



IR TV/VCD TRANSMITTER IR CONTROL IC

IR CONTROL

M21(22)

GENERAL DESCRIPTION 功能叙述

The M21(22) is a remote control transmitter ASIC for TV, VTR, etc.. There are 65,536 customer codes setting by external diodes, resistors and internal MASK ROM.

The transmission code consists of "LEADER PULSE", "16 bit customer code" and "16 bit DATA CODE".

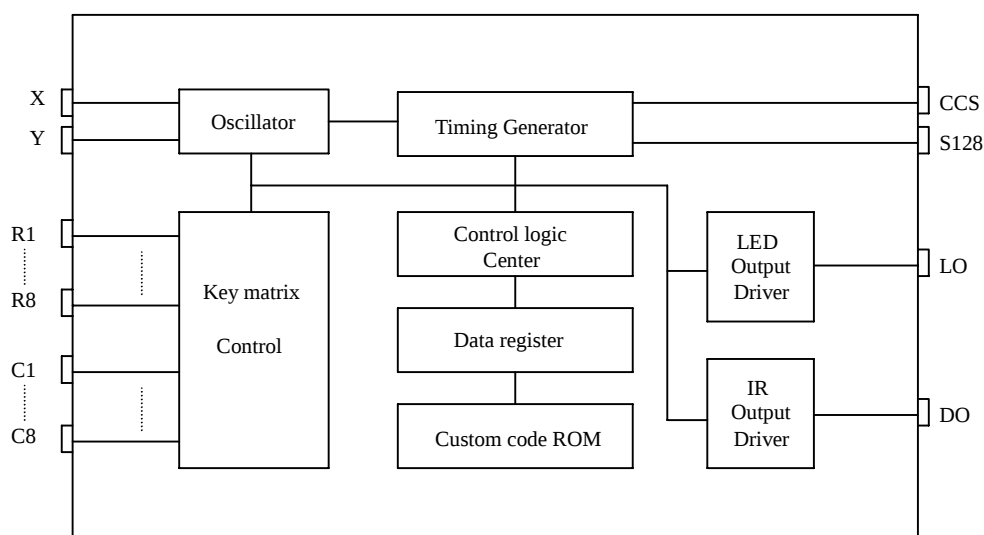
FEATURES 产品特长

- Pin compatible with PD6121/22
- M21 SO20 for 32 function keys
- M22 SO24 for 64 function keys
- 3 double action keys
- DO with a 38 KHz carrier for IR

APPLICATIONS 产品应用

- Audio equipment, TV, VTR, cassette desks 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	6.0	V
Input Voltage	-0.3~V _{DD}	V
Operating Temperature	0 to 60	℃
Storage Temperature	-25 to +125	℃

ELECTRICAL CHARACTERISTICS

(V_{DD}=3V unless otherwise specified)

Characteristics	Sym.	Min.	Typ.	Max.	Unit	REMARKS
Operating Voltage	V _{DD}	2	3	5.5	V	
Quiescent Current	I _{SB}	—	0.1	1	μ A	
Operating Current	I _{OP}	—	0.1	1	mA	No load
Output Drive Current	I _O	1	1.5	—	mA	@V _{DS} =1V
Switch Input Current	I _{SB}	—	—	100	μ A	
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	—	455	—	KHz	External ± 30%



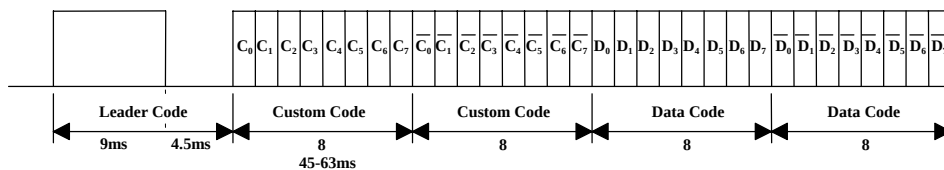
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TRANSMISSION CODE

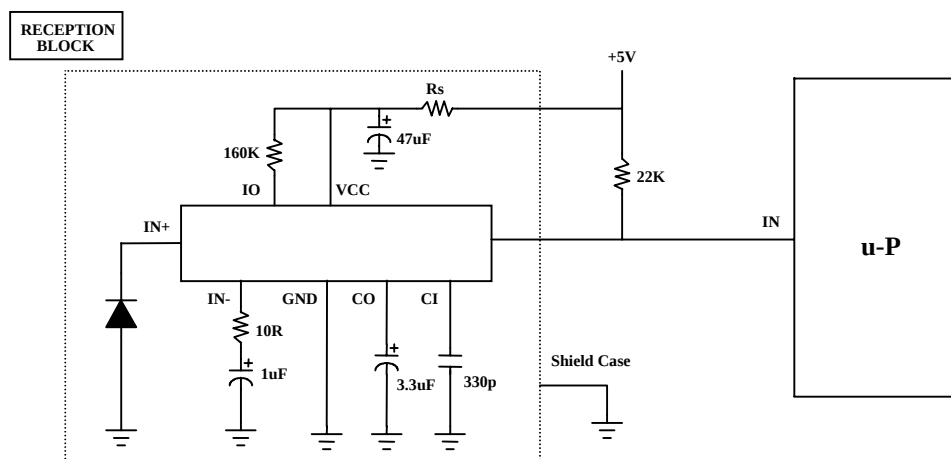
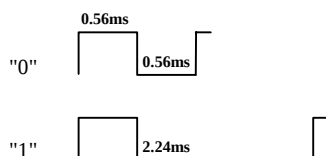
(1) DO output 38 KHz

The transmission code consists of a leader code, 16-bit custom codes, and 8-bit data codes.

The inverse code of the data code is also sent simultaneously.



(2) Data protocol





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OUTPUT WAVEFORMS

(1) KEY DATA CODE

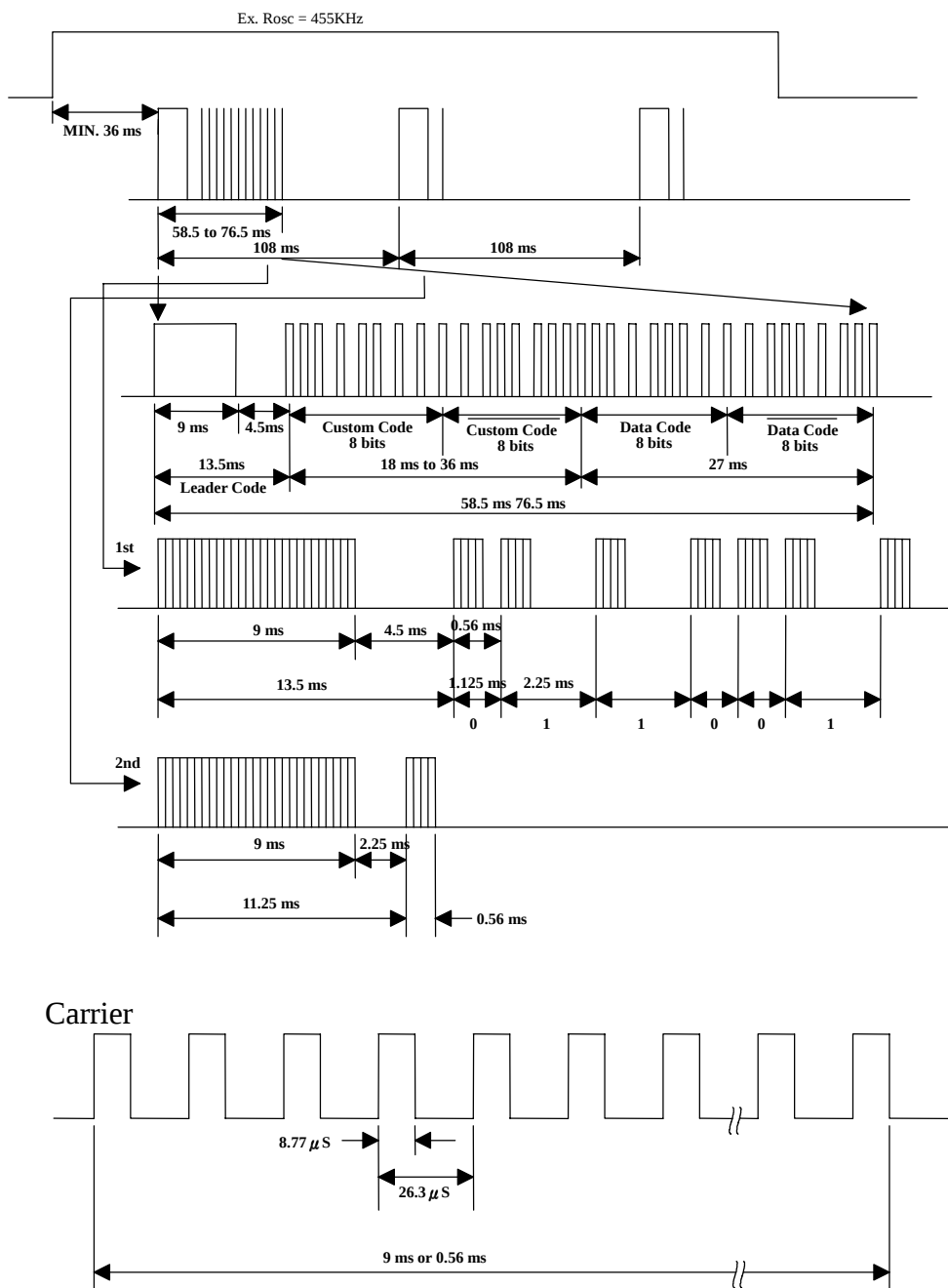
KEY	C 1~8	R 1~8	D0	D1	D2	D3	D4	D5	D6	S128	KEY	C 1~8	R 1~8	D0	D1	D2	D3	D4	D5	D6	S128
K1	1	1	0	0	0	0	0	0	0	0/1	K33	1	5	0	0	0	0	0	0	1	0/1
K2	1	2	1	0	0	0	0	0	0	0/1	K34	1	6	1	0	0	0	0	0	1	0/1
K3	1	3	0	1	0	0	0	0	0	0/1	K35	1	7	0	1	0	0	0	0	1	0/1
K4	1	4	1	1	0	0	0	0	0	0/1	K36	1	8	1	1	0	0	0	0	1	0/1
K5	2	1	0	0	1	0	0	0	0	0/1	K37	2	5	0	0	1	0	0	0	1	0/1
K6	2	2	1	0	1	0	0	0	0	0/1	K38	2	6	1	0	1	0	0	0	1	0/1
K7	2	3	0	1	1	0	0	0	0	0/1	K39	2	7	0	1	1	0	0	0	1	0/1
K8	2	4	1	1	1	0	0	0	0	0/1	K40	2	8	1	1	1	0	0	0	1	0/1
K9	3	1	0	0	0	1	0	0	0	0/1	K41	3	5	0	0	0	1	0	0	1	0/1
K10	3	2	1	0	0	1	0	0	0	0/1	K42	3	6	1	0	0	1	0	0	1	0/1
K11	3	3	0	1	0	1	0	0	0	0/1	K43	3	7	0	1	0	1	0	0	1	0/1
K12	3	4	1	1	0	1	0	0	0	0/1	K44	3	8	1	1	0	1	0	0	1	0/1
K13	4	1	0	0	1	1	0	0	0	0/1	K45	4	5	0	0	1	1	0	0	1	0/1
K14	4	2	1	0	1	1	0	0	0	0/1	K46	4	6	1	0	1	1	0	0	1	0/1
K15	4	3	0	1	1	1	0	0	0	0/1	K47	4	7	0	1	1	1	0	0	1	0/1
K16	4	4	1	1	1	1	0	0	0	0/1	K48	4	8	1	1	1	1	0	0	1	0/1
K17	5	1	0	0	0	0	1	0	0	0/1	K49	5	5	0	0	0	0	1	0	1	0/1
K18	5	2	1	0	0	0	1	0	0	0/1	K50	5	6	1	0	0	0	1	0	1	0/1
K19	5	3	0	1	0	0	1	0	0	0/1	K51	5	7	0	1	0	0	1	0	1	0/1
K20	5	4	1	1	0	0	1	0	0	0/1	K52	5	8	1	1	0	0	1	0	1	0/1
K21	6	1	0	0	1	0	1	0	0	0/1	K53	6	5	0	0	1	0	1	0	1	0/1
K22	6	2	1	0	1	0	1	0	0	0/1	K54	6	6	1	0	1	0	1	0	1	0/1
K23	6	3	0	1	1	0	1	0	0	0/1	K55	6	7	0	1	1	0	1	0	1	0/1
K24	6	4	1	1	1	0	1	0	0	0/1	K56	6	8	1	1	1	0	1	0	1	0/1
K25	7	1	0	0	0	1	1	0	0	0/1	K57	7	5	0	0	0	1	1	0	1	0/1
K26	7	2	1	0	0	1	1	0	0	0/1	K58	7	6	1	0	0	1	1	0	1	0/1
K27	7	3	0	1	0	1	1	0	0	0/1	K59	7	7	0	1	0	1	1	0	1	0/1
K28	7	4	1	1	0	1	1	0	0	0/1	K60	7	8	1	1	0	1	1	0	1	0/1
K29	8	1	0	0	1	1	1	0	0	0/1	K61	8	5	0	0	1	1	1	0	1	0/1
K30	8	2	1	0	1	1	1	0	0	0/1	K62	8	6	1	0	1	1	1	0	1	0/1
K31	8	3	0	1	1	1	1	0	0	0/1	K63	8	7	0	1	1	1	1	0	1	0/1
K32	8	4	1	1	1	1	1	0	0	0/1	K64	8	8	1	1	1	1	1	0	1	0/1



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OUTPUT WAVEFORMS

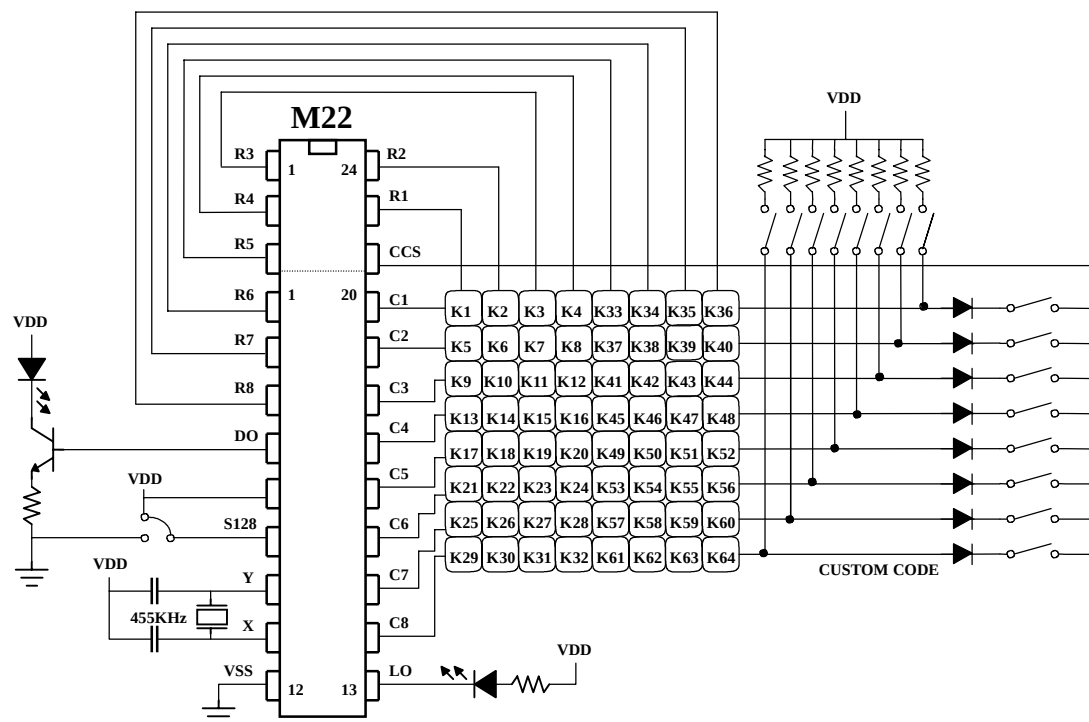
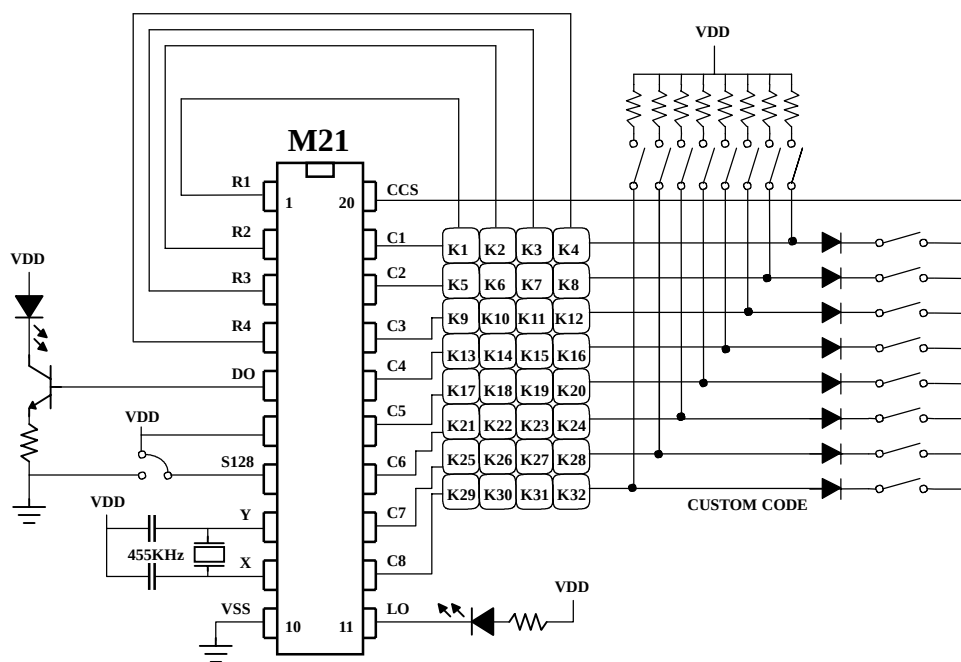
(2)KEY INPUT





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APPLICATION DIAGRAM 参考电路图



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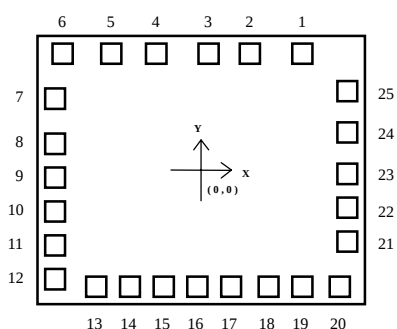


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PAD ASSIGNMENT & POSITION



UNIT : μm

No.	NAME	X	Y
1	KIO6	542	600.7
2	KIO5	265.1	600.7
3	KIO4	57.5	600.7
4	KIO3	-217.9	600.7
5	KIO2	-438.3	600.7
6	KIO1	-701.1	600.7
7	KIO0	-743.3	358.3
8	CCS	-743.3	123.7
9	KI0	-743.3	-49.3
10	KI1	-743.3	-222.3
11	KI2	-521.6	-395.3
12	KI3	-348.6	-568.3
13	KI4	-521.6	-600.8
14	KI5	-348.7	-600.8
15	KI6	-175.5	-600.8
16	KI7	-2.6	-600.8
17	REM	170.4	-600.8
18	VDD	352.4	-600.8
19	SEL	525.4	-600.8
20	OSCO	710.8	-600.8
21	OSCI	743.3	-373.8
22	OPT	743.3	-200.8
23	VSS	743.3	-30.8
24	LMP	743.3	185.5
25	KIO7	743.3	411.6

* CHIP SIZE $\sim 1.9 \times 1.7 \text{ mm}^2$

* IC substrate should be connected to VDD in PCB (PCB 上 IC 底座必须接 VDD)
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