MX780C1-01

35 首 4 和弦门铃资料说明书

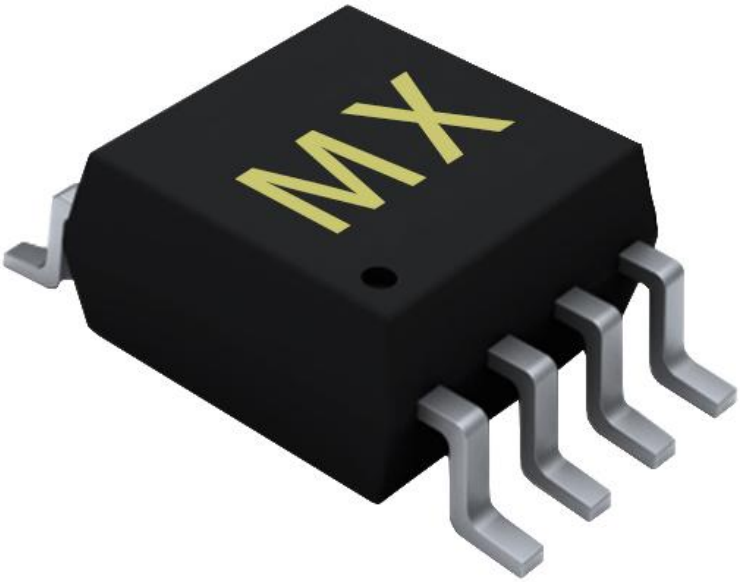
美芯电子
MeiXin

OTP门铃芯片

35首4和弦门铃音乐

MX语音门铃芯片

MX780C1-01



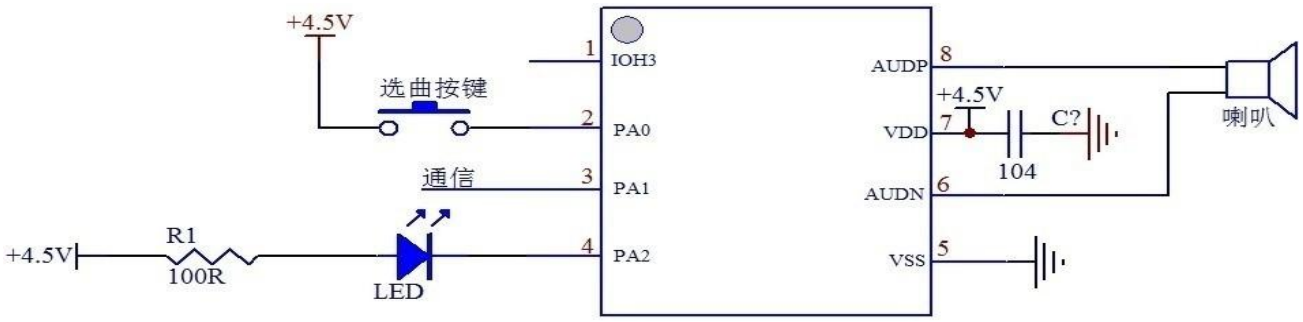
广州美芯电子科技有限公司

出　　品

35 首门铃功能说明书

母体/采样率	MX780C1-01	音量要求	最大音	喇叭大小	29MM8 欧 0.25W
工作电压	2-5.5V	输出方式	PWM	程序编号	S200511-V1
通讯方式	按键或串口	封装	SOP8	校验码	0X01102968
备注	4 和弦 35 首音乐				

一、参考原理图（S200511-V1/0X01102968）



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二、功能说明 ：

1、PA0 选曲，可以播放 1-35 首音乐。

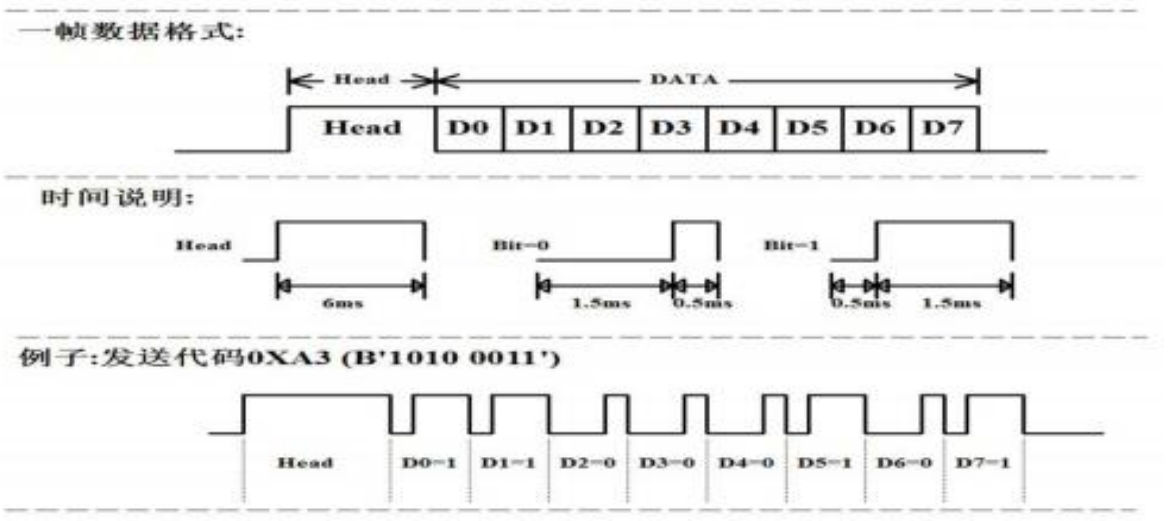
2、PA2 驱动 LED 灯，有音乐时候，LED 3HZ 闪，无音乐，LED 灭。

3、PA1 通信脚。通信协议见附图。

三、曲目表：

01	叮咚 叮咚	02	西敏寺钟声
03	致爱丽丝	04	叮咚 Hello
05	敲门声	06	音阶 3313
07	苏珊娜	08	我心永恒
09	王老先生有块地	10	小步舞曲
11	康康舞曲	12	回忆
13	乐曲 01	14	圣诞老人进城来
15	圣诞佳音	16	金婚曲
17	海顿弦乐四重奏	18	插秧歌
19	山谷里的农夫	20	春神来了
21	乐曲02	22	莫斯科郊外的晚上
23	茉莉花	24	摇篮曲
25	你潇洒我漂亮	26	蜗牛和黄鹂鸟
27	生日快乐	28	小螺号
29	小星星	30	冲动的惩罚
31	伦敦桥就要塌了	32	音阶331
33	叮咚 Hello Welcome	34	叮咚 你好，欢迎光临！
35	报警音		

四、通讯协议：



五、芯片参数

Characteristics	Symbol	Ratings
DC Supply Voltage	V+	< 7.0V
Input Voltage Range	VIN	(VSS-0.3V) to (V+ + 0.3V)
Operating Temperature	TA	0℃ to +70℃
Storage Temperature	TSTO	-65℃ to +150℃

Characteristics	Symbol	Limit			Unit	Test Condition
		Min.	Typ.	Max.		
Operating Voltage	VDD	2.0	-	5.5	V	
Operating Current	IOP	-	1.5	-	mA	F_{CPU} = 2MHz @ 3.0V, PWM output off
		-	2	-	mA	F_{CPU} = 2MHz @ 4.5V, PWM output off
Standby Current	ISTBY	-	-	5	uA	VDD = 3.0V
		-	-	5	uA	VDD = 4.5V
GPIO Input High Level (IOA, IOB, IOC, IOD)	VIH	0.7VDD	-	-	V	VDD = 4.5V
GPIO Input Low Level (IOA, IOB, IOC, IOD)	VIL	-	-	0.3VDD	V	VDD = 4.5V
Output High Current (IOA, IOB, IOC, IOD)	IOH	-	10	-	mA	VDD = 3.0V, V_{OH} = 0.7*VDD
		-	20	-	mA	VDD = 4.5V, V_{OH} = 0.7*VDD
Output Low Current (Normal)	IOL1	-	10	-	mA	VDD = 3.0V, V_{OL} = 0.3*VDD
		-	20	-	mA	VDD = 4.5V, V_{OL} = 0.3*VDD
Output Low Current (High sink ,by BodyOption)	IOL2	-	20	-	mA	VDD = 3.0V, V_{OL} = 0.3*VDD
		-	40	-	mA	VDD =4.5V, V_{OL} = 0.3*VDD
Input Pull Low Resistor (IOA, IOB, IOC, IOD)	RL1	-	200	-	Kohm	VDD = 3.0V, IO = 0V
		-	100	-	Kohm	VDD = 4.5V, IO = 0V
Input Pull Low Resistor (IOA, IOB, IOC, IOD)	RL2	-	1000	-	Kohm	VDD = 3.0V, IO = 3.0V
		-	500	-	Kohm	VDD = 4.5V, IO = 4.5V
PWM Driver Current	IPWM	-	180	-	mA	VDD = 3.0V, 8 Ohms load
		-	280	-	mA	VDD = 4.5V, 8 Ohms load

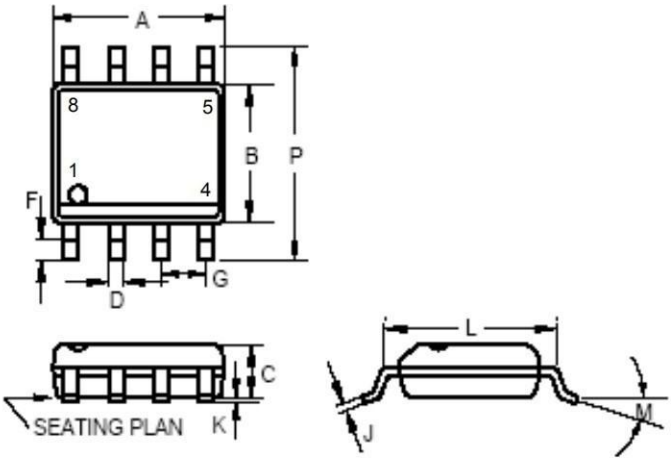
Frequency deviation by voltage drop	△F/F	-1	-	+1	%	Fosc(5.5v) Fosc(2.4v) Fosc(3.0v) F_{CPU}=2MHz
Frequency lot deviation	△F/F	-1	-	1	%	Fmax(3.0v) Fmin(3.0v) Fmax(3.0v)F_{CPU}=2MHz @3.0V (tentative)
		-1	-	1	%	Fmax(4.5v) Fmin(4.5v) Fmax(4.5v)F_{CPU}=2MHz @4.5V (tentative)

11.2 DC/AC Characteristics

VCC=3.0V, Ta=25℃ unless otherwise noted

Parameters	Symbol	Minimum	Typical	Maximum	Test Condition
Operating voltage	VCC	2.0 V	-	5.5 V	
Operating frequency (BANK0)	Fbank0	6.553MHz ±3%		13.107MHz ±3%	
RC oscillator frequency	Frc1		65.536MHz ±3%		
Low power RC oscillator frequency	Frc2	32768Hz -5%		32768Hz +15%	
Normal Sleep Halt Current	Ihalt1		10uA	20uA	All function off
Deep Sleep Halt Current	Ihalt2		5uA	10uA	Core logic power off
Operating Current	Iop		5mA		no load
input high voltage (PortA, PortB, PortC)	VIH	0.6 VCC			Without schmitt trigger
input low voltage (PortA, PortB, PortC)	VIL			0.5 VCC	Without schmitt trigger
input high voltage (PortI)	VIH	0.7 VCC			With schmitt trigger
input low voltage (PortI)	VIL			0.3 VCC	With schmitt trigger
output high voltage	Voh	0.95 VCC			no load
output low voltage	Vol			0.05 V	no load
output high current	Ioh		16 mA		Vout=VCC-0.4V, PortA, B, C, I select strength driving option
output low current	Iol		-16 mA		Vout=0.4V PortA, B, C, I select strength driving option
pull-down resistance	Rpd		50K/220K/ 1M ohm		pins with pull-down, Port A,B,C, I

六、封装尺寸



	INCHES			MILLIMETERS		
	MIN.	TYP	MAX	MIN.	TYP	MAX
A	0.183	—	0.202	4.65	—	5.13
B	0.144	—	0.163	3.66	—	4.14
C	0.068	—	0.074	1.35	—	1.88
D	0.001	—	0.02	0.25	—	0.51
F	0.015	—	0.035	0.38	—	0.89
G	0.050 BSC			1.27BSC		
J	0.007	—	0.01	0.19	—	0.25
K	0.005	—	0.01	0.13	—	0.25
L	0.189	—	0.205	4.8	—	5.21
M	—	—	8°	—	—	8°
P	0.228	—	0.244	5.79	—	6.2

Note: For SOP8, 100 pcs per tube & 2.5K pcs per reel.