

AA8335

PRELIMINARY

SOUND EFFECT PROCESSOR

DESCRIPTION

Made by Bipolar devices, AA8335 is a sound effect processor, applying for products like LCD TV, home theater, PC, notebook and car stereo. We apply the QEQ technologies such as "phase conversion" and "delay compensation". Except for "clear and crystal" tone quality the main feature of the "play back" sound effect consists in powerful bass whereas a fine treble.



Note 1: QEQ® is sound effect technology owned by QSound Labs, Inc...

Note 2: Agamem has got licensing agreement of QEQ® from QSound Labs, Inc...

FEATURES

Simple External Circuit

- Operation Voltage : (4.5 V ~ 13V)
- Independent two sections of controlling switch: High Band(6dB or 9dB) , Low

Band(6dB or 9dB)

- Bypass : (0dB SEP_OFF)
- Package Outline : PDIP20L, TSSOP20L

APPLICATIONS

• Sound effect processor for LCD TV, home theater, PC, notebook and car stereo.

BLOCK DIAGRAM



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SOUND EFFECT PROCESSOR

PIN DESCRIPTIONS



PIN NO.	PIN NAME	PIN FUNCTION			
1	IN-R	Input pin R			
2	HF-R	High frequency (right)			
3	CR1-R	Capacitance 1 & Resistor 1 (right)			
4	MF-R	Middle frequency (right)			
5	CR2-R	Capacitance 2 & Resistor 2 (right)			
6	LF-R	Low frequency (right)			
7	OUT-R	Output pin R			
8	HI CONTROL	Control switch 9dB			
9	LO CONTROL	Control switch 6dB			
10	SEP	6dB & 9dB function control			
11	GND	Ground			
12	VCC	Power supply			
13	VREF	Reference voltage			
14	OUT-L	Output pin L			
15	LF-L	Low frequency (left)			

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SOUND EFFECT PROCESSOR

PIN NO.	PIN NAME	PIN FUNCTION
16	CR2-L	Capacitance 2 & Resistor 2 (left)
17	MF-L	Middle frequency (left)
18	CR1-L	Capacitance 1 & Resistor 1 (left)
19	HF-L	High frequency (left)
20	IN-L	Input pin L

ABSOLUTE MAXIMUM RATINGS

	1	T	Ta=25 ℃
PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	Vcc	15	V
Power Dissipation	PD	(DIP20) 700 (TSSOP) 300	mW
Operating Temperature Range	Topr	-40~+85	°C
Storage Temperature Range	Tstg	-40~+125	°C

WARNING: Semiconductor devices can be permanently damaged by application of stress (voltage, current, temperature, etc.) in excess of absolute maximum ratings. Do not exceed these ratings.

ELECTRICAL CHARACTERISTICS

				IA :	<u>= 25°C, \</u>	/CC = 9V
SYMBOL	PARAMETER	CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
Vcc	Operation Voltage		4.5	9.0	13.0	V
lcc	Supply Current		-	13	17.0	mA
VREF	Reference Voltage		4.0	4.5	5.0	V
VthH	SEP Control Voltage Threshold		2.0	-	VCC	V
VthL			0	-	0.5	V
Vinmax	Maximum Input Voltage	f = 1KHz, RL=10K Ω	2.8	-	-	Vrms

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SOUND EFFECT PROCESSOR

SYMBOL		CONDITIONS		UNIT		
STINDOL		CONDITIONS	MIN	TYP	MAX	
GBYP	Bypass	f = 1KHz Vin=0.1Vrms	-1	0	1	dB
dB1		f=20HZ	5.0	6.0	7.0	dB
dB2		f=20HZ	8.0	9.0	10	dB
dB3	dB Level	f=1KHZ	-1.2	-0.2	0.8	dB
dB4		f=20KHZ	5.0	6.0	7.0	dB
dB5		f=20KHZ	8.0	9.0	10	dB

SWITCH CONTROL

SED	Н	SEP ON
	L	BYPASS
High Band Control	Н	9.0dB
Thigh Band Control	L	6.0dB
Low Band Control	Н	9.0dB
	L	6.0dB

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SOUND EFFECT PROCESSOR

MEASURING CIRCUIT



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SOUND EFFECT PROCESSOR

TYPICAL CHARACTERISTICS



ORDERING INFORMATION

ORDER NO.	PACKAGE	PACKING	Q'TY	MARK CHART
AA8335A	TSSOP20L	Tape & Reel	2,500ea	AA8335 SXXXX A
AA8335P	PDIP20L	TUBE	20ea	AA8335 SXXXP

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PACKAGE DIMENSIONS

TSSOP 20L





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DI N	MENSIONS 1ILLIMETE	DIMENSIONS IN INCHES				
MIN	NOM	MAX	MIN	NOM	MAX	
-	-	1.20	-	-	0.048	
0.05	-	0.15	0.002	-	0.006	
0.80	1.00	1.05	0.031	0.039	0.041	
0.19	-	0.30	0.007	-	0.012	
0.09	-	0.20	0.004	-	0.008	
6.40	6.50	6.60	0.252	0.256	0.260	
6.20	6.40	6.60	0.244	0.252	0.260	
4.30	4.40	4.50	0.169	0.173	0.177	
	DI MIN - 0.05 0.80 0.19 0.09 6.40 6.20 4.30	DIMENSIONS MILLIMETER MIN NOM - - 0.05 - 0.80 1.00 0.19 - 6.40 6.50 6.20 6.40 4.30 4.40	DIMENSIONS IN MILLIMETERS MIN NOM MAX - - 1.20 0.05 - 0.15 0.80 1.00 1.05 0.19 - 0.30 0.09 - 0.20 6.40 6.50 6.60 6.20 6.40 4.50	DIMENSIONS IN MILLIMETERS DIM MIN NOM MAX MIN - - 1.20 - 0.05 - 0.15 0.002 0.80 1.00 1.05 0.031 0.19 - 0.30 0.007 0.09 - 0.20 0.004 6.40 6.50 6.60 0.252 6.20 6.40 4.60 0.169	DIMENSIONS IN MILLIMETERS DIMENSION INCHES MIN NOM MAX MIN NOM - - 1.20 - - 0.05 - 0.15 0.002 - 0.80 1.00 1.05 0.031 0.039 0.19 - 0.20 0.004 - 6.40 6.50 6.60 0.252 0.256 6.20 6.40 6.60 0.244 0.252 4.30 4.40 4.50 0.169 0.173	DIMENSIONS IN MILLIMETERS DIMENSIONS IN INCHES MIN NOM MAX MIN NOM MAX - - 1.20 - - 0.048 0.05 - 0.15 0.002 - 0.006 0.80 1.00 1.05 0.031 0.039 0.041 0.19 - 0.30 0.007 - 0.012 0.09 - 0.20 0.004 - 0.008 6.40 6.50 6.60 0.252 0.256 0.260 6.20 6.40 6.60 0.244 0.252 0.260 4.30 4.40 4.50 0.169 0.173 0.177

0.10	0.00	0.00	0.202	0.2
6.20	6.40	6.60	0.244	0.2
4.30	4.40	4.50	0.169	0.17
-	0.65	-	-	0.02

26 е 0.024 0.45 0.60 0.75 0.018 0.030 L 0.10 0.004 -_ -У θ 0° 8 0° _ _

NOTE:

- 1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS
- 2. TOLERANCE +-0.1mm UNLESS OTHERWISE SPECIFIED
- COPLANARITY: 0.1mm 3.
- 4. CONTROLLOMG DIMENSION IS MILLIMETER. CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.
- FOLLOWED FROM JEDEC MO-153 5.

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SOUND EFFECT PROCESSOR

PDIP20L





SAMBOLS	MIN	NOR	MAX	MIN	NOR	MAX
STWDULS	(inch)			(mm)		
A	-	-	0.210	-	-	5.334
A1	0.015	-	-	0.381	-	-
A2	0.125	0.130	0.135	3.175	3.302	3.429
D	0.980	1.030	1.060	24.892	26.162	26.924
E		0.300			7.620	
E1	0.245	0.250	0.255	6.223	6.350	6.477
L	0.115	0.130	0.150	2.921	3.302	3.810
еB	0.335	0.355	0.375	8.509	9.017	9.525
θ°	0°	7°	15°	0°	7°	15°

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