



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.

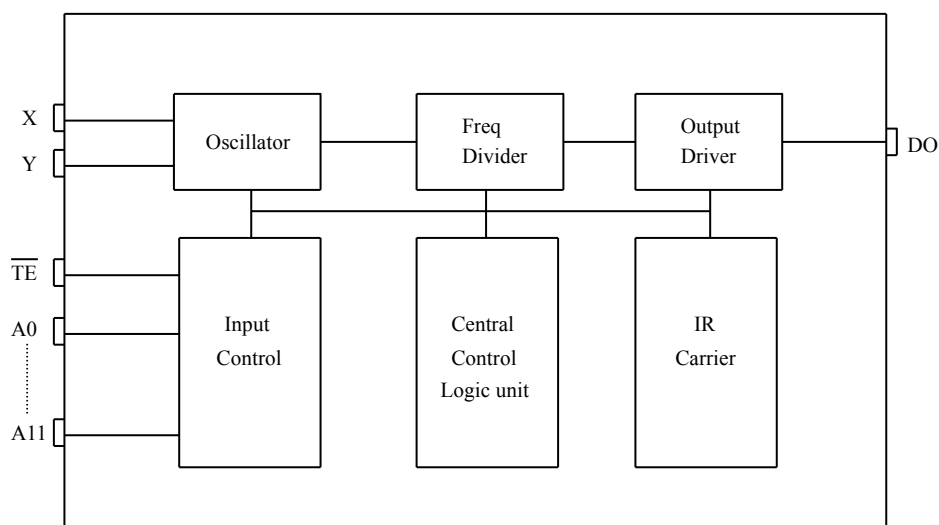
FEATURES 产品特长

- Same Rosec 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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M5E

ABSOLUTE MAXIMUM RATING

(TA=25°C)

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

ELECTRICAL CHARACTERISTICS

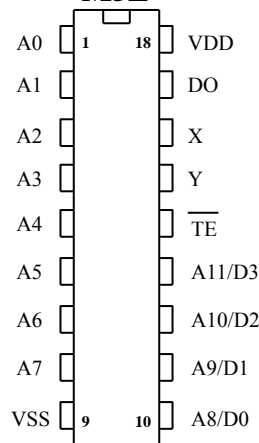
Characteristics	Sym.	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	V _{DD}	2.4	—	13	V	
Operating Current	I _{OP}	—	0.1	1	mA	No load
Quiescent Current	I _{SB}	—	0.1	0.5	μA	
Output Drive Current	I _O	—	2	—	mA	@V _{DS} =1.2V
Input Voltage	V _{IH}	V _{DD} -0.2	V _{DD}	V _{DD}	V	
	V _{IL}	V _{SS}	V _{SS}	V _{SS} +0.2		
Oscillator Frequency	F _{osc}	—	76	—	KHz	External ± 30%, R _{osc} =360K Ω

PIN DESCRIPTION

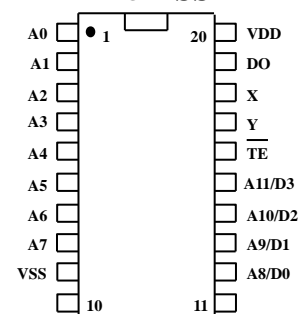
No.	Name	Description
1~8	A0~A7	3 states address inputs
9	VSS	Negative power supply
10~13	A8~A11 / D0~D3	3 states address inputs / Data input
14	\overline{TE}	Transmit enable
15	Y	Oscillator output
16	X	Oscillator input
17	DO	Data output
18	VDD	Positive power supply

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

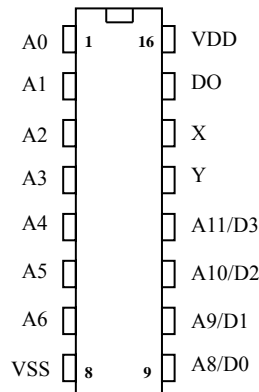
M5E



**M5E-S
M5E-SS**



M5E





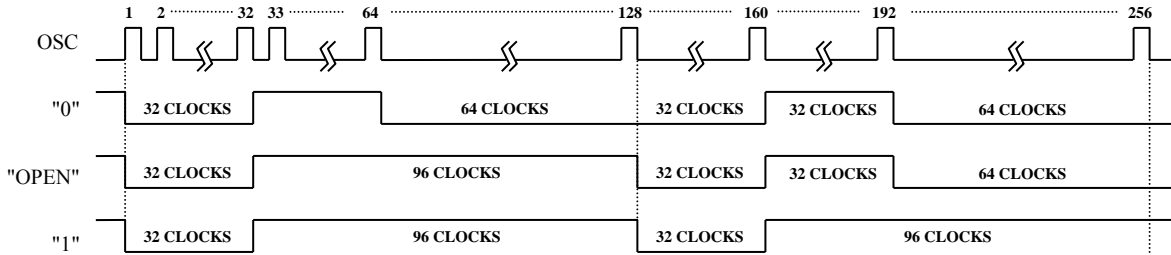
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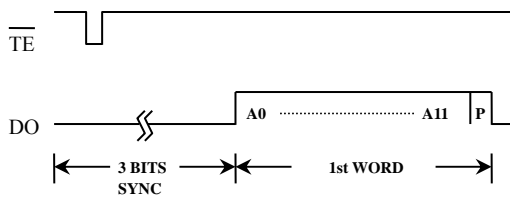
TIMING WAVEFORM

(1) BIT FORMAT

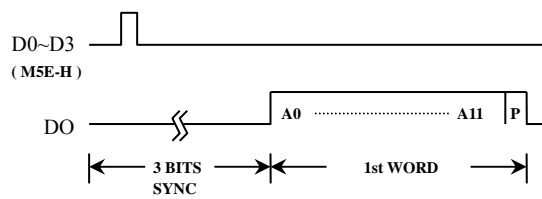


(2) TIMING DIAGRAM

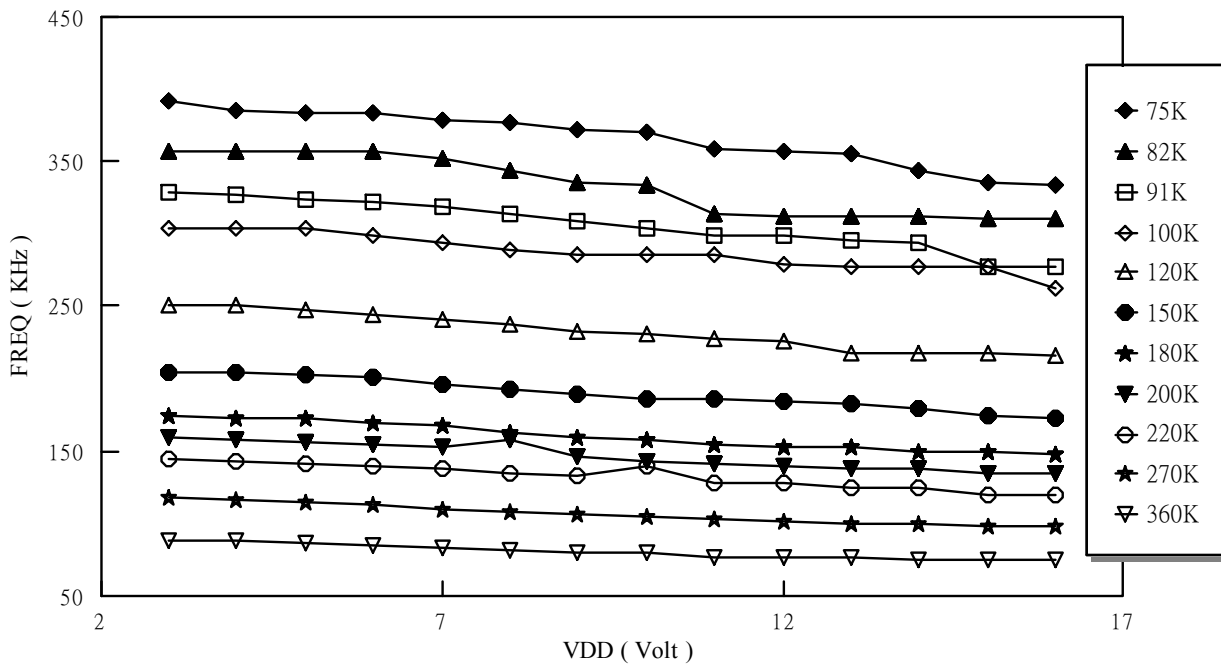
A.



B.



M5E F-V curve

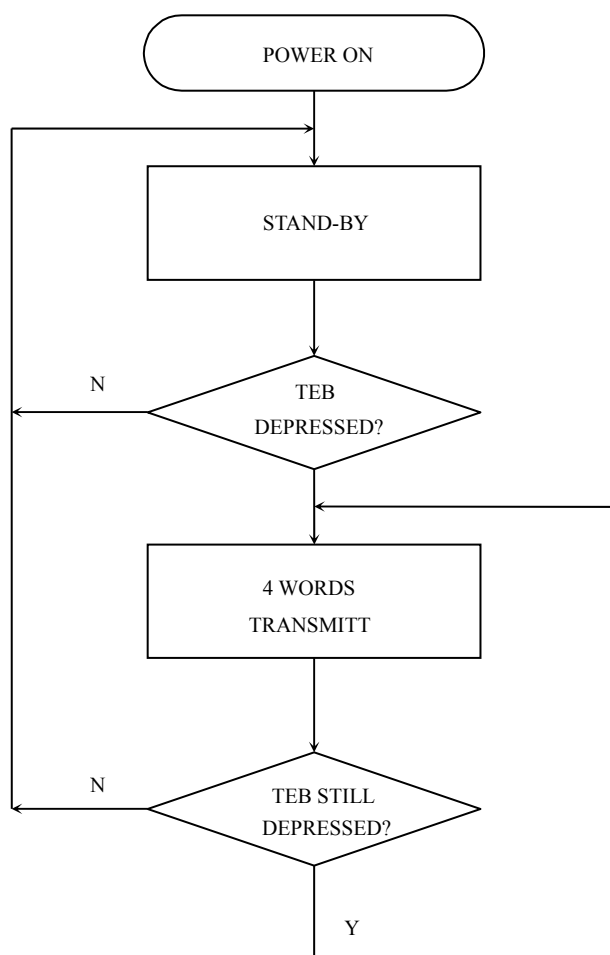




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OPERATING FLOWCHART





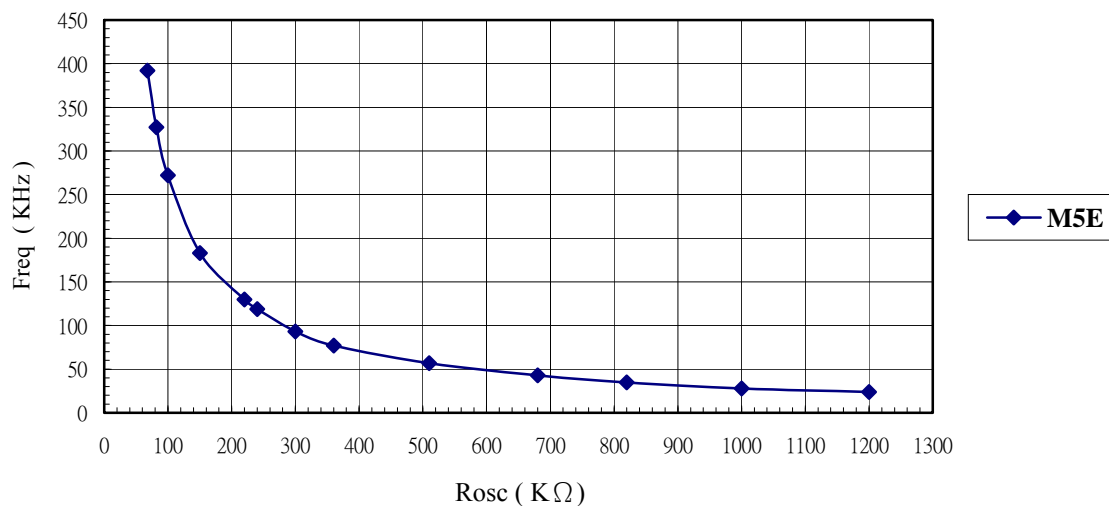
RECONNENDED OSCILLATOR PARAMETERS

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)

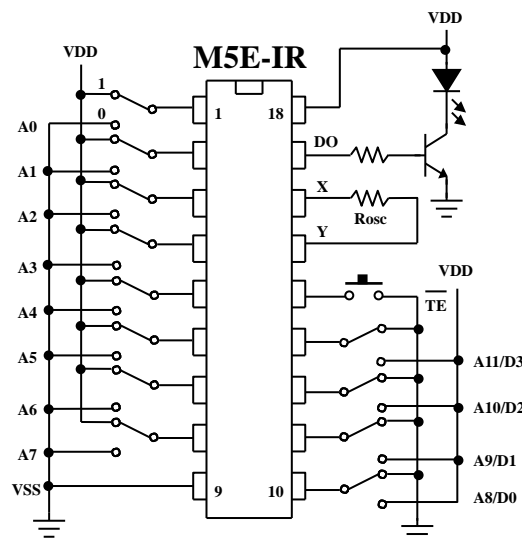
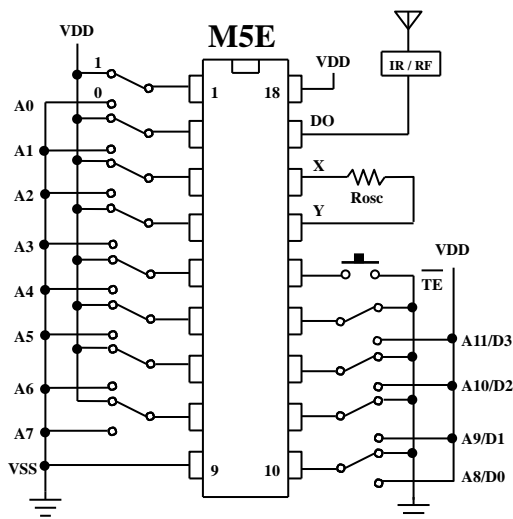
Freq-Rosc Chart
(VDD@12V)



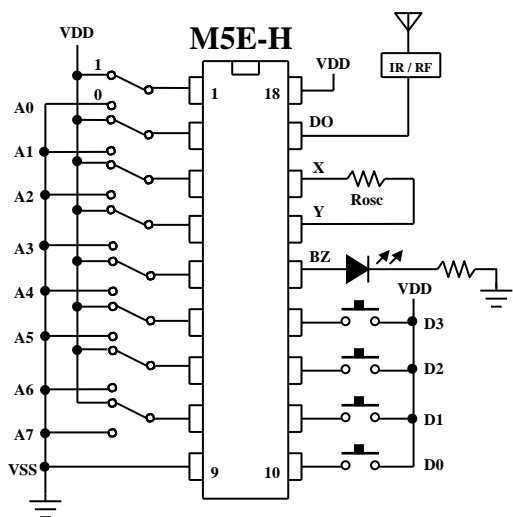


APPLICATION DIAGRAM 参考电路图

IR 内建发射



直接发射 (VDD)



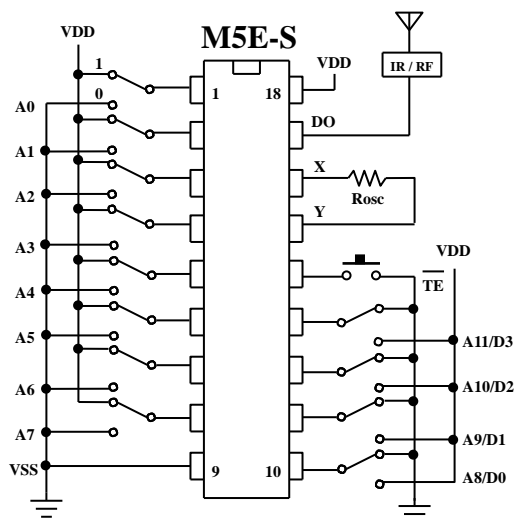


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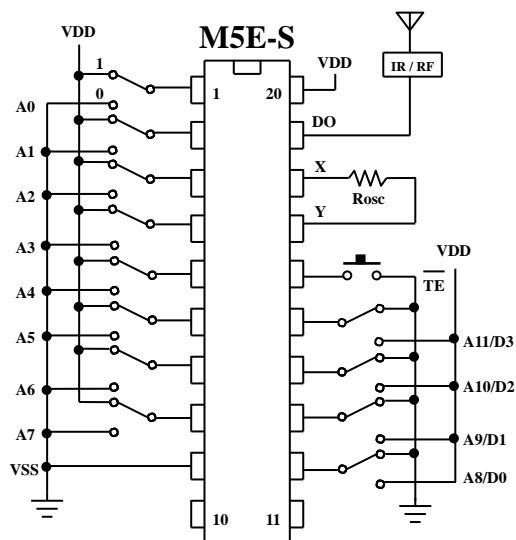
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APPLICATION DIAGRAM 参考电路图 (SOP PACKAGE)

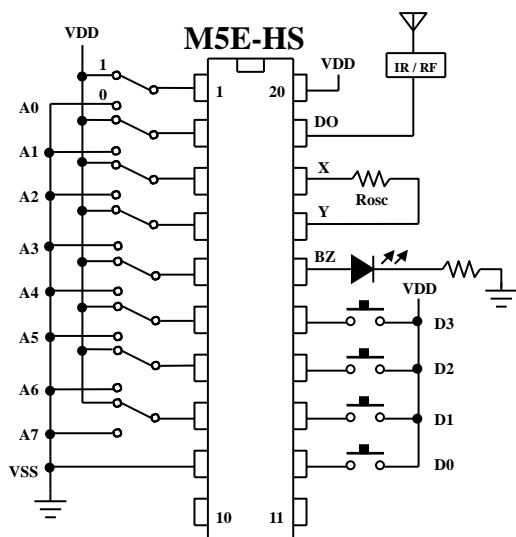
18 PIN



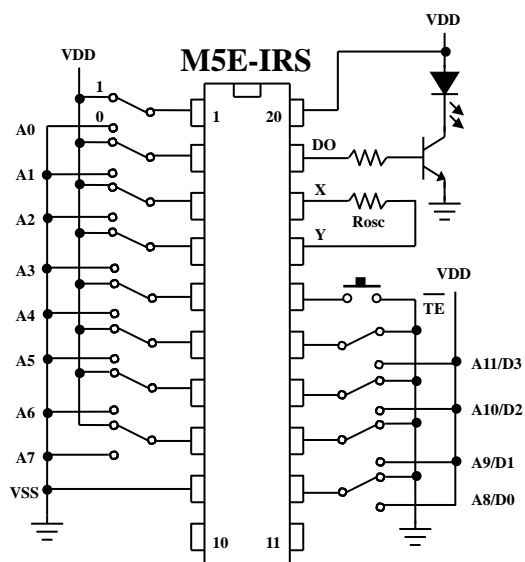
20 PIN



直接发射 (VDD)



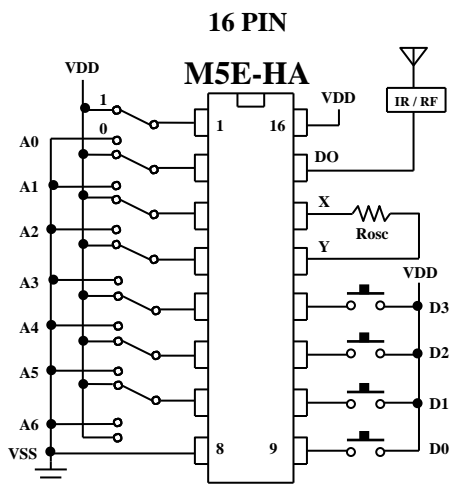
IR 内建发射





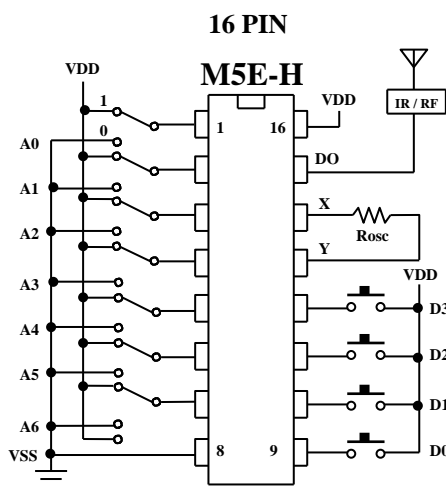
APPLICATION DIAGRAM 参考电路图 (SOP PACKAGE)

直接发射 (VDD)



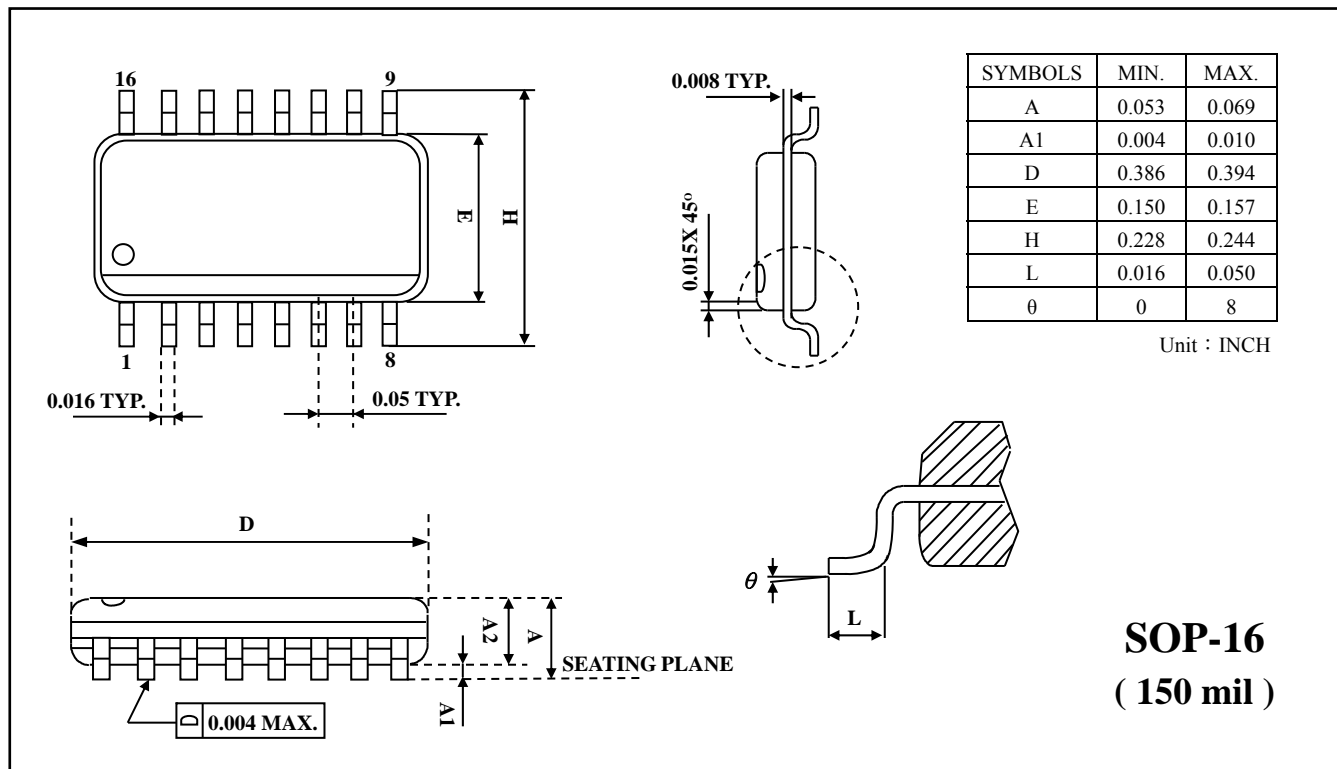
* Internal code A7 = "0"

直接发射 (VDD)



* Internal code A7 = "X"

PACKAGE OUTLINE

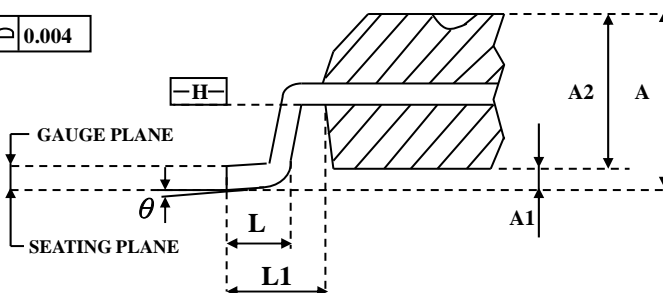
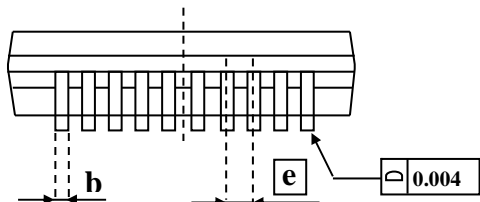
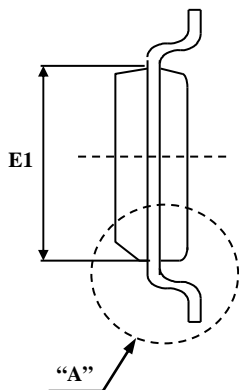
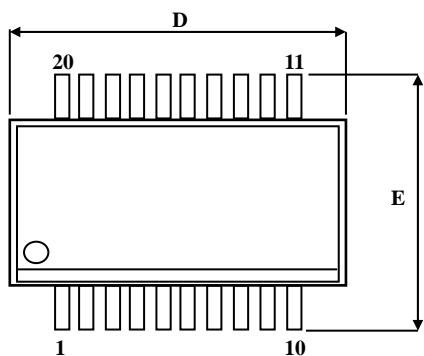




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EN/DECODER

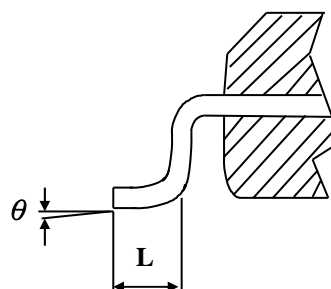
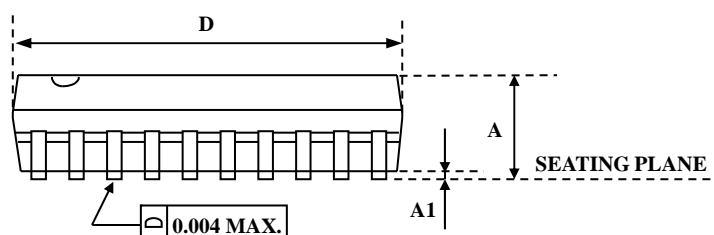
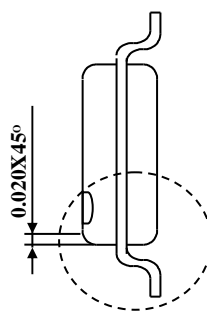
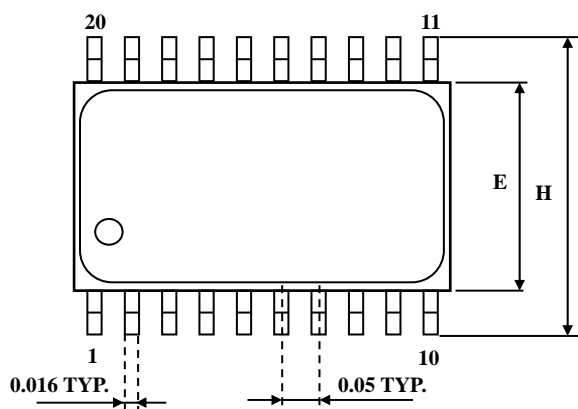
M5E



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
\square 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)



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