
E	0.228	0.244
L	0.016	0.050
e	0.025 BASIC	
θ°	0	8

UNIT : INCH

NOTES:

1. JEDEC OUTLINE : MO-137 AB
2. DIMENSIONS "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED .15mm (.006in) PER SIDE.
3. DIMENSIONS "E" DOES NOT INCLUDE INTER-LEAD FLASH, OR PROTRUSIONS. INTER-LEAD FLASH AND PROTRUSIONS SHALL NOT EXCEED .25mm (.010in) PER SIDE.





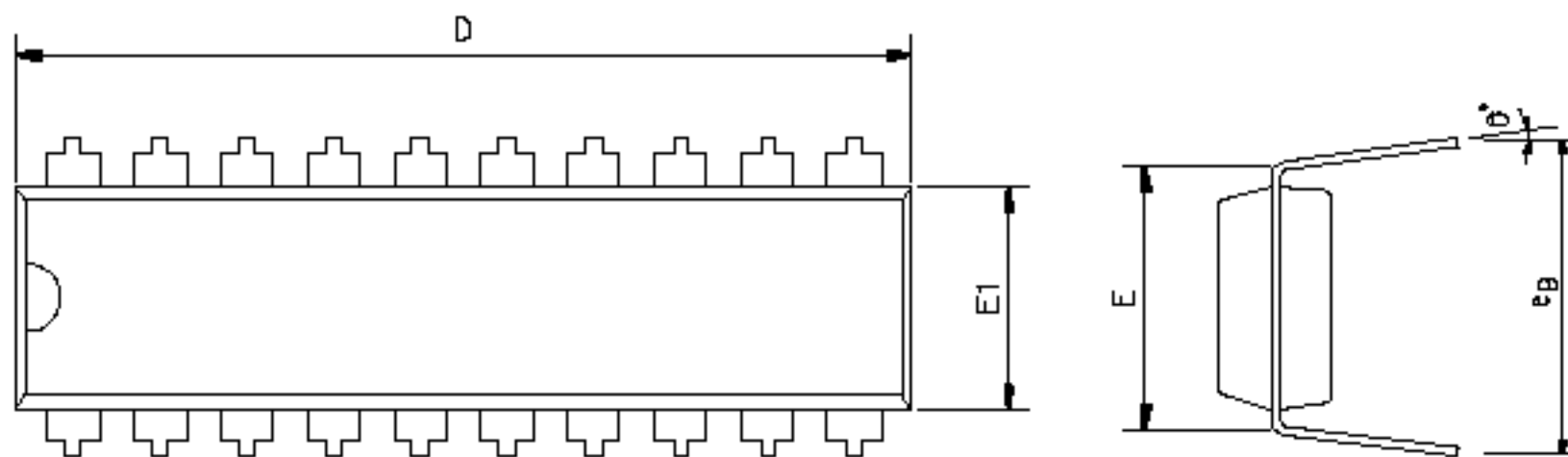
SYMBOLS	MIN.	MAX.
A	0.093	0.104
A1	0.004	0.012
D	0.447	0.463
E	0.291	0.299
H	0.394	0.419
L	0.016	0.050
θ°	0	8

UNIT : INCH

NOTES:

1. JEDEC OUTLINE : MS-013 AB
2. DIMENSIONS "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED .15mm (.006in) PER SIDE.
3. DIMENSIONS "E" DOES NOT INCLUDE INTER-LEAD FLASH, OR PROTRUSIONS. INTER-LEAD FLASH AND PROTRUSIONS SHALL NOT EXCEED .25mm (.010in) PER SIDE.

18 PIN SOP (300 mil)

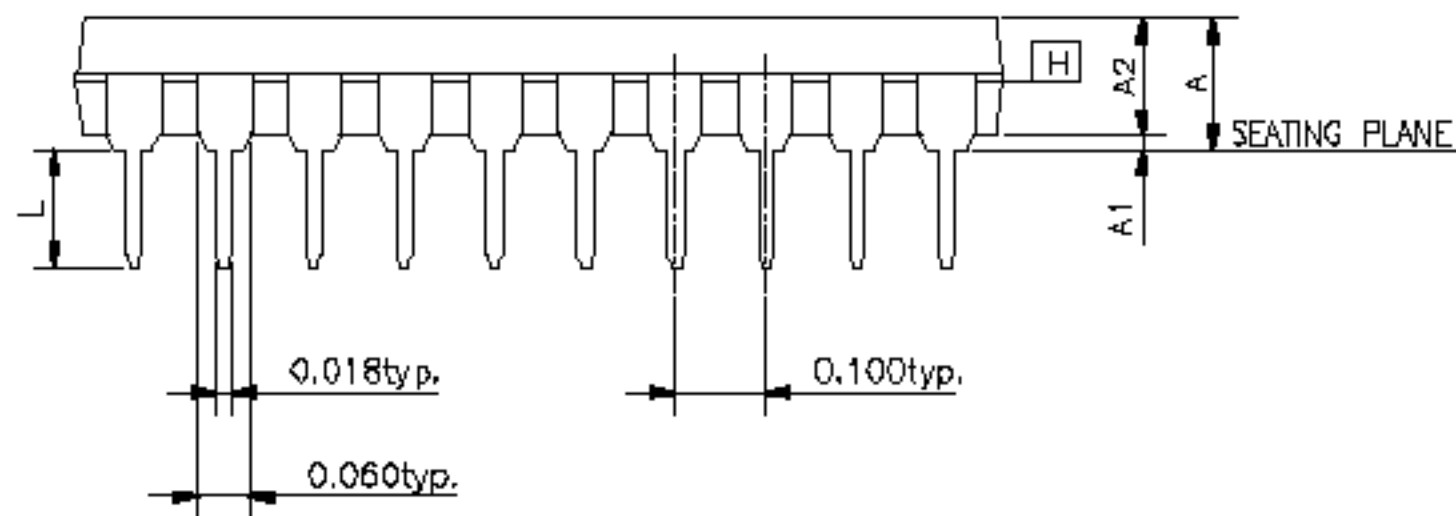


SYMBOLS	MIN.	NOR.	MAX.
A	—	—	0.210
A1	0.015	—	—
A2	0.125	0.130	0.135
D	0.98	1.030	1.060
E	0.300 BSC.		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
e_B	0.335	0.355	0.375
θ°	0	7	15

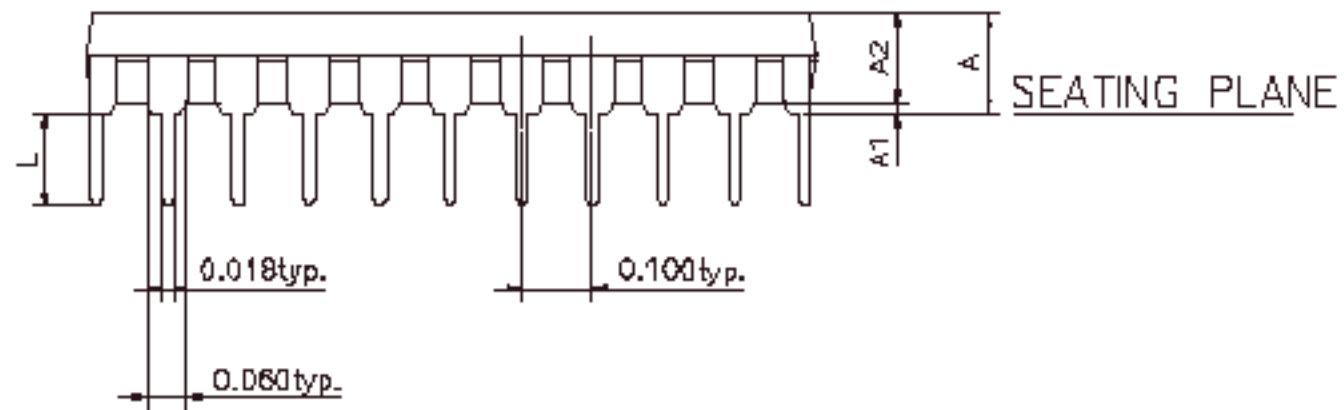
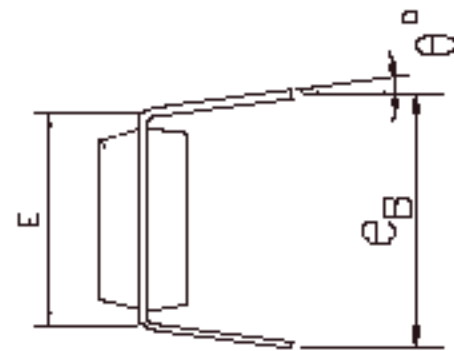
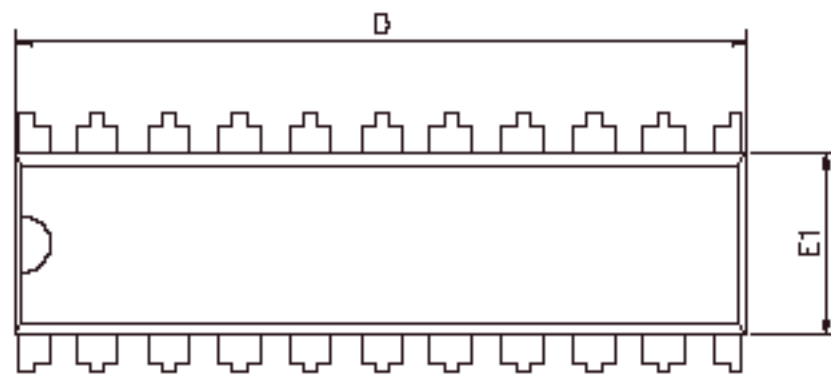
UNIT : INCH

NOTES:

1. JEDEC OUTLINE : MS-001 AD
2. "D", "E1" DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED .010 INCH.
3. e_B IS MEASURED AT THE LEAD TIPS WITH THE LEADS UNCONSTRAINED.
4. POINTED OR ROUNDED LEAD TIPS ARE PREFERRED TO EASE INSERTION.
5. DISTANCE BETWEEN LEADS INCLUDING DAM BAR PROTRUSIONS TO BE .005 INCH MINIMUM.
6. DATUM PLANE [H] COINCIDENT WITH THE BOTTOM OF LEAD, WHERE LEAD EXITS BODY.



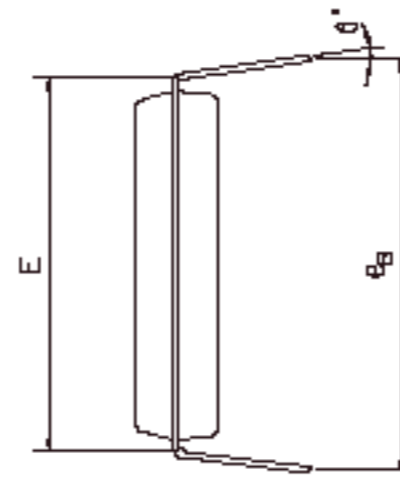
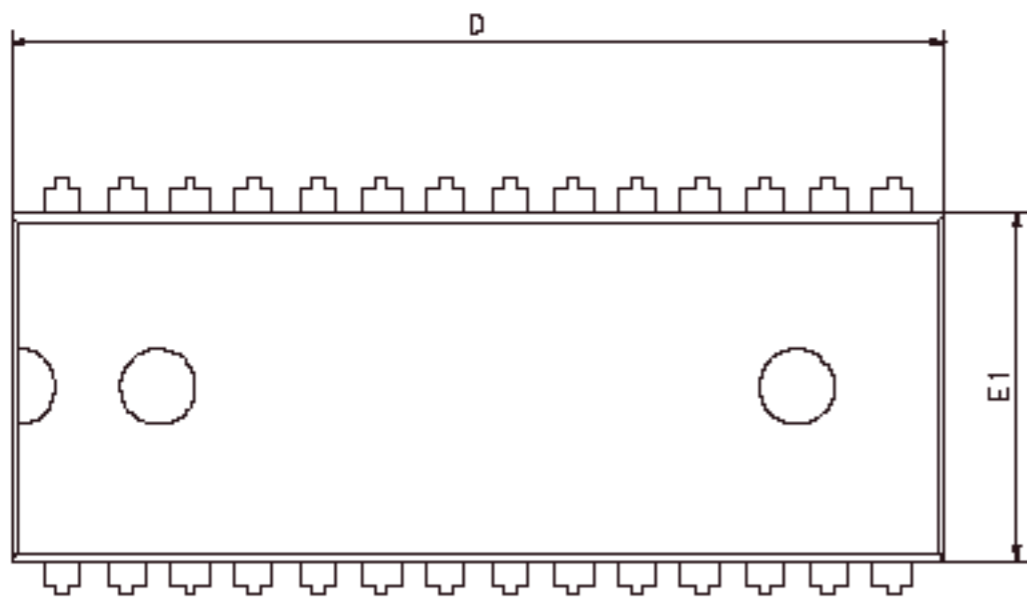
20 PIN DIP (300 mil)



SYMBOLS	MIN.	NOR.	MAX.
A	-	-	0.210
A1	0.015	-	-
A2	0.125	0.130	0.135
D	1.021	1.026	1.040
E	0.300 BSC.		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
e_B	0.335	0.355	0.375
θ	0	7	15

UNIT : INCH

22 PIN SKINNY (300 mil)

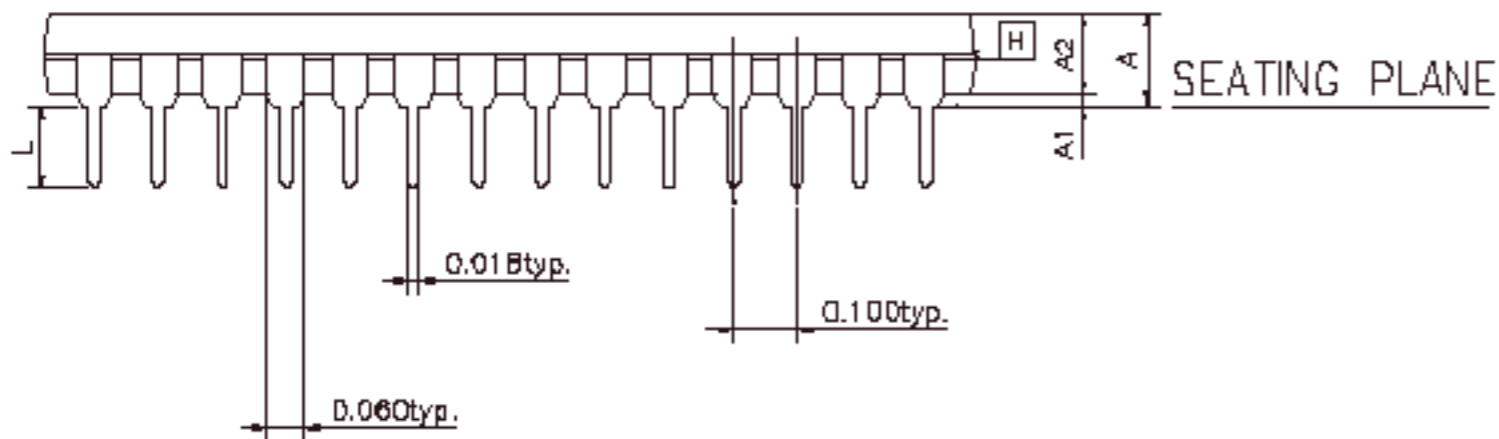


SYMBOLS	MIN.	NOR.	MAX.
A	—	—	0.220
A1	0.015	—	—
A2	0.150	0.155	0.160
D	1.455	1.460	1.470
E	0.600 BSC		
E1	0.540	0.545	0.550
e _B	0.630	0.650	0.670
θ	0	7	15

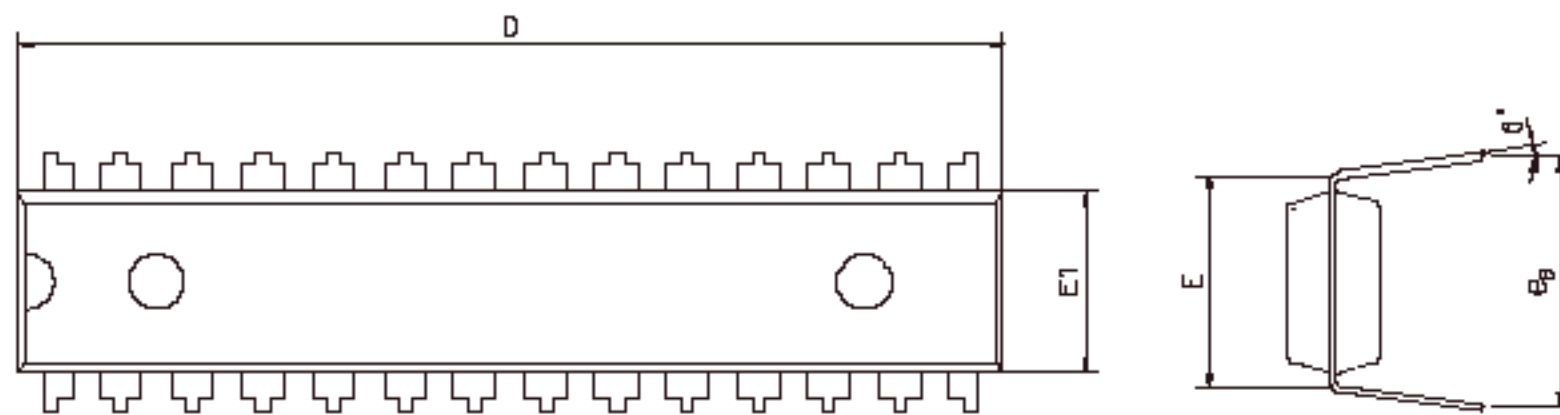
UNIT : INCH

NOTE:

1. JEDEC OUTLINE: N/A



28 PIN DIP (600 mil)

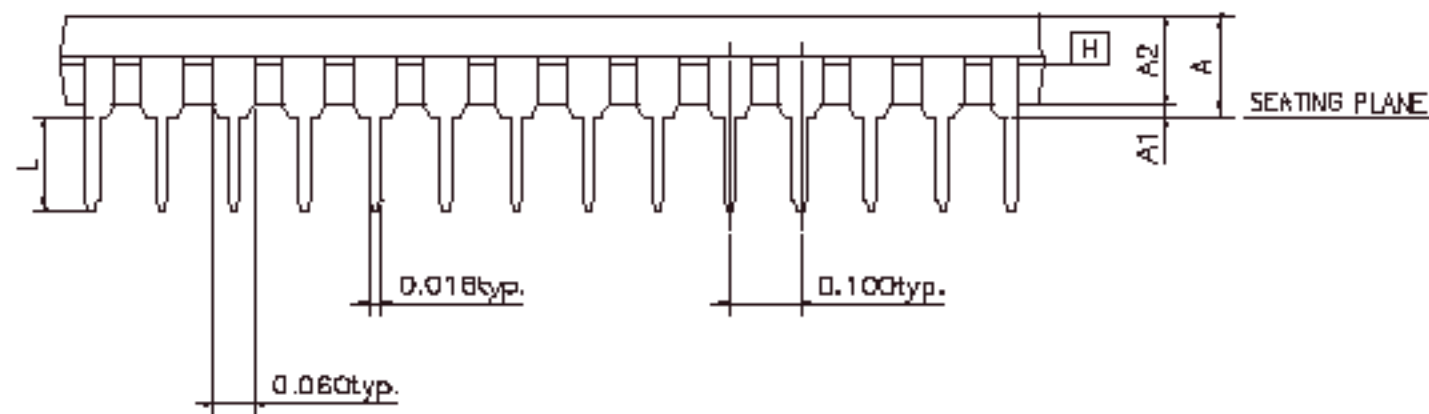


SYMBOLS	MIN.	NOR.	MAX.
A	-	-	0.210
A1	0.015	-	-
A2	0.125	0.130	0.135
D	1.385	1.390	1.400
E	0.310 BSC		
E1	0.283	0.288	0.293
L	0.115	0.130	0.150
e _B	0.330	0.350	0.370
θ°	0	7	15

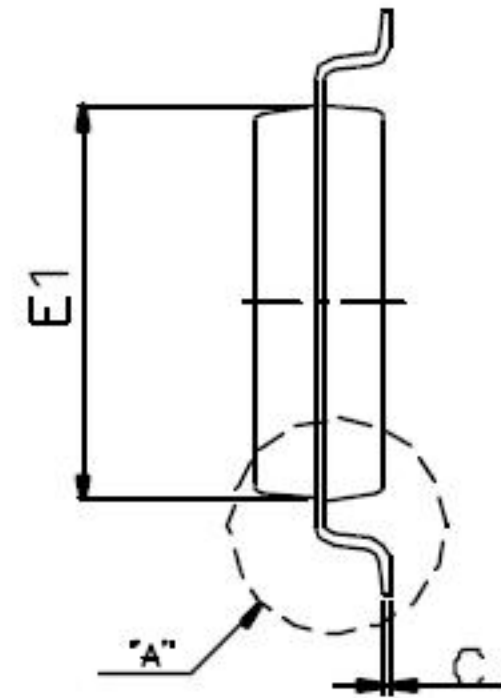
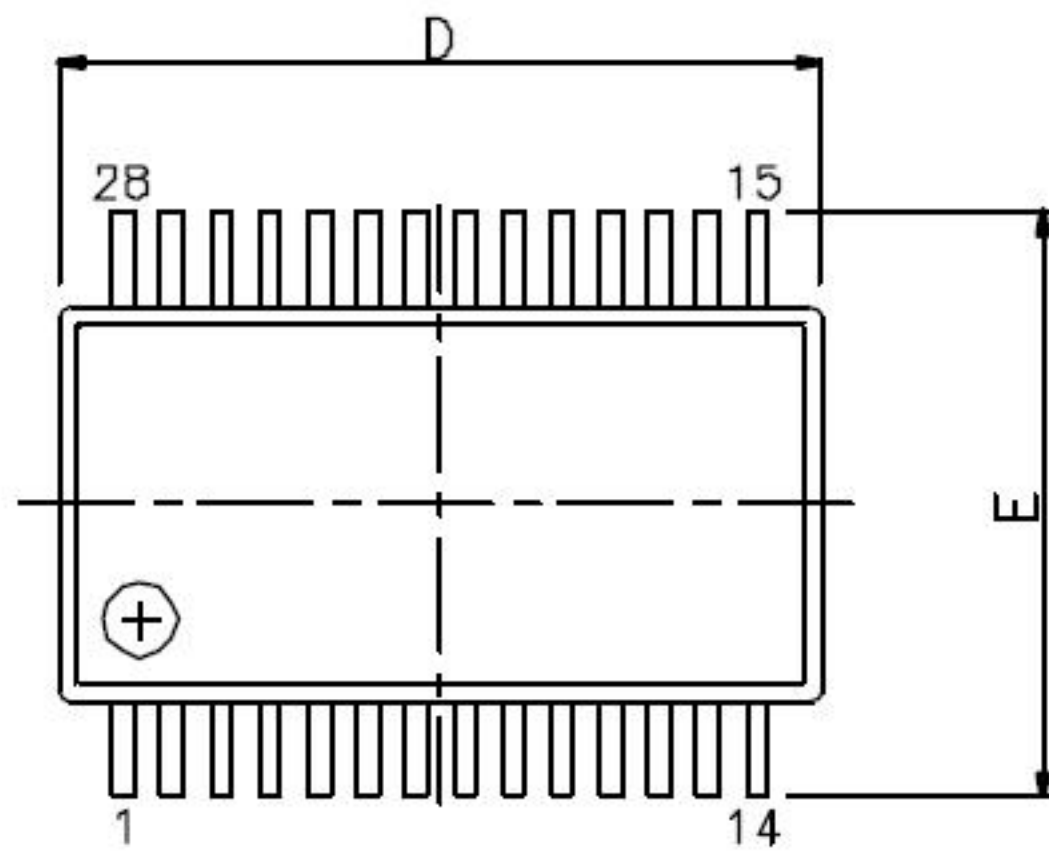
UNIT : INCH

NOTE:

1. JEDEC OUTLINE: N/A

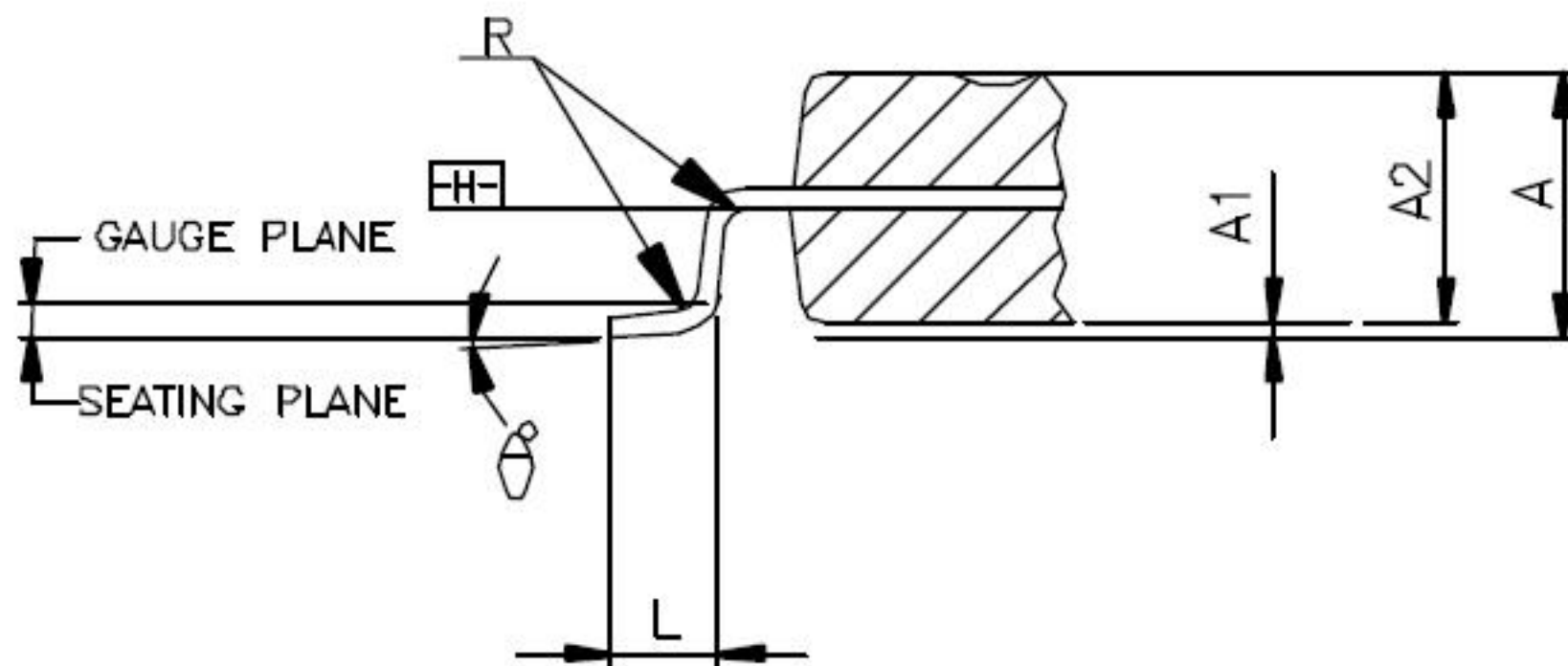
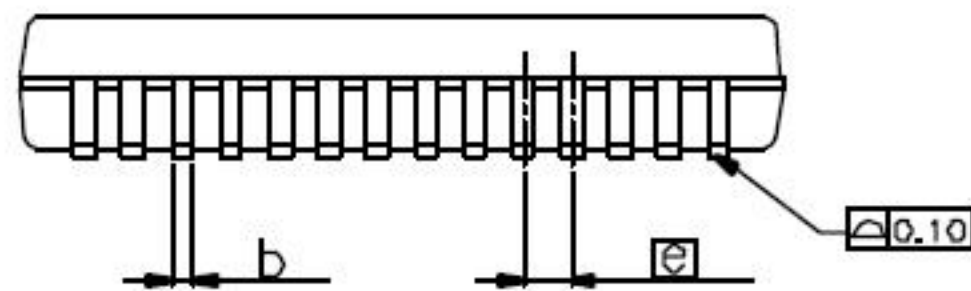


28 SKINNY (300 mil)



SYMBOLS	MIN.	NOM.	MAX.
A	—	—	2.0
A1	0.05	—	—
A2	1.65	1.75	1.85
b	0.22	—	0.38
c	0.09	—	0.25
D	10.05	10.20	10.50
E	7.40	7.80	8.20
E1	5.00	5.30	5.60
e	0.65 BSC		
L	0.55	0.75	0.95
R	0.09	—	—
θ°	0°	4°	8°

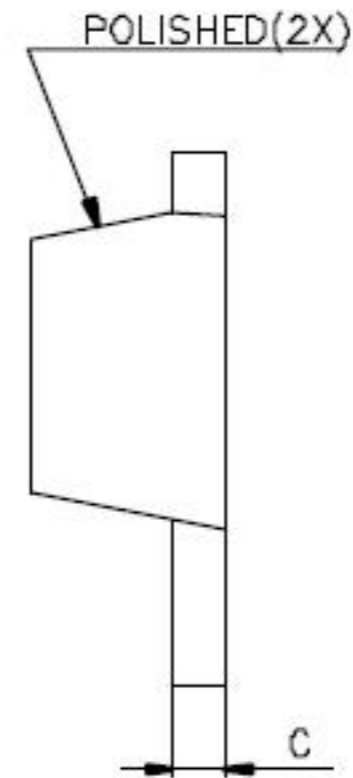
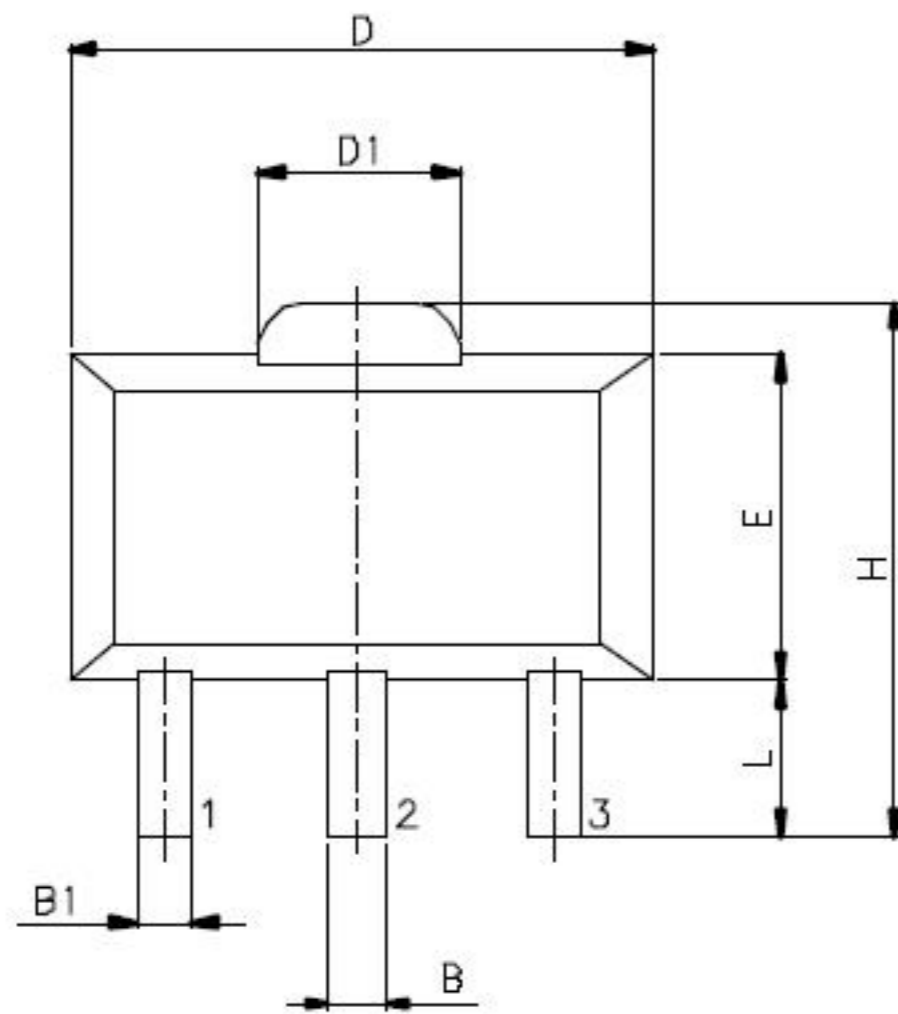
UNIT : MM



DETAIL : A

NOTES :

1. JEDEC OUTLINE : MO-150 AH
2. "D" AND "E1" DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS, BUT DOES INCLUDE MOLD MISMATCH AND ARE MEASURED AT DATUM PLANE H , MOLD PARTING LINE. MOLD FLASH OR PROTRUSION SHALL NOT EXCEED 0.20 mm PER SIDE.
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION/INTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.13mm TOTAL IN EXCESS OF b DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR INTRUSION SHALL NOT REDUCE DIMENSION b BY MORE THAN 0.07mm AT LEAST MATERIAL CONDITION.

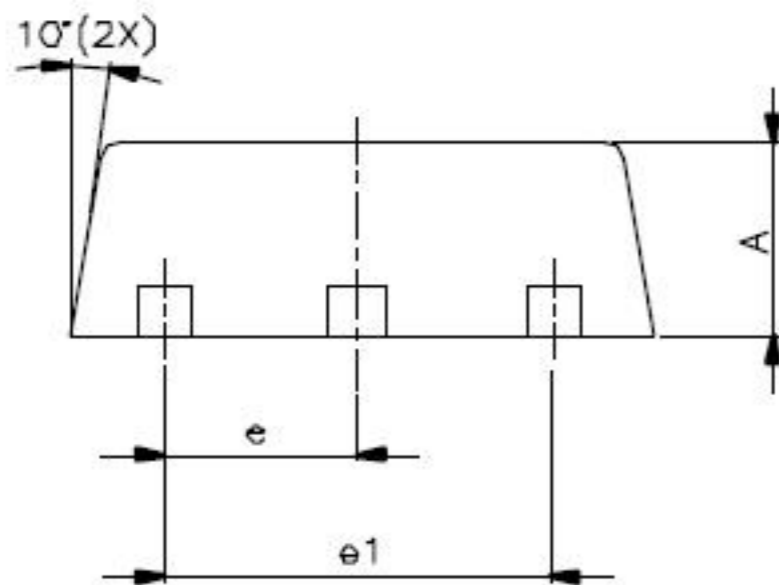


SYMBOLS	MIN.	MAX.
A	1.40	1.60
B	0.44	0.56
B1	0.36	0.48
C	0.35	0.44
D	4.40	4.60
D1	1.35	1.83
E	2.29	2.60
H	3.94	4.25
e	1.50 BSC	
e1	3.00 BSC	
L	0.89	1.2

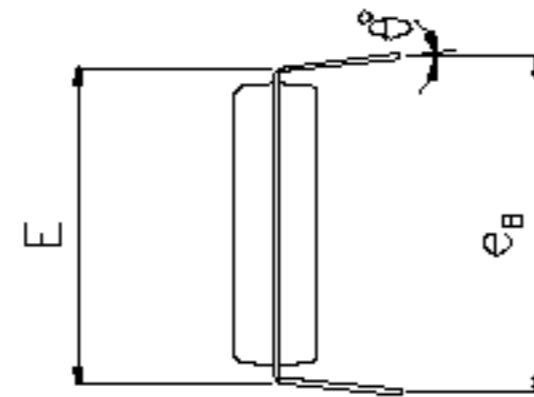
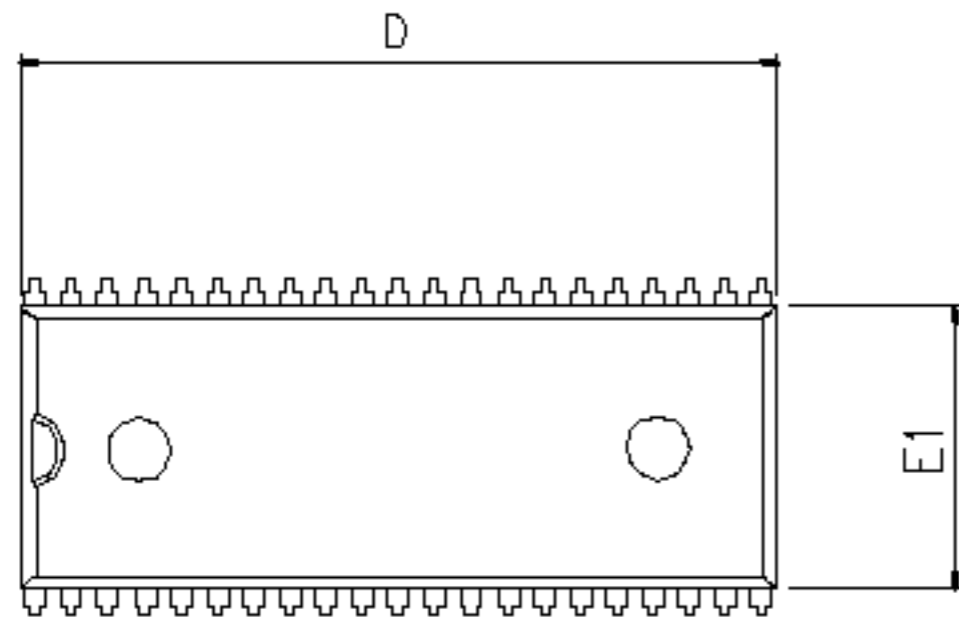
UNIT : mm

NOTES:

1. JEDEC OUTLINE : TO-243 AA
2. DIMENSION B1, 2 PLACES.



3 PIN SOT-89



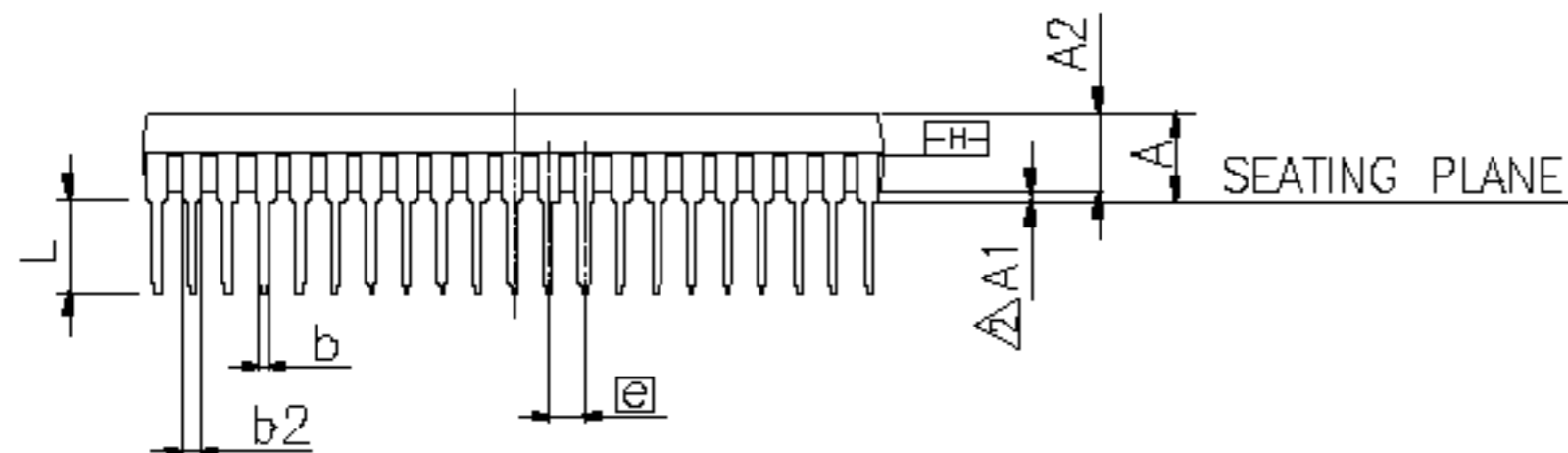
SYMBOLS	MIN.	NOR.	MAX.
A	—	—	0.200
* A1	0.015	—	—
A2	0.120	0.150	0.180
D	1.44	1.45	1.46
E	0.600	—	0.630
E1	0.500	0.540	0.570
L	0.100	0.130	0.140
e _B	—	—	0.730
\square	0.070 BSC.		
b	0.014	0.018	0.022
b2	0.030	0.040	0.045

UNIT : INCH

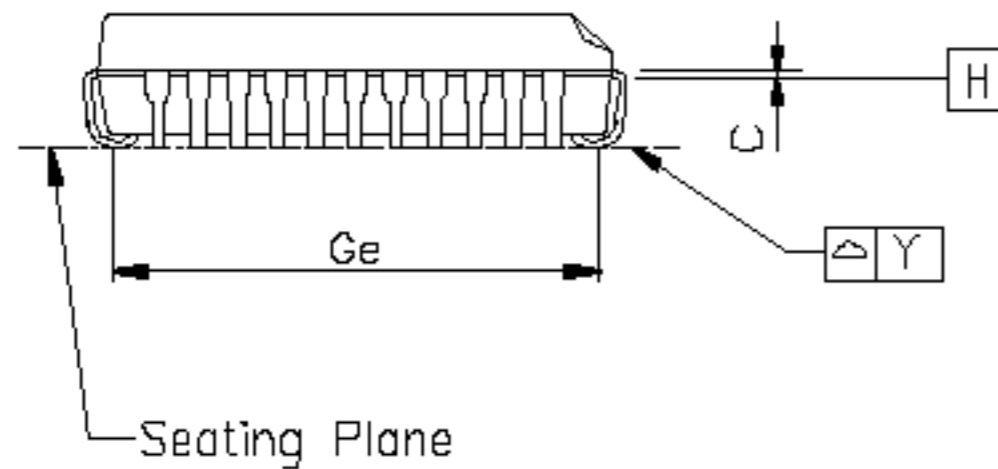
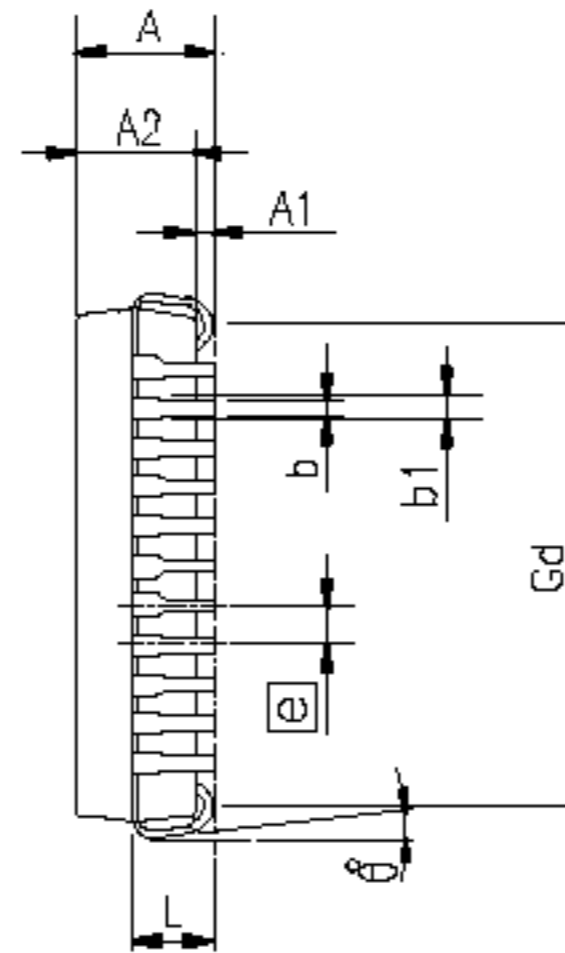
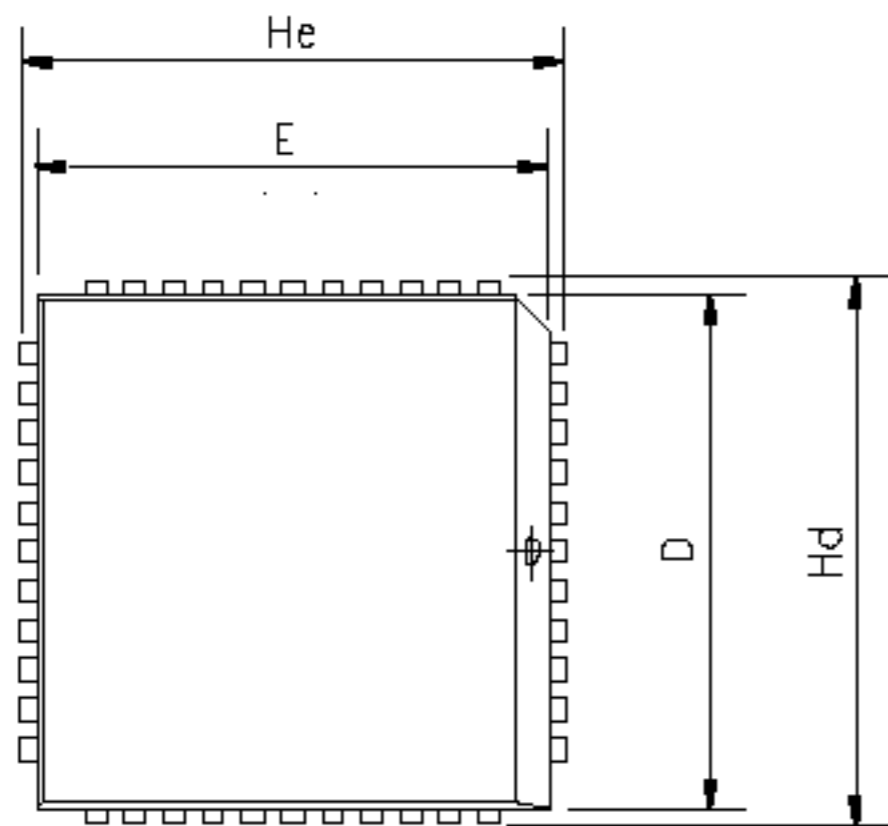
NOTE:

1. JEDEC OUTLINE : MS-020 AB
2. b2 MAXIMUM DIMENSIONS DO NOT INCLUDE DAMBAR PROTRUSIONS SHALL NOT EXCEED 0.010 INCH (0.25MM).
3. DIMENSIONS A, A1 AND L ARE MEASURED WITH THE PACKAGE SEATED IN JEDEC SEATING PLANE GAUGE GS-3.
4. DISTANCE BETWEEN LEADS INCLUDING DAM BAR PROTRUSIONS TO BE 0.005 INCH MIN.
5. DATUM PLANE \square COINCIDENT WITH BOTTOM OF LEAD, WHERE LEAD EXITS BODY.

* A1 DIMENSION DEPENDS ON L/F DESIGN.



42 PIN SDIP (600mil)



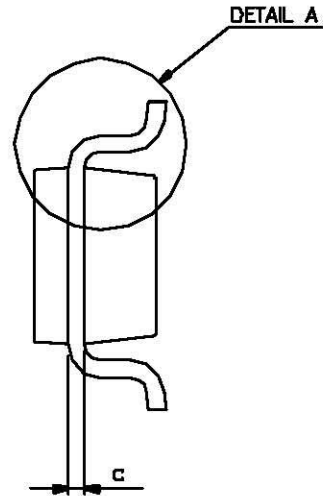
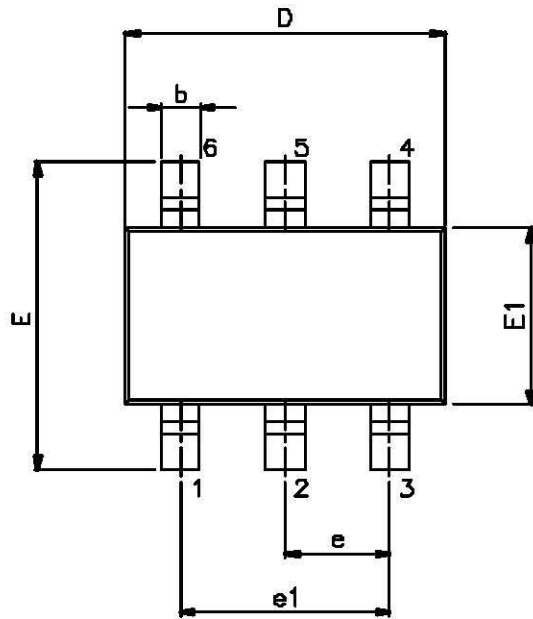
SYMBOLS	MIN.	NOM.	MAX.
A	-	-	0.185
A1	0.020	-	-
A2	0.145	0.150	0.155
b1	0.026	0.028	0.032
b	0.016	0.018	0.022
c	0.007	0.010	0.013
D	0.648	0.653	0.658
E	0.648	0.653	0.658
Ⓜ	0.050 BSC		
Gd	0.590	0.610	0.630
Ge	0.590	0.610	0.630
Hd	0.680	0.690	0.700
He	0.680	0.690	0.700
L	0.090	0.100	0.110
Y	-	-	0.004

UNIT : INCH

• **NOTE:**

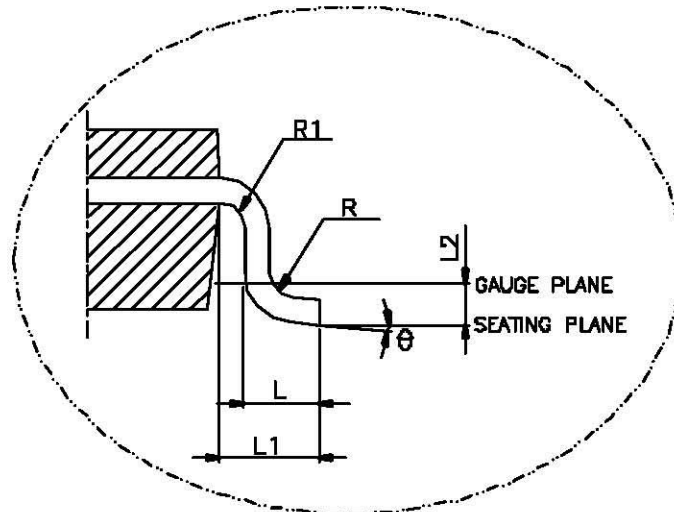
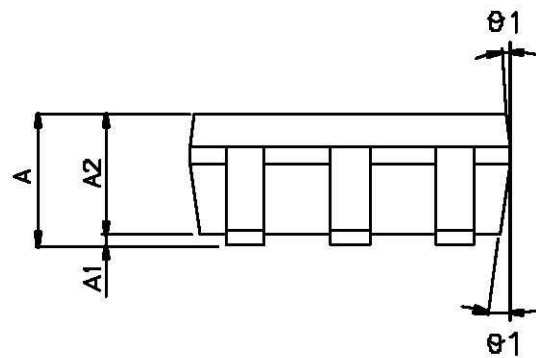
1. JEDEC OUTLINE : MO-047 AC
2. DATUM PLANE Ⓜ IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
3. DIMENSIONS E AND D DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 10 MIL PER SIDE. DIMENSIONS E AND D DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE Ⓜ.
4. DIMENSION b1 DOES NOT INCLUDE DAMBAR PROTRUSION .

44 PIN PLCC (653*653 mm)



VARIATION (ALL DIMENSIONS SHOWN IN MM)

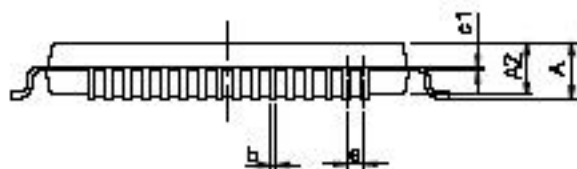
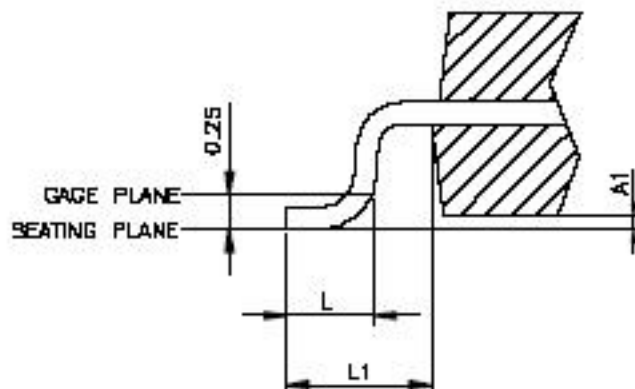
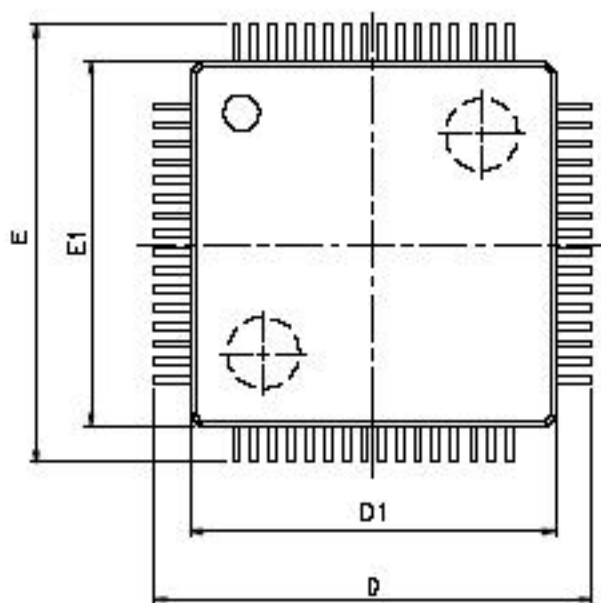
SYMBOL	MIN.	NOM.	MAX.
A	-	-	1.45
A1	-	-	0.15
A2	0.90	1.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.90 BSC.		
E	2.80 BSC.		
E1	1.60 BSC.		
e	0.95 BSC.		
e1	1.90 BSC.		
L	0.30	0.45	0.60
L1	0.60 REF.		
L2	0.25 BSC.		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
$\theta 1$	5°	10°	15°



NOTE : 1. JEDEC OUTLINE : MO-178 AB

6 PIN SOT-26

VARIATIONS (ALL DIMENSIONS SHOWN IN MM)

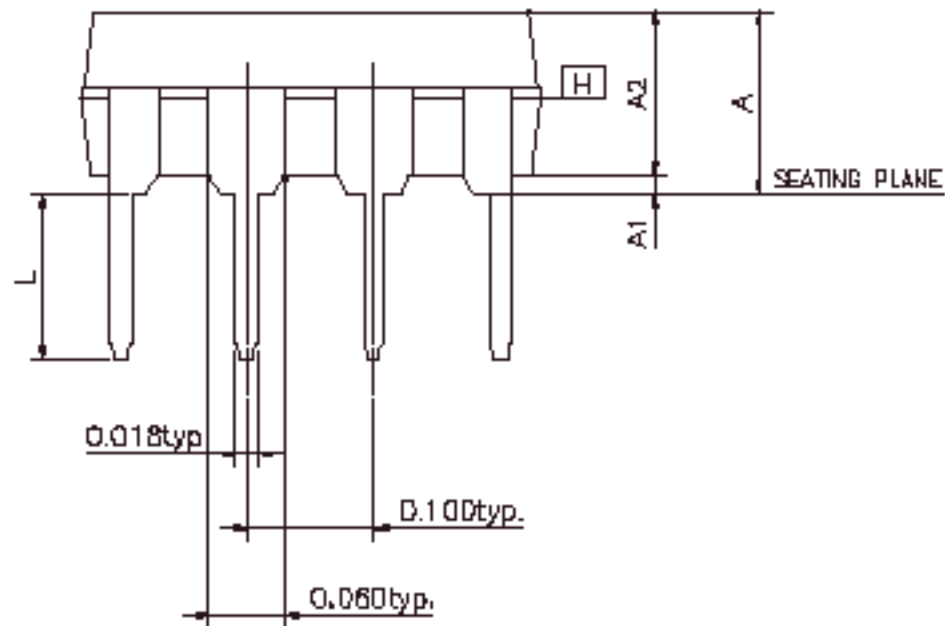
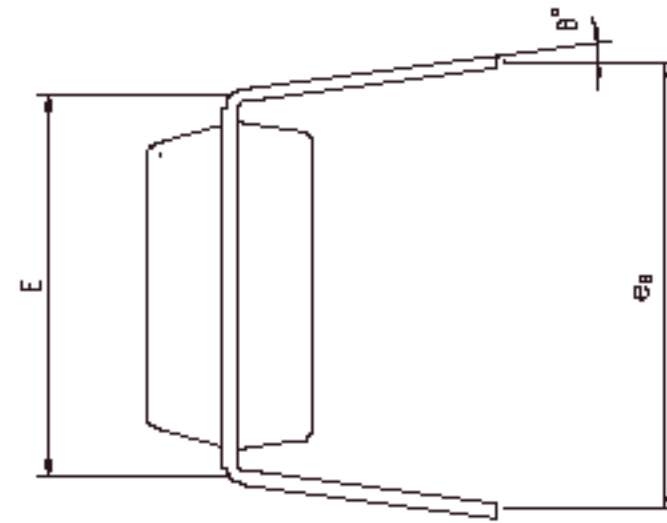
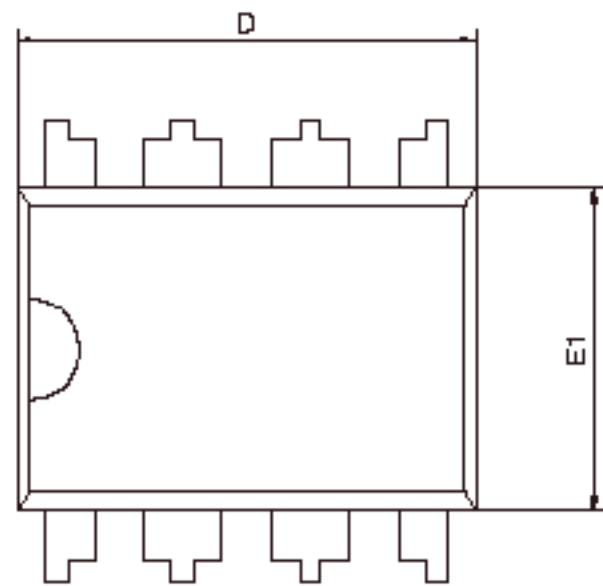


SYMBOLS	MIN.	MAX.
A	--	1.60
A1	0.05	0.15
AZ	1.35	1.45
b	0.17	0.27
e1	0.09	0.16
D	12.00 BSC	
D1	10.00 BSC	
E	12.00 BSC	
E1	10.00 BSC	
e	0.50 BSC	
L	0.45	0.75
L1	1.00 REF	

NOTES:

1. JEDEC OUTLINE: MS-026 BCD
2. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PER SIDE. D1 AND E1 ARE MAXIMUM PLASTIC BODY SIZE DIMENSIONS INCLUDING MOLD MISMATCH.
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED THE MAXIMUM b DIMENSION BY MORE THAN 0.08mm.

64 PIN LQFP



SYMBOLS	MIN.	NOR.	MAX.
A	—	—	0.210
A1	0.015	—	—
A2	0.115	0.130	0.195
D	0.355	0.365	0.400
E	0.300 BSC.		
E1	0.240	0.250	0.280
L	0.115	0.130	0.150
e_B	—	—	0.430
θ°	0	7	15

UNIT : INCH

NOTES:

1. JEDEC OUTLINE : MS-001 BA
2. " D " " $E1$ " DIMENSIONS DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED .010 INCH.
3. e_B IS MEASURED AT THE LEAD TIPS WITH THE LEADS UNCONSTRAINED.
4. POINTED OR ROUNDED LEAD TIPS ARE PREFERRED TO EASE INSERTION.
5. DISTANCE BETWEEN LEADS INCLUDING DAM BAR PROTRUSIONS TO BE .005 INCH MINIMUM.
6. DATUM PLANE [H] COINCIDENT WITH THE BOTTOM OF LEAD, WHERE LEAD EXITS BODY.

8 PIN DIP (300 mil)