



# Package Information

***Version 0.14***

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## Table of Contents

<b>1. Package outline drawing (POD):</b> .....	<b>4</b>
1.1. DIP8(300mil).....	4
1.2. DIP14(300mil).....	5
1.3. DIP16(300mil).....	6
1.4. DIP20(300mil).....	7
1.5. DIP24(300mil).....	8
1.6. DIP28(300mil).....	9
1.7. SOT23-3 .....	10
1.8. SOT23-6 .....	11
1.9. MSOP8(118mil)&E-PAD .....	12
1.10. MSOP10(118mil)&E-PAD .....	14
1.11. SOP8(Pitch:1.27mm,Width:150mil) &E-PAD .....	15
1.12. SOP14(Pitch:1.27mm,Width:150mil) .....	17
1.13. SOP16(Pitch:1.27mm,Width:150mil)&E-PAD .....	18
1.14. SOP18(Pitch:1.27mm ,Width:300mil) .....	20
1.15. SOP20(Pitch:1.27mm,Width:300mil) .....	21
1.16. SOP24(Pitch:1.27mm,Width:300mil) .....	22
1.17. SOP28(Pitch:1.27mm,Width:300mil) .....	23
1.18. SSOP16(Pitch:0.635mm,Width:150mil) .....	24
1.19. SSOP20(Pitch:0.635mm,Width:150mil) .....	25
1.20. SSOP24(Pitch:0.635mm,Width:150mil) .....	26
1.21. QFN3*3-16(Pitch:0.50mm,Width:3x3mm,Thickness:0.75mm) .....	27
1.22. QFN3*3-20(Pitch:0.4mm, Width:3X3mm,Thickness:0.75mm) .....	28
1.23. QFN4*4-16(E-PAD:2.1x2.1mm,Pitch:0.65mm,Width:4x4mm,Thickness:0.75mm) .....	29
1.24. QFN4*4-24(Pitch:0.5mm,Width:4x4mm,Thickness:0.75mm) .....	30
1.25. DFN2*2-6(Pitch:0.65mm,Width:2x2mm,Thickness:0.75mm) .....	31
1.26. DFN2*2-8(Pitch:0.50mm, Width:2x2mm,Thickness:0.75mm) .....	32
1.27. DFN3*3-10(Pitch:0.50mm, Width:3x3mm,Thickness:0.75mm) .....	33
1.28. ESSOP10(Pitch:1mm,Width:150mil) with E-PAD .....	34
1.29. HTSOP20(Pitch:1mm,Width:150mil) .....	35
1.30. TSSOP20 with E-PAD .....	36
1.31. TSSOP28 .....	37

# Package Information

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## Revision History:

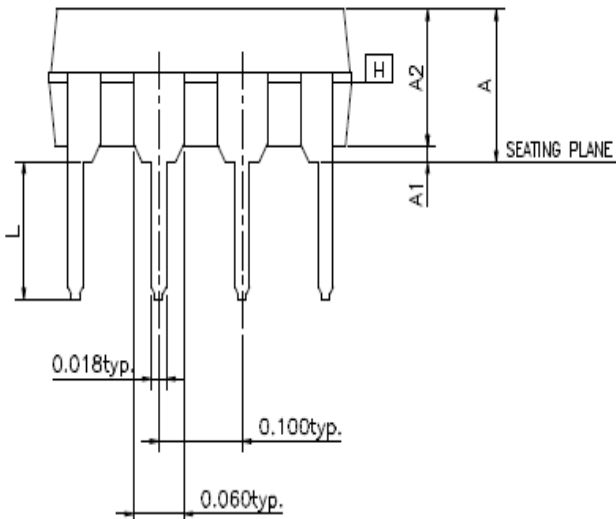
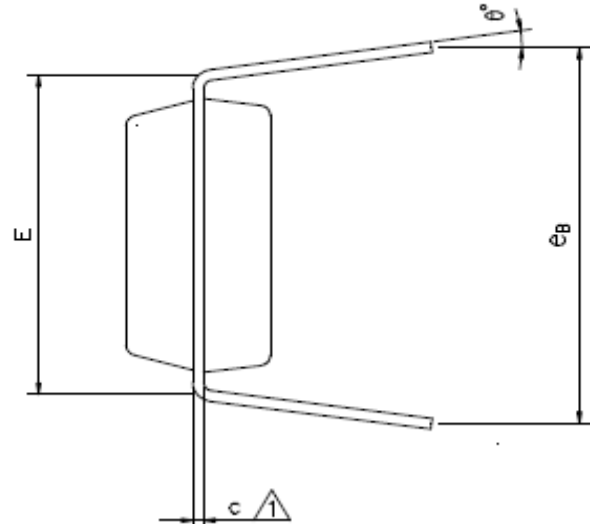
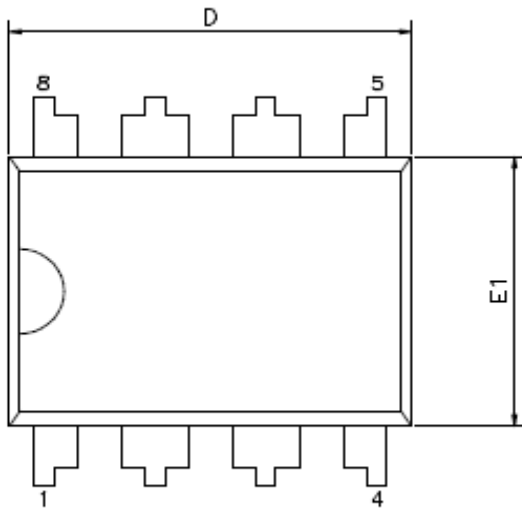
Revision	Date	Description
0.11	2022/08/05	1. Delete QFN4*4-16(E-PAD:2.65x2.65mm)
0.12	2022/09/16	1. Add E-PAD size for 1.9 MSOP8 and 1.10 MSOP10 2. Add E-PAD size for 1.11 SOP8 and 1.13 SOP16
0.13	2023/06/15	1. REVISED 1.27 E-Pad size of ESSOP10
0.14	2023/09/13	1. Add 1.22 QFN3X3-20 2. REVISED 1.30 TSSOP20 with E-Pad

# Package Information

## 1. Package outline drawing (POD):

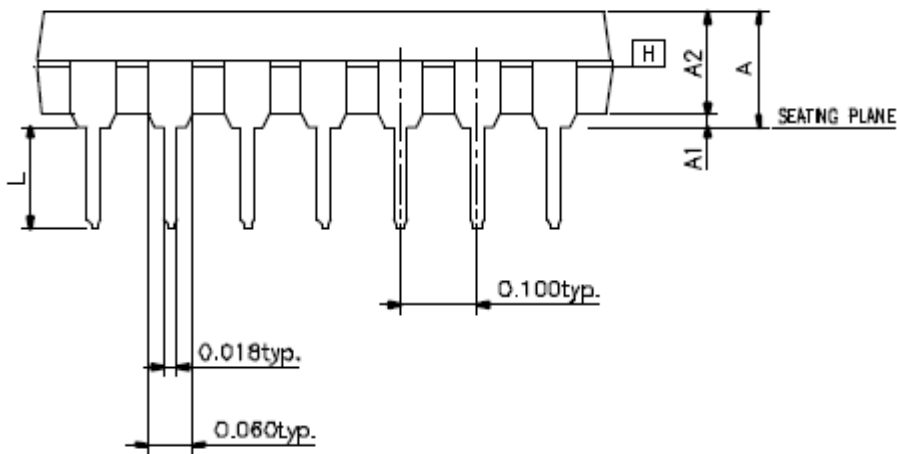
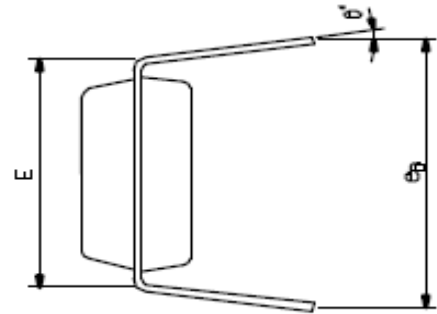
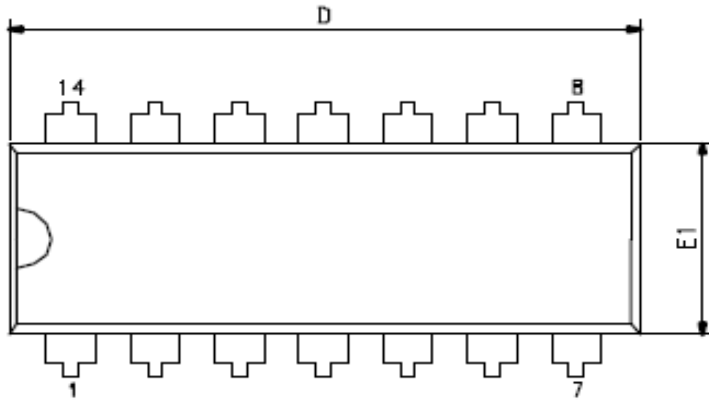
The following drawings and dimensions are for reference only

### 1.1. DIP8(300mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.210
A1	0.015	-	-
A2	0.125	0.130	0.135
c	0.008	0.010	0.014
D	0.355	0.365	0.400
E	0.300 BSC		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
eB	0.335	0.355	0.375
$\theta^\circ$	0	7	15

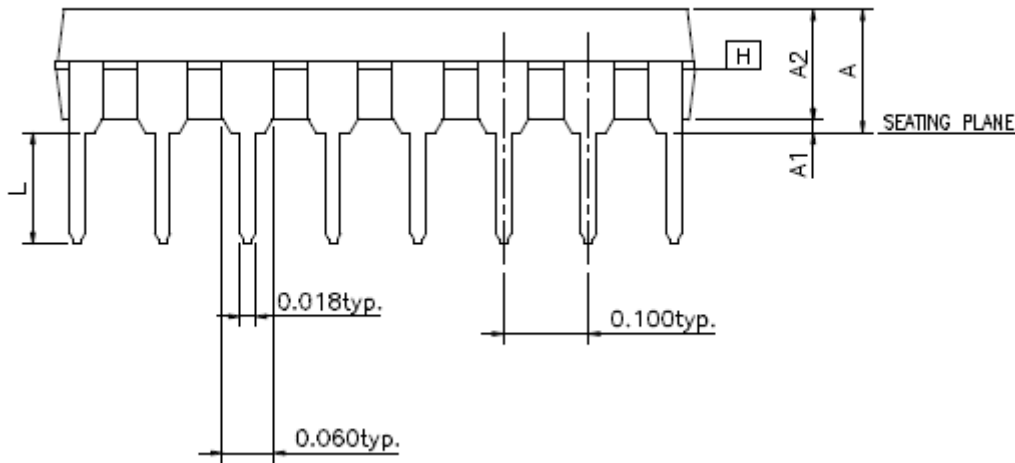
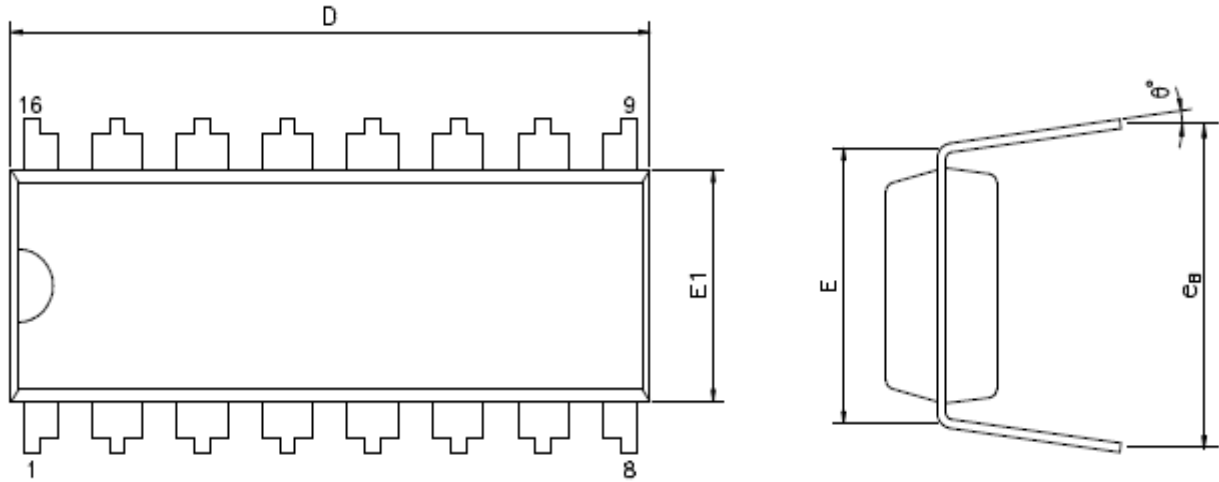
## 1.2. DIP14(300mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.21
A1	0.015	-	-
A2	0.125	0.130	0.135
D	0.735	0.750	0.775
E	0.300 BSC		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
eB	0.335	0.355	0.375
$\theta^\circ$	0	7	15

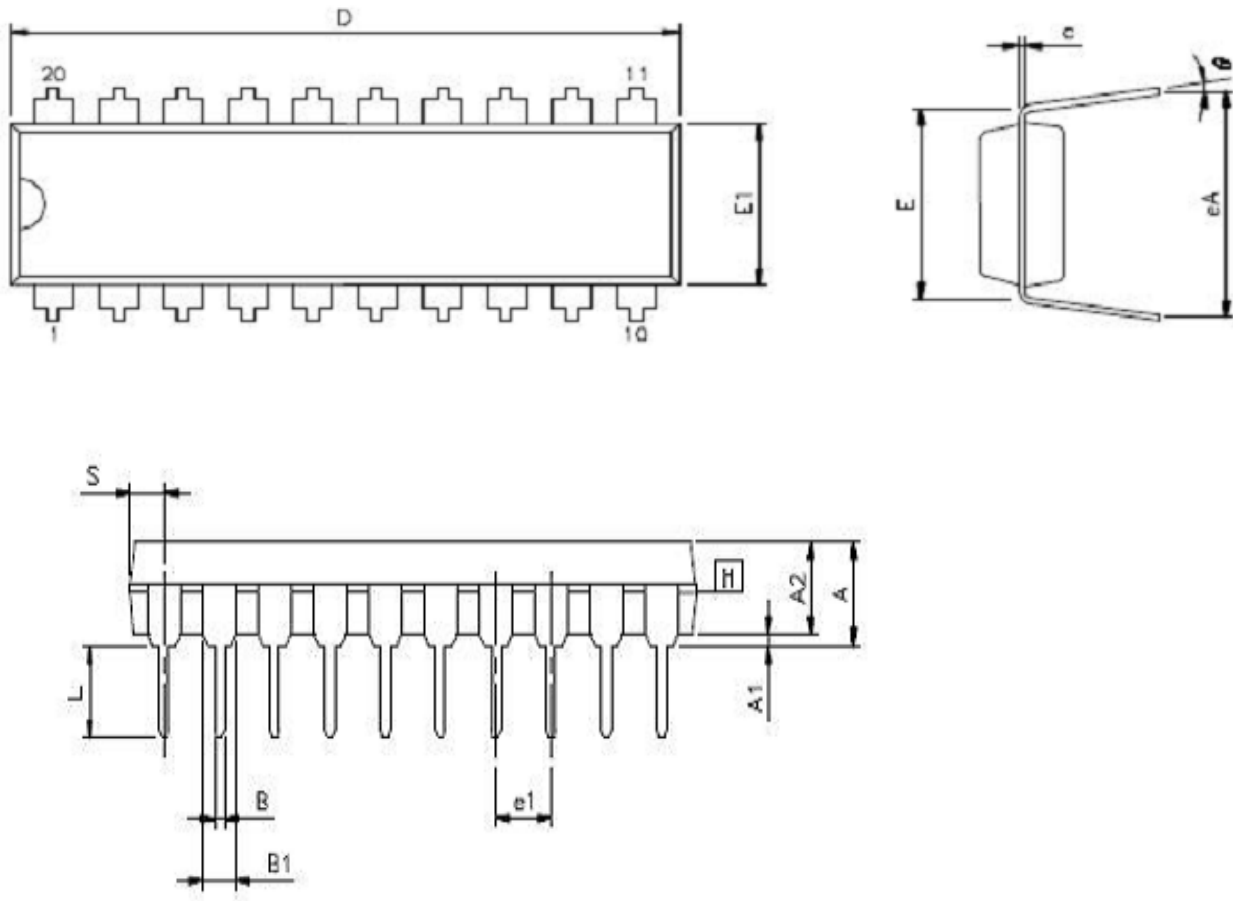
# Package Information

## 1.3. DIP16(300mil)



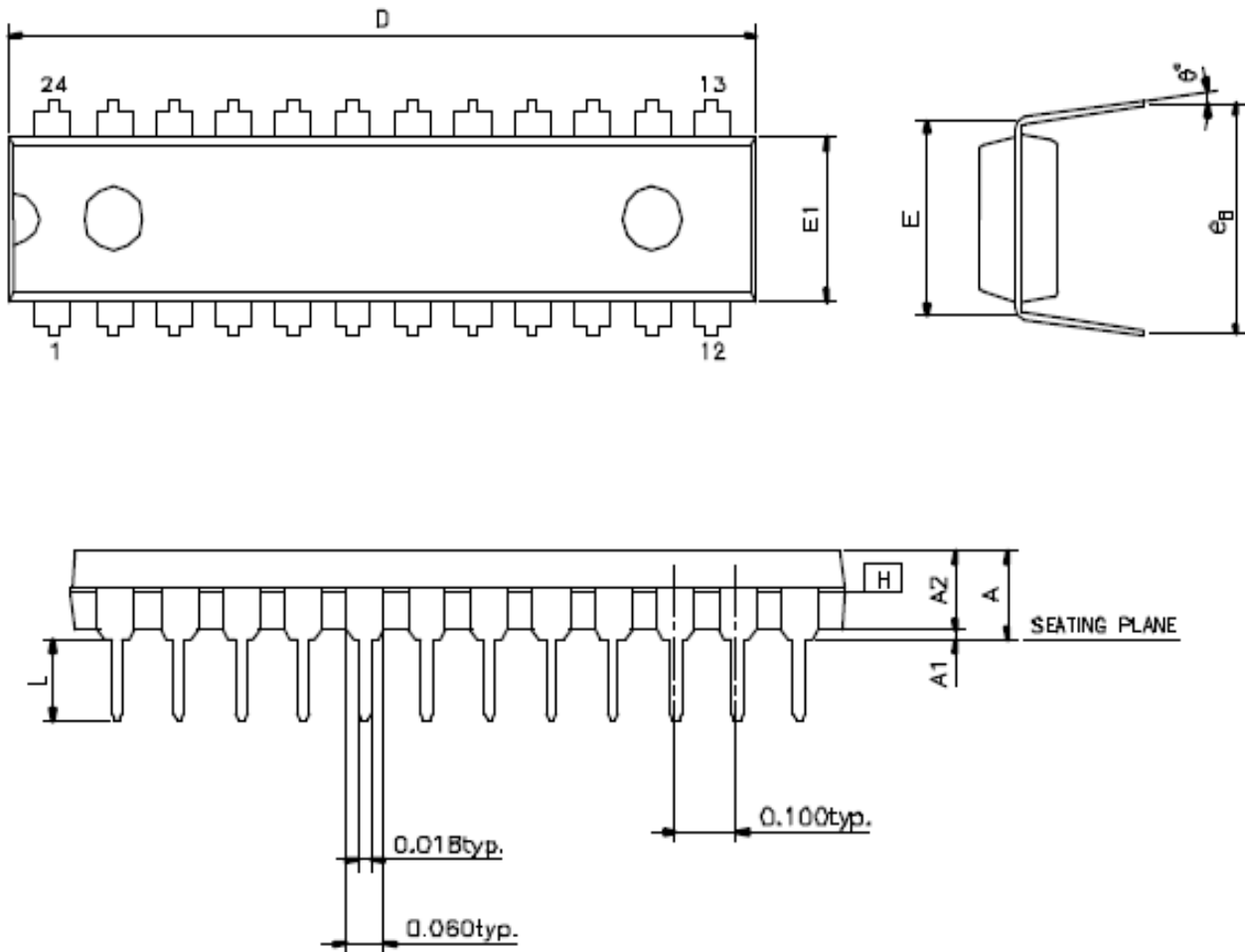
SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.172
A1	0.015	-	0.038
A2	0.125	0.130	0.135
D	0.735	0.755	0.775
E	0.300 BSC		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
e B	0.335	0.355	0.375
$\theta^\circ$	0	7	15

## 1.4. DIP20(300mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.175
A1	0.015	-	-
A2	0.125	0.130	0.135
B	0.016	0.018	0.020
B1	0.058	0.060	0.064
c	0.008	0.010	0.011
D	1.002	1.026	1.040
E	0.290	0.300	0.310
E1	0.245	0.250	0.255
e1	0.090	0.100	0.110
L	0.120	0.130	0.140
$\theta^\circ$	0	-	15
eA	0.335	0.355	0.375
eC	0.000	-	0.06
S	-	-	0.075

## 1.5. DIP24(300mil)

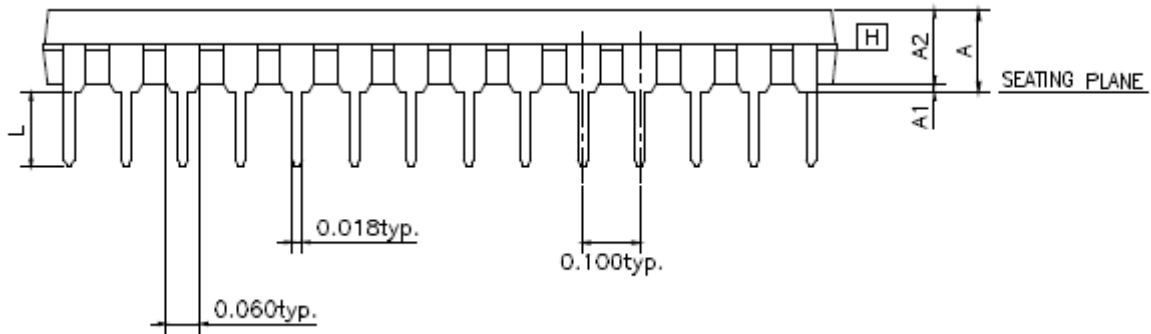
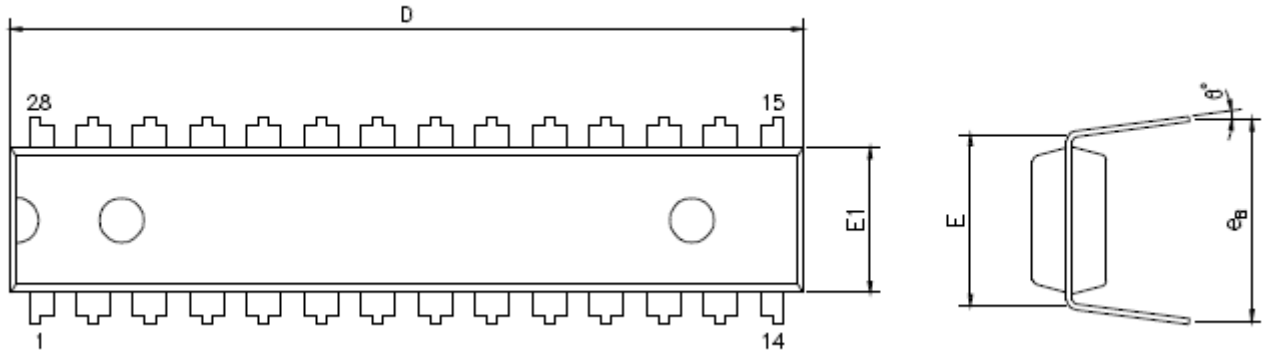


SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.210
A1	0.015	-	-
A2	0.125	0.130	0.135
D	1.230	1.250	1.280
E	0.300 BSC		
E1	0.253	0.258	0.263
L	0.115	0.130	0.150
e B	0.335	0.355	0.375
$\theta^\circ$	0	7	15



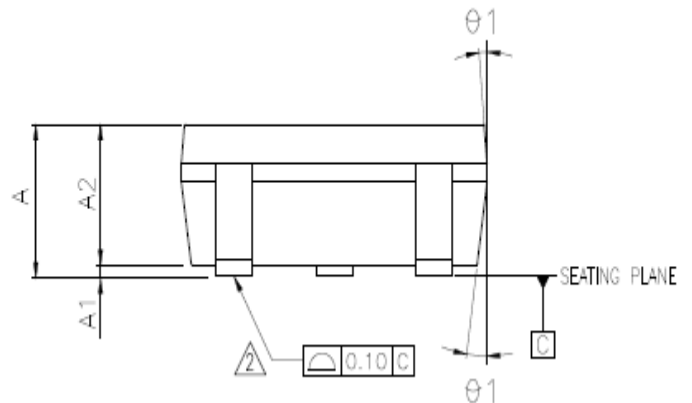
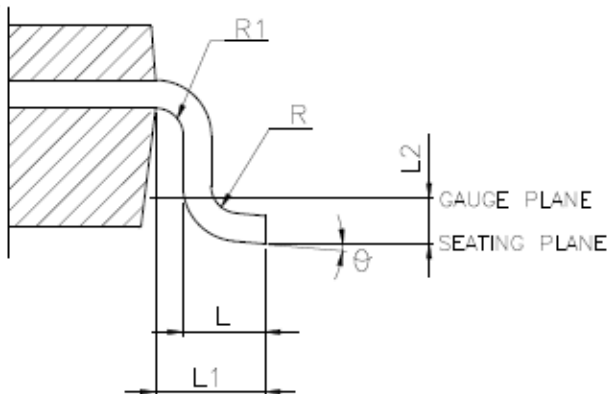
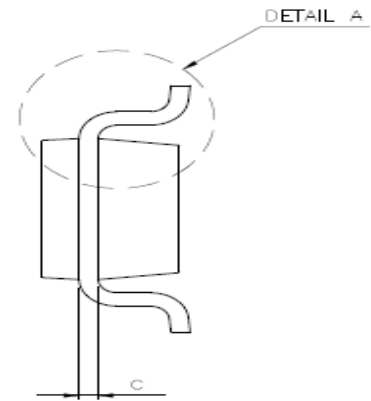
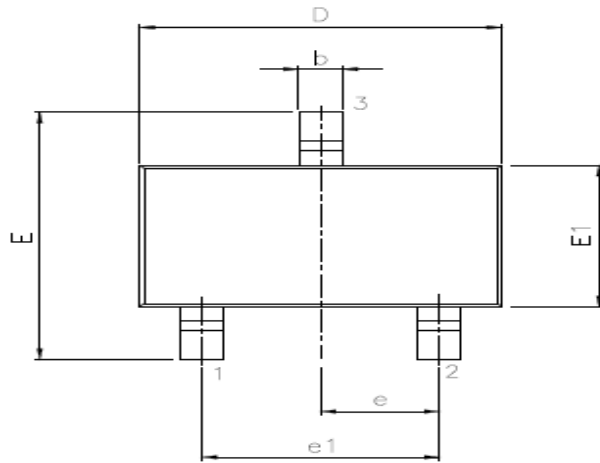
# Package Information

## 1.6. DIP28(300mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.175
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	0.120	0.130	0.140
e B	0.330	0.350	0.370
$\theta^\circ$	0	7	15

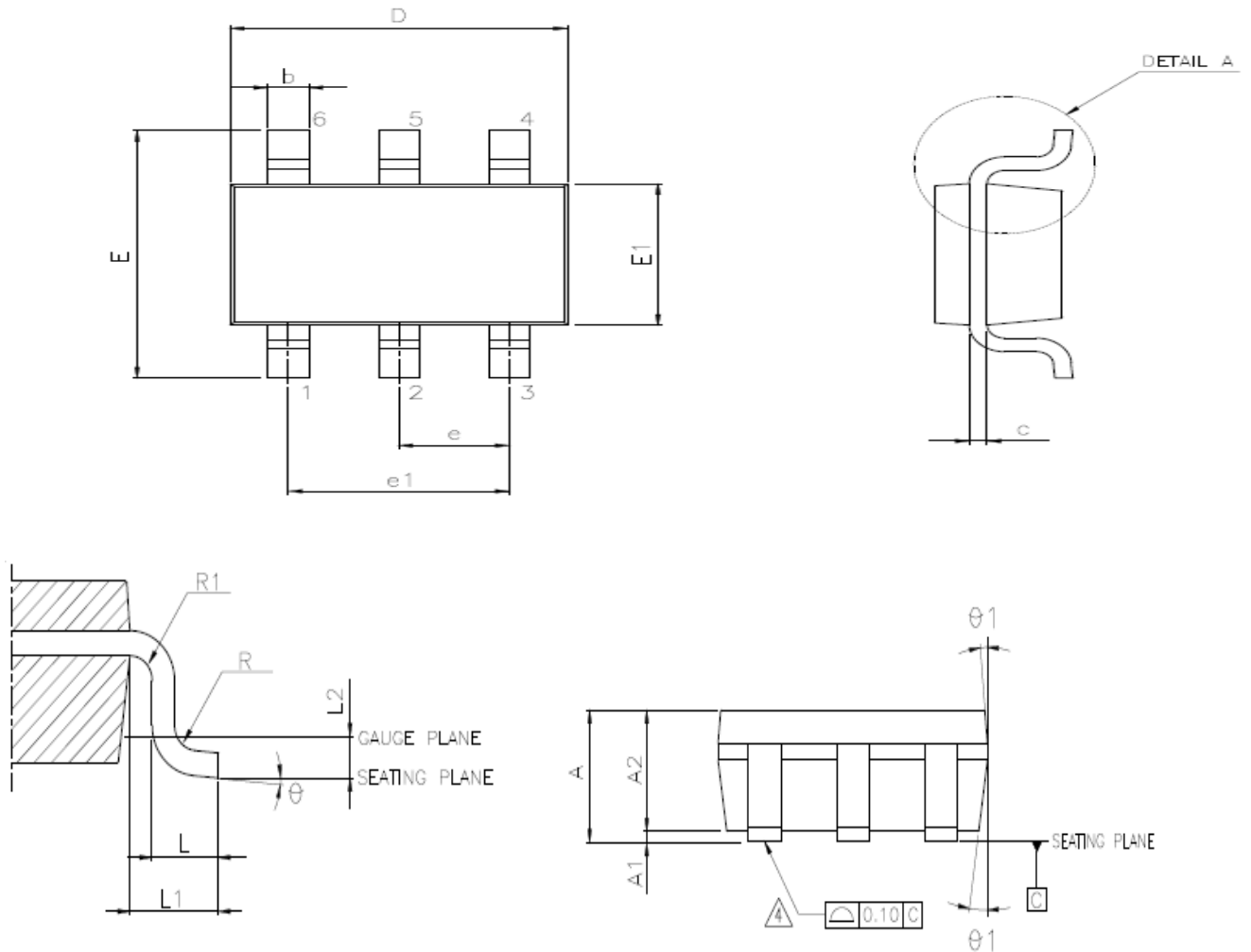
## 1.7. SOT23-3



SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	-	-	1.45
A1	0.00	-	0.15
A2	0.90	1.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.90 REF		
E	2.80 REF		
E1	1.60 REF		
e	0.95 REF		
e1	1.90 REF		
L	0.30	0.45	0.60
L1	0.60 REF		
L2	0.25 BSC		
R	0.10	-	-
R1	0.10	-	0.25
$\theta$	0	4	8
$\theta 1$	5	10	15

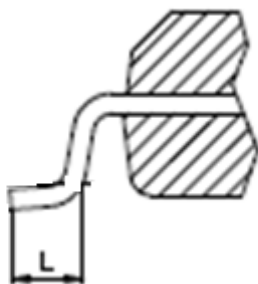
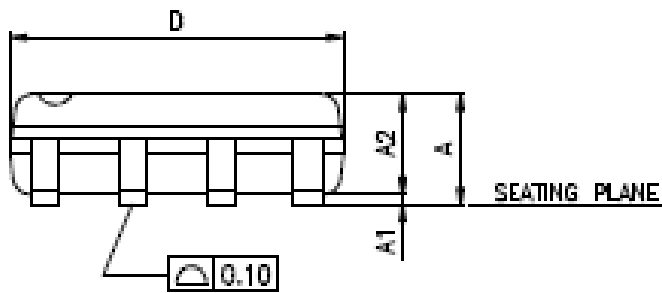
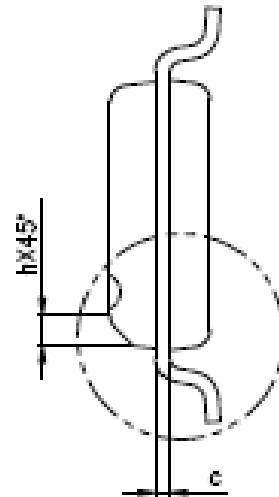
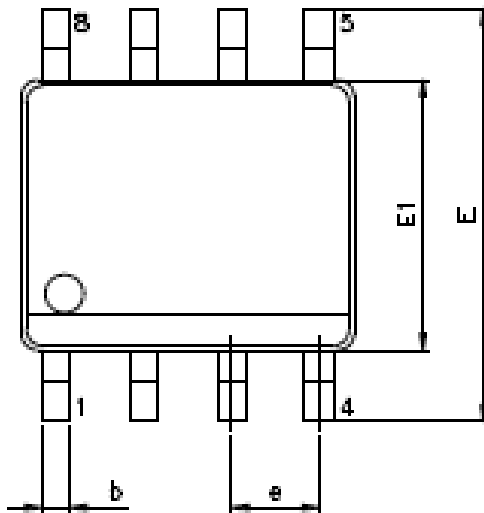
# Package Information

## 1.8. SOT23-6

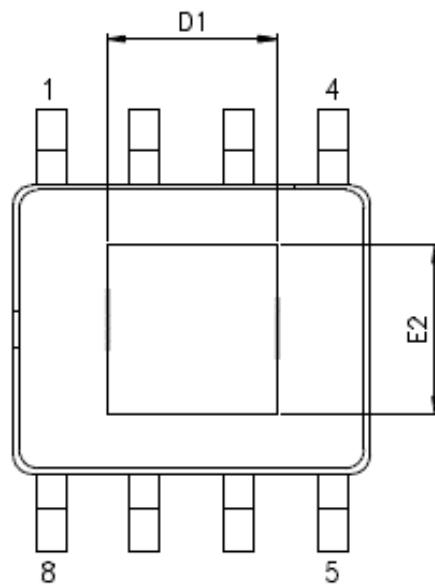


SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	-	-	1.45
A1	0.00	-	0.15
A2	0.90	1.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.90 REF		
E	2.80 REF		
E1	1.60 REF		
e	0.95 REF		
e1	1.90 REF		
L	0.30	0.45	0.60
L1	0.60 REF		
L2	0.25 BSC		
R	0.10	-	-
R1	0.10	-	0.25
$\theta$	0	4	8
$\theta 1$	5	10	15

## 1.9. MSOP8(118mil)&E-PAD

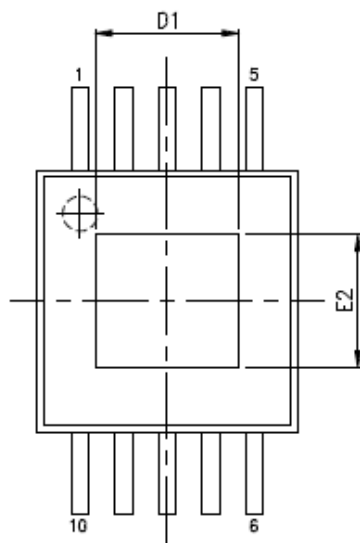
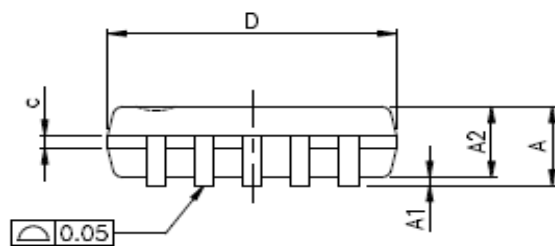
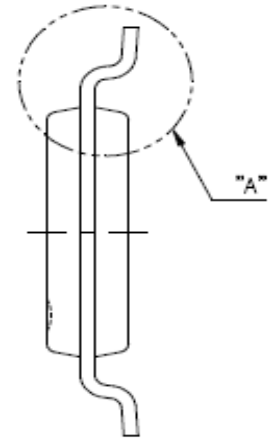
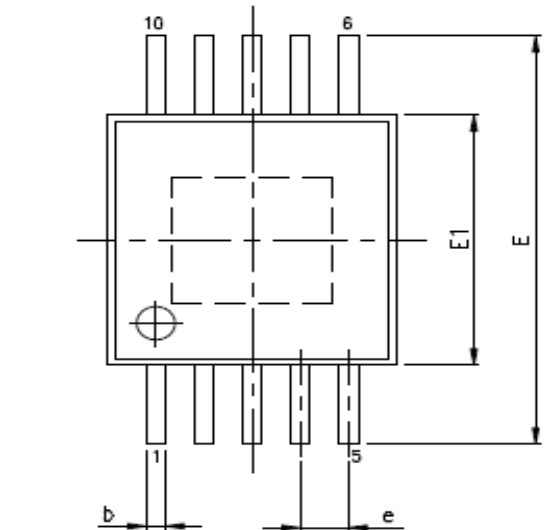


SYMBOLS	MILLIMETERS	
	MIN	MAX
A	-	1.10
A1	-	0.09
A2	0.75	0.95
b	0.28	0.35
c	0.15	0.23
D	3.00 BSC	
E1	3.00 BSC	
E	4.90 BSC	
e	0.65 BSC	
L	0.45	0.75
D1	1.80	2.10
E2	1.45	1.65



1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

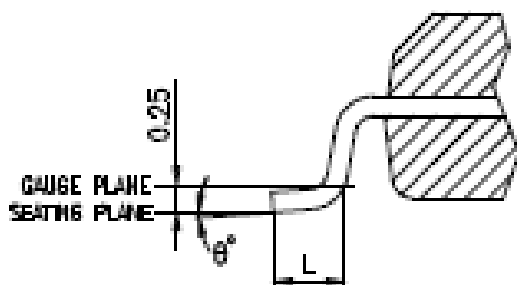
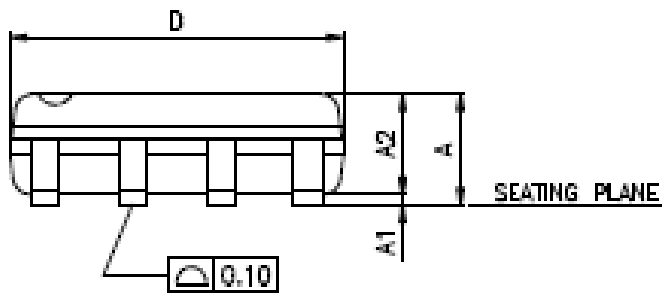
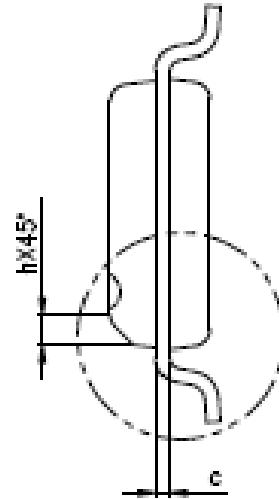
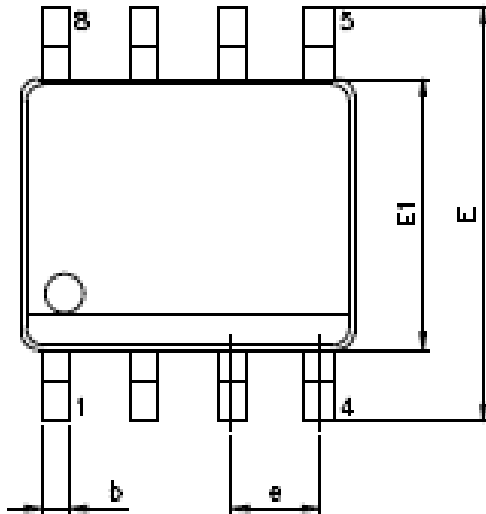
## 1.10. MSOP10(118mil)&E-PAD



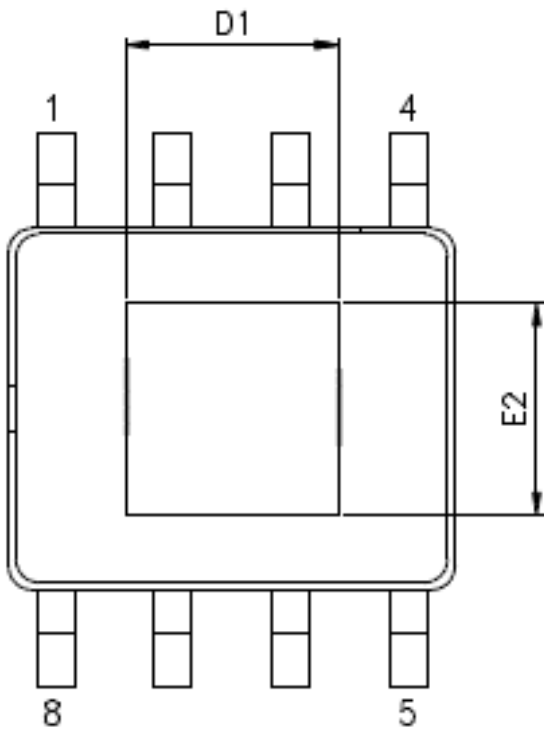
SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	-	-	1.10
A1	0.00	-	0.15
A2	0.75	0.85	0.95
b	0.17	-	0.27
c	0.08	-	0.23
D	3.00 BSC		
E	4.90 BSC		
E1	3.00 BSC		
e	0.50 BSC		
L	0.40	0.60	0.80
L1	0.95 REF		
$\theta^\circ$	0	-	8
D1	1.40	-	2.00
E2	1.50	-	1.91

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

## 1.11. SOP8(Pitch:1.27mm,Width:150mil) &E-PAD



# Package Information

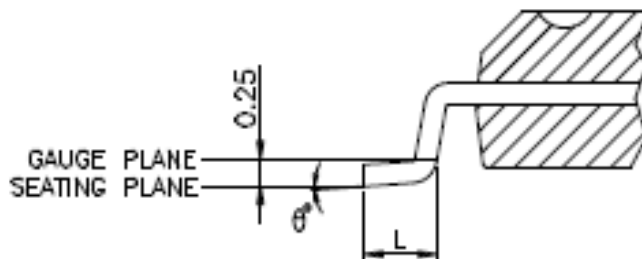
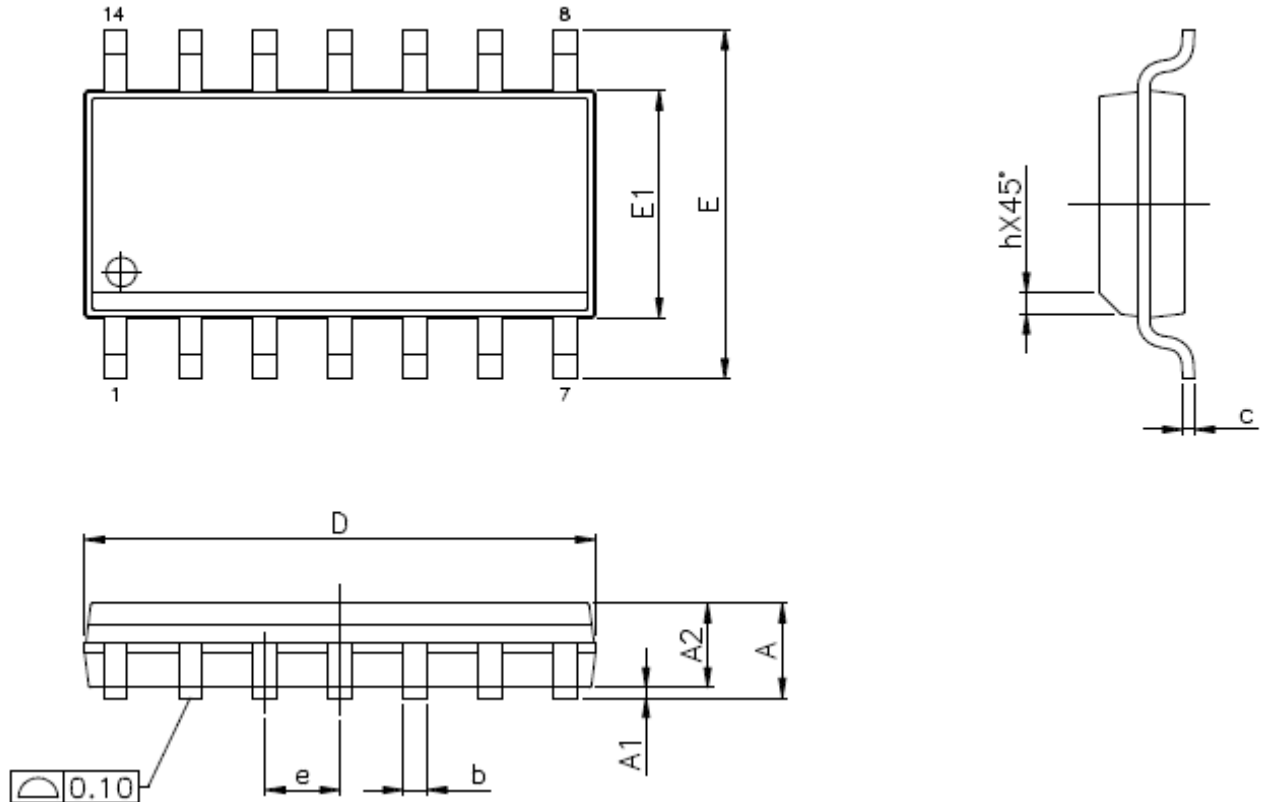


SYMBOLS	MILLIMETERS	
	MIN	MAX
A	-	1.75
A1	0.10	0.25
A2	1.25	-
b	0.31	0.51
c	0.10	0.25
D	4.90 BSC	
E	6.00 BSC	
E1	3.90 BSC	
e	1.27 BSC	
L	0.40	1.27
h	0.25	0.50
$\theta^\circ$	0	8
D1	3.20	3.40
E2	2.10	2.50

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

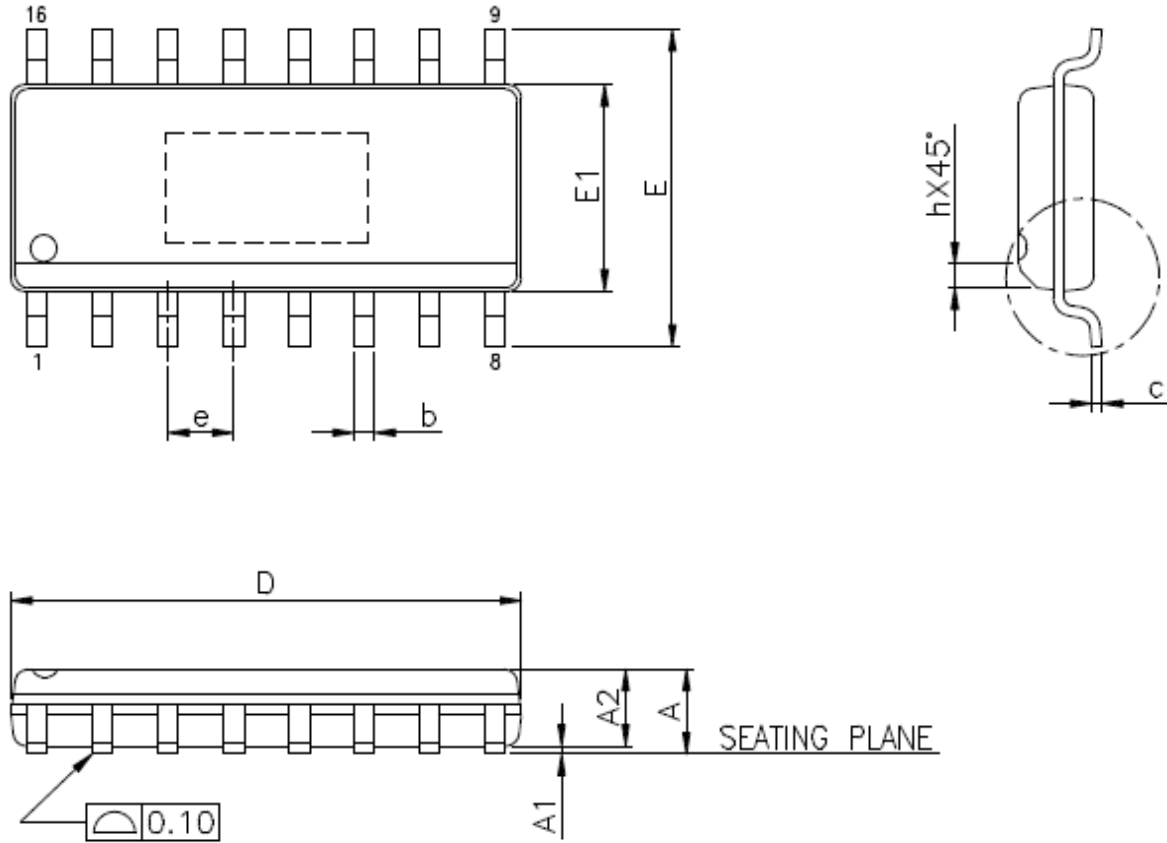


## 1.12. SOP14(Pitch:1.27mm,Width:150mil)

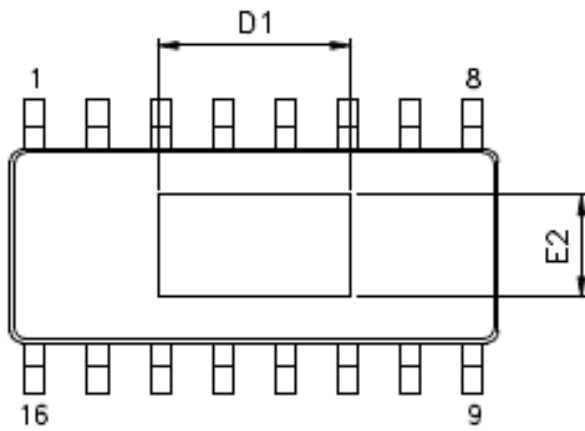


SYMBOLS	MILLIMETERS	
	MIN	MAX
A	-	1.75
A1	0.10	0.25
A2	1.25	-
b	0.31	0.51
c	0.10	0.25
D	8.65 BSC	
E	6.00 BSC	
E1	3.90 BSC	
e	1.27 BSC	
L	0.40	1.27
h	0.25	0.50
$\theta^\circ$	0	8

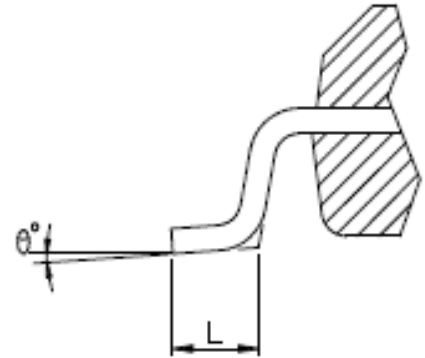
## 1.13. SOP16(Pitch:1.27mm,Width:150mil)&E-PAD



SYMBOLS	MILLIMETERS	
	MIN	MAX
A	-	1.75
A1	0.10	0.25
A2	1.25	-
b	0.31	0.51
c	0.10	0.25
D	9.90 BSC	
E	6.00 BSC	
E1	3.90 BSC	
e	1.27 BSC	
L	0.40	1.27
h	0.25	0.50
$\theta^\circ$	0	8
D1	3.70	4.90
E2	2.15	2.65

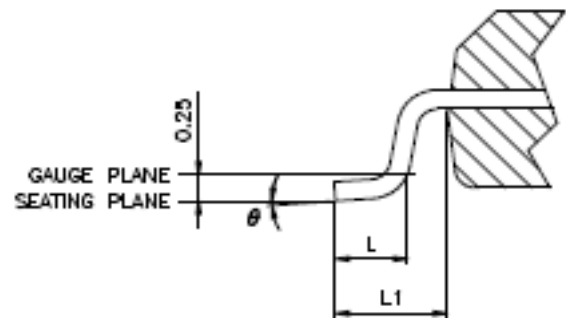
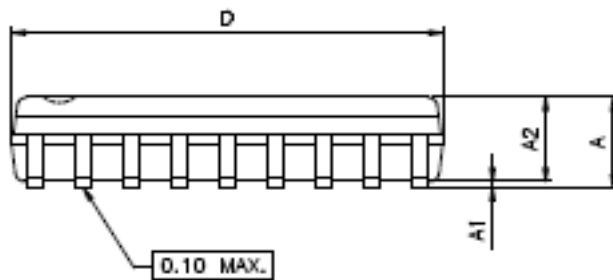
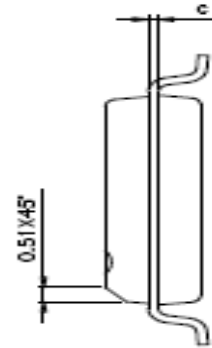
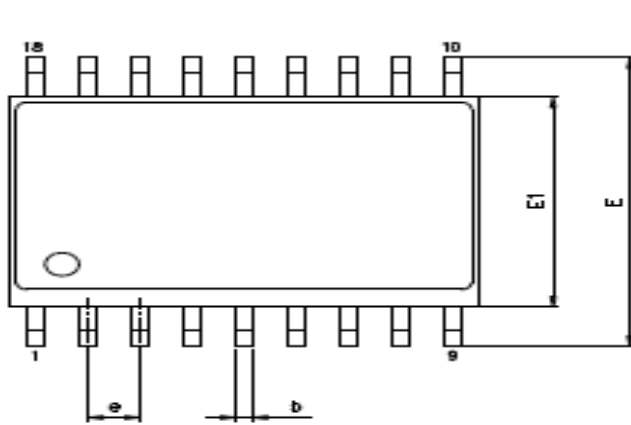


(THERMAL VARIATIONS ONLY)



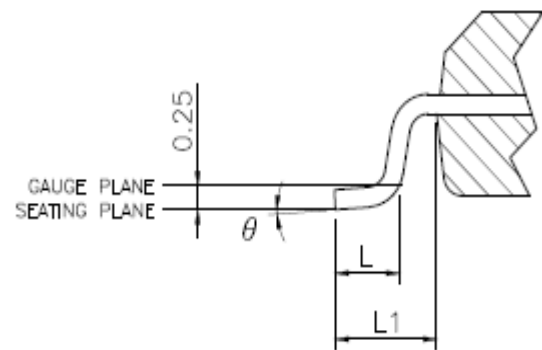
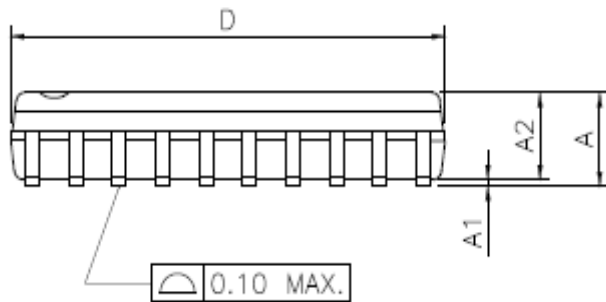
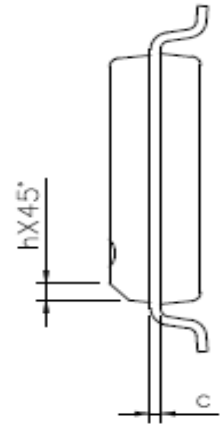
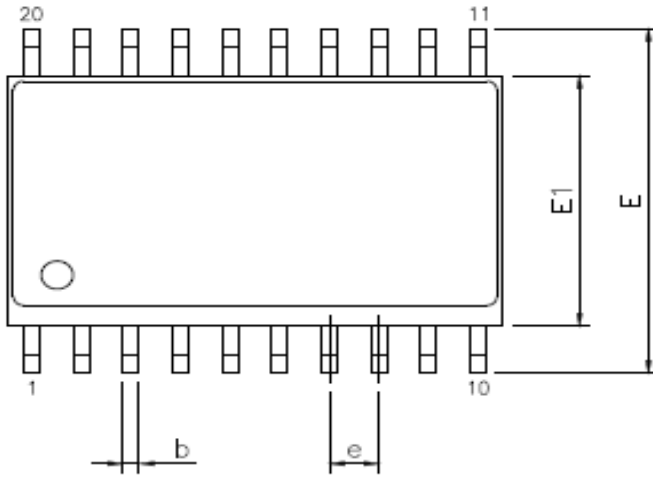
1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

## 1.14. SOP18(Pitch:1.27mm ,Width:300mil)



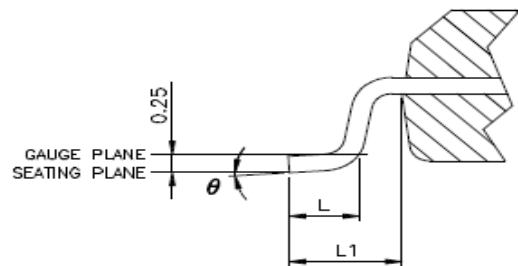
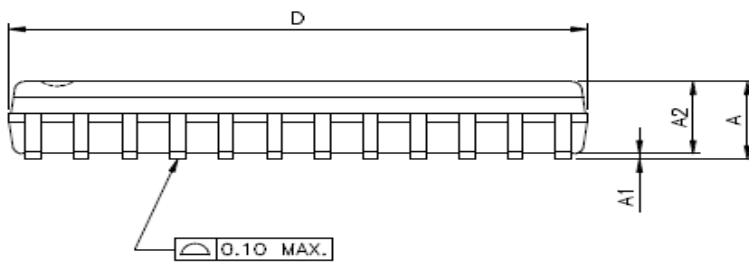
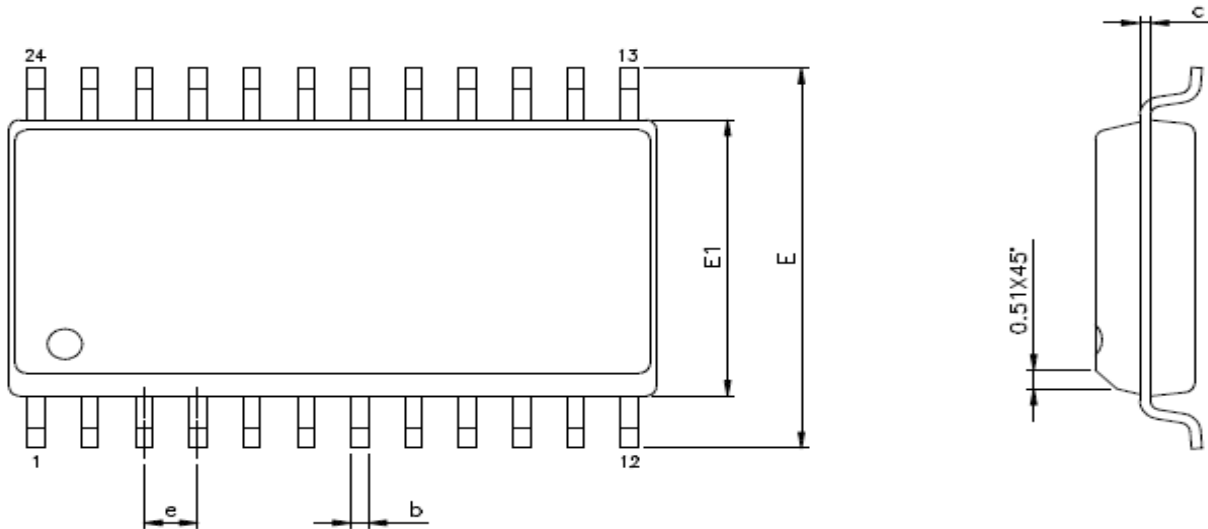
SYMBOLS	MILLIMETERS	
	MIN	MAX
A	-	2.65
A1	0.10	0.30
A2	2.05	-
b	0.31	0.51
c	0.20	0.33
D	11.55 BSC	
E1	7.50 BSC	
E	10.30 BSC	
e	1.27 BSC	
L1	1.40 REF	
L	0.40	1.27
$\theta$ °	0	8

## 1.15. SOP20(Pitch:1.27mm,Width:300mil)



SYMBOLS	MILLIMETERS	
	MIN	MAX
A	-	2.65
A1	0.10	0.30
A2	2.05	
b	0.31	0.51
c	0.10	0.33
D	12.80 BSC	
E	10.30 BSC	
E1	7.50 BSC	
e	1.27 BSC	
L	0.40	1.27
L1	1.40 REF	
h	0.25	0.75
$\theta^\circ$	0	8

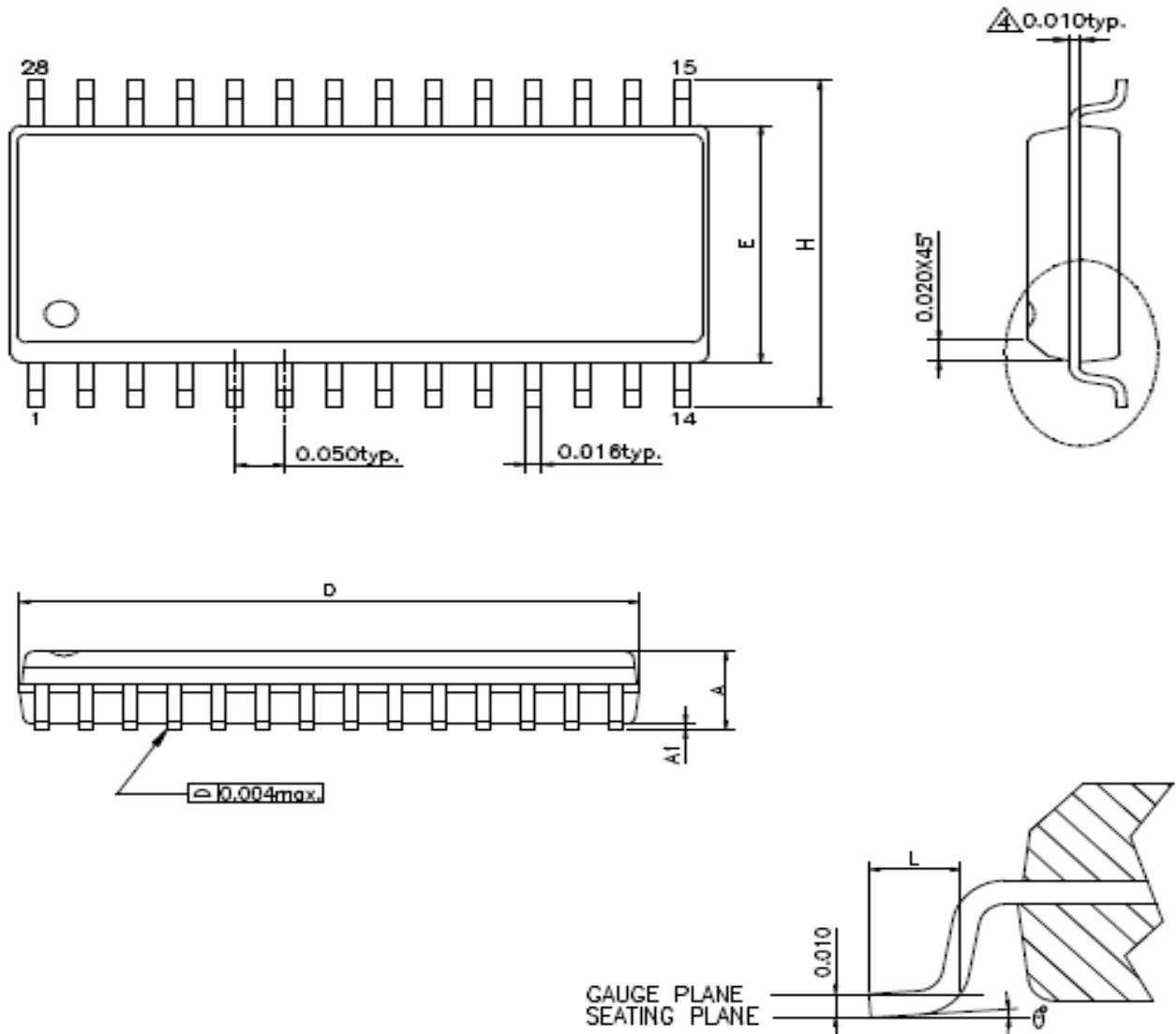
## 1.16. SOP24(Pitch:1.27mm,Width:300mil)



SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	-	-	2.65
A1	0.10	-	0.30
A2	2.05	-	-
b	0.31	-	0.51
c	0.20	-	0.33
D	15.24	-	15.70
E	7.50 BSC		
E1	10.30 BSC		
e	1.27 BSC		
L1	1.40 BSC		
L	0.40	-	1.27
$\theta^\circ$	0	-	8

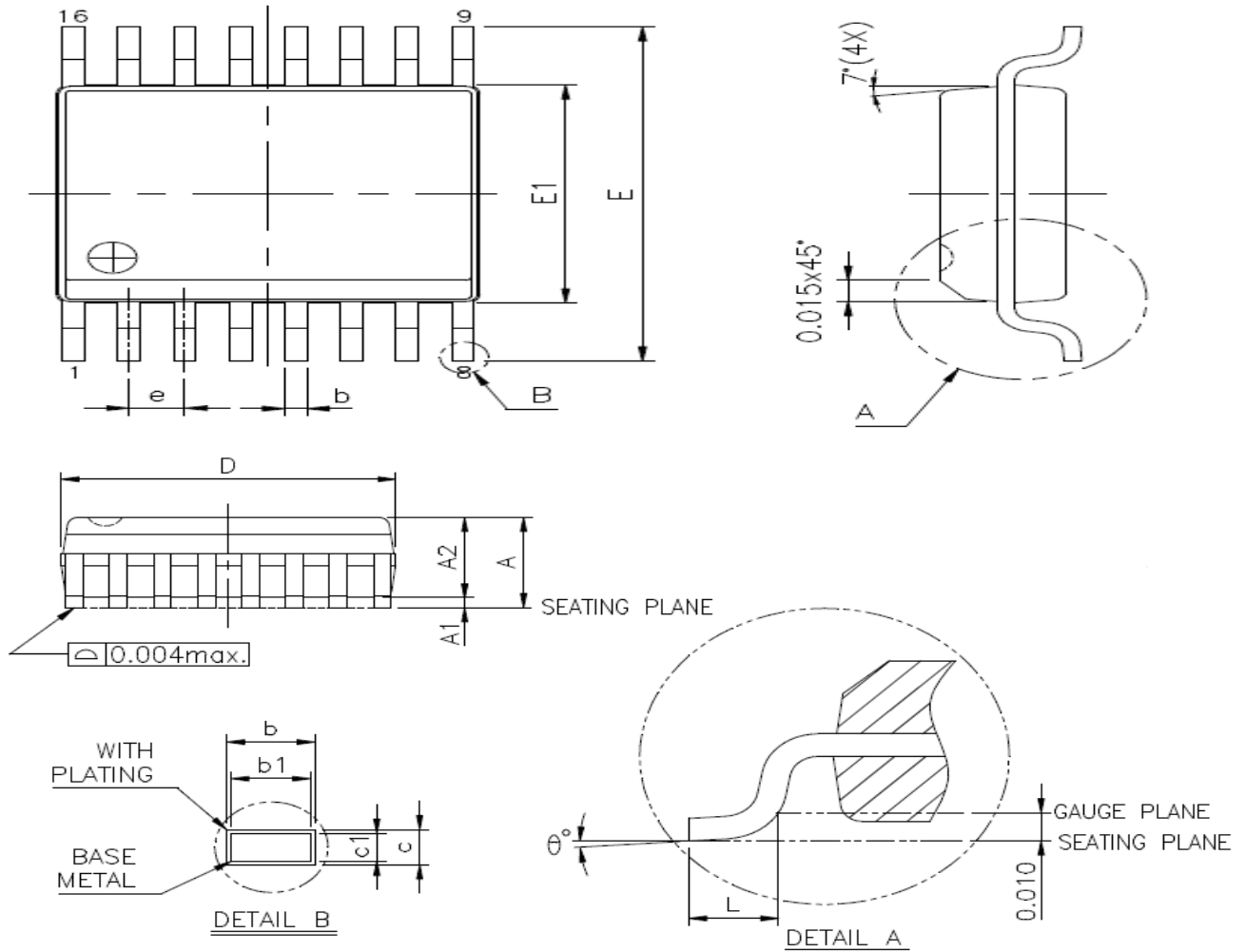
# Package Information

## 1.17. SOP28(Pitch:1.27mm,Width:300mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	-	-	0.104
A1	0.004	-	-
D	0.697	0.718	0.724
E	0.291	0.295	0.299
H	0.394	0.406	0.419
L	0.016	0.035	0.050
$\theta^\circ$	0	4	8

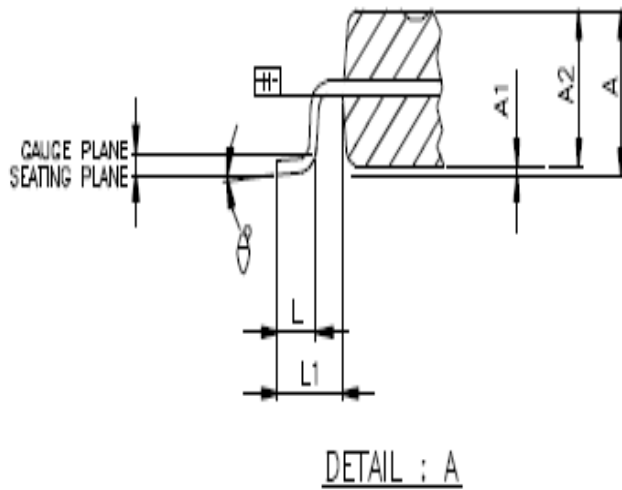
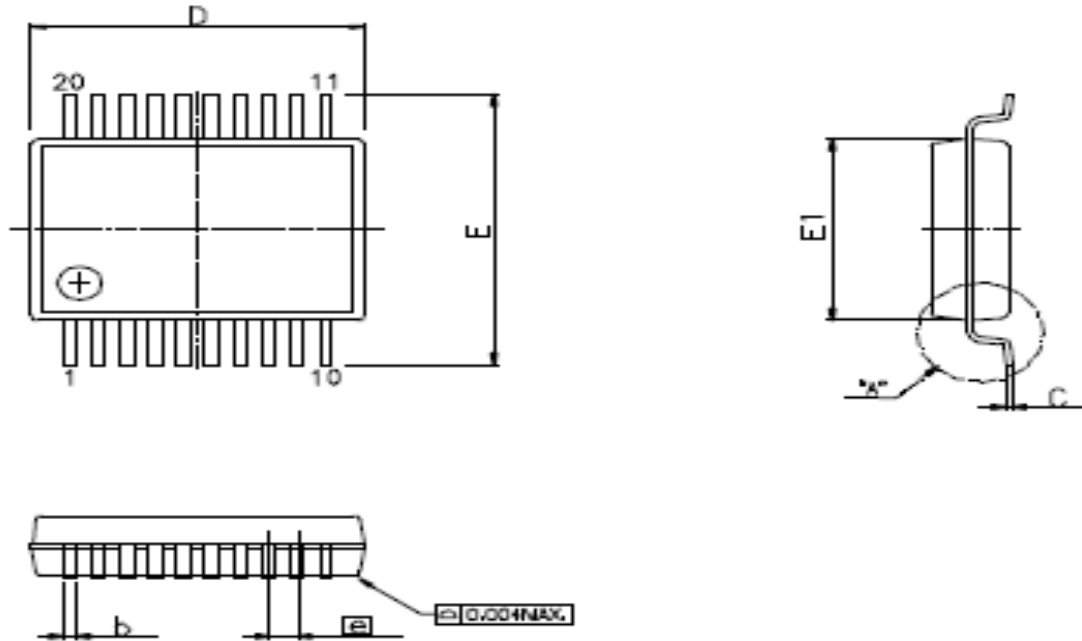
## 1.18. SSOP16(Pitch:0.635mm,Width:150mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	0.053	-	0.069
A1	0.004	-	0.010
A2	0.049	-	0.059
b	0.008	-	0.012
b1	0.008	0.010	0.011
c	0.007	-	0.010
c1	0.007	0.008	0.009
D	0.189	0.193	0.197
E1	0.150	0.154	0.157
E	0.228	0.236	0.244
L	0.016	0.025	0.050
e	0.025 BSC		
$\theta^\circ$	0	-	8

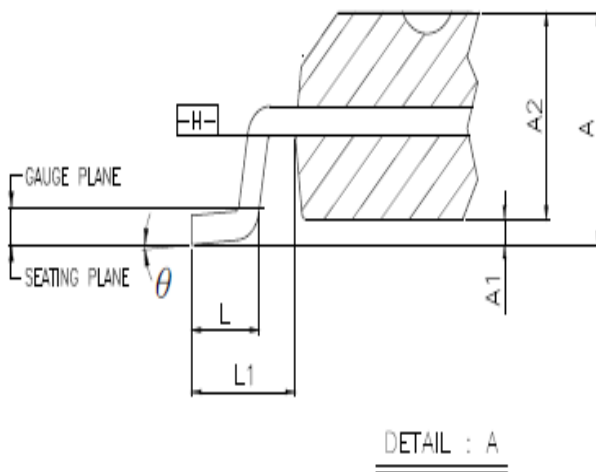
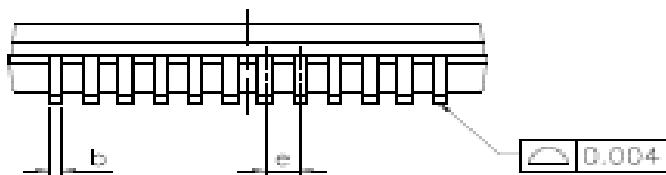
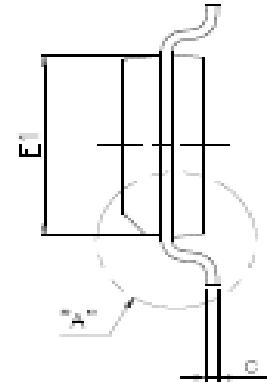
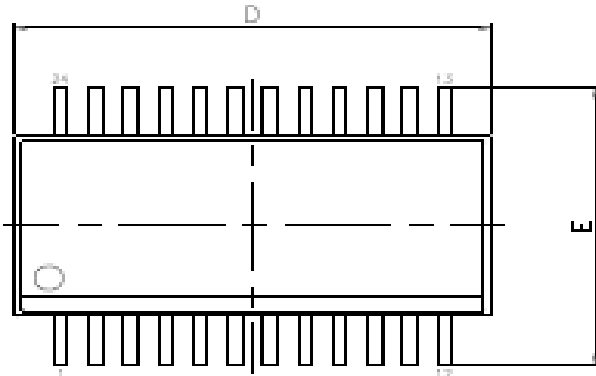


## 1.19. SSOP20(Pitch:0.635mm,Width:150mil)



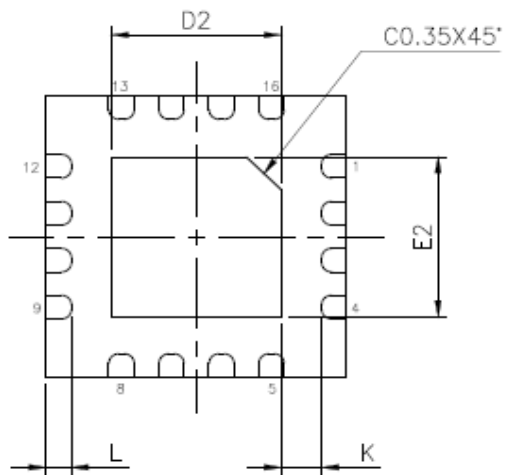
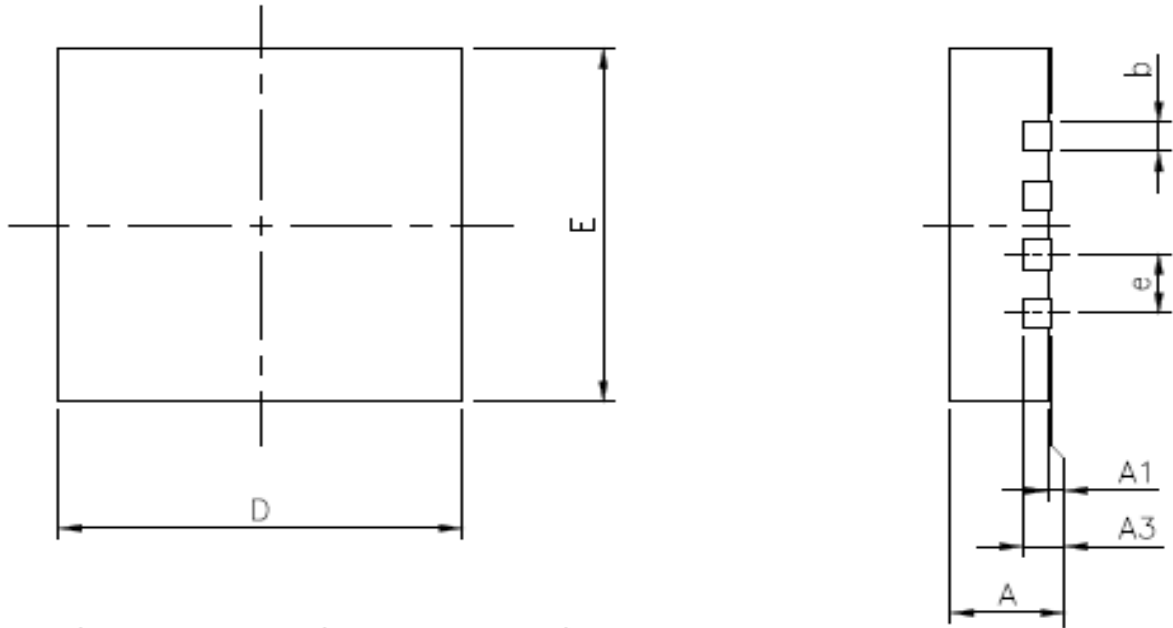
SYMBOLS	INCH		
	MIN	TYP	MAX
A	0.053	0.064	0.069
A1	0.004	0.006	0.010
A2	-	-	0.059
b	0.008	-	0.012
C	0.007	-	0.010
D	0.337	0.341	0.344
E	0.228	0.236	0.244
E1	0.150	0.154	0.157
e	0.025 BSC		
L	0.016	0.025	0.050
L1	0.041 BSC		
$\theta^\circ$	0	-	8

## 1.20. SSOP24(Pitch:0.635mm,Width:150mil)



SYMBOLS	INCH		
	MIN	TYP	MAX
A	0.053	0.064	0.069
A1	0.004	0.006	0.010
A2	-	-	0.059
D	0.337	0.341	0.344
E	0.228	0.236	0.244
E1	0.150	0.154	0.157
b	0.008	-	0.012
c	0.007	-	0.010
e	0.025 BSC		
L	0.016	0.025	0.050
L1	0.041 BSC		
$\theta^\circ$	0	-	8

## 1.21. QFN3\*3-16(Pitch:0.50mm,Width:3x3mm,Thickness:0.75mm)

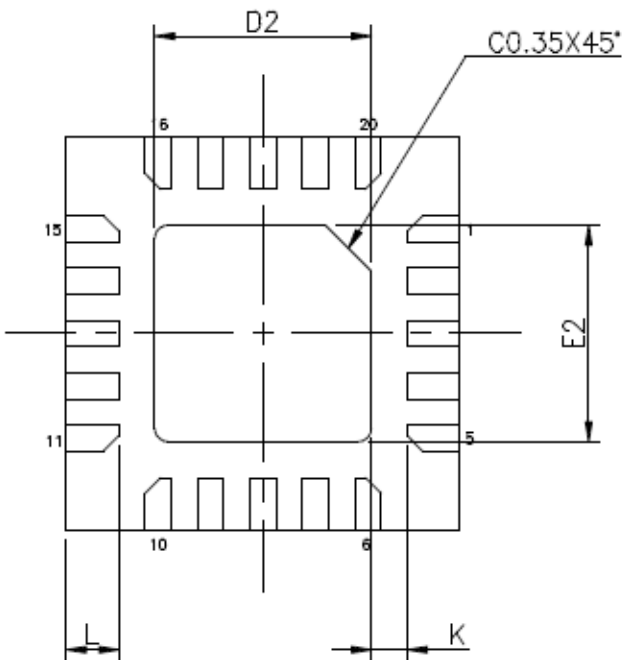
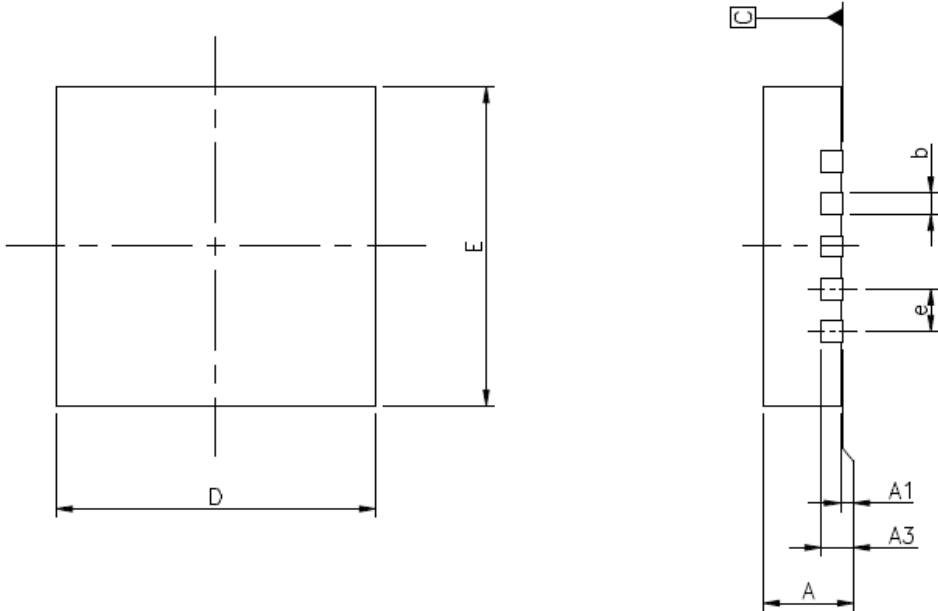


SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.203 REF		
b	0.18	0.25	0.30
D	3.00 BSC		
E	3.00 BSC		
e	0.50 BSC		
K	0.20	-	-
D2	1.65	1.70	1.75
E2	1.65	1.70	1.75
L	0.30 REF		

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

# Package Information

## 1.22. QFN3\*3-20(Pitch:0.4mm, Width:3X3mm,Thickness:0.75mm)

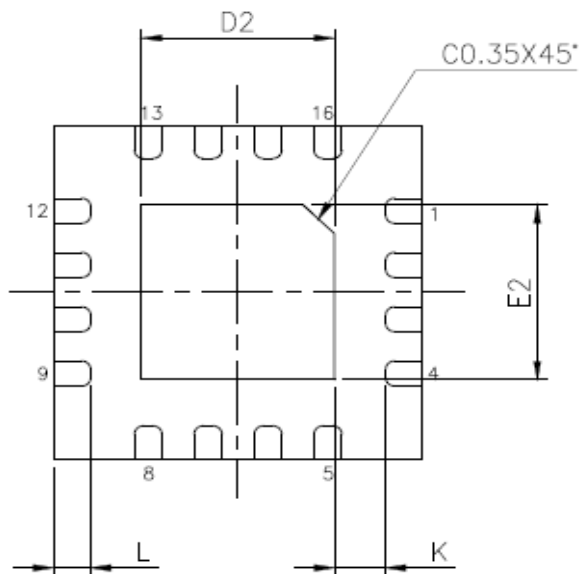
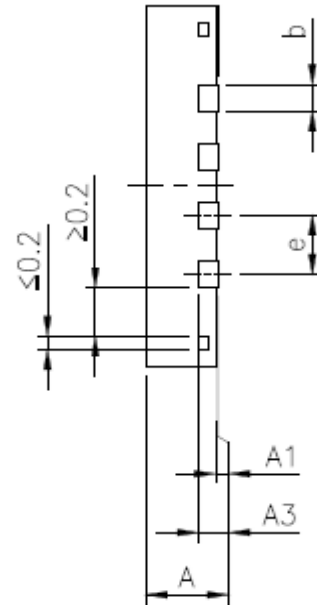
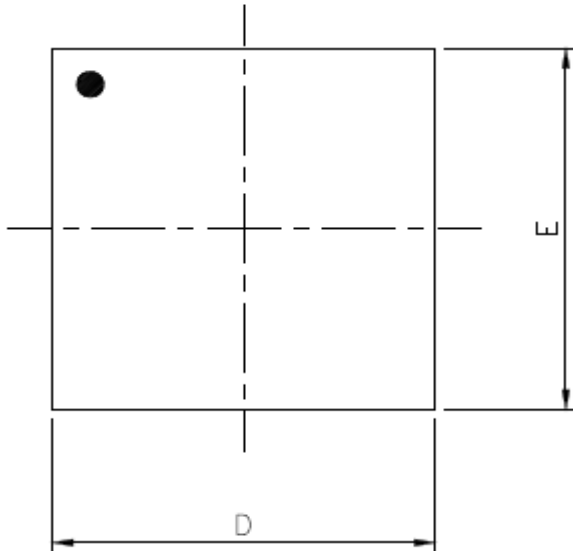


SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.203 REF		
b	0.15	0.20	0.25
D	3.00 BSC		
E	3.00 BSC		
e	0.40 BSC		
K	0.20	-	-
D2	1.55	1.65	1.75
E2	1.55	1.65	1.75
L	0.40 REF		

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

# Package Information

## 1.23. QFN4\*4-16(E-PAD:2.1x2.1mm,Pitch:0.65mm,Width:4x4mm,Thickness:0.75mm)



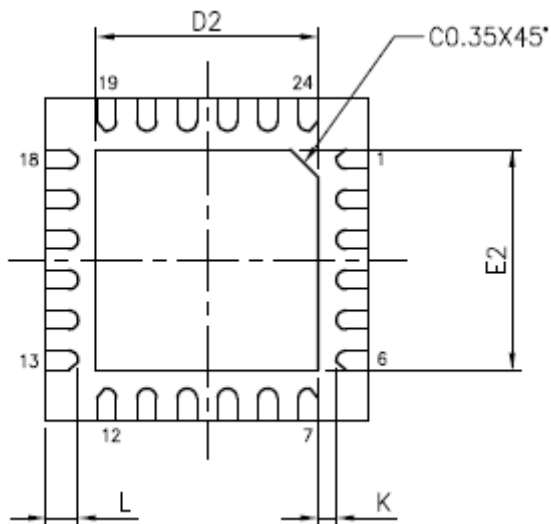
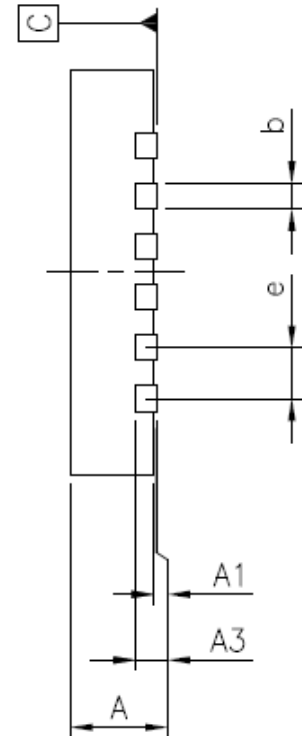
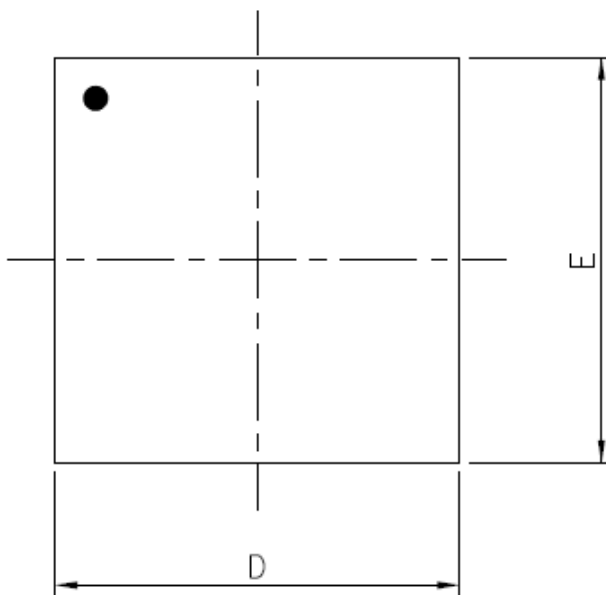
SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.203 REF		
b	0.25	0.30	0.35
D	4.00 BSC		
E	4.00 BSC		
e	0.65 BSC		
K	0.20	-	-
D2	2.05	2.10	2.15
E2	2.05	2.10	2.15
L	0.35	0.40	0.45

PKG CODE: WQFN

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

# Package Information

## 1.24. QFN4\*4-24(Pitch:0.5mm,Width:4x4mm,Thickness:0.75mm)



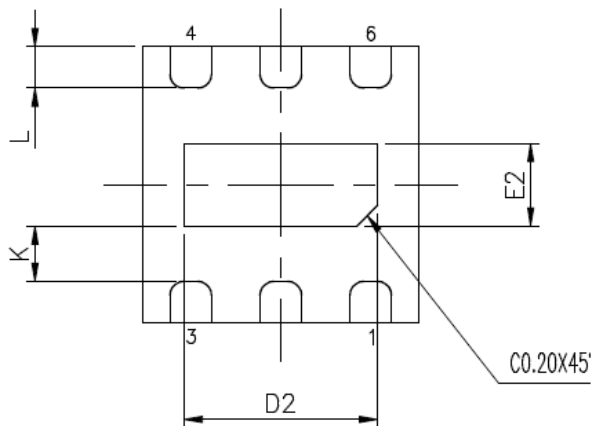
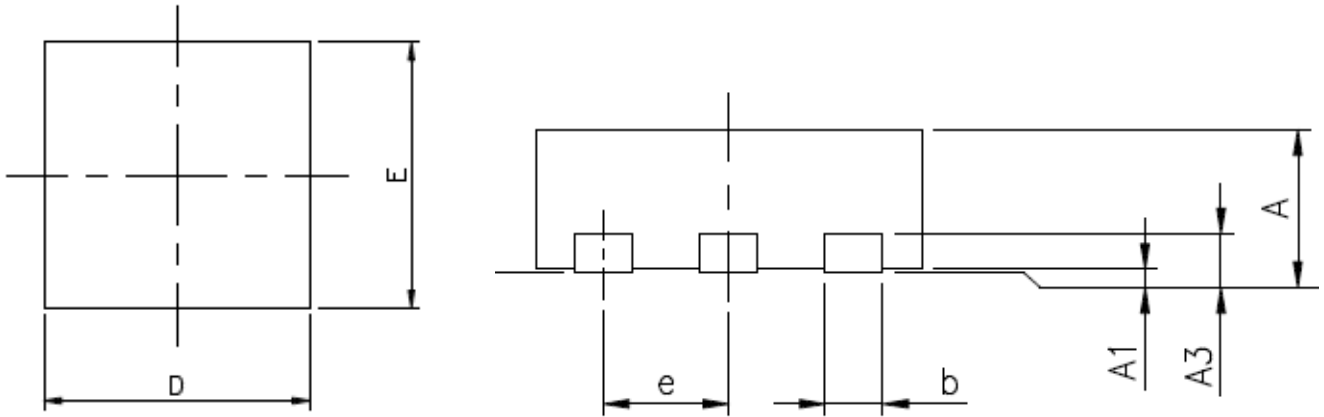
SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.203 REF		
b	0.20	0.25	0.30
D	4.00 BSC		
E	4.00 BSC		
e	0.50 BSC		
K	0.20	-	-
D2	2.65	2.70	2.75
E2	2.65	2.70	2.75
L	0.35	0.40	0.45

PKG CODE: WQFN

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

# Package Information

## 1.25. DFN2\*2-6(Pitch:0.65mm,Width:2x2mm,Thickness:0.75mm)

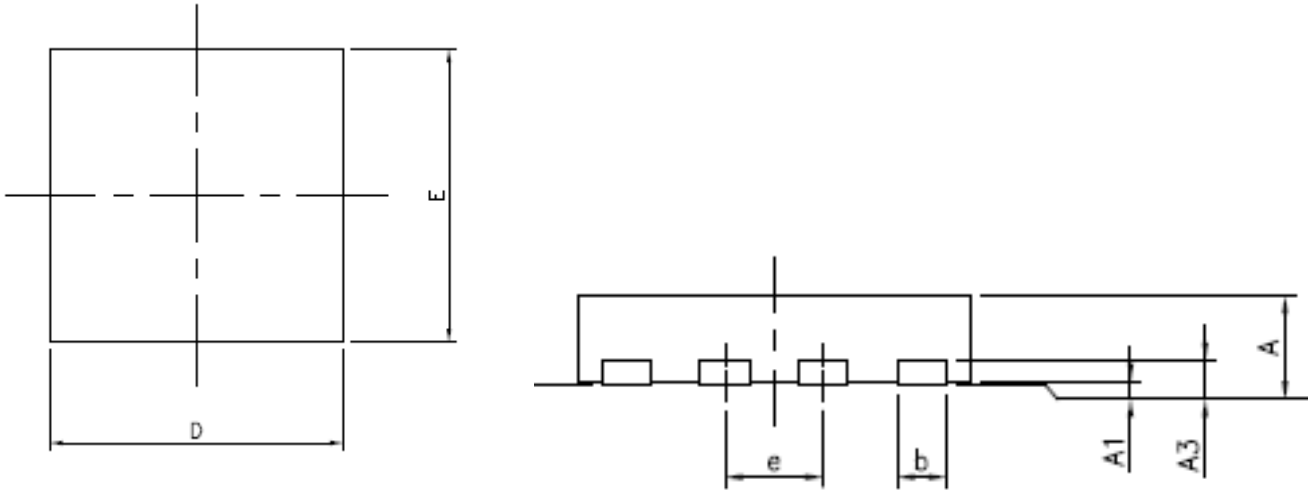


SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.20 REF		
b	0.25	0.30	0.35
D	2.00 BSC		
E	2.00 BSC		
e	0.65 BSC		
K	0.20	-	-
E2	0.55	0.60	0.65
D2	1.35	1.40	1.45
L	0.25	0.30	0.35

PKG CODE: WDFN

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

## 1.26. DFN2\*2-8(Pitch:0.50mm, Width:2x2mm,Thickness:0.75mm)



WDFN	MILLIMETERS		
SYMBOLS	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.203 REF		
b	0.20	0.25	0.30
D	2.00 BSC		
E	2.00 BSC		
e	0.50 BSC		
K	0.20	-	-
D2	1.15	1.20	1.25
E2	0.60	0.65	0.70
L	0.30	0.35	0.40

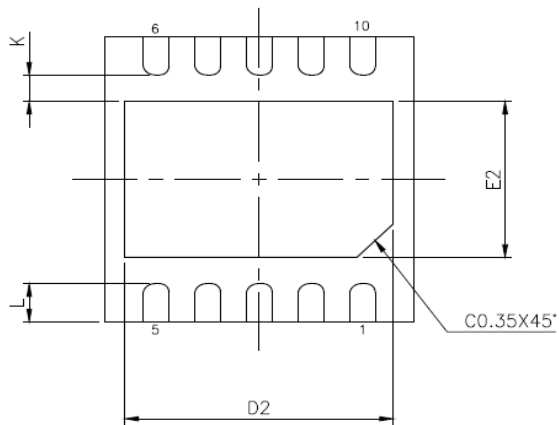
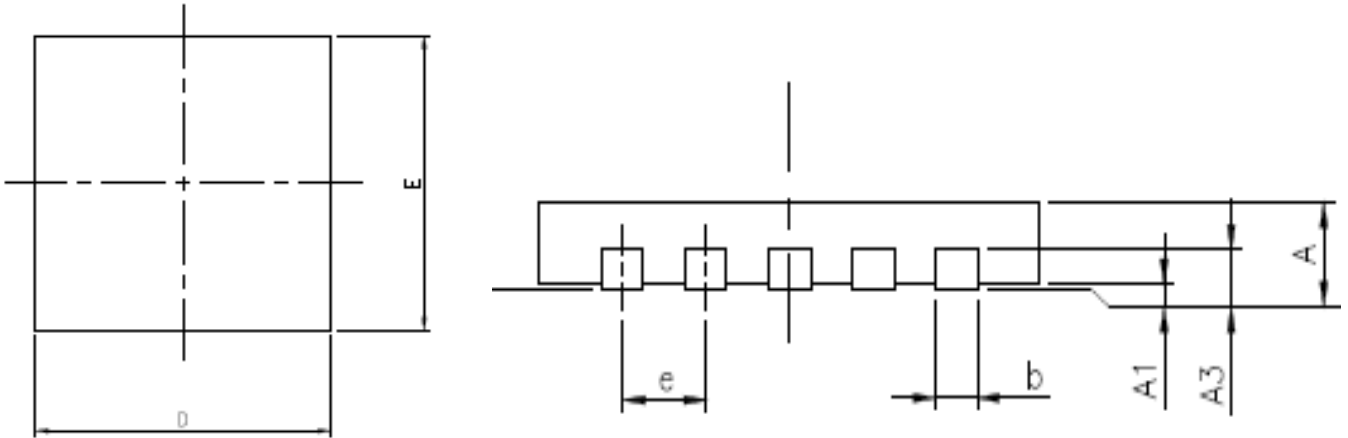
PKG CODE: WDFN

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline



# Package Information

## 1.27. DFN3\*3-10(Pitch:0.50mm, Width:3x3mm,Thickness:0.75mm)

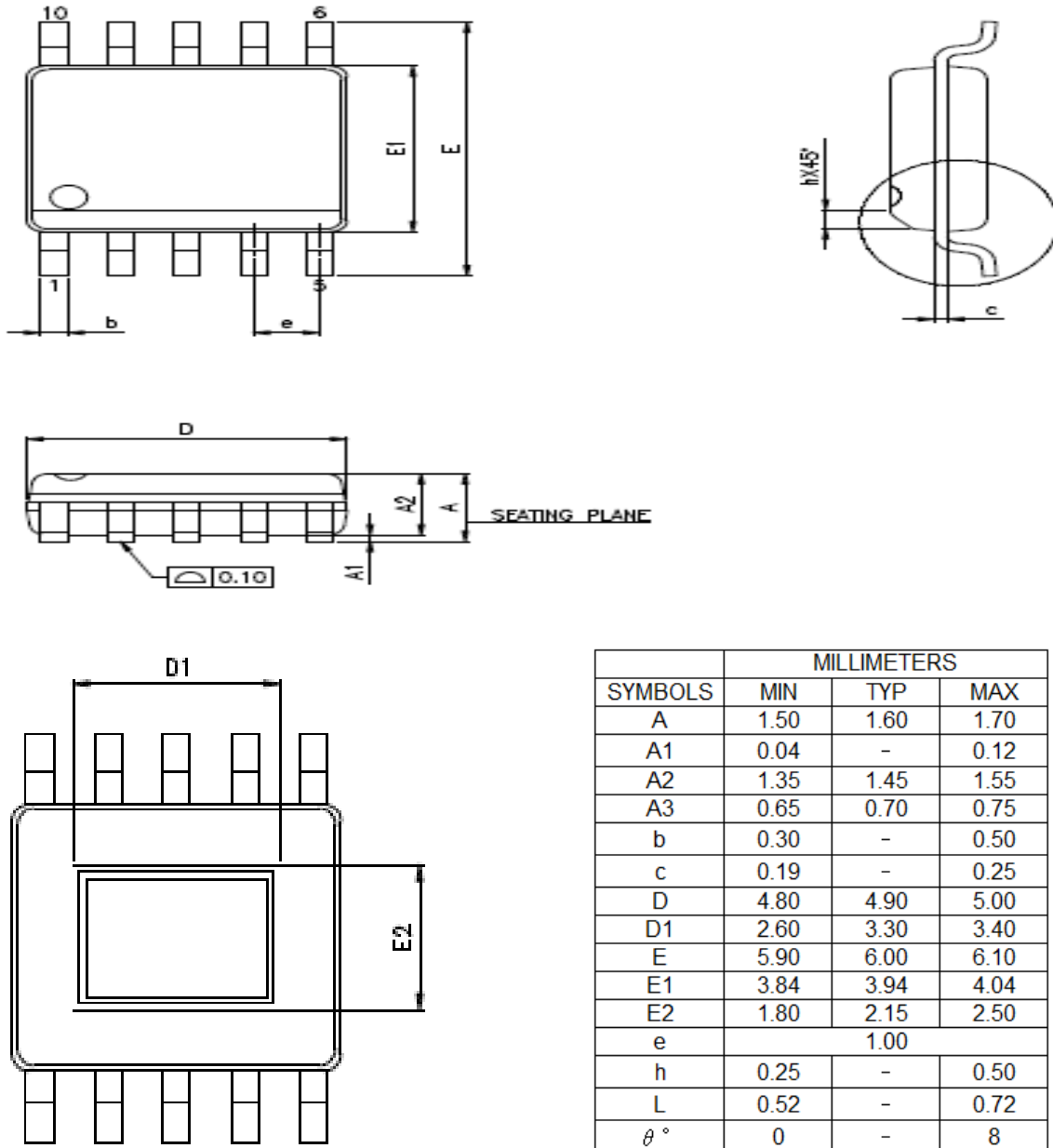


SYMBOLS	MILLIMETERS		
	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.203 REF		
b	0.18	0.25	0.30
D	3.00 BSC		
E	3.00 BSC		
e	0.50 BSC		
K	0.20	-	-
D2	2.20	2.30	2.35
E2	1.55	1.65	1.70
L	0.30	0.40	0.50

PKG CODE: WDFN

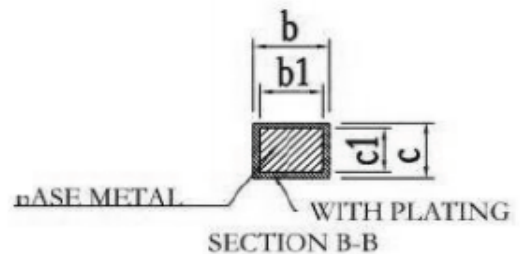
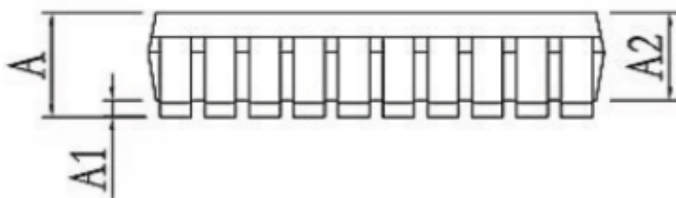
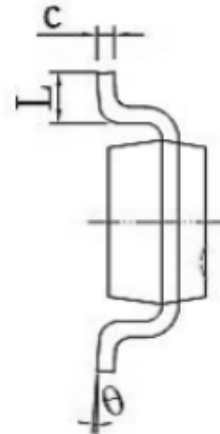
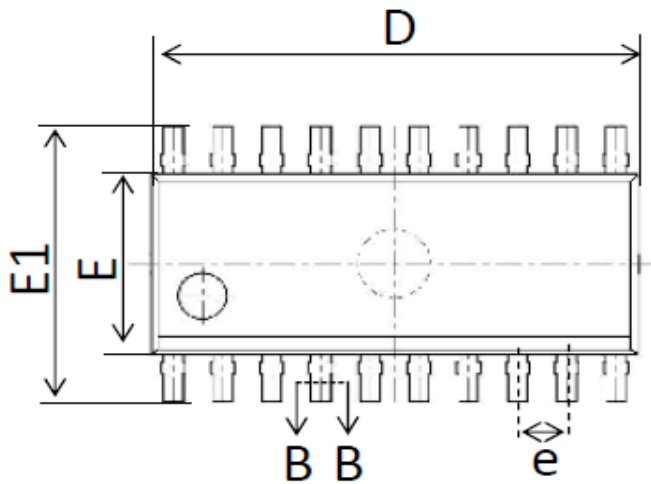
1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

## 1.28. ESSOP10(Pitch:1mm,Width:150mil) with E-PAD



1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

## 1.29. HTSOP20(Pitch:1mm,Width:150mil)

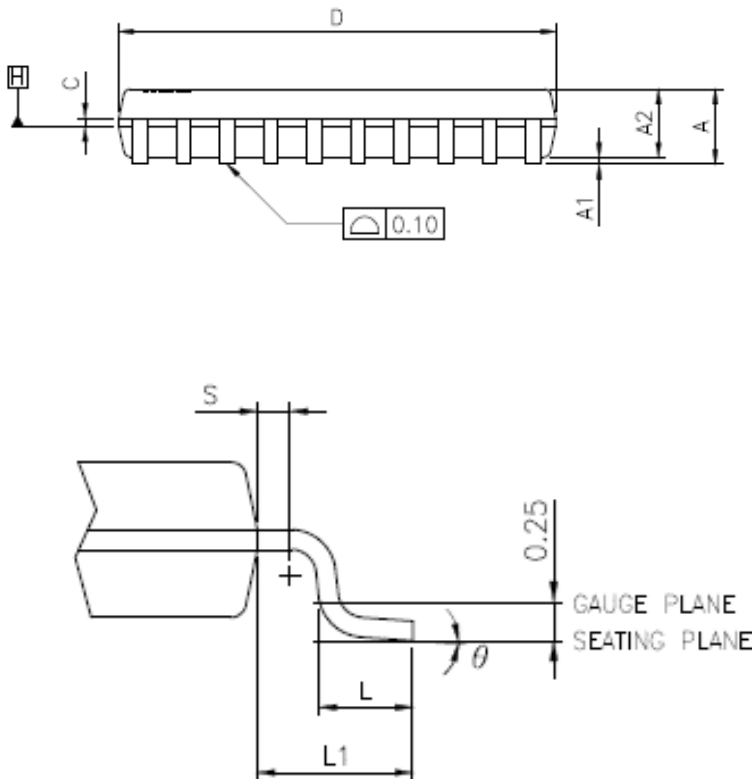
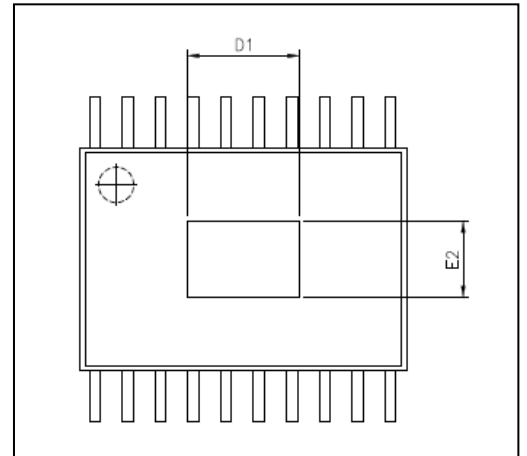
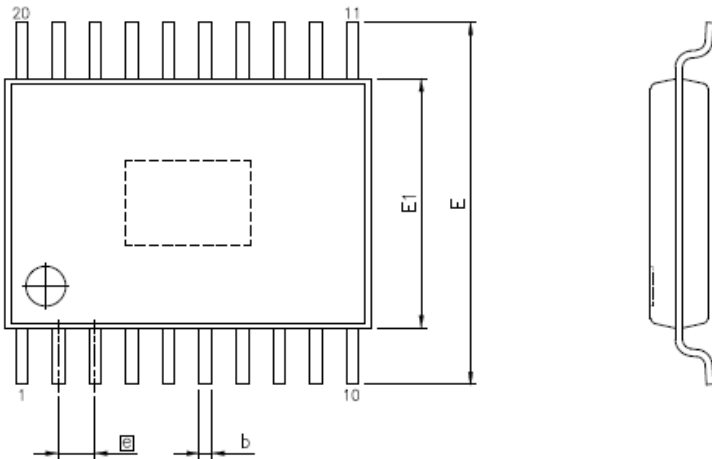


SYMBOLS	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
b1	0.32	0.50
c	0.17	0.25
c1	0.16	0.24
D	9.80	10.20
E	3.80	4.00
E1	5.80	6.20
e	1.0 BSC	
L	0.40	0.80
$\theta$ °	0	8

# Package Information

## 1.30. TSSOP20 with E-PAD

<b>Lead of TSSOP20</b>	<b>Pitch=0.65mm Body Width=173 mil</b>
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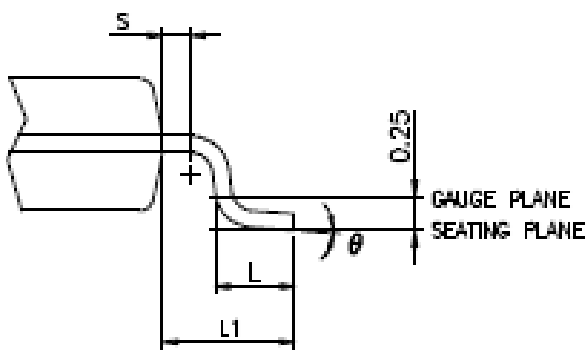
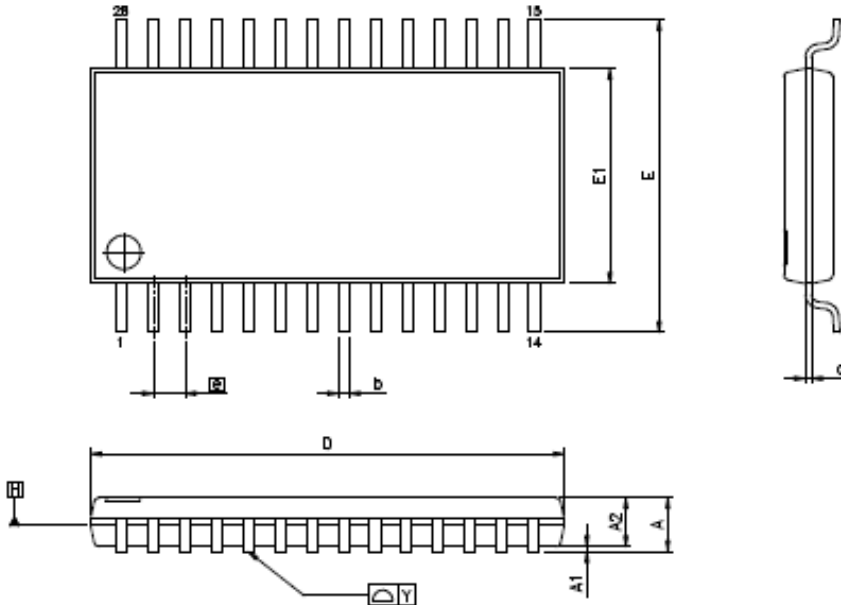
SYMBOLS	MM (MILLIMETERS)		
	MIN	TYP	MAX
A	-	-	1.20
A1	0.05	-	0.15
A2	0.80	1.00	1.05
b	0.19	-	0.30
c	0.09	-	0.20
D	6.40	6.50	6.60
E1	4.30	4.40	4.50
E	6.40 BSC		
e	0.65 BSC		
L1	1.00 REF		
L	0.50	0.60	0.75
S	0.20	-	-
$\theta^\circ$	0	-	8
D1	3.5	-	4.5
E2	2.5	-	3.5

1. E-PAD dimensions are for reference only
2. E-PAD : Refer to PMC-APN-019 E-PAD product PCB layout guideline

# Package Information

## 1.31. TSSOP28

<b>Lead of TSSOP28</b>	<b>Pitch=0.65mm Body Width=173 mil</b>
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SYMBOLS	MM (MILLIMETERS)		
	MIN	TYP	MAX
A	-	-	1.20
A1	0.00	-	0.15
A2	0.80	1.00	1.05
b	0.19	-	0.30
c	0.09	-	0.20
D	9.60	9.70	9.80
E1	4.30	4.40	4.50
E	6.40 BSC		
e	0.65 BSC		
L1	1.00 REF		
L	0.45	0.60	0.75
S	0.20	-	-
θ°	0	-	8
Y	0.100		