
T62M0002A

Digital Sound Processor Embedded SRAM

Features

- Operating voltage: 4.5V ~ 5.5V
- ADM algorithm
- Low noise (-88dB typical)
- Low distortion rate (0.5% typical)
- Embedded SRAM
- Automatic reset function
- Package type: 16-pin DIP/SOP

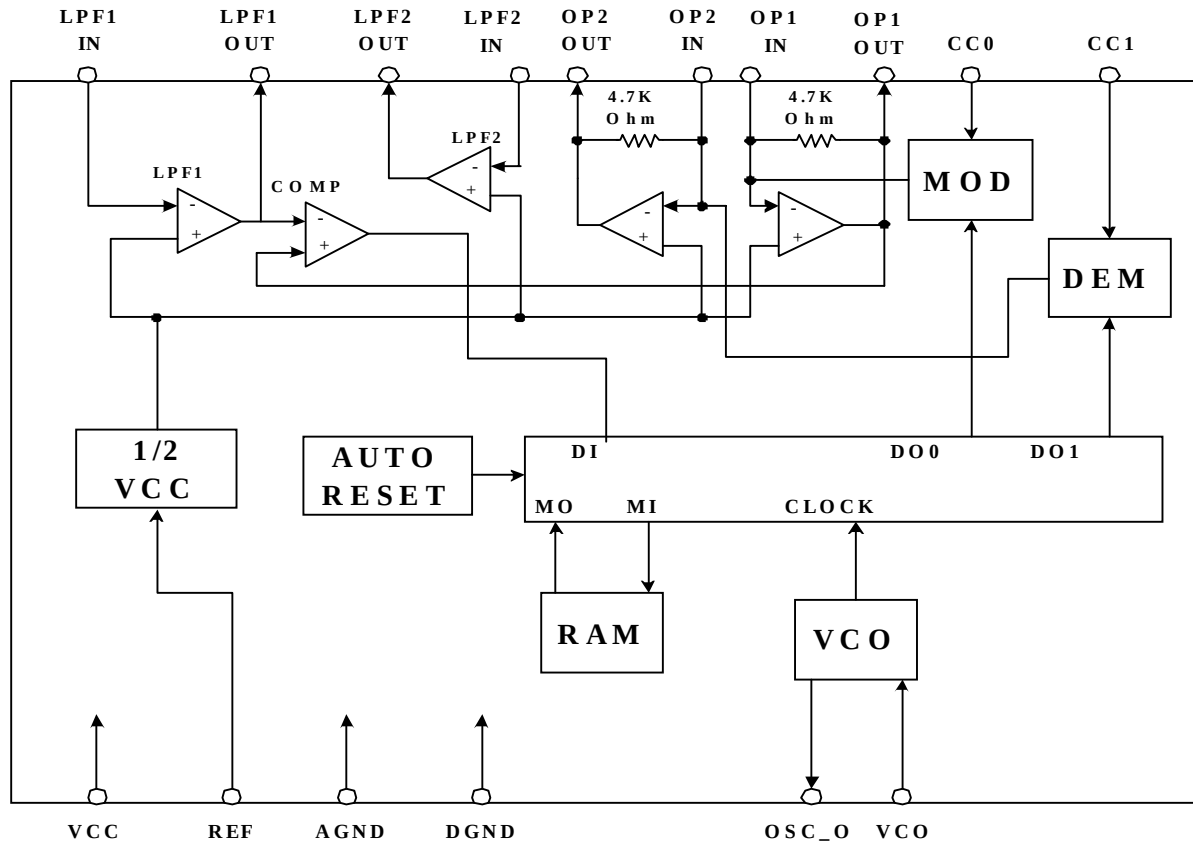
Description

The T62M0002A is an echo/surround effect processor. It is designed for various audio systems including karaoke, television, sound equipment, etc. The chip consists of a built-in pre-amplifier, VCO or Voltage control OSC, Embedded SRAM, A/D and D/A converters as well as delay time control logic. Its built-In reply to SRAM can generate delay time effect and can control the delay time value through the external VCO resistor. The VCO circuit can reduce external components and make it easy to adjust the delay time.

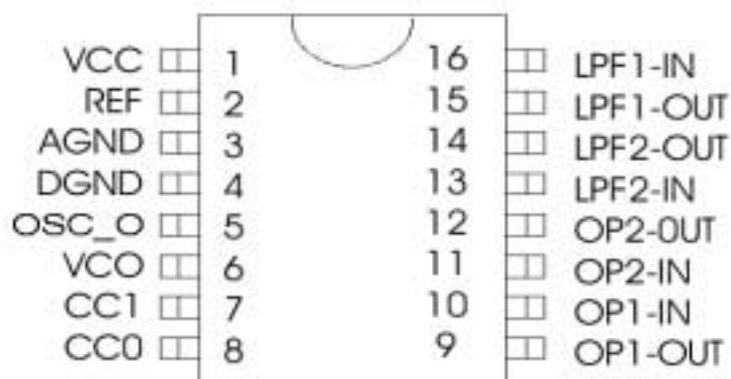
Part Number Examples

Part NO.	Package	Description
T62M0002A-D	16-SOP	300mil-16-SOP
T62M0002A-K	16-DIP	300mil-16-DIP
T62M0002A-DG	16-SOP	300mil-16-SOP lead free
T62M0002A-KG	16-DIP	300mil-16-DIP lead free

Block Diagram



PIN Configuration



T62M0002A

PIN Description

Pin NO.	Pin Name	I/O	Description
1	VCC	-	Analog and positive power supply
2	REF	I	Analog reference voltage
3	AGEND	-	Analog ground
4	DGEND	-	Digital ground
5	OSC_O	I	System oscillator output
6	VCO	I	System oscillator input,system frequency adjustable pin
7	CC1	-	Current control1
8	CC2	-	Current control2
9	OP1_OUT	O	OP1 output
10	OP1_IN	I	OP1 input
11	OP2_IN	I	OP2 input
12	OP2_OUT	O	OP2 output
13	LPF2_IN	I	Low pass filter2 input
14	LPF2_OUT	O	Low pass filter2 output
15	LPF1_OUT	O	Low pass filter1 output
16	LPF1_IN	I	Low pass filter1 input

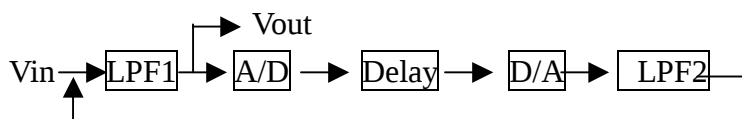
Function Description

The T62M0002A is an echo/surround effect generator with built-in SRAM. It ensures low distortion as well as low noise for processing audio signal delay. The chip provides two playing modes(echo and surround) and the playing function block diagrams are shown as follows.

- Surround Mode

Vin → LPF1 → A/D → Delay → D/A → LPF2 → Vout

-Echo Mode



Electrical Characteristics

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		VDD	Conditions				
V _{CC}	Operating Voltage	-	-	4.5	5.0	5.5	V
I _{CC}	Operating Current	5V	-	-	15	30	mA
G _V	Voltage Gain	5V	R _L =47KΩ	-	0.5	2.5	dB
V _{OMAX}	Maximum Output Voltage	5V	THD=10%	1.0	1.6	-	Vrms
THD	Total Harmonic Distortion	5V	30KHz L.P.F.	-	0.5	1.5	%
No	Output Noise Voltage	5V	DIN Audio	-	-88	-80	dBV

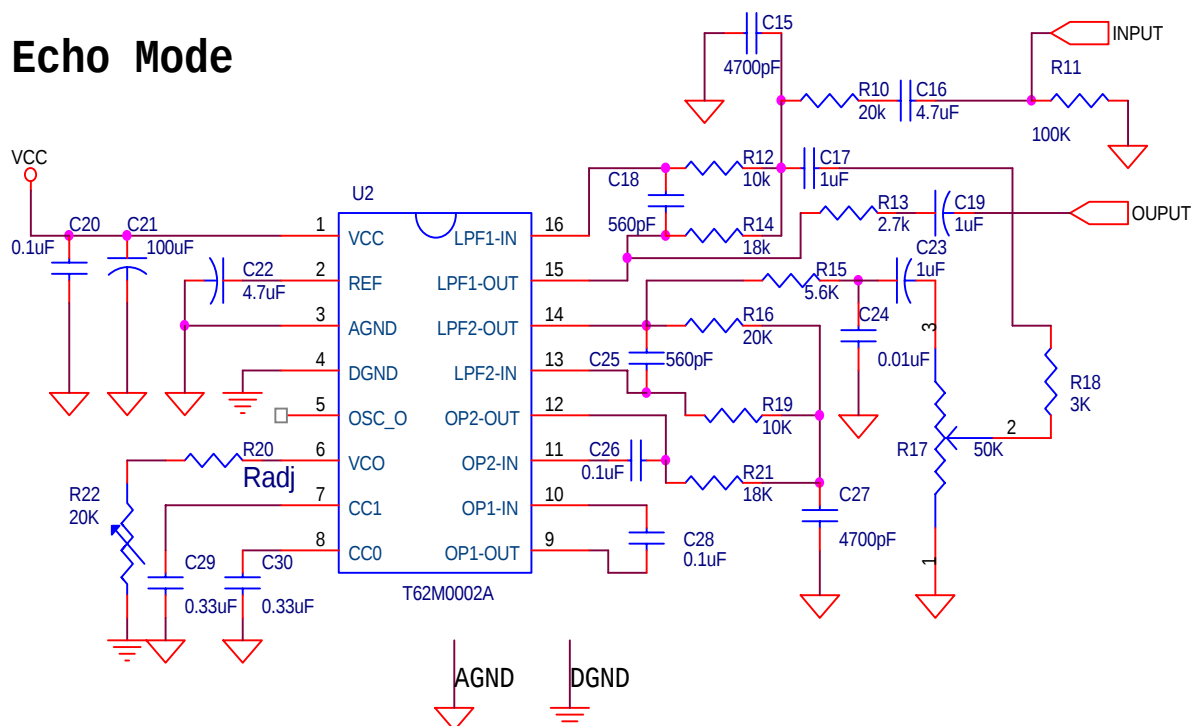
Absolute Maximum Ratings

Supply Voltage	-0.3V to 6V
Input Voltage	V _{ss} -0.3V to V _{DD} +0.3V
Storage Temperature	-50°C to 125°C
Operating Temperature	-20°C to 70°C

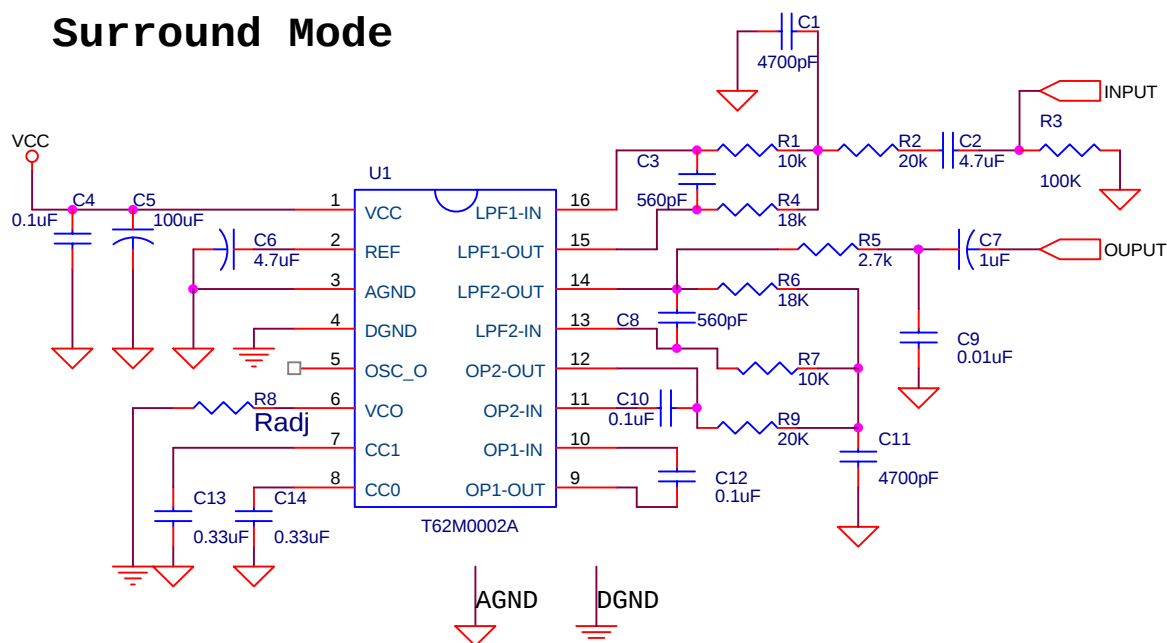
Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Application Circuits

Echo Mode



Surround Mode



Note: "Radj" Value can set delay time. R/delay time Reference on Resistance / Delay Time Table.

Resistance / Delay Time Table .

FCK	2.0M	2.5M	3.0M	3.5M	4.0M	4.5M	5.0M	5.5M
Radj	53.40k	41.97k	33.41k	28.18k	24.00k	20.90k	18.20k	16.00k
TD	264ms	226ms	174ms	150ms	130ms	117ms	106ms	95.2ms
THD+N %	1.29%	0.95%	0.73%	0.57%	0.48%	0.41%	0.37%	0.33%

FCK	6.0M	6.5M	7.0M	7.5M	8.0M	8.5M	9.0M	10M
Radj	14.50k	12.90k	11.60k	10.70k	9.72k	9.07k	8.07k	6.98k
TD	89ms	80.8ms	74.8ms	70.4ms	65.2ms	62.4ms	57.6ms	52.4ms
THD+N %	0.29%	0.28%	0.25%	0.24%	0.22%	0.22%	0.21%	0.18%

FCK	11M	12M	13M	14M	15M	16M	17M	18M
Radj	5.99k	5.30k	4.52k	4.02k	3.48k	3.08k	2.64k	2.30k
TD	47.6ms	44.2ms	40.2ms	37.6ms	35.0ms	33.0ms	30.8ms	29.0ms
THD+N %	0.17%	0.15%	0.14%	0.14%	0.14%	0.14%	0.14%	0.14%

FCK	19M	20M	21M	22M
Radj	2.16k	1.89k	1.69k	1.49k
TD	27.8ms	26.2ms	25.0ms	24.0ms
THD+N %	0.14%	0.14%	0.14%	0.14%

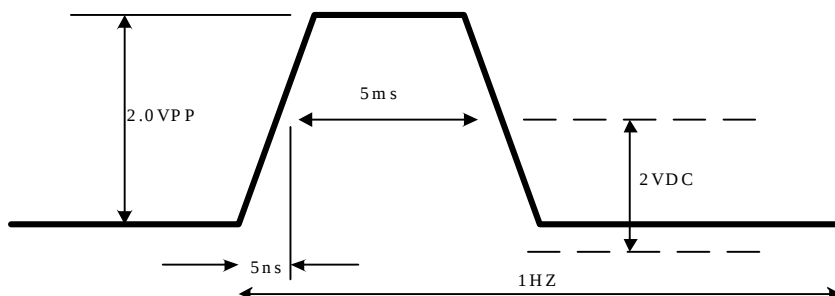
Note :This Table is for Surround Mode.

R= Extend Resister for adjust FCK & TD.

FCK= Oscillate output Frequency for Pin 5 .(Unit : MHZ)

TD=Delay Time for output.

THD=Total Harmonic Distortion. (TDH+N Ratio %)

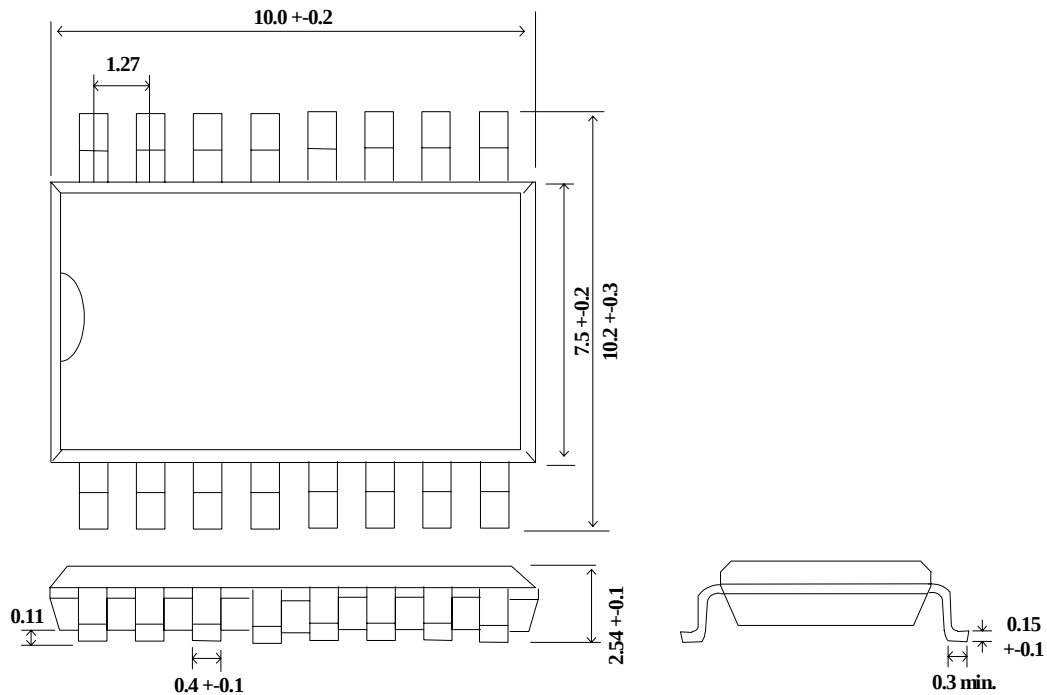


Pulse Clock Waveform for input Pin

IC Package

T62M0002A 16-SOP

Unit:mm



T62M0002A 16-DIP

Unit:mm

