EN/DECODER

M5E

3 STATES ENCODER
3 态编码 IC

GENERAL DESCRIPTION 功能叙述

The M5E is a CMOS ASIC encoder. It will en-code 12 parallel data inputs (A0~A11) and serially transmit them to the output when transmits enable ($\overline{TE}$) depressed. The address inputs are 3 states i.e. LOW (0) or OPEN (X) and HIGH (1). It will transmit 1 cycle each time $\overline{TE}$ depressed.

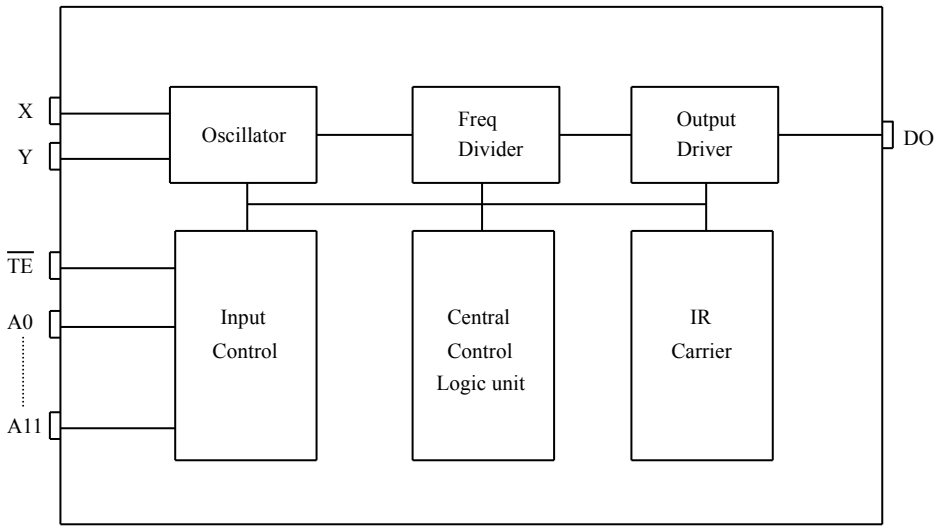
FEATURES 产品特长

- Same Rosc matched to the DECODER M5D/F
- 3^{12} =531, 441 codes, “0”, “X”, “1” Tri-states
- 4 cycles transmission each time
- Direct data transmit type：(Elimination TE and diodes)
  —M5E-H：switch to VDD
- Built-in IR carrier：suffix –IR
- DIP 18 or SO available

APPLICATIONS 产品应用

- Car/home alarm system, garage control etc..

BLOCK DIAGRAM 功能方块图



*All specs and applications shown above subject to change without prior notice.
(以上电路及规格仅供参考,本公司得径行修正)

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ABSOLUTE MAXIMUM RATING

(TA=25℃)

Parameter	Rating	Unit
Supply Voltage	-0.3 to 13	V
Input Voltage	-0.2~V_{DD}+0.2	V
Operating Temperature	-20 to 70	℃
Storage Temperature	-50 to 125	℃

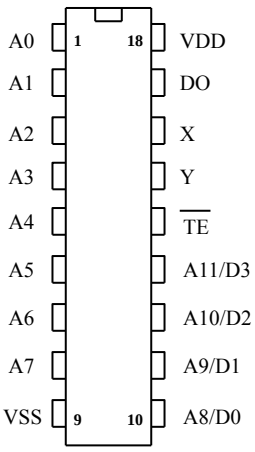
ELECTRICAL CHARACTERISTICS

Characteristics	Sym.	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	V_{DD}	2.4	—	13	V	
Operating Current	I_{OP}	—	0.1	1	mA	No load
Quiescent Current	I_{SB}	—	0.1	0.5	μA	
Output Drive Current	I_O	—	2	—	mA	@V_{DS}=1.2V
Input Voltage	V_{IH}	V_{DD}–0.2	V_{DD}	V_{DD}	V	
	V_{IL}	V_{SS}	V_{SS}	V_{SS}+0.2		
Oscillator Frequency	Fosc	—	76	—	KHz	External±30%, Rosc=360KΩ

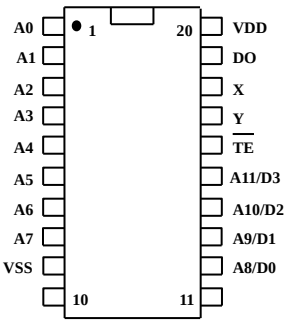
PIN DESCRIPTION

No.	Name	Description
1~8	A0~A7	3 states address inputs
9	VSS	Negative power supply
10~13	A8~A11 / D0~D3	3 states address inputs / Data input
14	$\overline{TE}$	Transmit enable
15	Y	Oscillator output
16	X	Oscillator input
17	DO	Data output
18	VDD	Positive power supply

M5E

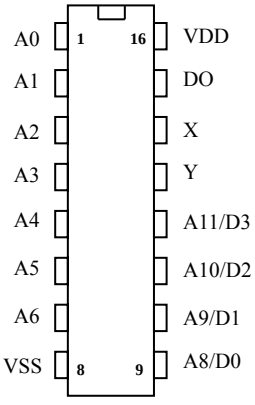


M5E-S
M5E-SS



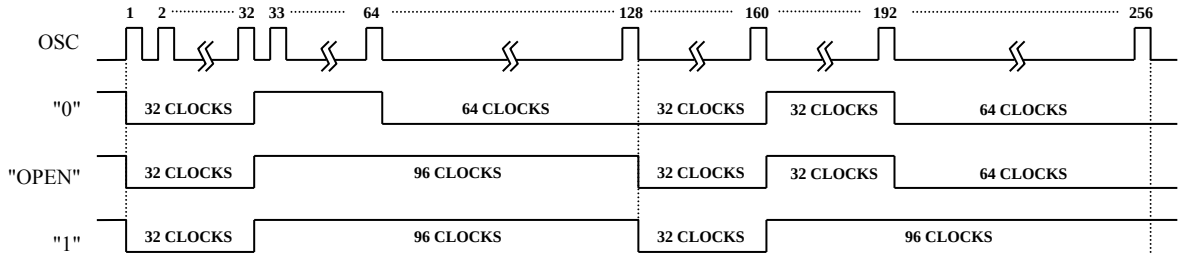
No.	Name	Description
1~7	A0~A6	3 states address inputs
8	VSS	Negative power supply
9~12	A8~A11 / D0~D3	3 states address inputs / Data input
13	Y	Oscillator output
14	X	Oscillator input
15	DO	Data output
16	VDD	Positive power supply

M5E



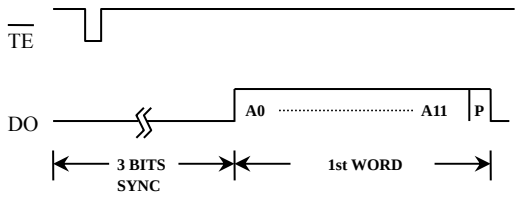
TIMING WAVEFORM

(1) BIT FORMAT

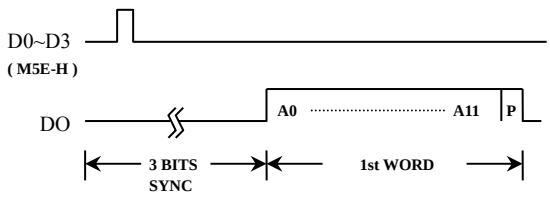


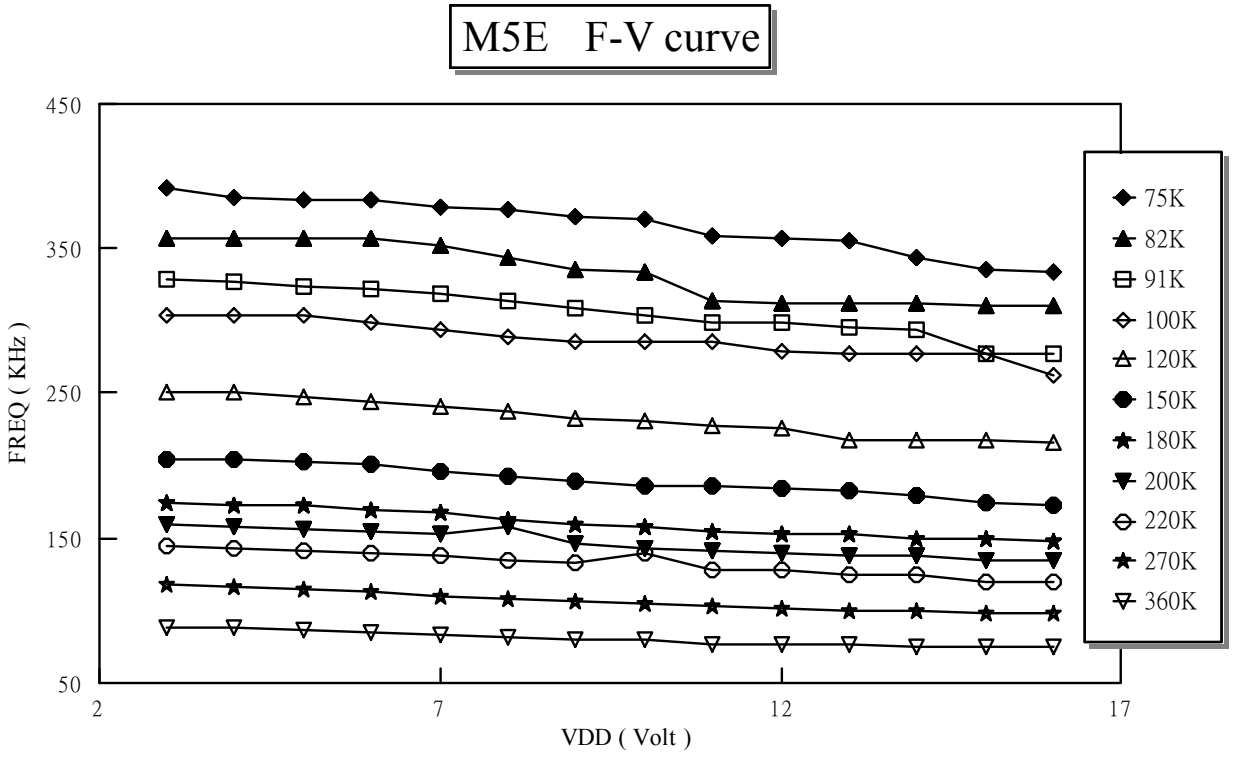
(2) TIMING DIAGRAM

A.

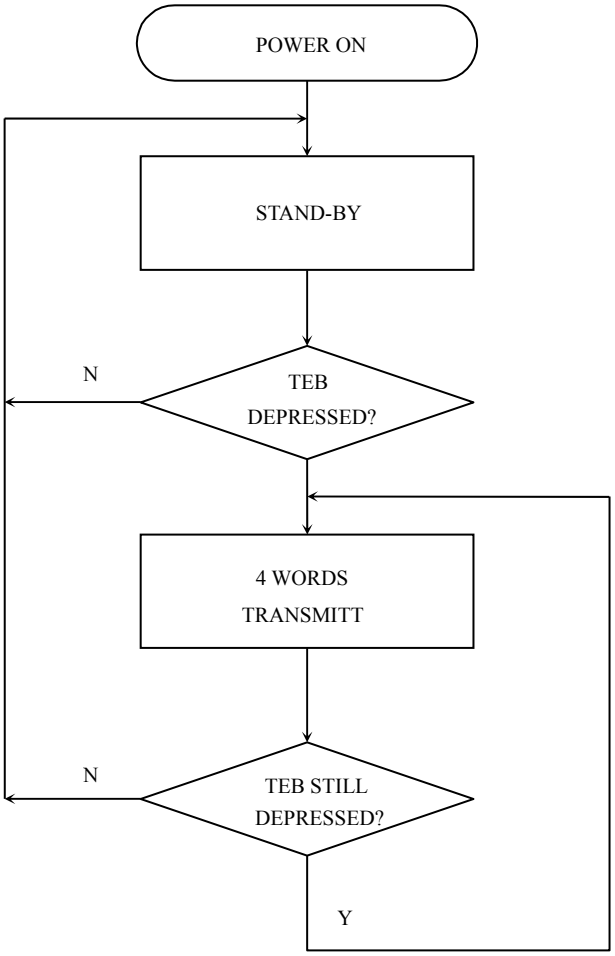


B.





OPERATING FLOWCHART



RECONNENDED OSCILLATOR PARAMETERS

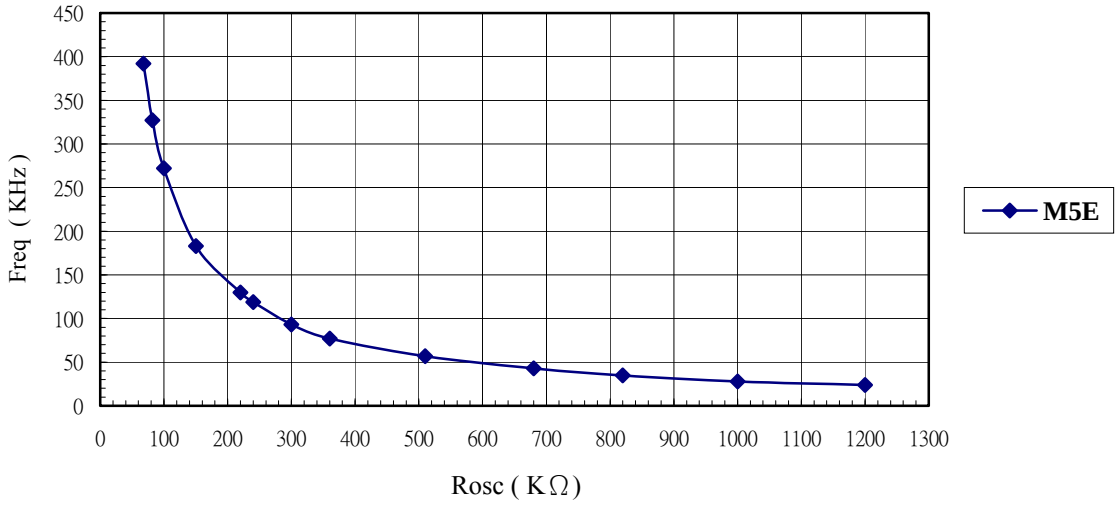
Rosc (KΩ)	M5E (KHz)
68	392
82	327
100	272
150	183
220	130
240	119
300	93
360	77
510	57
680	43
820	35
1000	28
1200	24

DATA OUTPUT

M5E	M5D/F
0 (VSS)	0 (VSS)
X (OPEN)	0 (VSS)
1 (VDD)	1 (VDD)
POWER ON	0 (VSS)

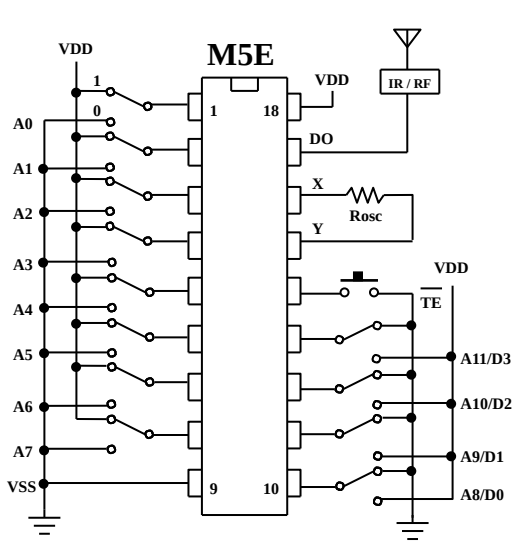
Freq-Rosc Chart

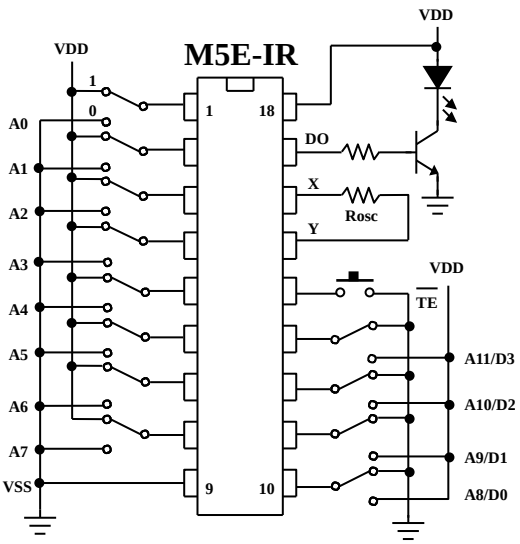
(VDD@12V)



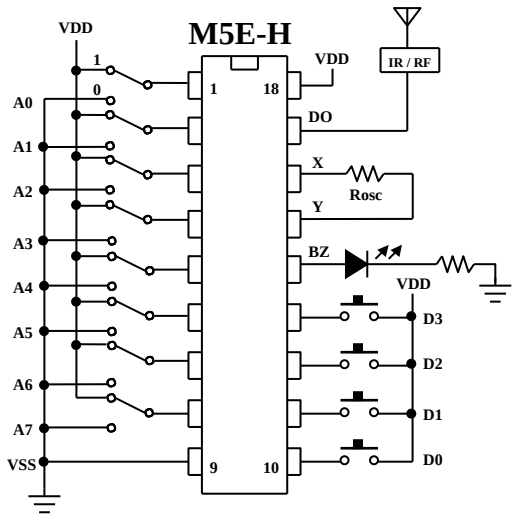
APPLICATION DIAGRAM 参考电路图

IR 内建发射





直接发射 (VDD)



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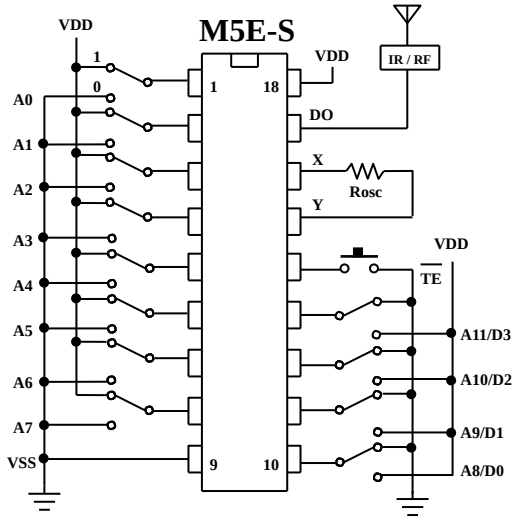
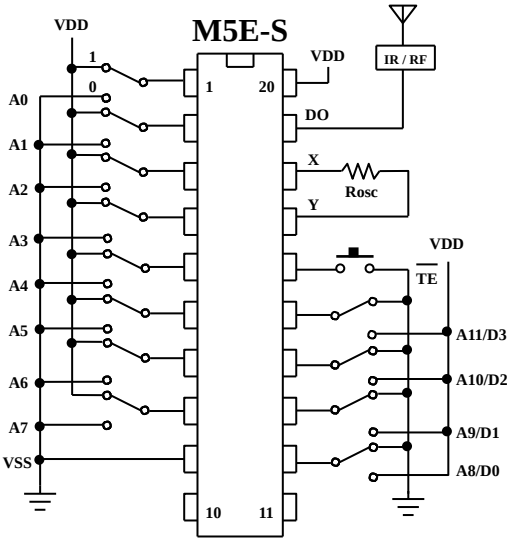
APPLICATION DIAGRAM 参考电路图 (SOP PACKAGE)

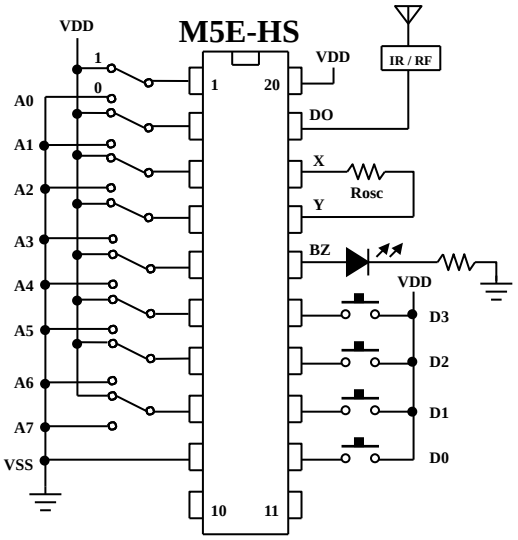
18 PIN



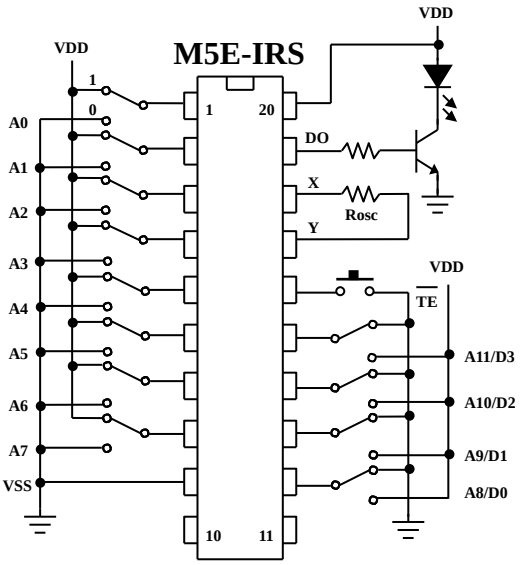
20 PIN



直接发射 (VDD)



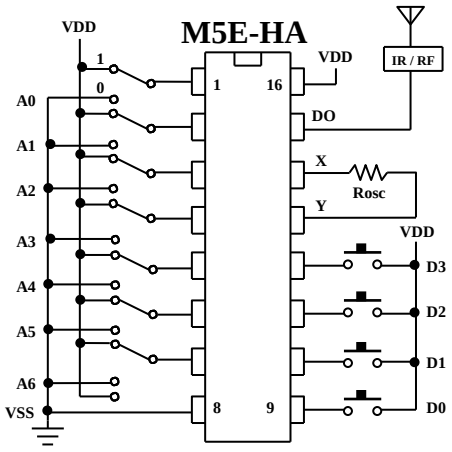
IR 内建发射



3 STATES ENCODER
3 态编码 IC

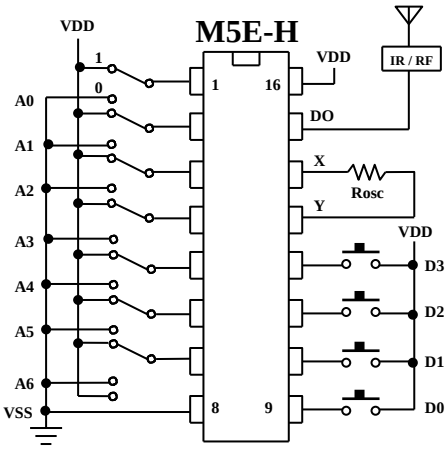
APPLICATION DIAGRAM 参考电路图 (SOP PACKAGE)

直接发射 (VDD)
16 PIN
M5E-HA



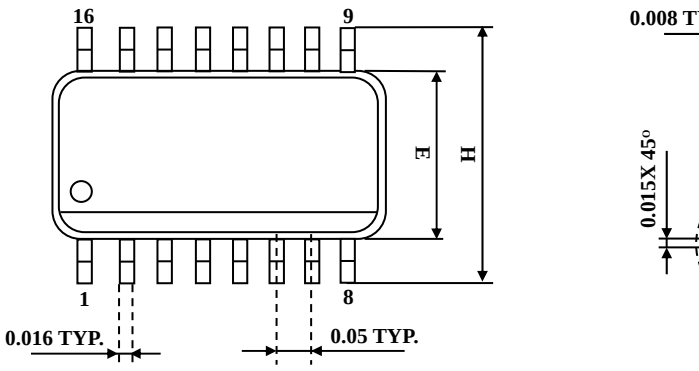
*** Internal code A7 = "O"**

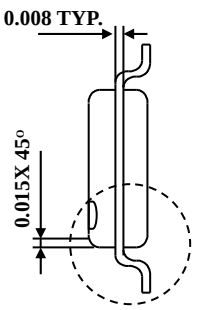
直接发射 (VDD)
16 PIN
M5E-H



*** Internal code A7 = "X"**

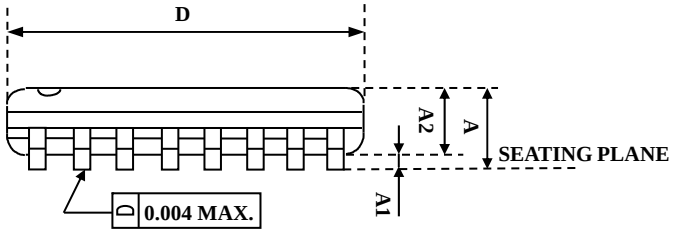
PACKAGE OUTLINE

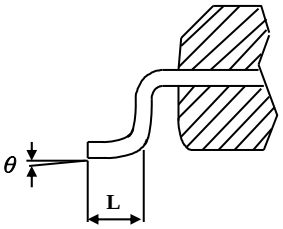




SYMBOLS	MIN.	MAX.
A	0.053	0.069
A1	0.004	0.010
D	0.386	0.394
E	0.150	0.157
H	0.228	0.244
L	0.016	0.050
θ	0	8

Unit：INCH

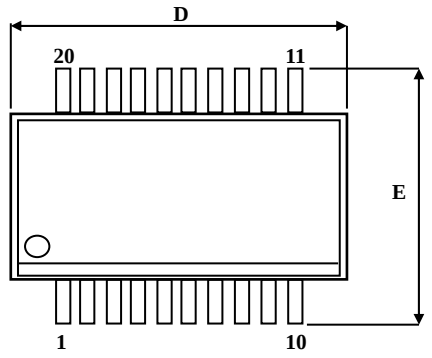


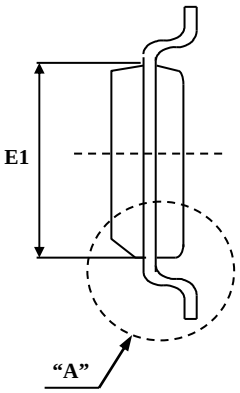


SOP-16
(150 mil)

3 STATES ENCODER

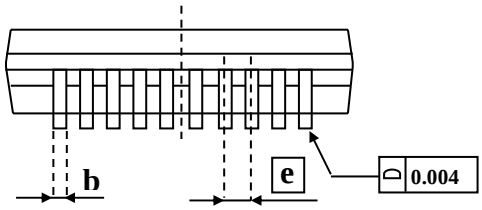
3 态编码 IC

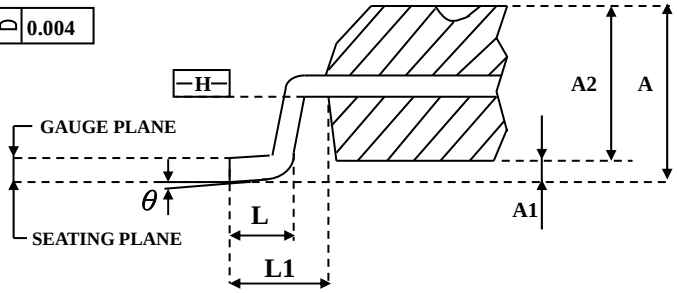




SYMBOLS	MIN	NOM.	MAX
A	0.053	0.064	0.069
A1	0.004	0.006	0.010
A2	—	—	0.059
b	0.008	—	0.012
C	0.007	—	0.010
D	0.337	0.341	0.344
E	0.228	0.236	0.244
E1	0.150	0.154	0.157
e	0.025 BASIC		
L	0.016	0.025	0.050
L1	0.041 BASIC		
θ°	0	—	8°

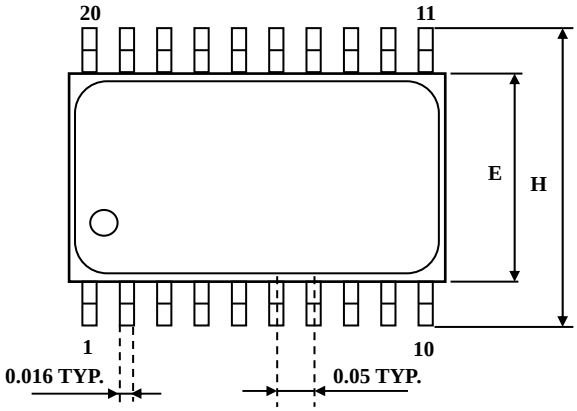
UNIT : INCH

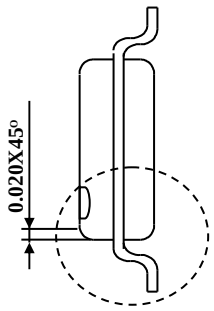




SSOP-20

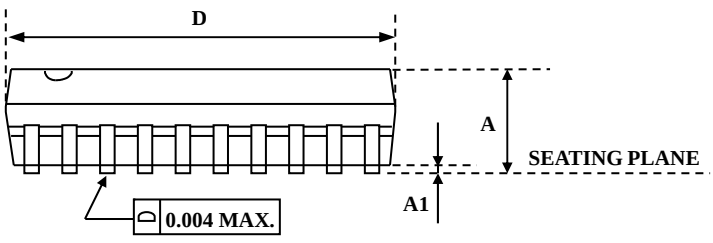
(150 mil)

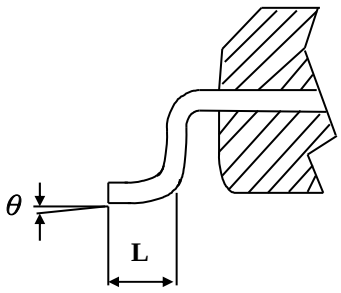




SYMBOLS	MIN	MAX
A	0.093	0.104
A1	0.004	0.012
D	0.496	0.508
E	0.291	0.299
H	0.394	0.419
L	0.016	0.050
θ	0	8

UNIT : INCH





SOP-20

(300 mil)

EN/DECODER
M5E

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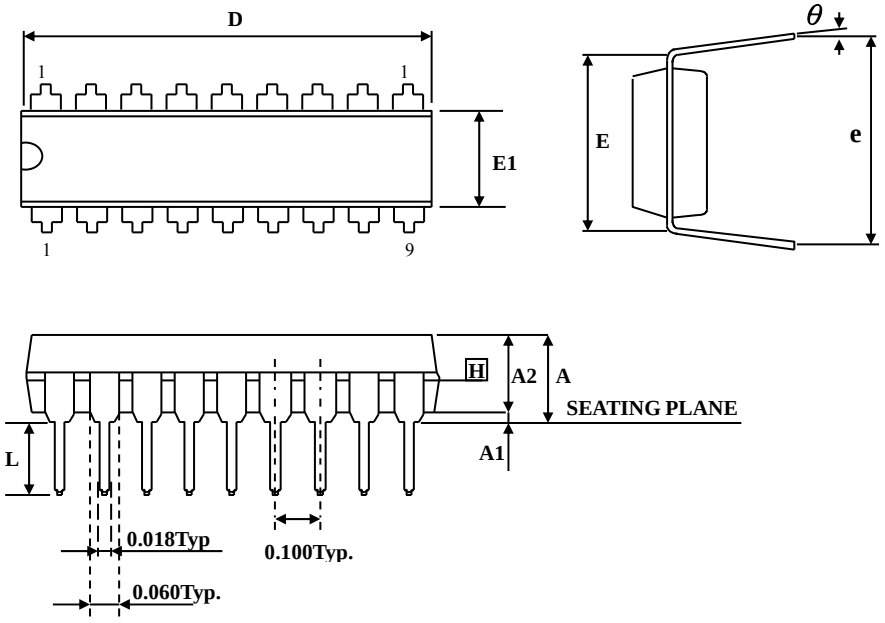
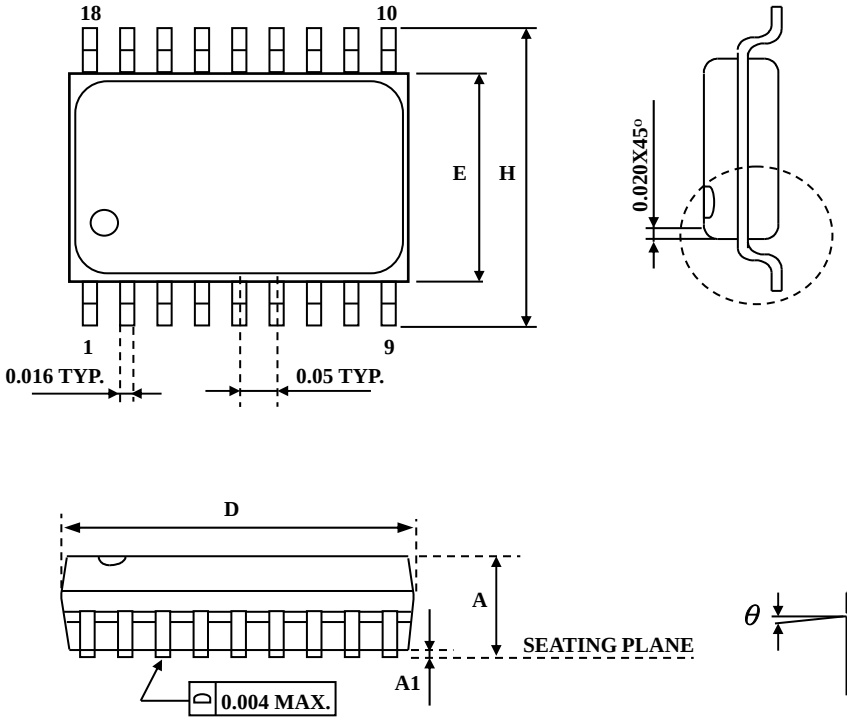


SYMBOLS	MIN	NOR.	MAX
A	—	—	0.210
A1	0.015	—	—
A2	0.125	0.130	0.135
D	0.880	0.900	0.920
E	0.300 BSC.		
E1	0.245	0.250	0.255
L	0.115	0.130	0.150
e	0.335	0.355	0.375
θ	0	7	15

UNIT：INCH

DIP-18
(300 mil)



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

SOP-18
(300 mil)