



3 STATES ENCODER

3 態編碼 IC

**M3E,**

**GENERAL DESCRIPTION 功能敘述**

The M3E, is a CMOS ASIC decoder. It will en-code 12 parallel input and serially transmit them to the output when  $\overline{TE}$  depressed. These address inputs are 3 states i.e. LOW(0) 、 OPEN(X) 、 HIGH(1).

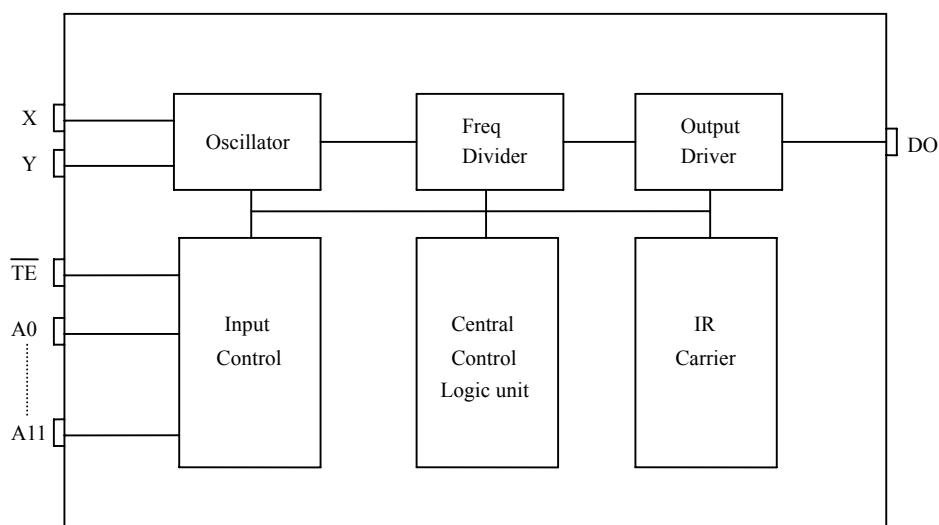
**FEATURES 產品特長**

- Same Rosc matched to the DECODER M3D/DA/F
- Built-in IR carrier : suffix-IR.
- $3^{12} = 531,411$  codes, "0" 、 "X" 、 "1" Tri-states.
- 4 cycles transmission each time.
- Direct data transmit type : (Elimination  $\overline{TE}$  and diodes)
  - M3E,-H : switch to VDD.
  - M3E,-L : switch to VSS.

**APPLICATIONS 產品應用**

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

**BLOCK DIAGRAM 功能方塊圖**



\*All specs and applications shown above subject to change without prior notice.  
( 以上電路及規格僅供參考,本公司得逕行修正 )



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EN/DECODER

**M3E,**

**ABSOLUTE MAXIMUM RATING**

(TA=25°C)

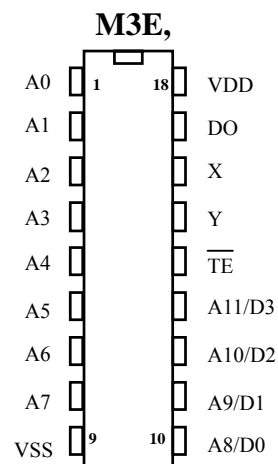
Parameter	Rating	Unit
Supply Voltage	-0.3 to 12	V
Input Voltage	-0.2~V <sub>DD</sub> +0.2	V
Operating Temperature	-20 to 70	°C
Storage Temperature	-50 to 125	°C

**ELECTRICAL CHARACTERISTICS**

Characteristics	Sym.	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	V <sub>DD</sub>	2.4	—	12	V	
Operating Current	I <sub>OP</sub>	—	0.1	1	mA	No load
Quiescent Current	I <sub>SB</sub>	—	0.1	0.5	μA	
Output Drive Current	I <sub>O</sub>	—	2	—	mA	@V <sub>DS</sub> =1.2V
Input Voltage	V <sub>IH</sub>	V <sub>DD</sub> -0.2	V <sub>DD</sub>	V <sub>DD</sub>	V	
	V <sub>IL</sub>	V <sub>SS</sub>	V <sub>SS</sub>	V <sub>SS</sub> +0.2		
Oscillator Frequency	Fosc	—	76	—	KHz	External±30%, Rosc=360KΩ

**PIN DESCRIPTION**

No.	M3E,	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





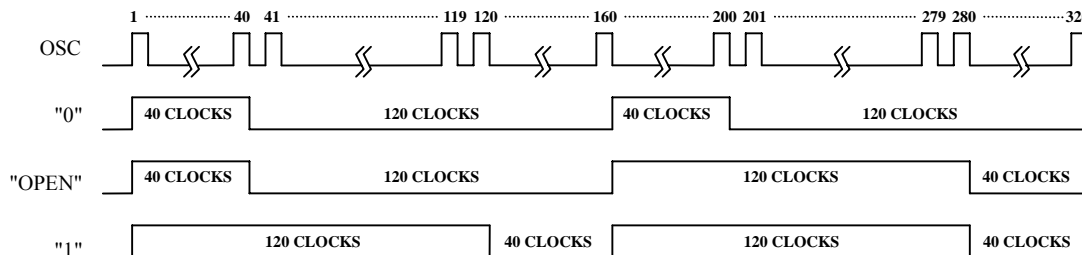
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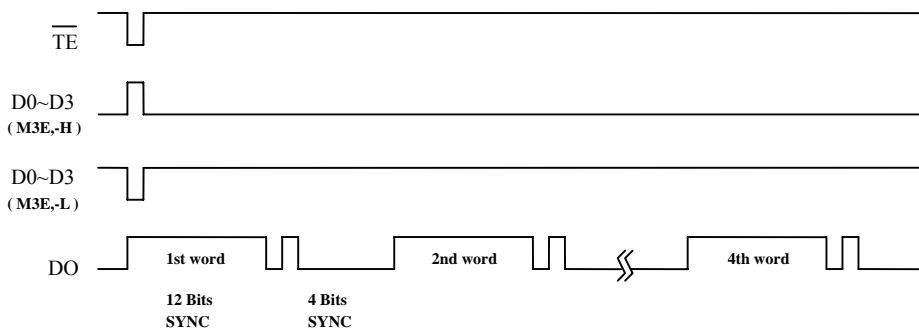
M3E,

TIMING WAVEFORM

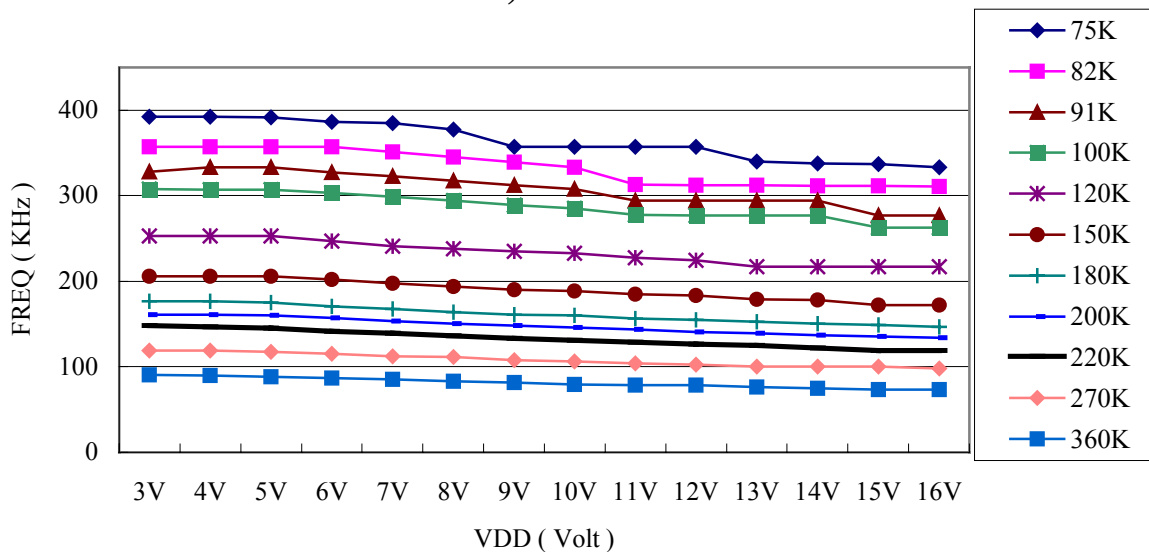
(1) Bit format



(2) TIMING DIAGRAM



M3E, F-V Curve

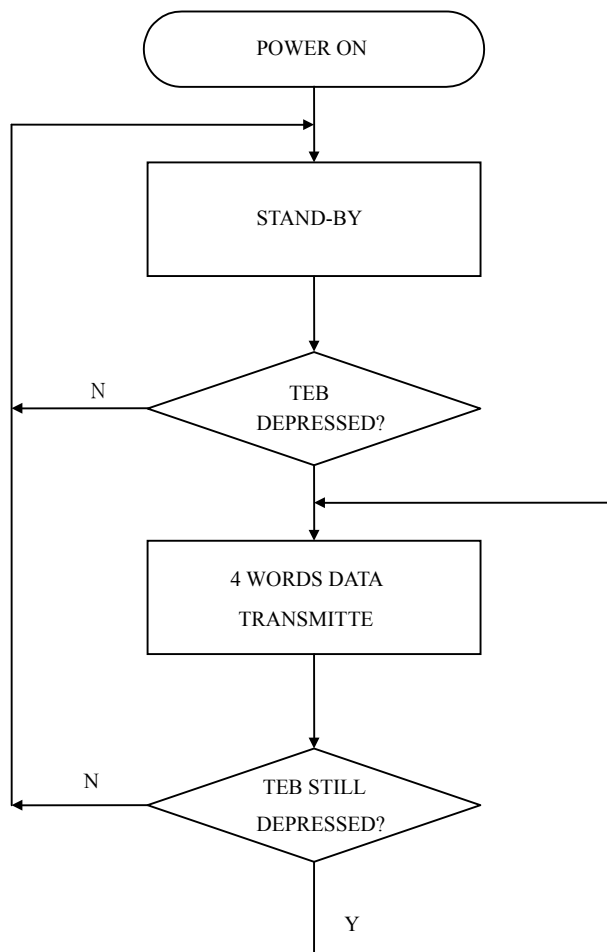




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**M3E,**

**OPERATING FLOWCHART**





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EN/DECODER

**M3E,**

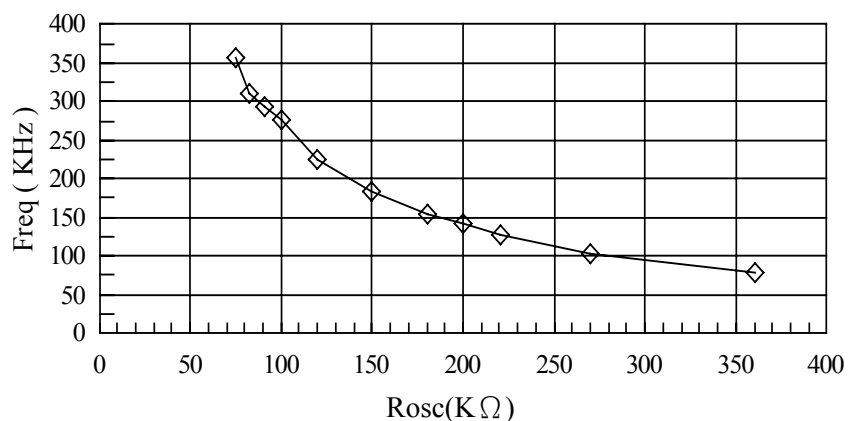
**RECONNENDED OSCILLATOR PARAMETERS**

Rosc (K $\Omega$ )	M3E, (KHz)
75	357
82	312
91	294
100	277
120	225
150	184
180	155
200	141
220	127
270	103
360	78

**DATA OUTPUT**

M3E, (D0~D3)	M3D/F (D0~D3)
0 (VSS)	0 (VSS)
X (OPEN)	1 (VDD)
1 (VDD)	1 (VDD)
POWER ON	0 (VSS)

**Freq-Rosc Chart**  
( @V<sub>dd</sub>=12V )





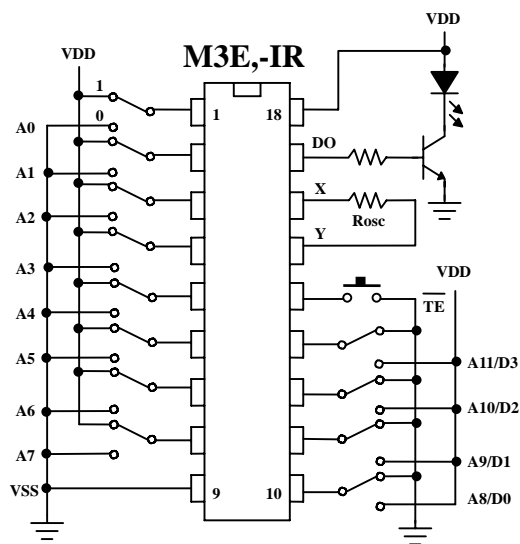
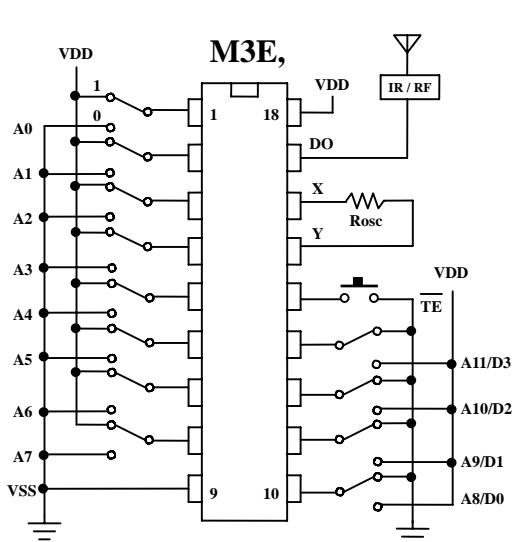
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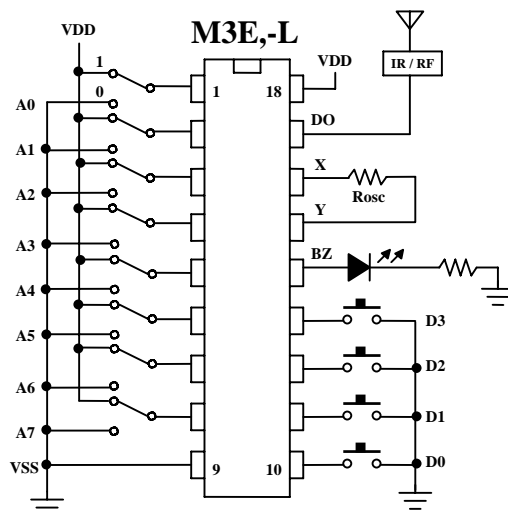
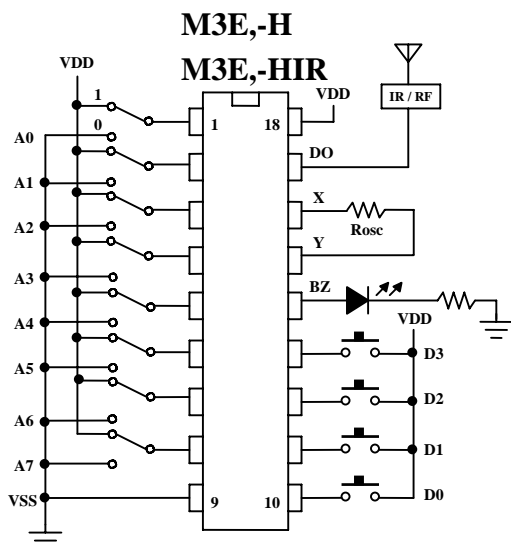
APPLICATION DIAGRAM 參考電路圖

IR 內建發射



直接發射 (VDD)

直接發射 (VSS)





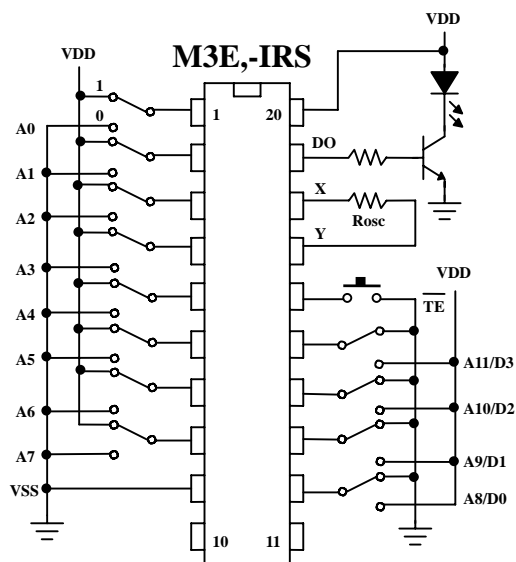
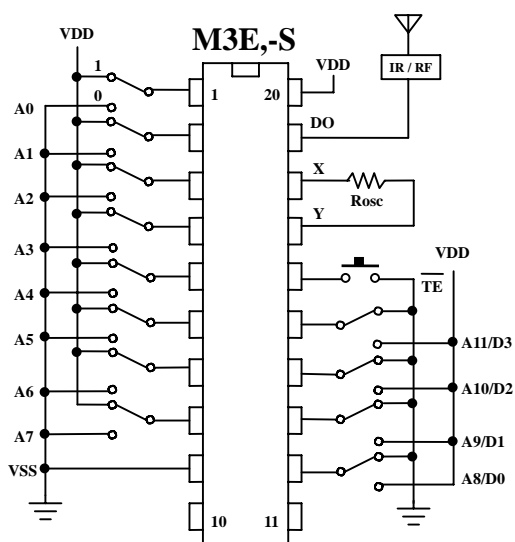
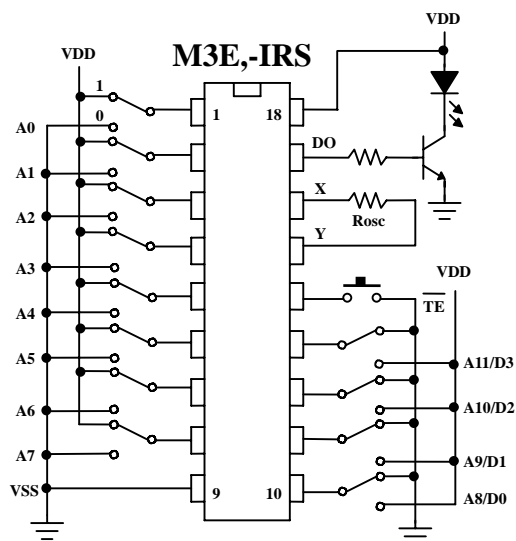
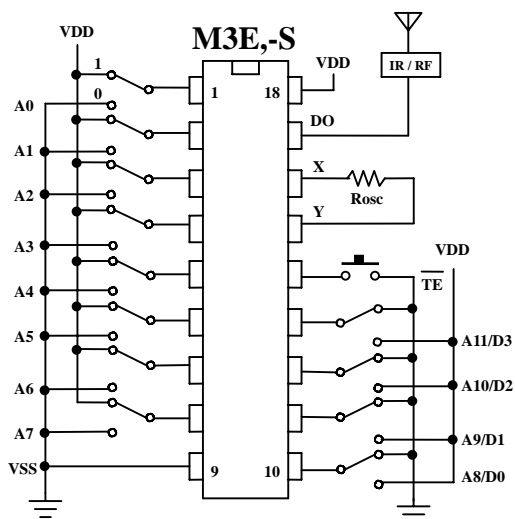
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M3E,

APPLICATION DIAGRAM 參考電路圖 (SOP PACKAGE)

IR 內建發射





3 STATES ENCODER

3 態編碼 IC

M3E,

APPLICATION DIAGRAM 參考電路圖 (SOP PACKAGE)

直接發射 (VDD)

直接發射 (VSS)

