



3 STATES ENCODER

3 態編碼 IC

**GENERAL DESCRIPTION 功能敘述**

The M3EB is a CMOS ASIC decoder. It will en-code 12 parallel input and serially transmit them to the output when D0 ~ D3 depressed. Paired with either M3D or M3DB. These address inputs are 3 states i.e. LOW(0), OPEN(X), HIGH(1).

**FEATURES 產品特長**

Built-in IR carrier : suffix-I.

Up to  $3^{10} = 59,049$  codes, "0", "X", "1" Tri-states.

Single resistor oscillator.

Data transmit over 30 second auto power off.

2 or 4 direct date transmit ( internal pull-low resistor ).

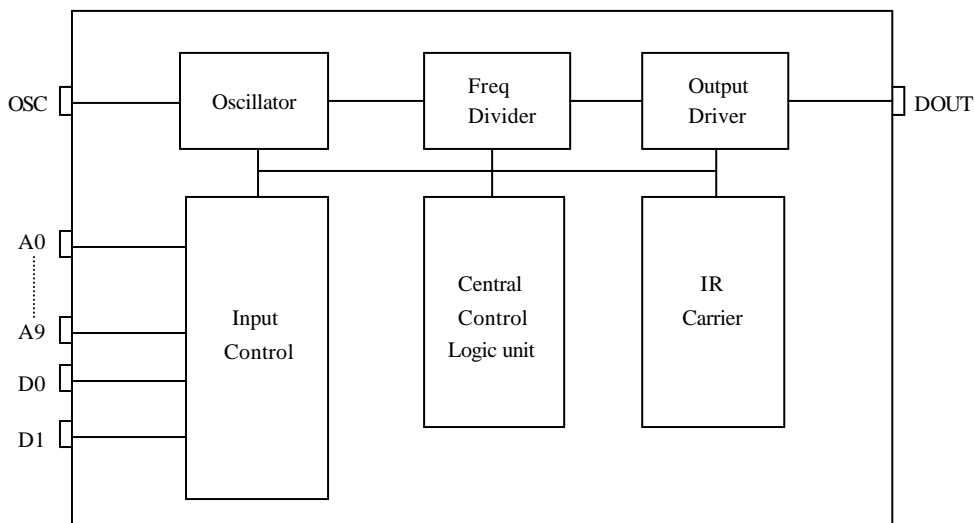
M3EB-2 : 10 address , 2 data.

M3EB-4 : 8 address , 4 data.

**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 )



**ABSOLUTE MAXIMUM RATING**

(TA=25 )

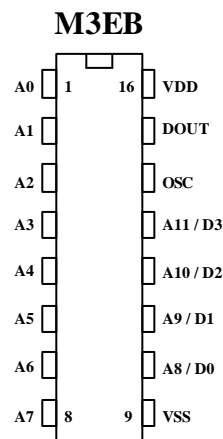
Parameter	Rating	Unit
Supply Voltage	-0.3 to 15	V
Input Voltage	-0.2~V <sub>DD</sub> +0.2	V
Operating Temperature	-20 to 75	
Storage Temperature	-50 to 125	

**ELECTRICAL CHARACTERISTICS**

Characteristics	Sym.	Min.	Typ.	Max.	Unit	Conditions
Operating Voltage	V <sub>DD</sub>	2.4		15	V	
Quiescent Current	I <sub>SB</sub>		0.1	1	μ A	
Operating Current	I <sub>OP</sub>		0.1	0.5	mA	No load
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	F <sub>osc</sub>		76		KHz	External ±30%

**PIN DESCRIPTION**

No.	M3F	Description
1~8	A0~A7	3 states address inputs
9	VSS	Negative power supply
10~11	A8/D0 , A9/D1	3 states address inputs
12~13	D2 , D3	Direct data transmission enable
14	OSC	Oscillator input
15	DOUT	Data output
16	VDD	Positive power supply



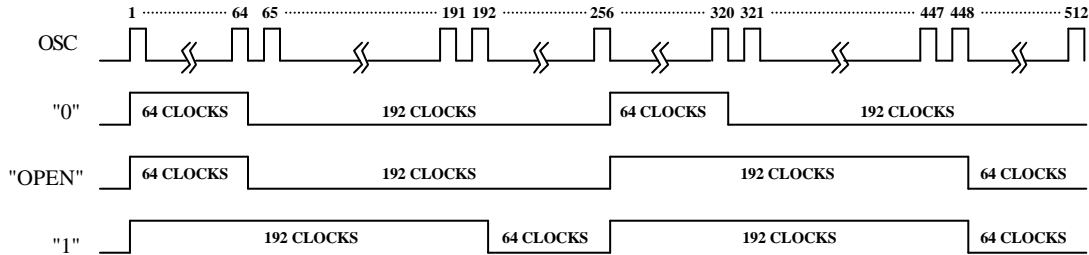


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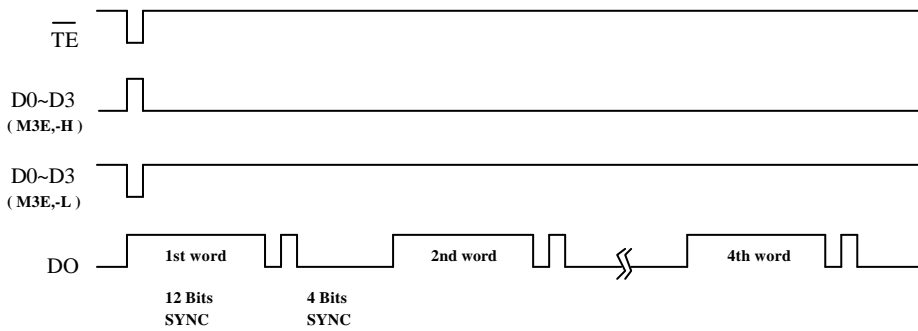
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TIMING WAVEFORM

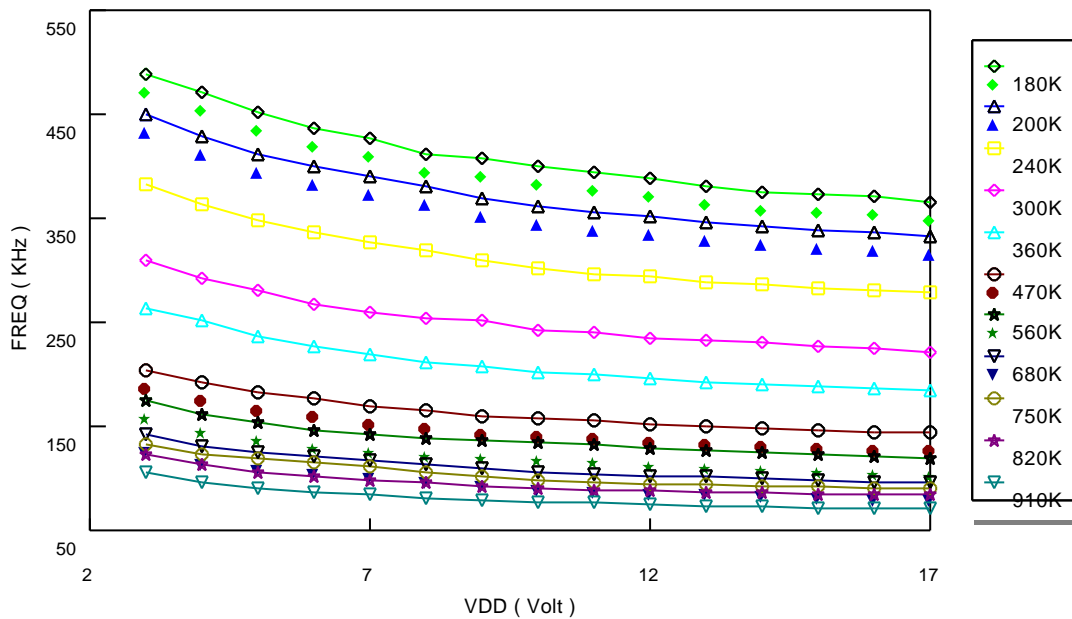
(1) Bit format



(2) TIMING DIAGRAM



M3EB F-V CURVE

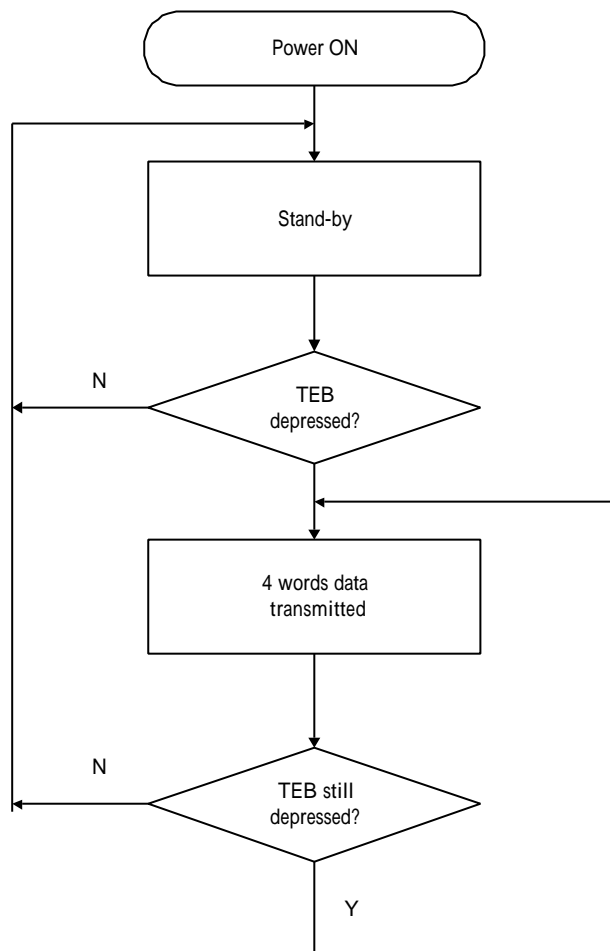




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OPERATING FLOWCHART





RECONNENDED OSCILLATOR PARAMETERS

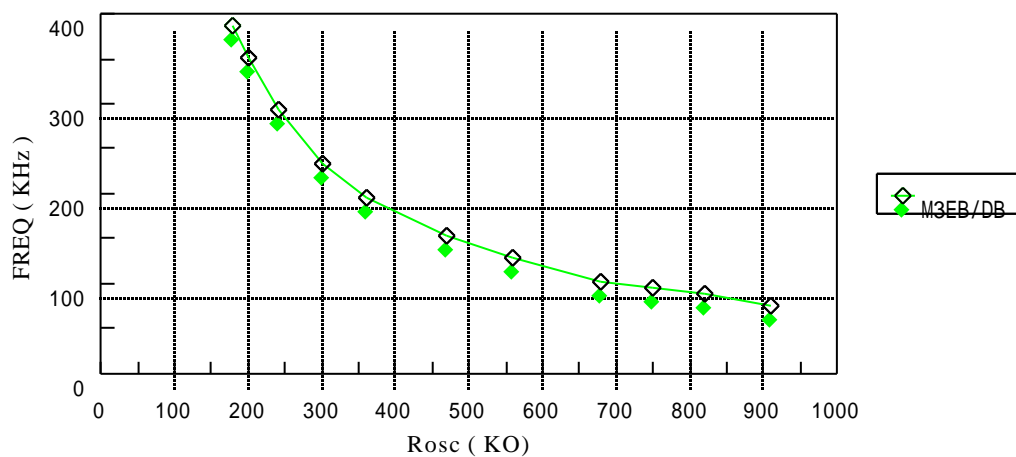
Rosc (K )	M3EB/DB (KHz)
180	388
200	352
240	294
300	234
360	196
470	152
560	128
680	102
750	94
820	88
910	74

DATA OUTPUT

M3EB (D0~D3)	M3DB (D0~D3)
X (OPEN)	0 (VSS)
1 (VDD)	1 (VDD)
POWER ON	0 (VSS)

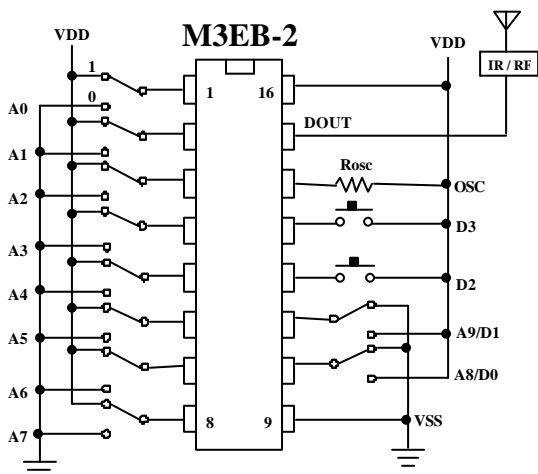
Freq-Rosc Chart

( @Vdd=12V )

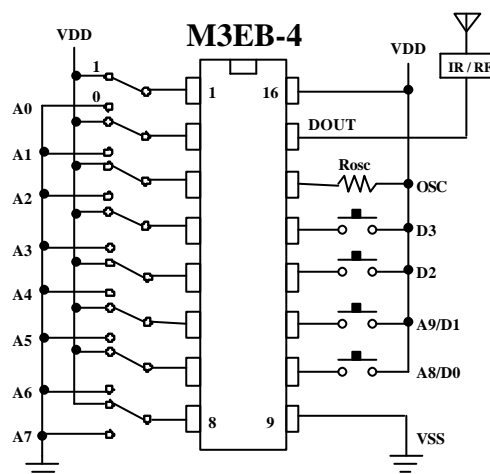




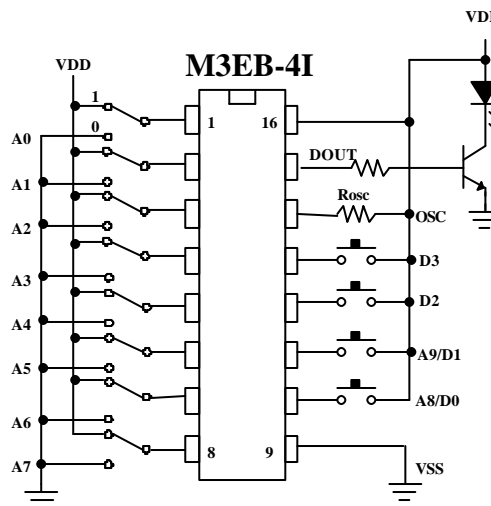
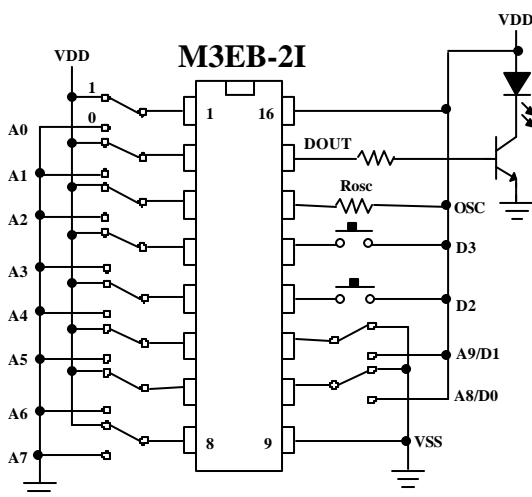
APPLICATION DIAGRAM 參考電路圖



IR 內建發射



IR 內建發射

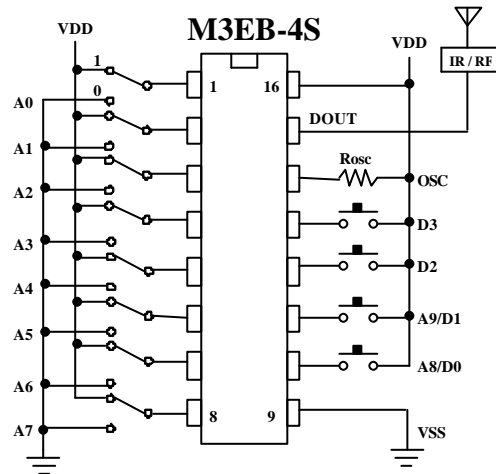
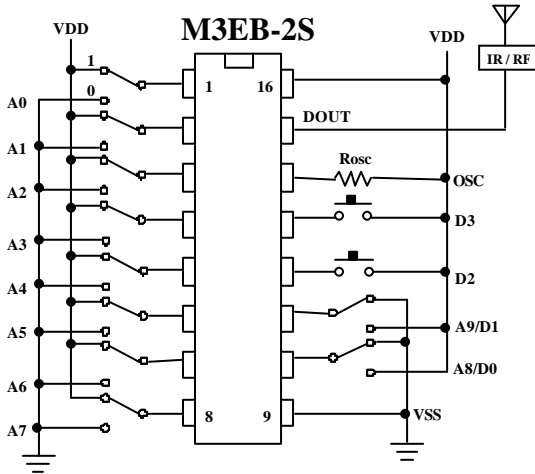




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APPLICATION DIAGRAM 參考電路圖 (SOP PACKAGE)



IR 內建發射

IR 內建發射

