

Package information

Supersedes data of 1999 Jul 09
File under Integrated Circuits, IC06

1999 Sep 22

Package information

PACKAGE INFORMATION

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HCU04	27-1	108-1	337-1	402-1	14
74HCTU04	27-1	108-1			14
74HC00	27-1	108-1	337-1	402-1	14
74HCT00	27-1	108-1	337-1	402-1	14
74HC02	27-1	108-1	337-1	402-1	14
74HCT02	27-1	108-1	337-1	402-1	14
74HC03	27-1	108-1	337-1	402-1	14
74HCT03	27-1	108-1	337-1	402-1	14
74HC04	27-1	108-1	337-1	402-1	14
74HCT04	27-1	108-1	337-1	402-1	14
74HC08	27-1	108-1	337-1	402-1	14
74HCT08	27-1	108-1	337-1	402-1	14
74HC10	27-1	108-1	337-1	402-1	14
74HCT10	27-1	108-1	337-1	402-1	14
74HC42	38-1	109-1			16
74HCT42	38-1	109-1			16
74HC107	27-1	108-1	337-1	402-1	14
74HCT107	27-1	108-1	337-1	402-1	14
74HC109	38-1	109-1			16
74HCT109	38-1	109-1	338-1		16
74HC11	27-1	108-1	337-1	402-1	14
74HCT11	27-1	108-1	337-1	402-1	14
74HC112	38-1	109-1	338-1	403-1	16
74HCT112	38-1	109-1	338-1	403-1	16
74HC123	38-1	109-1	338-1	403-1	16
74HCT123	38-1	109-1	338-1	403-1	16
74HC125	27-1	108-1	337-1	402-1	14
74HCT125	27-1	108-1	337-1	402-1	14
74HC126	27-1	108-1	337-1	402-1	14
74HCT126	27-1	108-1	337-1	402-1	14
74HC1284		163-1	339-1	360-1	20
74HCT1284		163-1	339-1	360-1	20
74HC132	27-1	108-1	337-1	402-1	14
74HCT132	27-1	108-1	337-1	402-1	14
74HC133	38-1	109-1			16
74HCT133	38-1	109-1			16
74HC137	38-1	109-1	338-1		16
74HCT137	38-1	109-1			16
74HC138	38-1	109-1	338-1	403-1	16
74HCT138	38-1	109-1	338-1	403-1	16

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HC139	38-1	109-1	338-1	403-1	16
74HCT139	38-1	109-1	338-1	403-1	16
74HC14	27-1	108-1	337-1	402-1	14
74HCT14	27-1	108-1	337-1	402-1	14
74HC147	38-1	109-1	338-1		16
74HCT147	38-1	109-1	338-1		16
74HC151	38-1	109-1	338-1	403-1	16
74HCT151	38-1	109-1	338-1	403-1	16
74HC153	38-1	109-1	338-1	403-1	16
74HCT153	38-1	109-1	338-1	403-1	16
74HC154	101-1	137-1	340-1	355-1	24
74HCT154	101-1	137-1	340-1	355-1	24
74HC157	38-1	109-1	338-1	403-1	16
74HCT157	38-1	109-1	338-1	403-1	16
74HC158	38-1	109-1			16
74HCT158	38-1	109-1			16
74HC160	38-1	109-1	338-1		16
74HCT160	38-1	109-1			16
74HC161	38-1	109-1	338-1	403-1	16
74HCT161	38-1	109-1	338-1	403-1	16
74HC162	38-1	109-1			16
74HCT162	38-1	109-1			16
74HC163	38-1	109-1	338-1	403-1	16
74HCT163	38-1	109-1	338-1	403-1	16
74HC164	27-1	108-1	337-1	402-1	14
74HCT164	27-1	108-1	337-1	402-1	14
74HC165	38-1	109-1	338-1	403-1	16
74HCT165	38-1	109-1	338-1	403-1	16
74HC166	38-1	109-1	338-1	403-1	16
74HCT166	38-1	109-1	338-1		16
74HC173	38-1	109-1	338-1	403-1	16
74HCT173	38-1	109-1	338-1		16
74HC174	38-1	109-1	338-1	403-1	16
74HCT174	38-1	109-1	338-1	403-1	16
74HC175	38-1	109-1	338-1	403-1	16
74HCT175	38-1	109-1	338-1	403-1	16
74HC181	101-1	137-1			24
74HCT181	101-1	137-1			24
74HC182	38-1	109-1			16
74HCT182	38-1	109-1			16

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HC190	38-1	109-1			16
74HCT190	38-1	109-1			16
74HC191	38-1	109-1	338-1	403-1	16
74HCT191	38-1	109-1			16
74HC192	38-1	109-1	338-1		16
74HCT192	38-1	109-1			16
74HC193	38-1	109-1	338-1	403-1	16
74HCT193	38-1	109-1	338-1		16
74HC194	38-1	109-1	338-1		16
74HCT194	38-1	109-1	338-1		16
74HC195	38-1	109-1	338-1		16
74HCT195	38-1	109-1	338-1		16
74HC20	27-1	108-1	337-1	402-1	14
74HCT20	27-1	108-1	337-1		14
74HC21	27-1	108-1	337-1		14
74HCT21	27-1	108-1	337-1		14
74HC221	38-1	109-1	338-1		16
74HCT221	38-1	109-1	338-1		16
74HC237	38-1	109-1	338-1		16
74HCT237	38-1	109-1	338-1		16
74HC238	38-1	109-1	338-1	403-1	16
74HCT238	38-1	109-1	338-1	403-1	16
74HC240	146-1	163-1	339-1	360-1	20
74HCT240	146-1	163-1	339-1	360-1	20
74HC241	146-1	163-1	339-1	360-1	20
74HCT241	146-1	163-1	339-1	360-1	20
74HC242	27-1	108-1	337-1		14
74HCT242	27-1	108-1			14
74HC243	27-1	108-1	337-1		14
74HCT243	27-1	108-1	337-1		14
74HC244	146-1	163-1	339-1	360-1	20
74HCT244	146-1	163-1	339-1	360-1	20
74HC245	146-1	163-1	339-1	360-1	20
74HCT245	146-1	163-1	339-1	360-1	20
74HC251	38-1	109-1	338-1	403-1	16
74HCT251	38-1	109-1	338-1	403-1	16
74HC253	38-1	109-1	338-1		16
74HCT253	38-1	109-1	338-1		16
74HC257	38-1	109-1	338-1	403-1	16
74HCT257	38-1	109-1	338-1	403-1	16

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HC258	38-1	109-1	338-1		16
74HCT258	38-1	109-1			16
74HC259	38-1	109-1	338-1	403-1	16
74HCT259	38-1	109-1	338-1	403-1	16
74HC27	27-1	108-1	337-1	402-1	14
74HCT27	27-1	108-1	337-1	402-1	14
74HC273	146-1	163-1	339-1	360-1	20
74HCT273	146-1	163-1	339-1	360-1	20
74HC280	27-1	108-1	337-1	402-1	14
74HCT280	27-1	108-1		402-1	14
74HC283	38-1	109-1	338-1	403-1	16
74HCT283	38-1	109-1	338-1	403-1	16
74HC297	38-1	109-1			16
74HCT297	38-1	109-1			16
74HC299	146-1	163-1	339-1		20
74HCT299	146-1	163-1	339-1		20
74HC30	27-1	108-1	337-1	402-1	14
74HCT30	27-1	108-1	337-1	402-1	14
74HC32	27-1	108-1	337-1	402-1	14
74HCT32	27-1	108-1	337-1	402-1	14
74HC354	146-1	163-1			20
74HCT354	146-1	163-1			20
74HC356	146-1	163-1			20
74HCT356	146-1	163-1			20
74HC365	38-1	109-1	338-1	403-1	16
74HCT365	38-1	109-1	338-1		16
74HC366	38-1	109-1			16
74HCT366	38-1	109-1	338-1		16
74HC367	38-1	109-1	338-1	403-1	16
74HCT367	38-1	109-1	338-1	403-1	16
74HC368	38-1	109-1	338-1		16
74HCT368	38-1	109-1	338-1	403-1	16
74HC373	146-1	163-1	339-1	360-1	20
74HCT373	146-1	163-1	339-1	360-1	20
74HCT374	146-1	163-1	339-1	360-1	20
74HC374	146-1	163-1	339-1	360-1	20
74HCT377	146-1	163-1	339-1	360-1	20
74HC377	146-1	163-1	339-1	360-1	20
74HC390	38-1	109-1	338-1	403-1	16
74HCT390	38-1	109-1	338-1		16

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HC393	27-1	108-1	337-1	402-1	14
74HCT393	27-1	108-1	337-1	402-1	14
74HC4002	27-1	108-1	337-1	402-1	14
74HCT4002	27-1	108-1	337-1		14
74HC4015	38-1	109-1			16
74HCT4015	38-1	109-1			16
74HC4016	38-1	109-1			16
74HCT4016	38-1	109-1			16
74HC4017	38-1	109-1			16
74HCT4017	38-1	109-1			16
74HC40102	38-1	109-1			16
74HCT40102	38-1	109-1			16
74HC40103	38-1	109-1	338-1	403-1	16
74HCT40103	38-1	109-1	338-1		16
74HC40104	38-1	109-1			16
74HCT40104	38-1	109-1			16
74HC40105	38-1	109-1	338-1	403-1	16
74HCT40105	38-1	109-1	338-1		16
74HC4020	38-1	109-1	338-1	403-1	16
74HCT4020	38-1	109-1	338-1	403-1	16
74HC4024	27-1	108-1	337-1		14
74HCT4024	27-1	108-1			14
74HC4040	38-1	109-1	338-1	403-1	16
74HCT4040	27-1	109-1			16
74HC4046A	38-1	109-1	338-1	403-1	16
74HCT4046A	38-1	109-1	338-1		16
74HC4049	38-1	109-1			16
74HCT4049	38-1	109-1			16
74HC4050	38-1	109-1	338-1	403-1	16
74HCT4050	38-1	109-1			16
74HC4051	38-1	109-1	338-1	403-1	16
74HCT4051	38-1	109-1	338-1		16
74HC4052	38-1	109-1	338-1	403-1	16
74HCT4052	38-1	109-1	338-1		16
74HC4053	38-1	109-1	338-1	403-1	16
74HCT4053	38-1	109-1	338-1	403-1	16
74HC4059	101-1	137-1			24
74HCT4059	101-1	137-1			24
74HC4060	38-1	109-1	338-1	403-1	16
74HCT4060	38-1	109-1	338-1		16

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HCT4066	27-1	108-1	337-1	402-1	14
74HC4066	27-1	108-1	337-1	402-1	14
74HC4067	101-1	137-1	340-1	355-1	24
74HCT4067	101-1	137-1	340-1	355-1	24
74HC4075	27-1	108-1	337-1		14
74HCT4075	27-1	108-1	337-1	402-1	14
74HC4094	38-1	109-1	338-1		16
74HCT4094	38-1	109-1	338-1		16
74HC423	38-1	109-1			16
74HCT423	38-1	109-1			16
74HC4316	38-1	109-1	338-1	403-1	16
74HCT4316	38-1	109-1	338-1	403-1	16
74HC4351	146-1	163-1	339-1		20
74HCT4351	146-1	163-1	339-1		20
74HC4352	146-1	163-1			20
74HCT4352	146-1	163-1			20
74HC4510	38-1	109-1			16
74HCT4510	38-1	109-1			16
74HC4511	38-1	109-1			16
74HCT4511	38-1	109-1			16
74HC4514	101-1	137-1	340-1		24
74HCT4514	101-1	137-1	340-1		24
74HC4515	101-1	137-1			24
74HCT4515	101-1	137-1			24
74HC4516	38-1	109-1			16
74HCT4516	38-1	109-1			16
74HC4518	38-1	109-1			16
74HCT4518	38-1	109-1			16
74HC4520	38-1	109-1	338-1	403-1	16
74HCT4520	38-1	109-1	338-1		16
74HC4538	38-1	109-1	338-1	403-1	16
74HCT4538	38-1	109-1	338-1	403-1	16
74HC4543	38-1	109-1			16
74HCT4543	38-1	109-1			16
74HC533	146-1	163-1			20
74HCT533	146-1	163-1			20
74HC534	146-1	163-1			20
74HCT534	146-1	163-1			20
74HC540	146-1	163-1	339-1		20
74HCT540	146-1	163-1	339-1		20

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HC541	146-1	163-1	339-1	360-1	20
74HCT541	146-1	163-1	339-1	360-1	20
74HC5555	38-1	109-1			16
74HCT5555	38-1	109-1			16
74HC563	146-1	163-1			20
74HCT563	146-1	163-1	339-1		20
74HC564	146-1	163-1			20
74HCT564	146-1	163-1			20
74HC573	146-1	163-1	339-1	360-1	20
74HCT573	146-1	163-1	339-1	360-1	20
74HC574	146-1	163-1	339-1	360-1	20
74HCT574	146-1	163-1	339-1	360-1	20
74HC58	27-1	108-1	337-1		14
74HC583	38-1	109-1			16
74HCT583	38-1	109-1			16
74HC594	38-1	109-1	338-1		16
74HCT594	38-1	109-1			16
74HC595	38-1	109-1	338-1	403-1	16
74HCT595	38-1	109-1	338-1	403-1	16
74HC597	38-1	109-1	338-1	403-1	16
74HCT597	38-1	109-1	338-1		16
74HC6323A		96-1			8
74HCT6323A		96-1			8
74HC640	146-1	163-1	339-1		20
74HCT640	146-1	163-1	339-1		20
74HC643	146-1	163-1			20
74HCT643	146-1	163-1			20
74HC646	101-1	137-1	340-1		24
74HCT646	101-1	137-1	340-1		24
74HC648	101-1	137-1			24
74HCT648	101-1	137-1			24
74HC652	101-1	137-1			24
74HCT652	101-1	137-1			24
74HC670	38-1	109-1	338-1		16
74HCT670	38-1	109-1	338-1		16
74HC688	146-1	163-1	339-1	360-1	20
74HCT688	146-1	163-1	339-1	360-1	20
74HC7014	27-1	108-1			14
74HCT7014	27-1	108-1			14
74HC7030	117-1	136-1			28

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HCT7030	117-1	136-1			28
74HC7046A	38-1	109-1	338-1		16
74HCT7046A	38-1	109-1			16
74HC7080	146-1	163-1			20
74HCT7080	146-1	163-1			20
74HC7132	27-1	108-1			14
74HCT7132	27-1	108-1			14
74HC7245	146-1	163-1			20
74HCT7245	146-1	163-1			20
74HC7266	27-1	108-1	337-1		14
74HCT7266	27-1	108-1			14
74HC73	27-1	108-1			14
74HCT73	27-1	108-1	337-1		14
74HC74	27-1	108-1			14
74HCT74	27-1	108-1	337-1	402-1	14
74HC7403	38-1	109-1			16
74HCT7403	38-1	109-1			16
74HC7404	102-1	163-1			18/20
74HCT7404	102-1	163-1			18/20
74HC75	38-1	109-1	338-1	403-1	16
74HCT75	38-1	109-1	338-1		16
74HC7540	146-1	163-1	339-1		20
74HCT7540	146-1	163-1			20
74HC7541	146-1	163-1	339-1		20
74HCT7541	146-1	163-1			20
74HC7597	38-1	109-1			16
74HCT7597	38-1	109-1			16
74HC7731	38-1	109-1			16
74HCT7731	38-1	109-1			16
74HC85	38-1	109-1	338-1	403-1	16
74HCT85	38-1	109-1	338-1		16
74HC86	27-1	108-1	337-1	402-1	14
74HCT86	27-1	108-1	337-1	402-1	14
74HC9014	146-1	163-1			20
74HCT9014	146-1	163-1			20
74HC9015	146-1	163-1		360-1	20
74HCT9015	146-1	163-1			20
74HC9046A	38-1	109-1			16
74HCT9046A	38-1	109-1		403-1	16
74HC9114	146-1	163-1			20

Package information

PART NO	DIP (N)	SO (D)	SSOP (DB)	TSSOP (PW)	PIN COUNT
74HCT9114	146-1	163-1			20
74HC9115	146-1	163-1			20
74HCT9115	146-1	163-1			20
74HC93	27-1	108-1	337-1		14
74HCT93	27-1	108-1			14
74HC9323A		96-1			8
74HCT9323A		96-1			8

DATA SHEET

Package outline drawings

January 1996

File under Integrated Circuits, IC06

Package outline drawings

INDEX

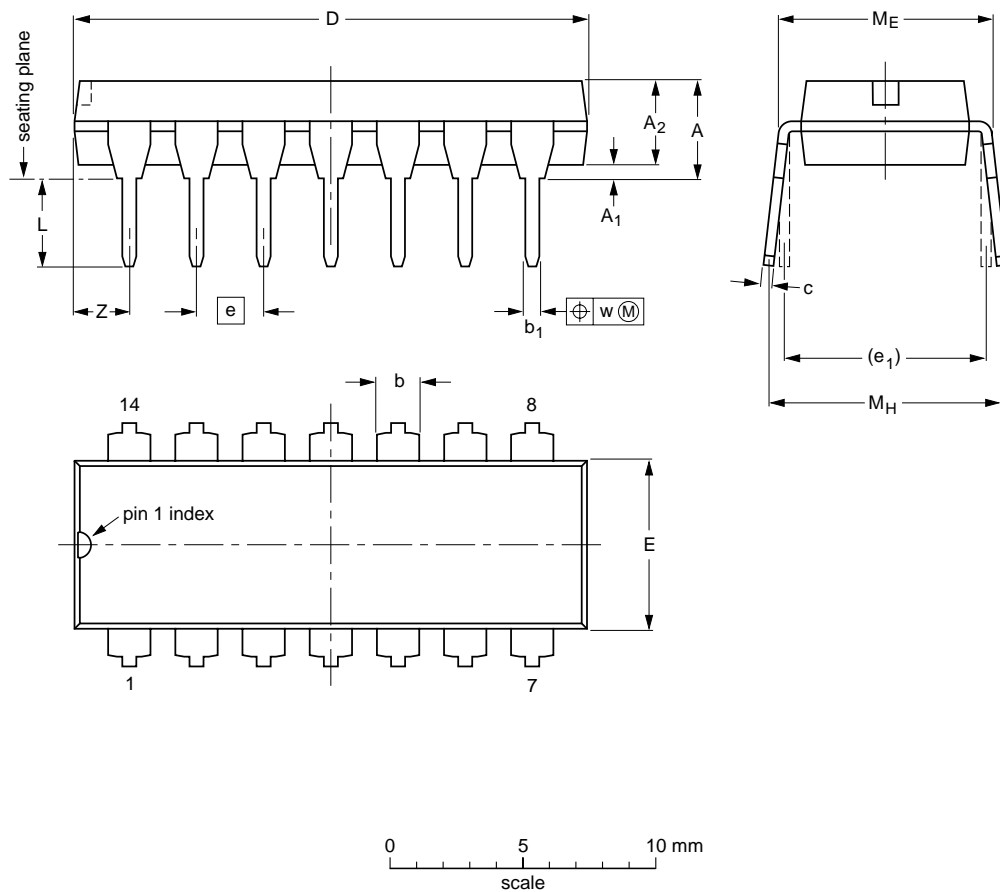
PACKAGE VERSIONS	DESCRIPTION	PAGE
DIP		
SOT27-1	plastic dual in-line package; 14 leads (300 mil)	3
SOT38-4	plastic dual in-line package; 16 leads (300 mil)	4
SOT146-1	plastic dual in-line package; 20 leads (300 mil)	5
SOT101-1	plastic dual in-line package; 24 leads (600 mil)	6
SOT222-1	plastic dual in-line package; 24 leads (300 mil)	7
SOT117-1	plastic dual in-line package; 28 leads (600 mil)	8
SO		
SOT96-1	plastic small outline package; 8 leads; body width 3.9 mm	9
SOT108-1	plastic small outline package; 14 leads; body width 3.9 mm	10
SOT109-1	plastic small outline package; 16 leads; body width 3.9 mm	11
SOT162-1	plastic small outline package; 16 leads; body width 7.5 mm	12
SOT163-1	plastic small outline package; 20 leads; body width 7.5 mm	13
SOT137-1	plastic small outline package; 24 leads; body width 7.5 mm	14
SOT136-1	plastic small outline package; 28 leads; body width 7.5 mm	15
SSOP		
SOT337-1	plastic shrink small outline package; 14 leads; body width 5.3 mm	16
SOT338-1	plastic shrink small outline package; 16 leads; body width 5.3 mm	17
SOT339-1	plastic shrink small outline package; 20 leads; body width 5.3 mm	18
SOT340-1	plastic shrink small outline package; 24 leads; body width 5.3 mm	19
TSSOP		
SOT402-1	plastic thin shrink small outline package; 14 leads; body width 4.4 mm	20
SOT403-1	plastic thin shrink small outline package; 16 leads; body width 4.4 mm	21
SOT360-1	plastic thin shrink small outline package; 20 leads; body width 4.4 mm	22
SOT355-1	plastic thin shrink small outline package; 24 leads; body width 4.4 mm	23

Package outline drawings

DIP

DIP14: plastic dual in-line package; 14 leads (300 mil)

SOT27-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ max.
mm	4.2	0.51	3.2	1.73 1.13	0.53 0.38	0.36 0.23	19.50 18.55	6.48 6.20	2.54	7.62	3.60 3.05	8.25 7.80	10.0 8.3	0.254	2.2
inches	0.17	0.020	0.13	0.068 0.044	0.021 0.015	0.014 0.009	0.77 0.73	0.26 0.24	0.10	0.30	0.14 0.12	0.32 0.31	0.39 0.33	0.01	0.087

Note

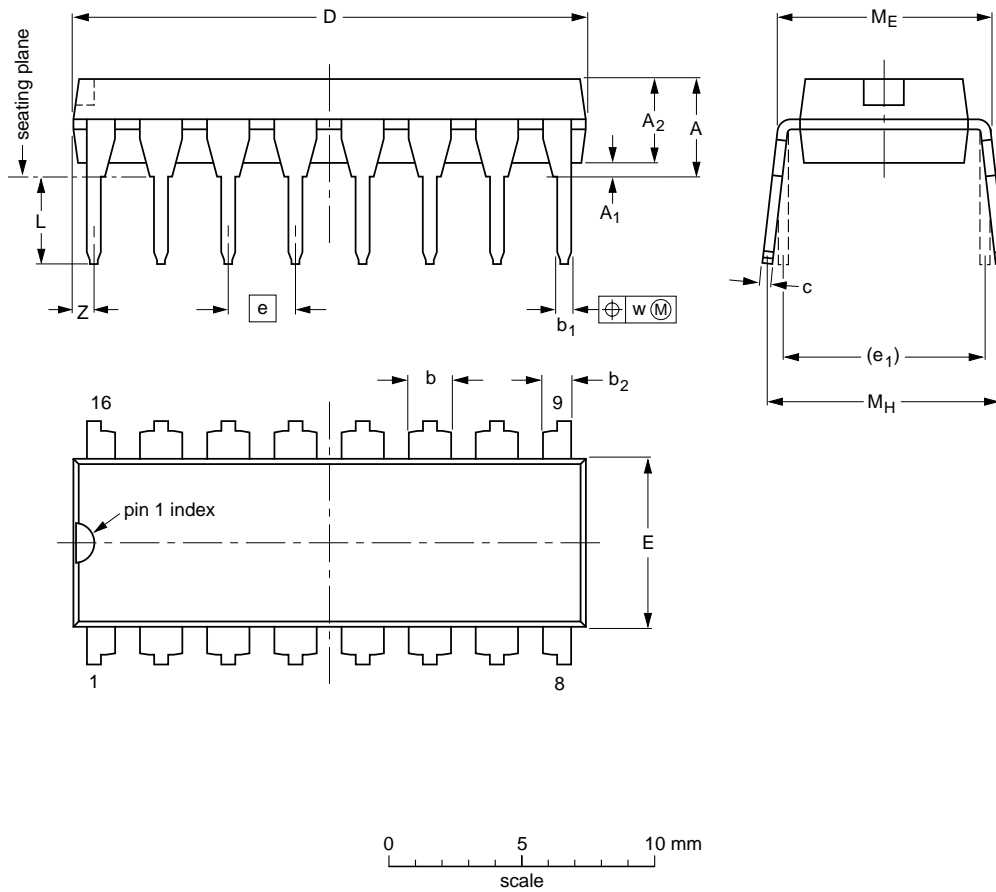
1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT27-1	050G04	MO-001AA				92-11-17 95-03-11

Package outline drawings

DIP16: plastic dual in-line package; 16 leads (300 mil)

SOT38-4



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	b ₂	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ max.
mm	4.2	0.51	3.2	1.73 1.30	0.53 0.38	1.25 0.85	0.36 0.23	19.50 18.55	6.48 6.20	2.54	7.62	3.60 3.05	8.25 7.80	10.0 8.3	0.254	0.76
inches	0.17	0.020	0.13	0.068 0.051	0.021 0.015	0.049 0.033	0.014 0.009	0.77 0.73	0.26 0.24	0.10	0.30	0.14 0.12	0.32 0.31	0.39 0.33	0.01	0.030

Note

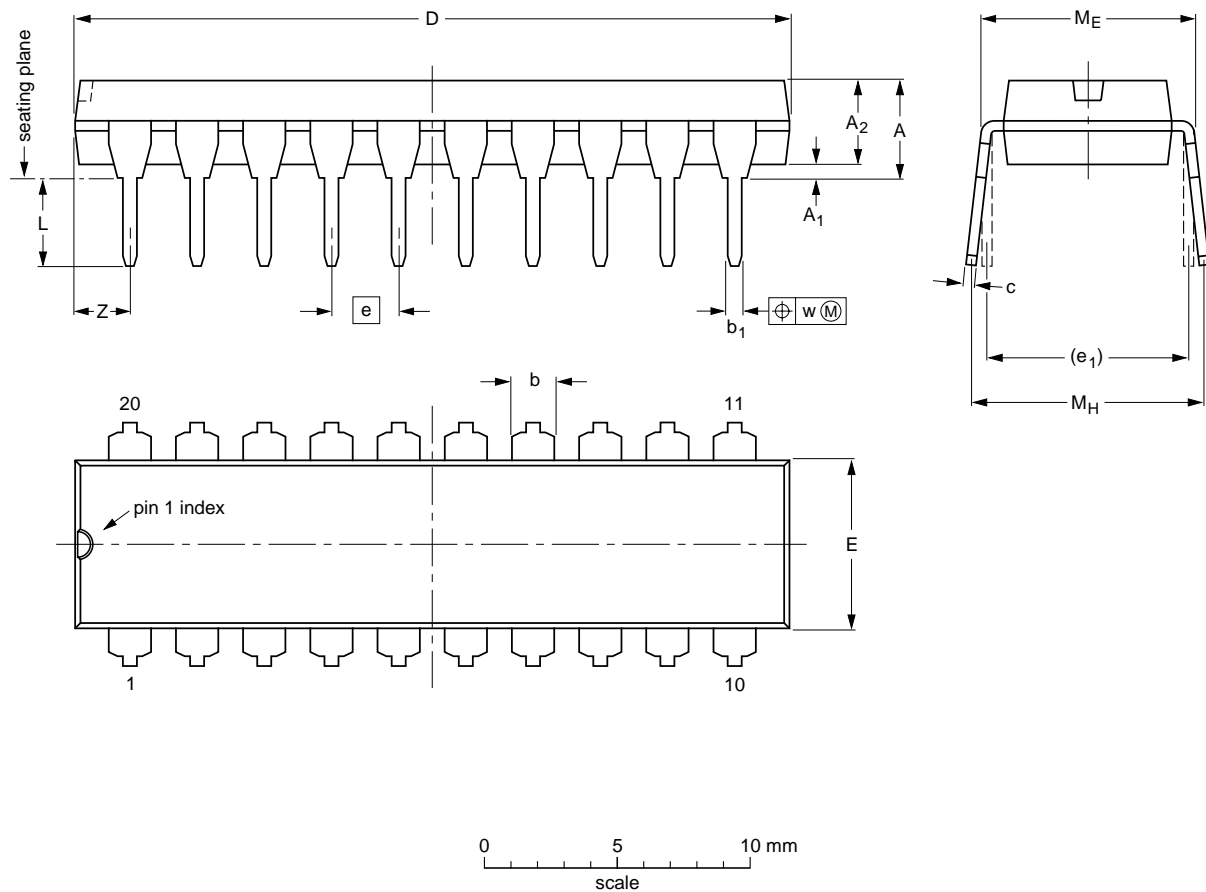
1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT38-4						92-11-17 95-01-14

Package outline drawings

DIP20: plastic dual in-line package; 20 leads (300 mil)

SOT146-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ max.
mm	4.2	0.51	3.2	1.73 1.30	0.53 0.38	0.36 0.23	26.92 26.54	6.40 6.22	2.54	7.62	3.60 3.05	8.25 7.80	10.0 8.3	0.254	2.0
inches	0.17	0.020	0.13	0.068 0.051	0.021 0.015	0.014 0.009	1.060 1.045	0.25 0.24	0.10	0.30	0.14 0.12	0.32 0.31	0.39 0.33	0.01	0.078

Note

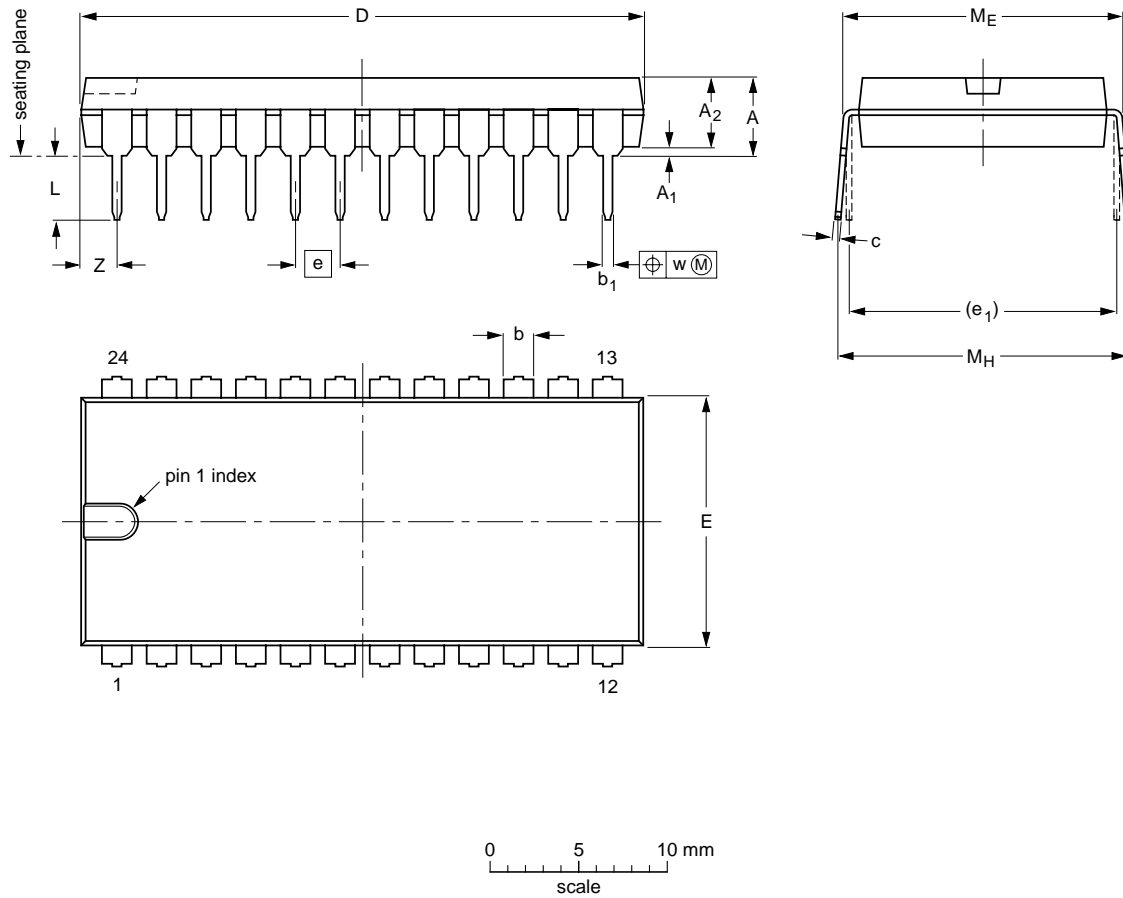
1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT146-1			SC603			92-11-17 95-05-24

Package outline drawings

DIP24: plastic dual in-line package; 24 leads (600 mil)

SOT101-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ max.
mm	5.1	0.51	4.0	1.7 1.3	0.53 0.38	0.32 0.23	32.0 31.4	14.1 13.7	2.54	15.24	3.9 3.4	15.80 15.24	17.15 15.90	0.25	2.2
inches	0.20	0.020	0.16	0.066 0.051	0.021 0.015	0.013 0.009	1.26 1.24	0.56 0.54	0.10	0.60	0.15 0.13	0.62 0.60	0.68 0.63	0.01	0.087

Note

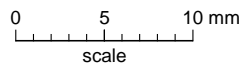
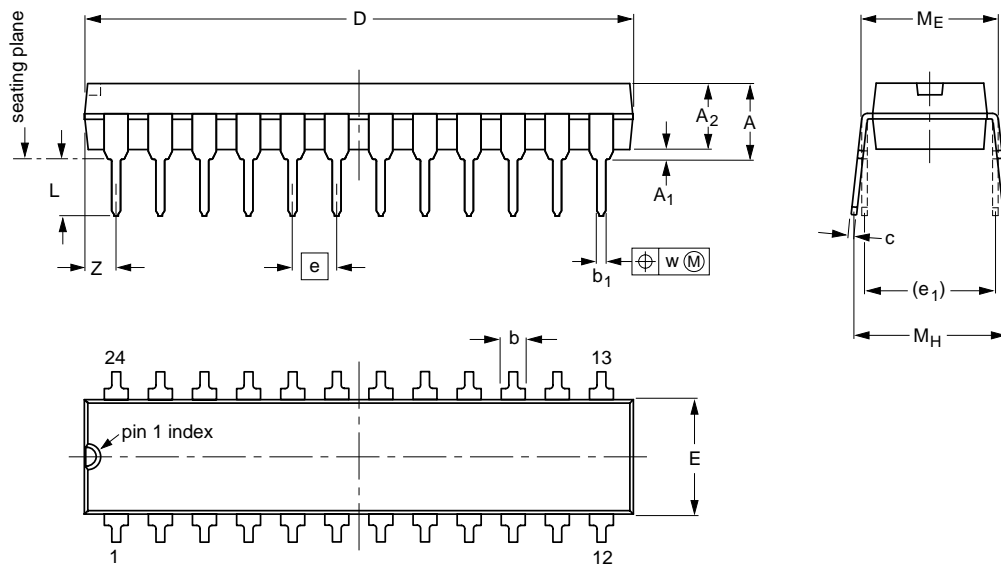
1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT101-1	051G02	MO-015AD				92-11-17 95-01-23

Package outline drawings

DIP24: plastic dual in-line package; 24 leads (300 mil)

SOT222-1



DIMENSIONS (millimetre dimensions are derived from the original inch dimensions)

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ max.
mm	4.70	0.38	3.94	1.63 1.14	0.56 0.43	0.36 0.25	31.9 31.5	6.73 6.48	2.54	7.62	3.51 3.05	8.13 7.62	10.03 7.62	0.25	2.05
inches	0.185	0.015	0.155	0.064 0.045	0.022 0.017	0.014 0.010	1.256 1.240	0.265 0.255	0.100	0.300	0.138 0.120	0.32 0.30	0.395 0.300	0.01	0.081

Note

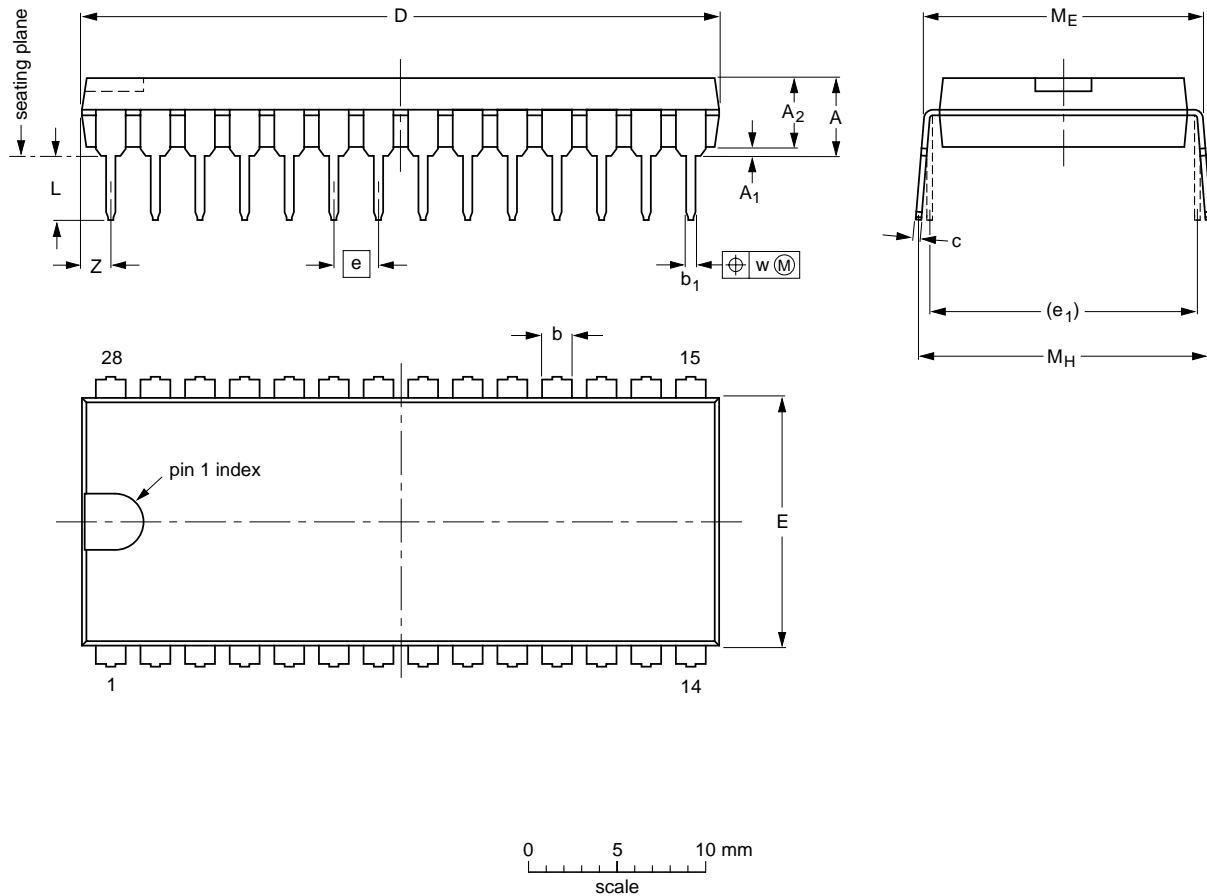
1. Plastic or metal protrusions of 0.01 inches maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT222-1		MS-001AF				95-03-11

Package outline drawings

DIP28: plastic dual in-line package; 28 leads (600 mil)

SOT117-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁ min.	A ₂ max.	b	b ₁	c	D ⁽¹⁾	E ⁽¹⁾	e	e ₁	L	M _E	M _H	w	Z ⁽¹⁾ max.
mm	5.1	0.51	4.0	1.7 1.3	0.53 0.38	0.32 0.23	36.0 35.0	14.1 13.7	2.54	15.24	3.9 3.4	15.80 15.24	17.15 15.90	0.25	1.7
inches	0.20	0.020	0.16	0.066 0.051	0.020 0.014	0.013 0.009	1.41 1.34	0.56 0.54	0.10	0.60	0.15 0.13	0.62 0.60	0.68 0.63	0.01	0.067

Note

1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

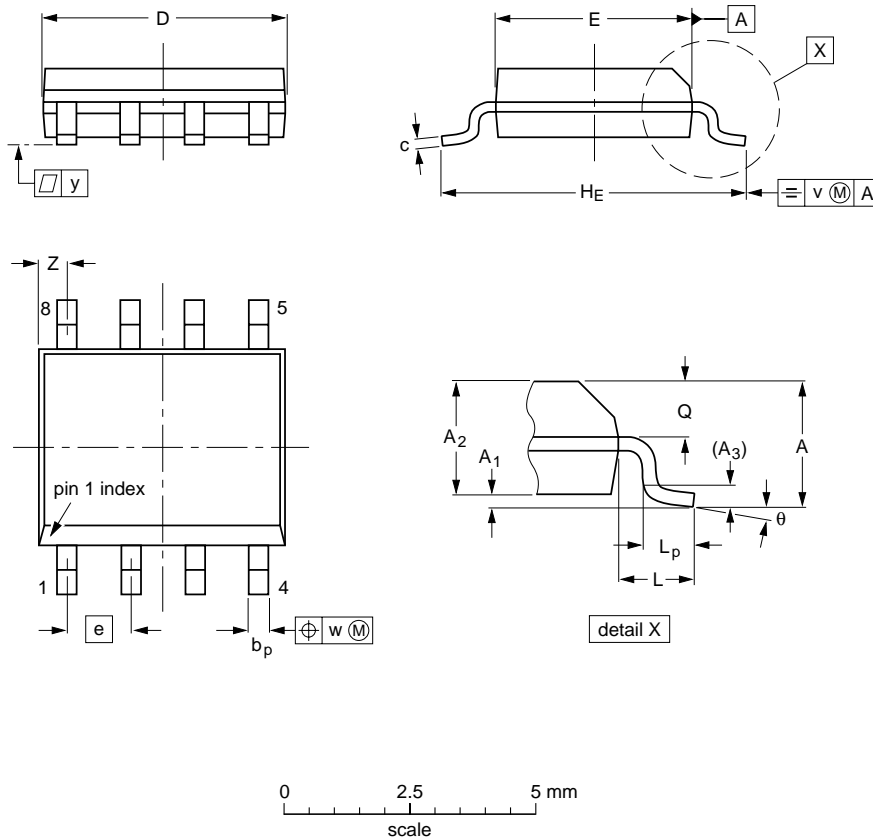
OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT117-1	051G05	MO-015AH				92-11-17 95-01-14

Package outline drawings

SO

SO8: plastic small outline package; 8 leads; body width 3.9 mm

SOT96-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽²⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.75	0.25 0.10	1.45 1.25	0.25	0.49 0.36	0.25 0.19	5.0 4.8	4.0 3.8	1.27	6.2 5.8	1.05	1.0 0.4	0.7 0.6	0.25	0.25	0.1	0.7 0.3	8° 0°
inches	0.069	0.010 0.004	0.057 0.049	0.01	0.019 0.014	0.0100 0.0075	0.20 0.19	0.16 0.15	0.050	0.244 0.228	0.041	0.039 0.016	0.028 0.024	0.01	0.01	0.004	0.028 0.012	

Notes

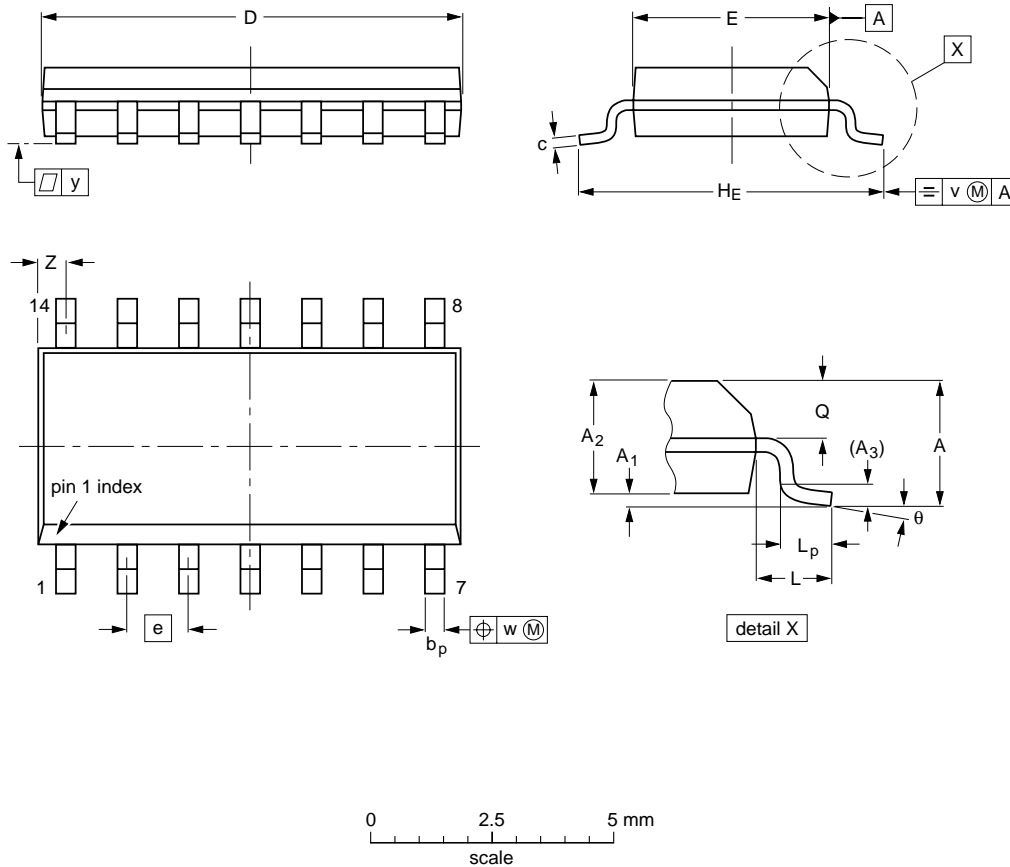
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT96-1	076E03S	MS-012AA				95-02-04 97-05-22

Package outline drawings

SO14: plastic small outline package; 14 leads; body width 3.9 mm

SOT108-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.75	0.25 0.10	1.45 1.25	0.25	0.49 0.36	0.25 0.19	8.75 8.55	4.0 3.8	1.27	6.2 5.8	1.05	1.0 0.4	0.7 0.6	0.25	0.25	0.1	0.7 0.3	8° 0°
inches	0.069	0.010 0.004	0.057 0.049	0.01	0.019 0.014	0.0100 0.0075	0.35 0.34	0.16 0.15	0.050	0.244 0.228	0.041	0.039 0.016	0.028 0.024	0.01	0.01	0.004	0.028 0.012	

Note

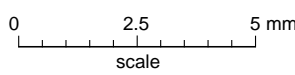
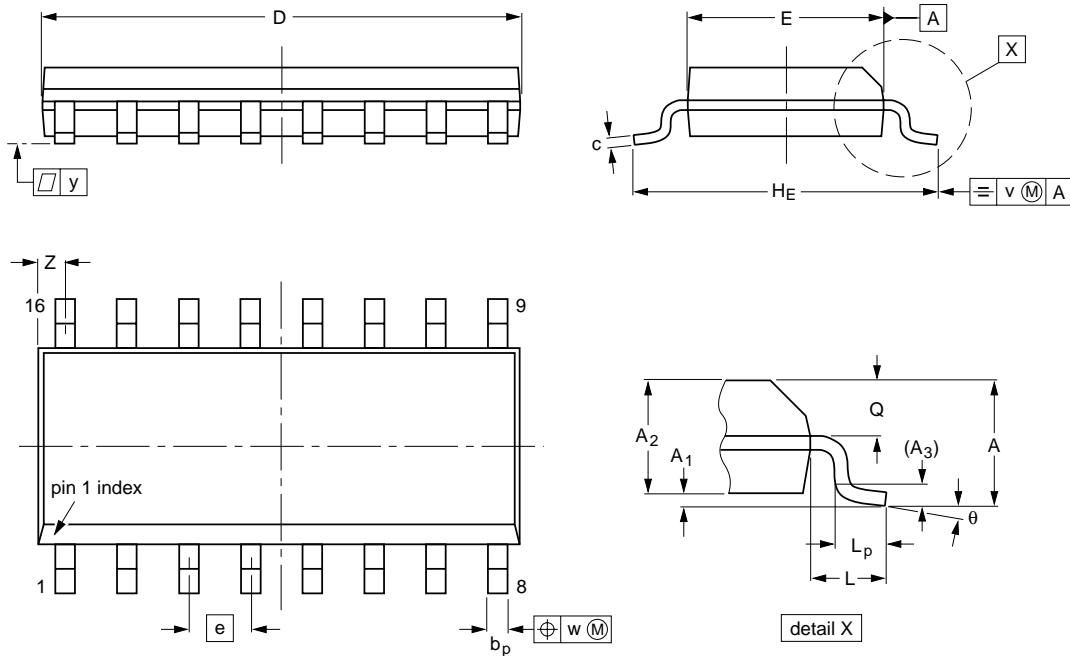
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT108-1	076E06S	MS-012AB				95-01-23 97-05-22

Package outline drawings

SO16: plastic small outline package; 16 leads; body width 3.9 mm

SOT109-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.75	0.25 0.10	1.45 1.25	0.25	0.49 0.36	0.25 0.19	10.0 9.8	4.0 3.8	1.27	6.2 5.8	1.05	1.0 0.4	0.7 0.6	0.25	0.25	0.1	0.7 0.3	8° 0°
inches	0.069	0.010 0.004	0.057 0.049	0.01	0.019 0.014	0.0100 0.0075	0.39 0.38	0.16 0.15	0.050	0.244 0.228	0.041	0.039 0.016	0.028 0.020	0.01	0.01	0.004	0.028 0.012	

Note

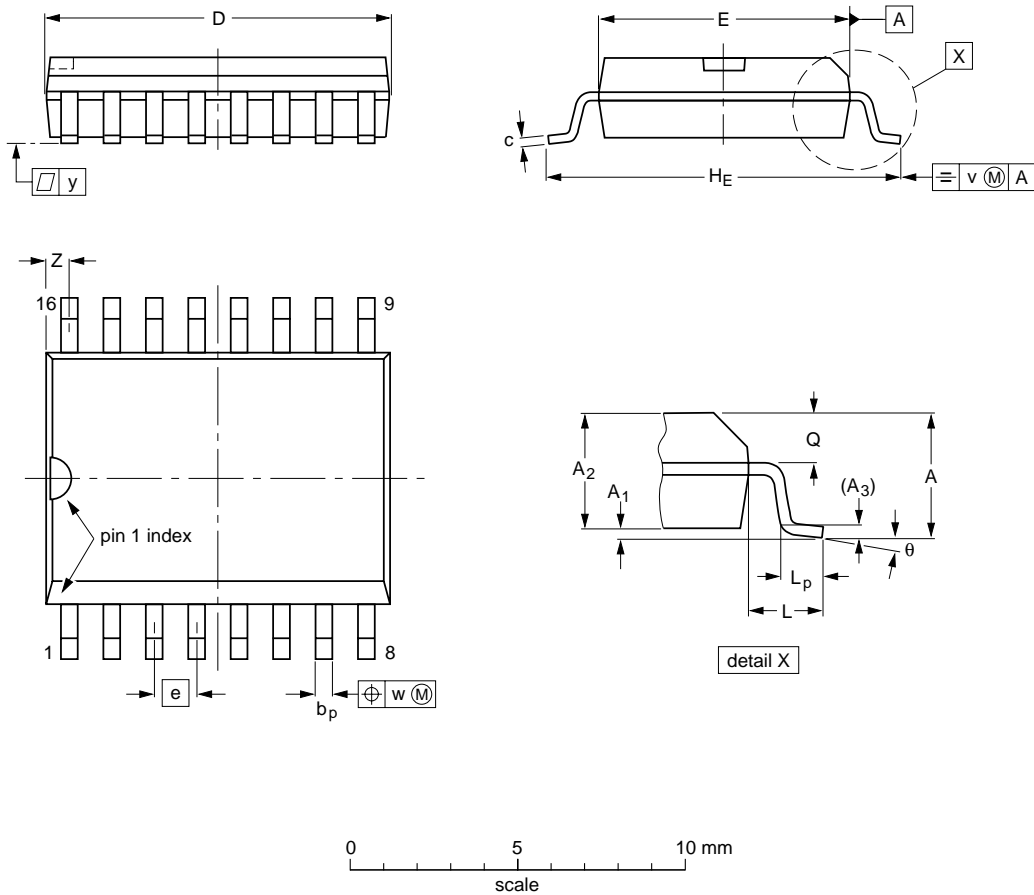
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT109-1	076E07S	MS-012AC				95-01-23 97-05-22

Package outline drawings

SOT16: plastic small outline package; 16 leads; body width 7.5 mm

SOT162-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.65	0.30 0.10	2.45 2.25	0.25	0.49 0.36	0.32 0.23	10.5 10.1	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8° 0°
inches	0.10	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.41 0.40	0.30 0.29	0.050	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

Note

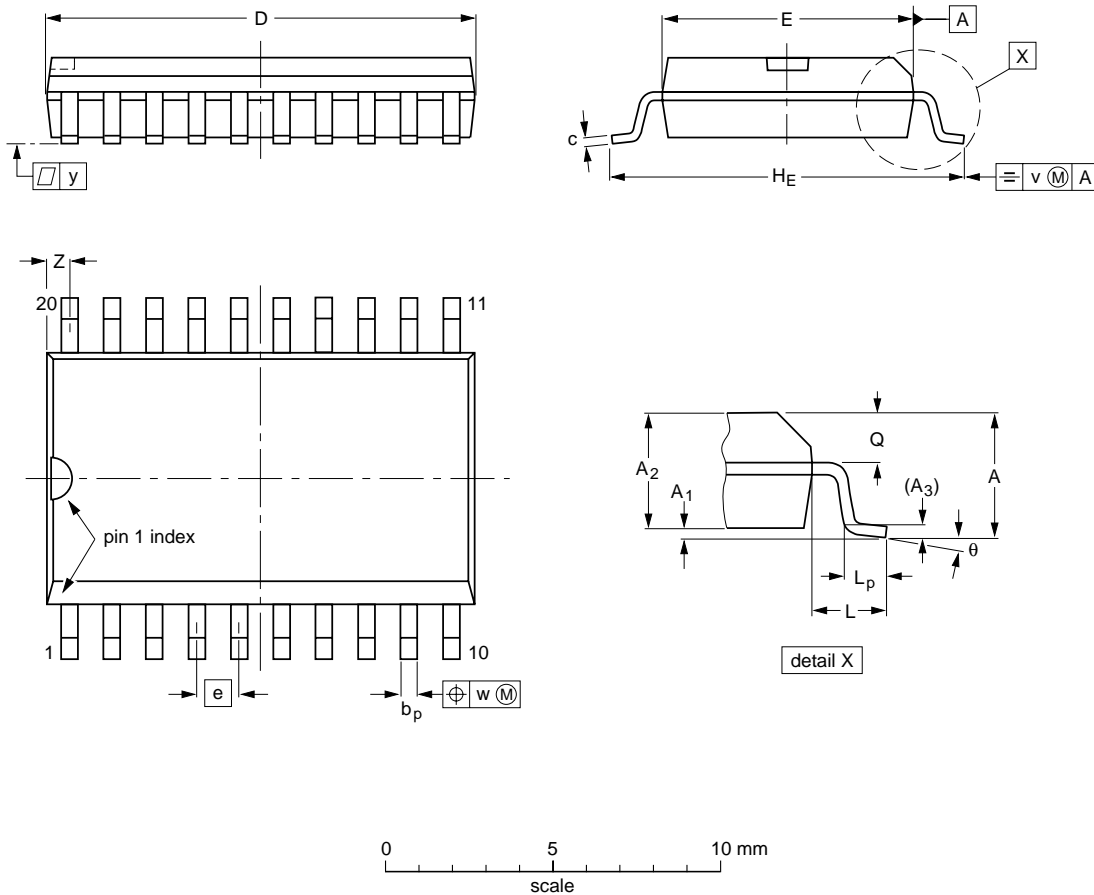
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT162-1	075E03	MS-013AA				95-01-24 97-05-22

Package outline drawings

SO20: plastic small outline package; 20 leads; body width 7.5 mm

SOT163-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.65	0.30 0.10	2.45 2.25	0.25	0.49 0.36	0.32 0.23	13.0 12.6	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8° 0°
inches	0.10	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.51 0.49	0.30 0.29	0.050	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

Note

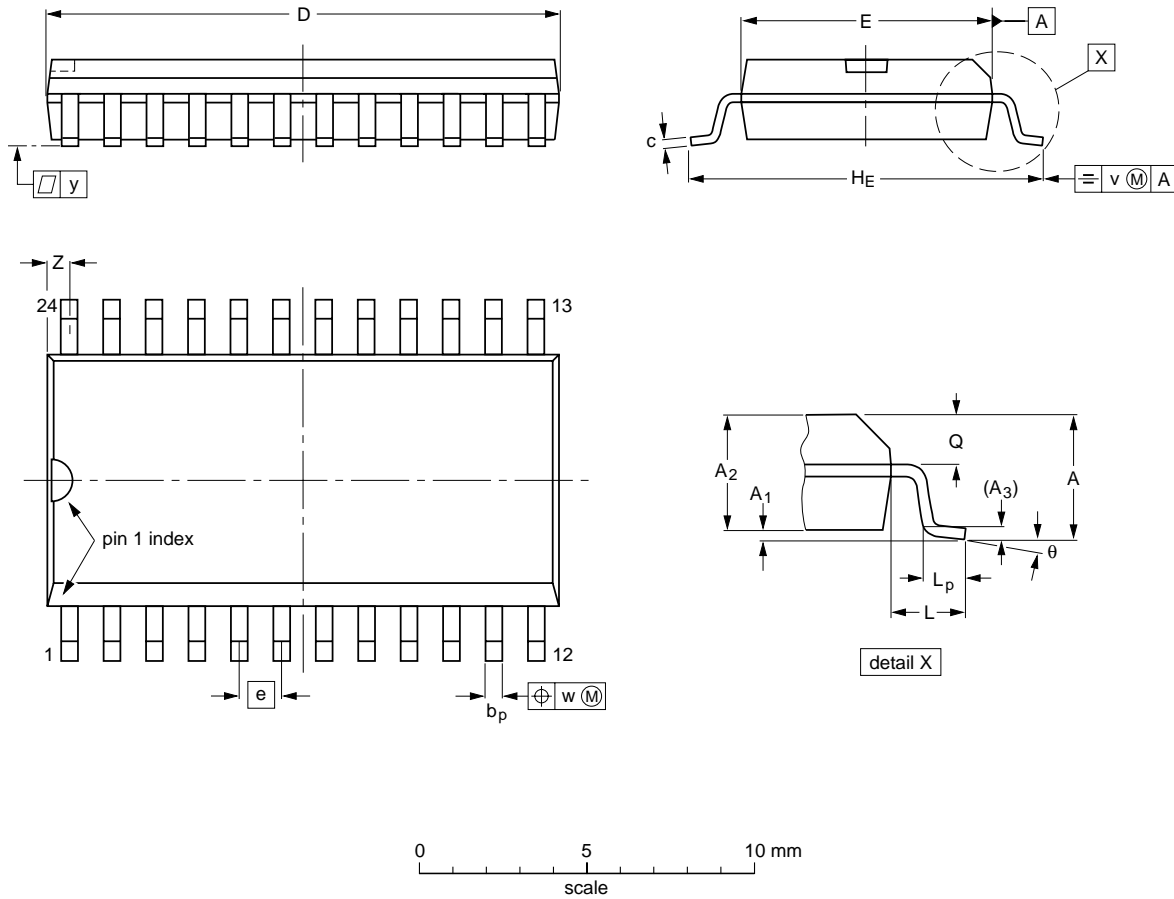
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT163-1	075E04	MS-013AC				95-01-24 97-05-22

Package outline drawings

SO24: plastic small outline package; 24 leads; body width 7.5 mm

SOT137-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.65	0.30 0.10	2.45 2.25	0.25	0.49 0.36	0.32 0.23	15.6 15.2	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8° 0°
inches	0.10	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.61 0.60	0.30 0.29	0.050	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

Note

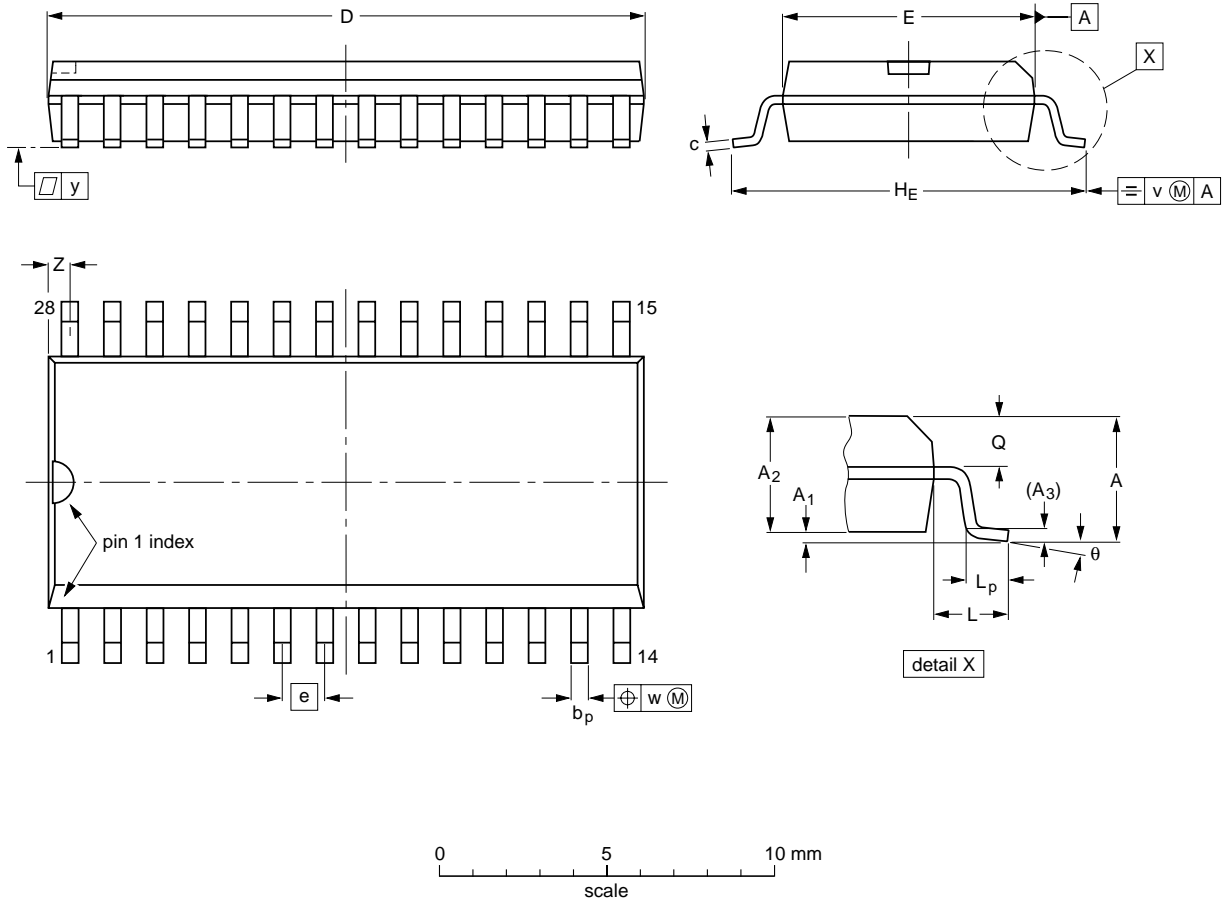
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT137-1	075E05	MS-013AD				95-01-24 97-05-22

Package outline drawings

SO28: plastic small outline package; 28 leads; body width 7.5 mm

SOT136-1



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.65	0.30 0.10	2.45 2.25	0.25	0.49 0.36	0.32 0.23	18.1 17.7	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8° 0°
inches	0.10	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.71 0.69	0.30 0.29	0.050	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

Note

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.

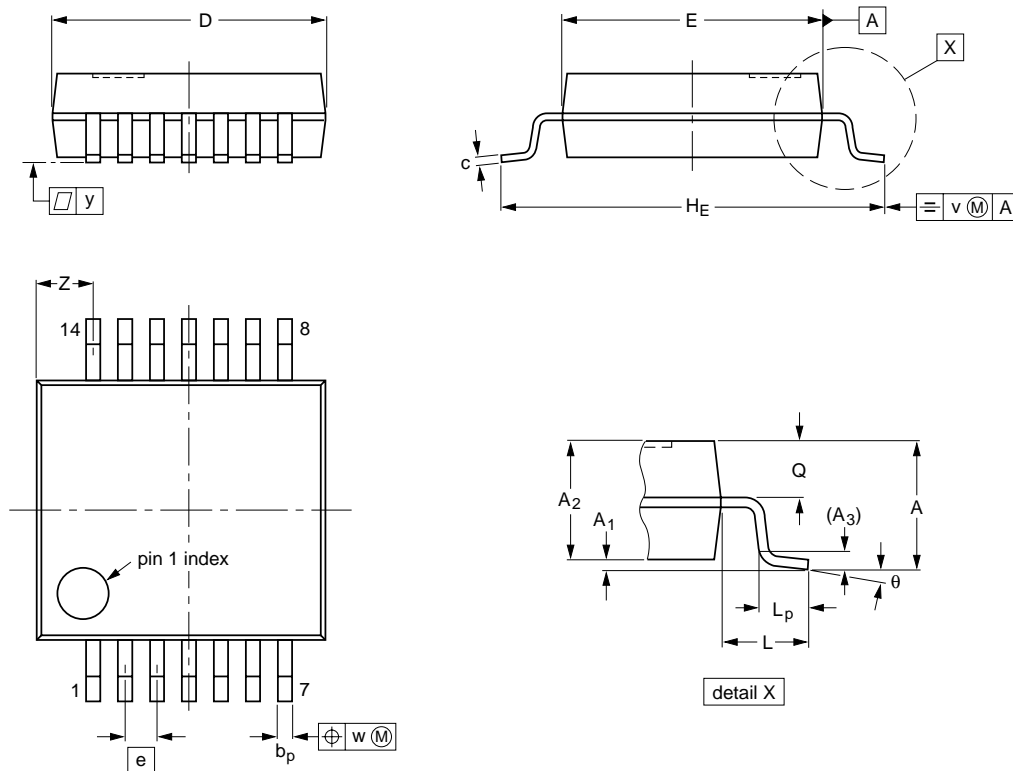
OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT136-1	075E06	MS-013AE				-95-01-24 97-05-22

Package outline drawings

SSOP

SSOP14: plastic shrink small outline package; 14 leads; body width 5.3 mm

SOT337-1



DIMENSIONS (mm are the original dimensions)

UNIT	A _{max.}	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.0	0.21 0.05	1.80 1.65	0.25	0.38 0.25	0.20 0.09	6.4 6.0	5.4 5.2	0.65	7.9 7.6	1.25	1.03 0.63	0.9 0.7	0.2	0.13	0.1	1.4 0.9	8° 0°

Note

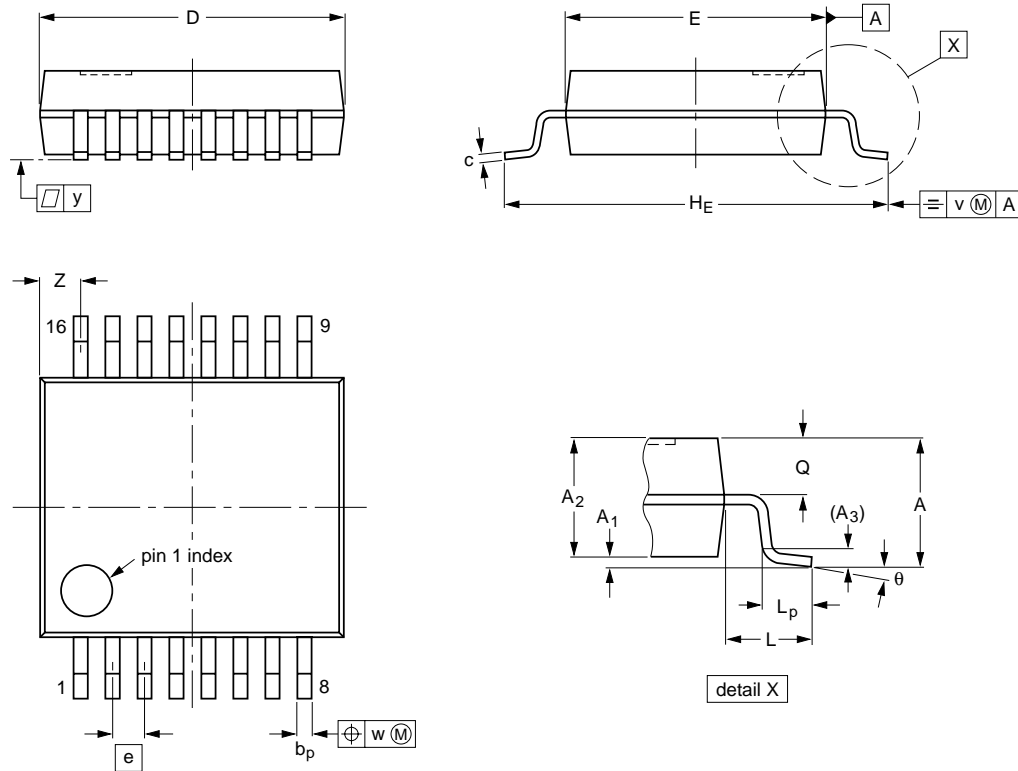
1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT337-1		MO-150AB				95-02-04 96-01-18

Package outline drawings

SSOP16: plastic shrink small outline package; 16 leads; body width 5.3 mm

SOT338-1



DIMENSIONS (mm are the original dimensions)

UNIT	A _{max.}	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.0	0.21 0.05	1.80 1.65	0.25	0.38 0.25	0.20 0.09	6.4 6.0	5.4 5.2	0.65	7.9 7.6	1.25	1.03 0.63	0.9 0.7	0.2	0.13	0.1	1.00 0.55	8° 0°

Note

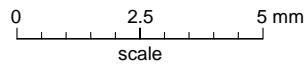
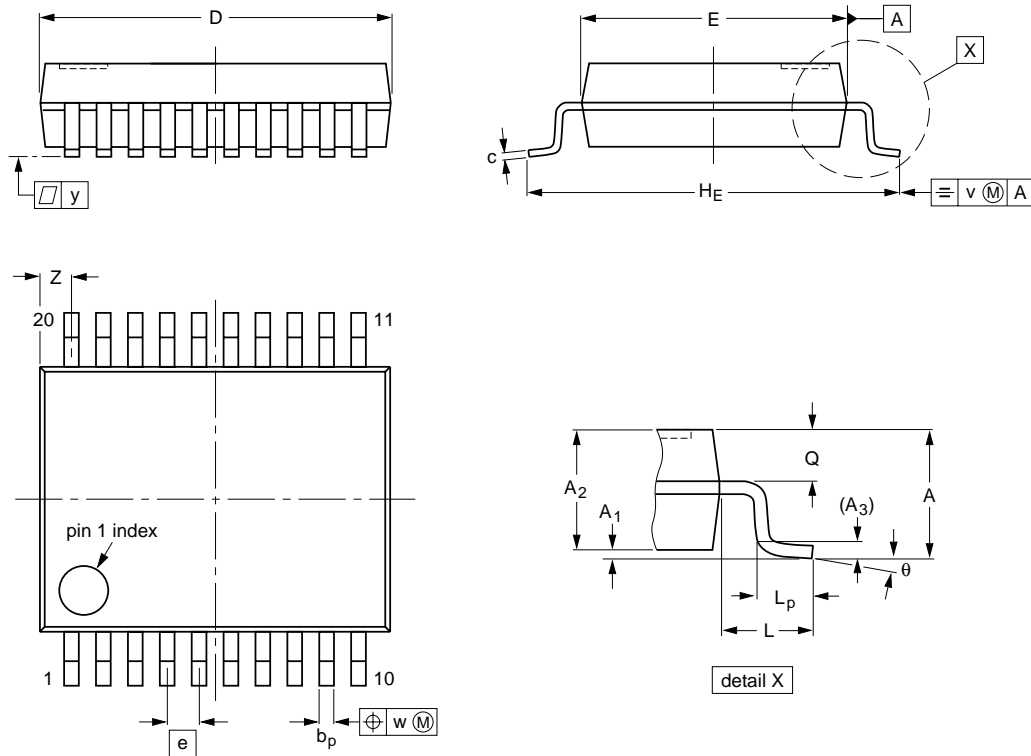
1. Plastic or metal protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT338-1		MO-150AC				94-01-14 95-02-04

Package outline drawings

SSOP20: plastic shrink small outline package; 20 leads; body width 5.3 mm

SOT339-1



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.0	0.21 0.05	1.80 1.65	0.25	0.38 0.25	0.20 0.09	7.4 7.0	5.4 5.2	0.65	7.9 7.6	1.25	1.03 0.63	0.9 0.7	0.2	0.13	0.1	0.9 0.5	8° 0°

Note

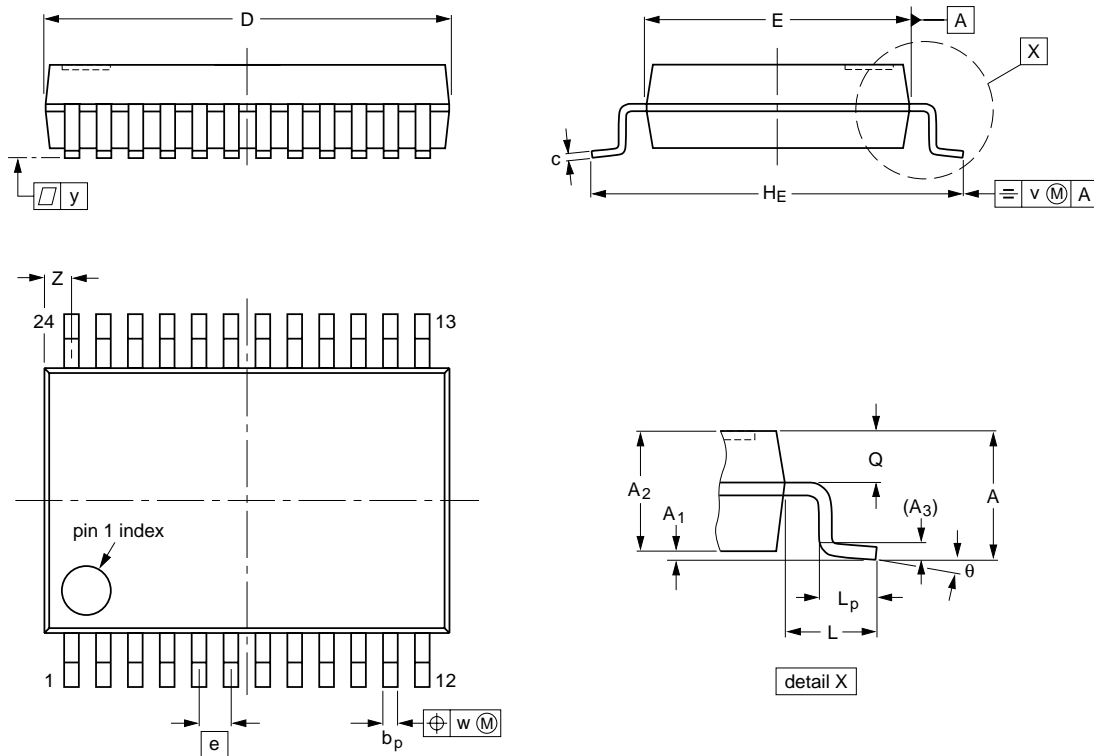
1. Plastic or metal protrusions of 0.20 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT339-1		MO-150AE				93-09-08 95-02-04

Package outline drawings

SSOP24: plastic shrink small outline package; 24 leads; body width 5.3 mm

SOT340-1



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽¹⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	2.0	0.21 0.05	1.80 1.65	0.25	0.38 0.25	0.20 0.09	8.4 8.0	5.4 5.2	0.65	7.9 7.6	1.25	1.03 0.63	0.9 0.7	0.2	0.13	0.1	0.8 0.4	8° 0°

Note

1. Plastic or metal protrusions of 0.20 mm maximum per side are not included.

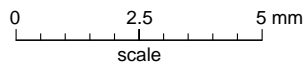
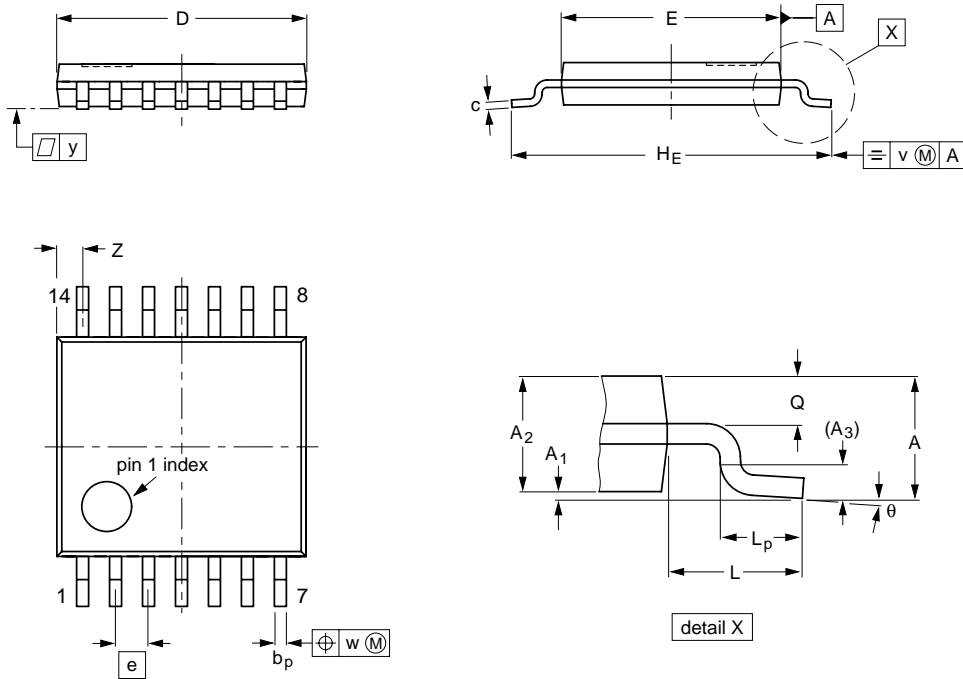
OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT340-1		MO-150AG				93-09-08- 95-02-04

Package outline drawings

TSSOP

TSSOP14: plastic thin shrink small outline package; 14 leads; body width 4.4 mm

SOT402-1



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽²⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.10	0.15 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	5.1 4.9	4.5 4.3	0.65	6.6 6.2	1.0	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.72 0.38	8° 0°

Notes

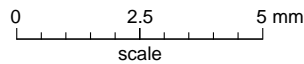
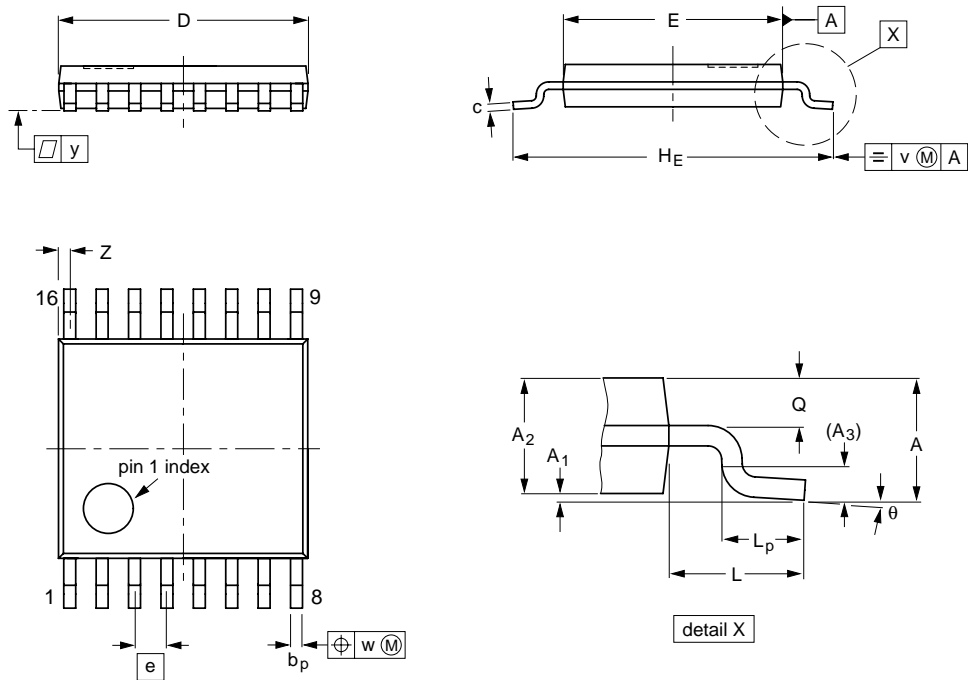
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT402-1		MO-153				94-07-12 95-04-04

Package outline drawings

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm

SOT403-1



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽²⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.10	0.15 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	5.1 4.9	4.5 4.3	0.65	6.6 6.2	1.0	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.40 0.06	8° 0°

Notes

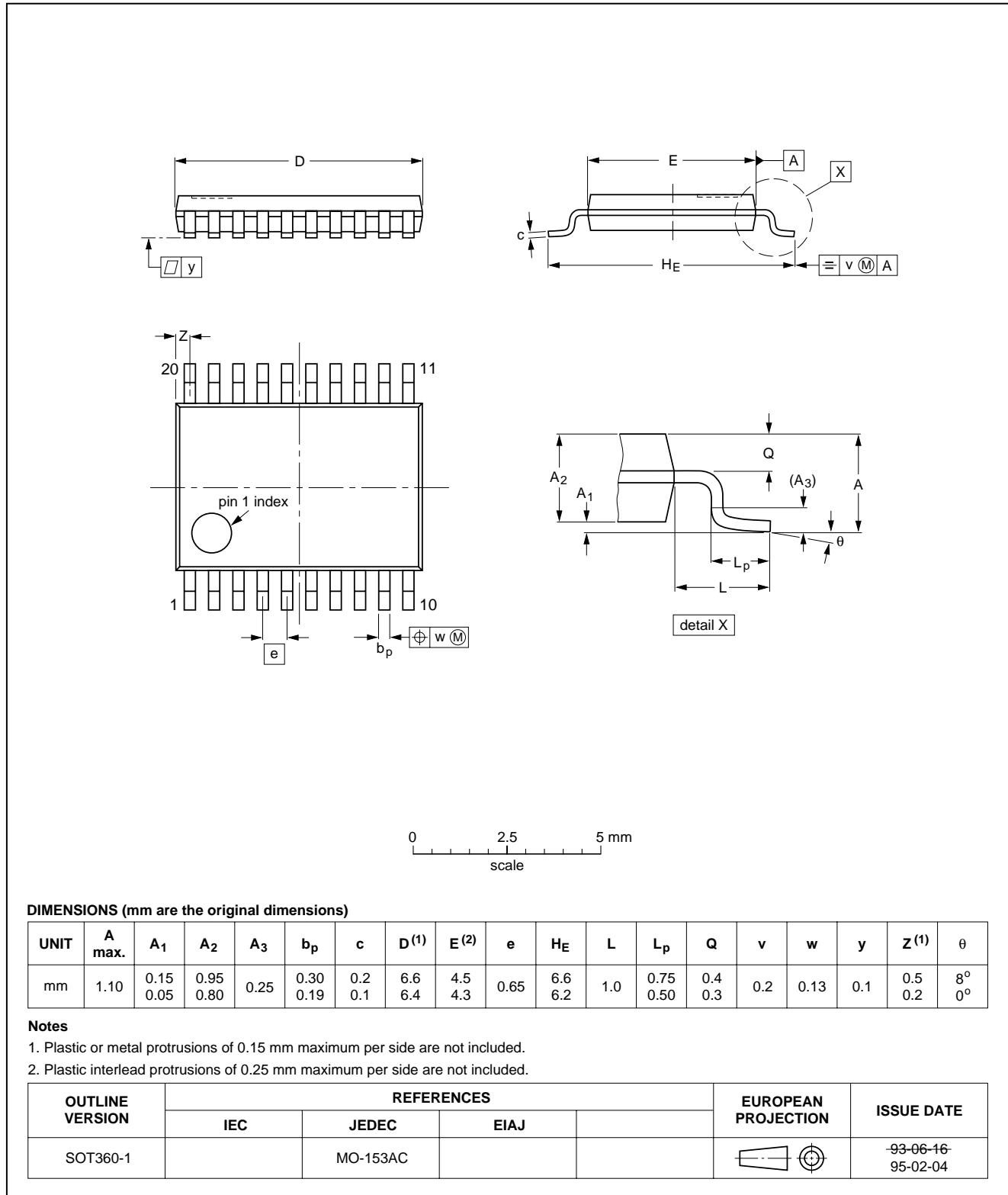
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT403-1		MO-153				-94-07-12- 95-04-04

Package outline drawings

TSSOP20: plastic thin shrink small outline package; 20 leads; body width 4.4 mm

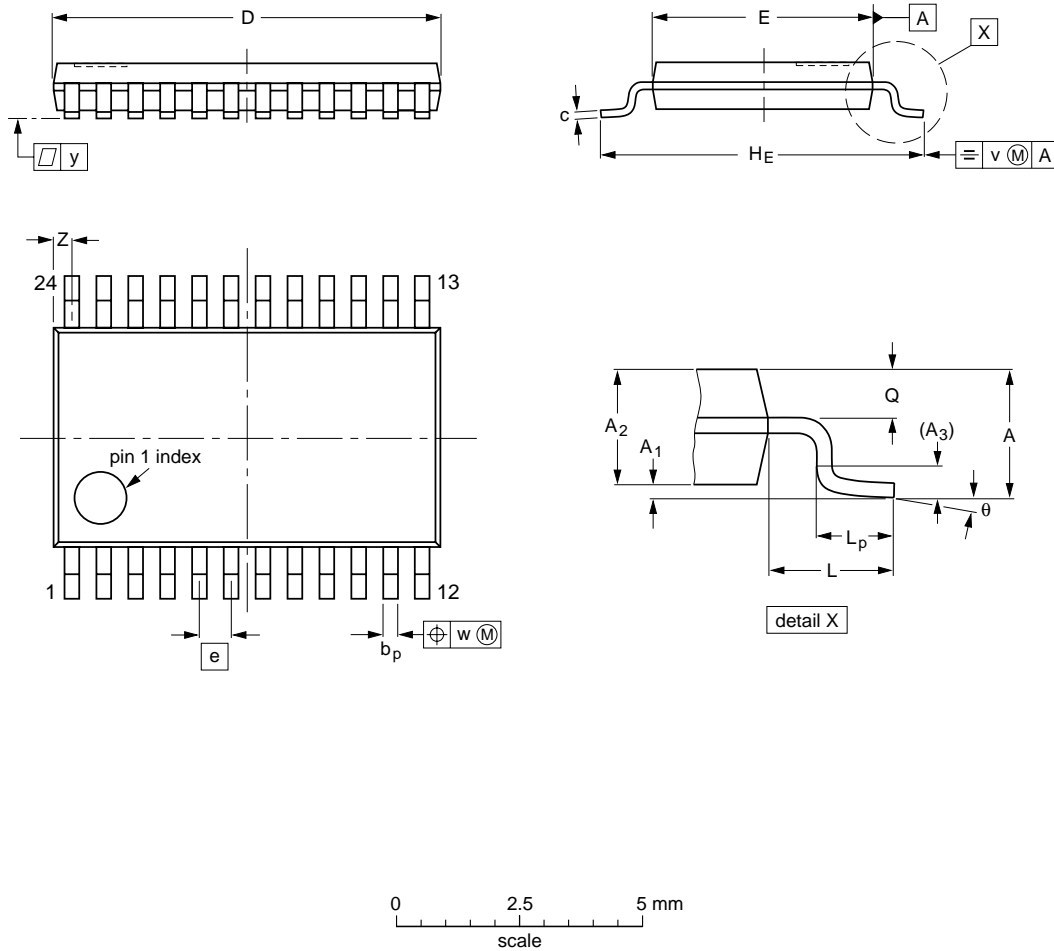
SOT360-1



Package outline drawings

TSSOP24: plastic thin shrink small outline package; 24 leads; body width 4.4 mm

SOT355-1



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A ₁	A ₂	A ₃	b _p	c	D ⁽¹⁾	E ⁽²⁾	e	H _E	L	L _p	Q	v	w	y	Z ⁽¹⁾	θ
mm	1.10	0.15 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	7.9 7.7	4.5 4.3	0.65	6.6 6.2	1.0	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.5 0.2	8° 0°

Notes

1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT355-1		MO-153AD				93-06-16 95-02-04