

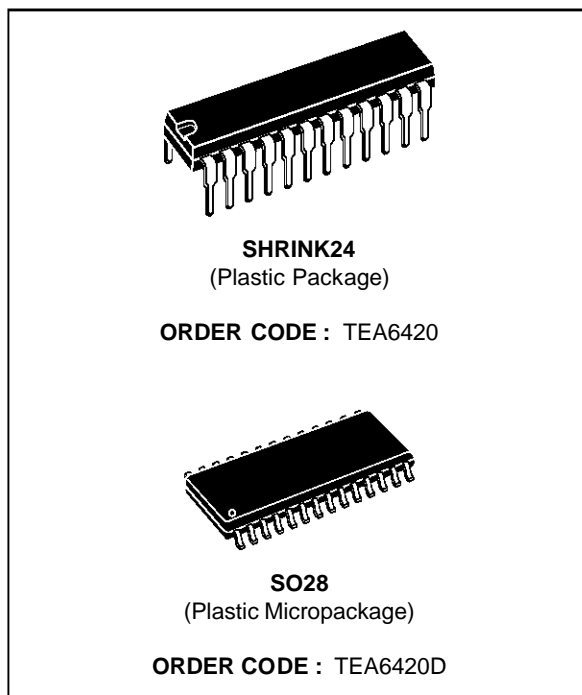
**BUS-CONTROLLED AUDIO MATRIX**

- 5 STEREO INPUTS
- 4 STEREO OUPUTS
- GAIN CONTROL 0/2/4/6dB/MUTE FOR EACH OUTPUT
- CASCADABLE (2 different addresses)
- SERIAL BUS CONTROLLED
- VERY LOW NOISE
- VERY LOW DISTORSION

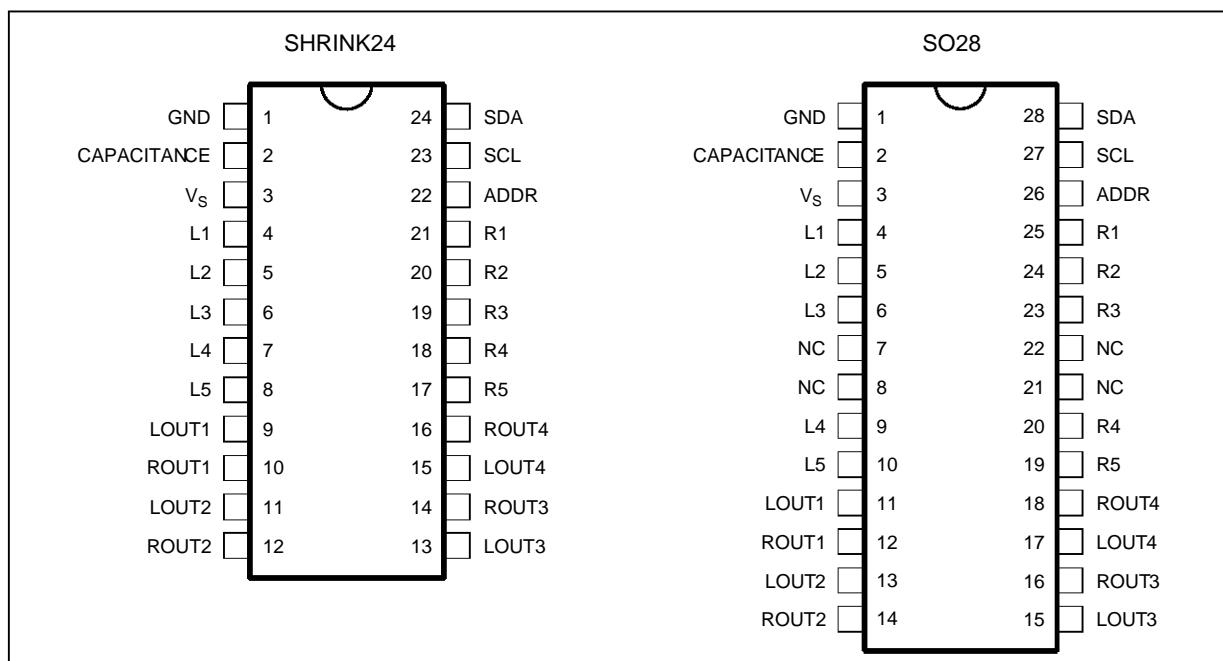
**DESCRIPTION**

The TEA6420 switches 5 stereo audio inputs on 4 stereo outputs.

All the switching possibilities are changed through the I<sup>2</sup>C bus.

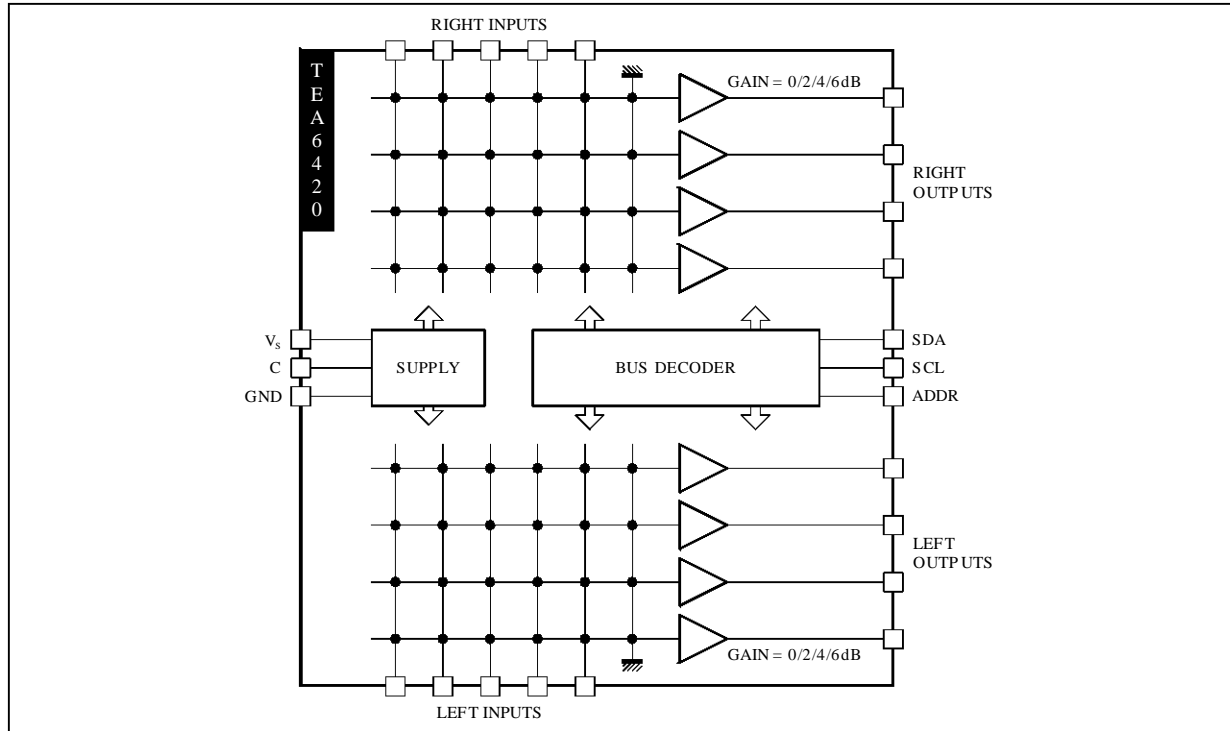


**PIN CONNECTIONS**



6420-01.EPS / 6420-02.EPS

BLOCK DIAGRAM



6420-03.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Supply Voltage	10.2	V
T <sub>oper</sub>	Operating Ambient Temperature	0, + 70	°C
T <sub>stg</sub>	Storage Temperature	- 20, + 150	°C

6420-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction Ambient Thermal Resistance	SHRINK24 SO28 75 75	°C/W

6420-02.TBL

ELECTRICAL CHARACTERISTICS

T<sub>A</sub> = 25°C, V<sub>S</sub> = 10V, R<sub>L</sub> = 10kΩ, R<sub>G</sub> = 600Ω, f = 1kHz (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
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SUPPLY

V <sub>S</sub>	Supply Voltage		8	9	10.2	V
I <sub>S</sub>	Supply Current			5	8	mA
SVR	Ripple Rejection	V <sub>IN</sub> = 500mV <sub>RMS</sub> , BW = 20 - 20kHz	70	80		dB

MATRIX

V <sub>IN</sub>	Input DC Level		4.5	5	5.5	V
R <sub>I</sub>	Input Resistance		30	50	100	kΩ
C <sub>S</sub>	Channel Separation	V <sub>IN</sub> = 2V <sub>RMS</sub> f = 1kHz	Gain = 0dB Gain = 6dB	80 70	90 82	dB dB

6420-03.TBL

**ELECTRICAL CHARACTERISTICS** (continued)

$T_A = 25^{\circ}\text{C}$ ,  $V_S = 10\text{V}$ ,  $R_L = 10\text{k}\Omega$ ,  $R_G = 600\Omega$ ,  $f = 1\text{kHz}$  (unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
<b>OUTPUT BUFFER</b>						
$V_{OUT}$	Output DC Level		4.5	5	5.5	V
$R_{OUT}$	Output Resistance			70	200	$\Omega$
$e_{NI}$	Input Noise	BW = 20 - 20kHz, flat		3		$\mu\text{V}$
S/N	Signal to Noise Ratio	$V_{IN} = V_{OUT} = 1V_{RMS}$		110		dB
$G_{min}$	Min. Gain		-1	0	+1	dB
$G_{max}$	Max. Gain		5	6	7	dB
d	Distortion	$V_{IN} = V_{OUT} = 1V_{RMS}$		0.01	0.05	%
$V_{CL}$	Clipping Level	$d = 0.3\%$	2	2.5		$V_{RMS}$
$R_L$	Output Load Resistance		2			$\text{k}\Omega$

**BUS INPUT**

$V_{IL}$	Input Low Voltage				1.5	V
$V_{IH}$	Input High Voltage		3			V
$I_i$	Input Current		-10		10	$\mu\text{A}$
$V_O$	Output Voltage	$I_O = 3\text{mA}$ ; SDA Acknowledge pin			0.4	V
$R_{pu}$	ADDR Pullup Resistor	Note	40	50		$\text{k}\Omega$

**Note** :  $R_{pu}$  is an internal pull-up resistor connected between the address programming pin ADDR and the internal positive supply voltage. Leaving ADDR disconnected or "floating" allows it to become logic 1. Connecting ADDR externally to the GND pin forces it to logic 0.

**SOFTWARE SPECIFICATION****1. Chip address**

Address	HEX	ADDR
1001 1000	98	0
1001 1010	9A	1

**2. Data bytes**

<b>Output select</b>								
X	0 0 1 1	0 1 0 1	$G_1$	$G_0$	$I_2$	$I_1$	$I_0$	Output 1 Output 2 Output 3 Output 4
<b>Input select</b>								
X	$Q_1$	$Q_0$	$G_1$	$G_0$	0 0 0 0 1 1	0 0 1 1 0 0	0 1 0 1 0 1	Input 1 Input 2 Input 3 Input 4 Input 5 Mute
<b>Gain select</b>								
X	$Q_1$	$Q_0$	0 0 1 1	0 1 0 1	$I_2$	$I_1$	$I_0$	Gain = 6 dB Gain = 4 dB Gain = 2 dB Gain = 0 dB

X = don't care

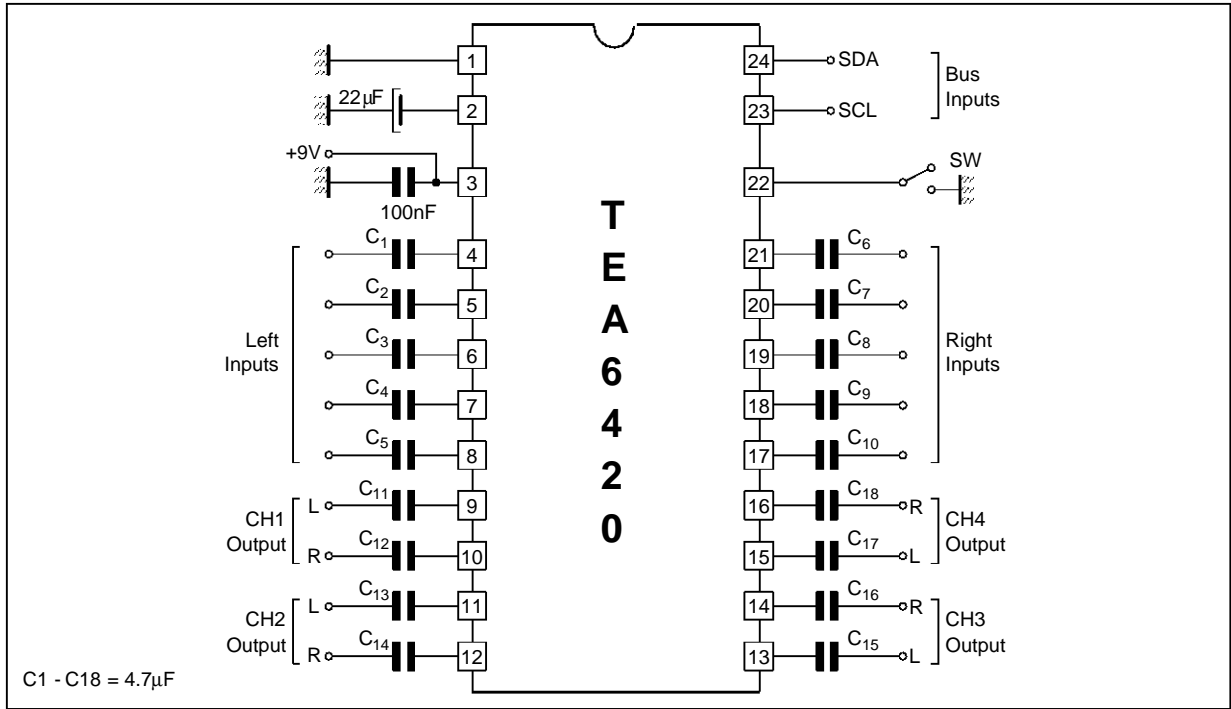
MSB is transmitted first

Example : 0 10 01 100 connects outputs 3 with input 5 at a gain of 4dB

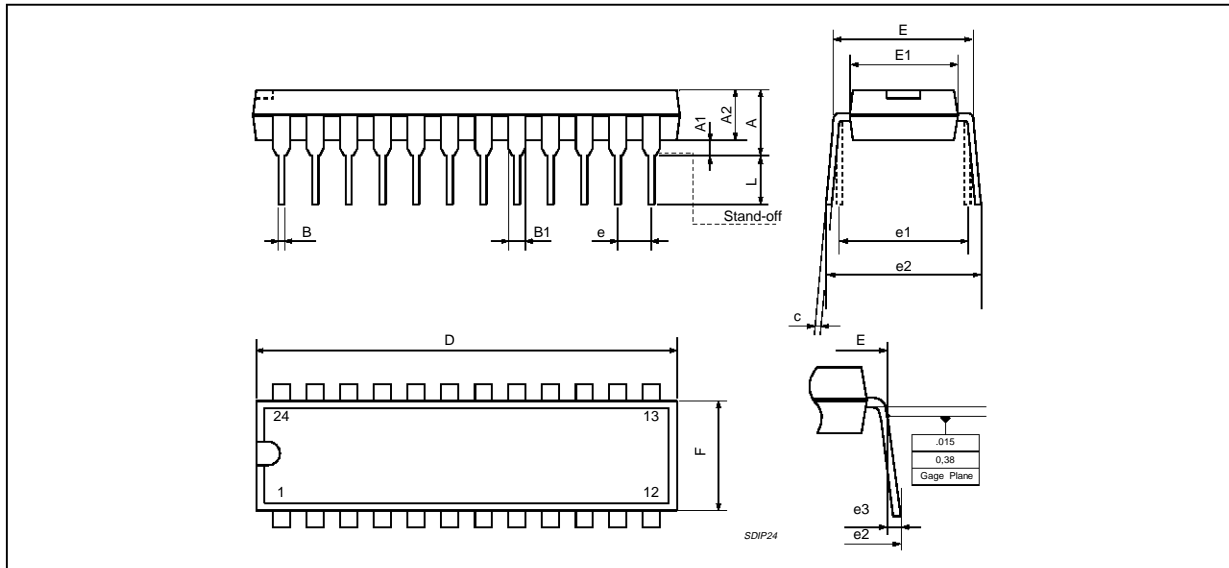
The following are selected after power-on reset : input 5 selected for all outputs ; gain = 0dB.

# TEA6420

## TYPICAL APPLICATION (DIP package)



**PACKAGE MECHANICAL DATA**  
24 PINS - PLASTIC SHRINK

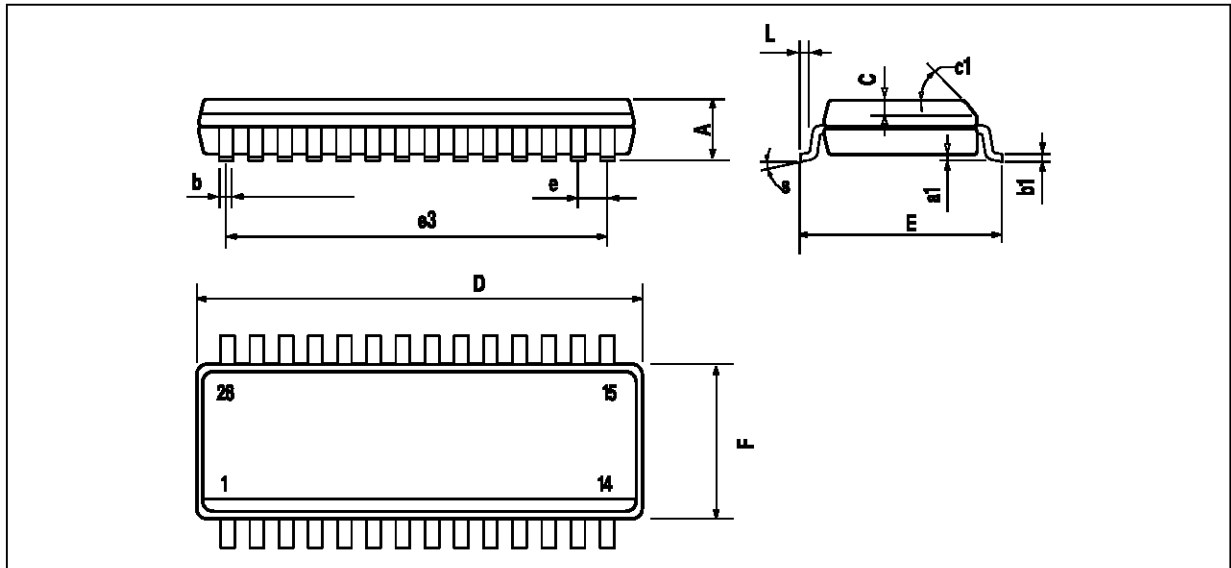


PMSDIP24.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			5.08			0.20
A1	0.51			0.020		
	3.05	3.30	4.57	0.120	0.130	0.180
B	0.36	0.46	0.56	0.0142	0.0181	0.0220
B1	0.76	1.02	1.14	0.030	0.040	0.045
C	0.23	0.25	0.38	0.0090	0.0098	0.0150
D	22.61	22.86	23.11	0.890	0.90	0.910
E	7.62		8.64	0.30		0.340
E1	6.10	6.40	6.86	0.240	0.252	0.270
e		1.778			0.070	
e1		7.62			0.30	
e2			10.92			0.430
e3			1.52			0.060
L	2.54	3.30	3.81	0.10	0.130	0.150

SDIP24.TBL

**PACKAGE MECHANICAL DATA**  
 28 PINS - PLASTIC MICROPACKAGE



PM-SO28-EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			2.65			0.104
a1	0.1		0.3	0.004		0.012
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45° (Typ.)					
D	17.7		18.1	0.697		0.713
E	10		10.65	0.394		0.419
e		1.27			0.050	
e3		16.51			0.65	
F	7.4		7.6	0.291		0.299
L	0.4		1.27	0.016		0.050
S	8° (Max.)					

SO28.TBL

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