



OTP 原理资料 应用开发系列(TF020)

电话 Tel: 0755-28149272 29058191 传真 Fax: 29018191

地址 Add: 深圳市宝安区龙华东环一路港之都大厦 703

邮编 Ps.: 518109

Http://www.ATChip.Com

◆ Description

TF020 is a 20" PWM or **DAC** voice output with high quality speech ,1 input pin and 3 I/O pin simple speech.

◆ Functions

- MAX voice file : 700
- MAX Groups : 64
- MAX Step : 700
- Signal step mute length : 0.64 s (6k sample rate)
- Operating Voltage range: 2.4V ~ 3.6V
- Total Voice Duration : 20" (120K Samples)
- Input pin : 1
- I/O pin : 3
- Voice output : PWM and DAC(PWM2)
- Sequential Key : TG1 -> 32 Groups.
 TG2 -> 21 Groups.
 TG11,TG12-> 1 Group
- Debounce time : 50 us or 10 ms
- On/Off function : only for TG1 & TG2
- Trigger mode (for all Input pins) :
 - A. Edge/Level
 - B. Hold/Unhold
 - C. Retrigger/Irretrigger
- **Output status** (for each Output pin):
 - A. Stand by Status.
 - B. Busy Low Active.
 - C. Busy High Active.
 - D. LED Flash at 6 Hz.
 - E. LED Flash at 3 Hz.



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- **Play rate level :**

TF020 can provide different play rate in one code as follow

Play rate(K)	Play rate(K)
3	6
3.2	6.4
3.31	6.85
3.42	7.38
3.55	8
3.69	8.72
3.84	9.6
4	10.66
4.17	12
4.36	13.71
4.57	16
4.8	19.2
5.05	24
5.33	
5.64	



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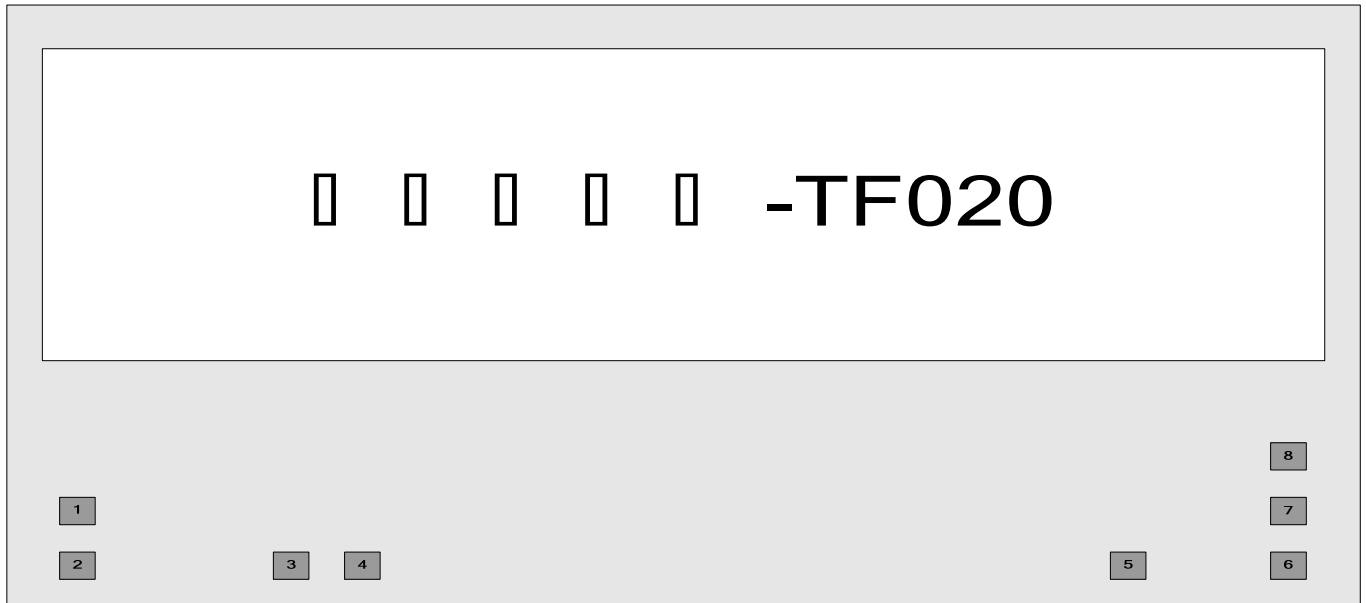
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◆ TF020 Pad Location

CHIP SIZE: (0, 0) (1734,715) UM



NO	PAD NAME	X	Y	NO	PAD NAME	X	Y
1	TG2	-777	-184	5	VSS	443	-267
2	TG1	-777	-269	6	PWM2	794	-289
3	TG11	-606	-268	7	VDD	797	-204
4	TG12	-521	-268	8	PWM1	794	-119



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◆ TF020 DC character

Item	Symbol	Min	Typ	Max	Unit	Condition
Operating voltage	VDD	2.4	3.0	3.6	V	
Standby current	I _{sb}		1	5	uA	VDD=3V,no load
Operating current	I _{op}		600		uA	VDD=3V,no load
Drive current of O	I _{od}		5		mA	VDD=3V
Sink current of O	I _{os}		10		mA	VDD=3V
Drive current of PWM	I _{od}		200		mA	VDD=3V,VOUT=1.5V
Sink current of PWM	I _{os}		200		mA	VDD=3V,VOUT=1.5V



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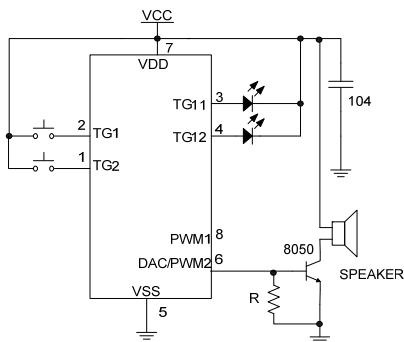
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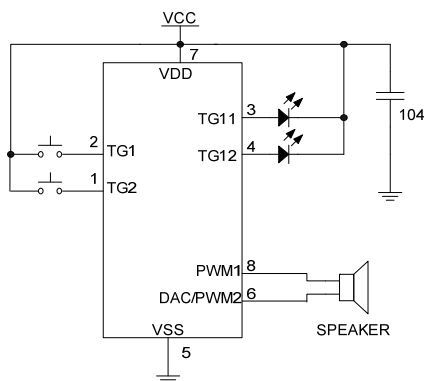
◆ TF020 Application Circuit

TF020 DAC APPLICATION



- System Power 2.4~3.6V
- DAC Output, Connected with 8050 & Resistor driving SpeTFer

TF020 PWM APPLICATION



- System Power 2.4~3.6V
- PWM1 & PWM2 directly drive SpeTFer



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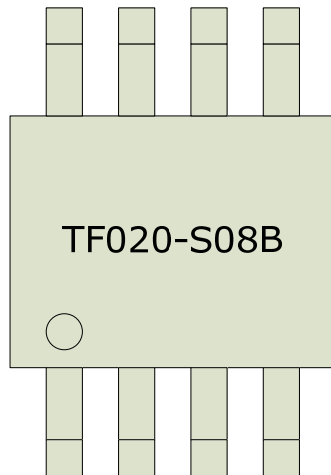
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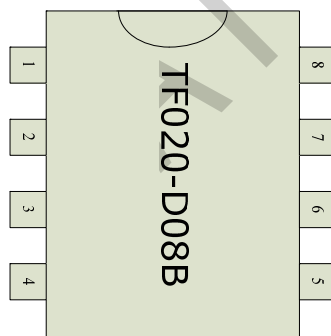
◆ TF020 Package Information

TF020-S08B



PIN	NAME
1	TG2
2	TG1
3	TG11
4	TG12
5	VSS
6	PWM2/DAC
7	VDD
8	PWM1

TF020-D08B



PIN	NAME
1	TG2
2	TG1
3	TG11
4	TG12
5	VSS
6	PWM2/DAC
7	VDD
8	PWM1



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◆ Writer Mapping Description

Writer Pin : **TG2,TG11,TG12,VSS,PWM2,PWM1,VDD**

Write Board Revised from 2M Writer Board --- Pin Assignment

Reference

OTP Writer Power Board Pin Mapping Table			
DIP 48	Pin No-Pin Name (2M 40Pin COB)	Pin No-Pin Name (1M 40 Pin COB)	Pin No-PinName (512K 40 Pin COB)
10	5 – RST_N		
11	12- GND	12-GND	12-GND
12	9-TG4	16-PWM2	16-PWM2
13	8-TG3	18-PWM1	18-PWM1
14	7-VDD	19,20-VDD5,VDD	17-VDD
36	13-TEST		
37	6-VPP	1-TG2	1-TG2



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38	10-TG11	2-TG1	10-TG11
39	11-TG12	3-TG5	11-TG12

◆ Writer Board Slot Location

