

**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...

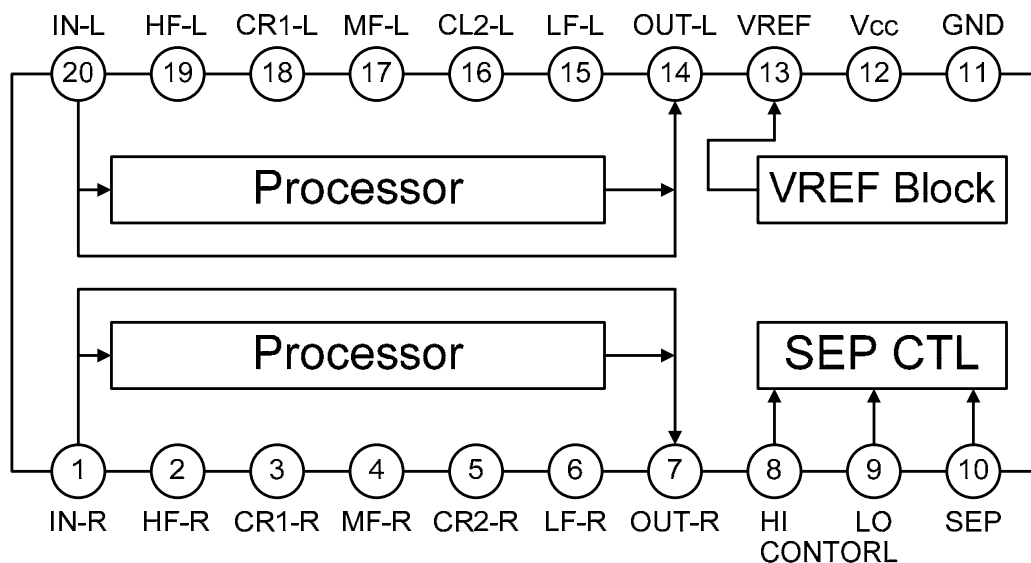
**FEATURES**

- 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

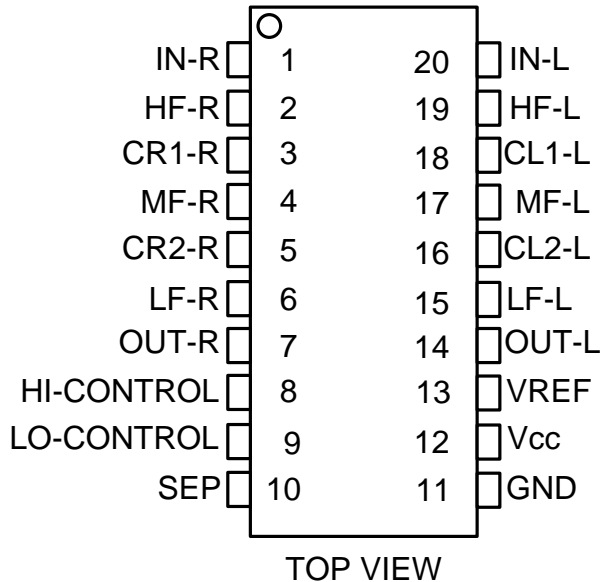
**APPLICATIONS**

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

**BLOCK DIAGRAM**



■ **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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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**

Ta=25°C

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**

TA = 25°C, VCC = 9V

SYMBOL	PARAMETER	CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
Vcc	Operation Voltage		4.5	9.0	13.0	V
Icc	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=10KΩ	2.8	-	-	Vrms



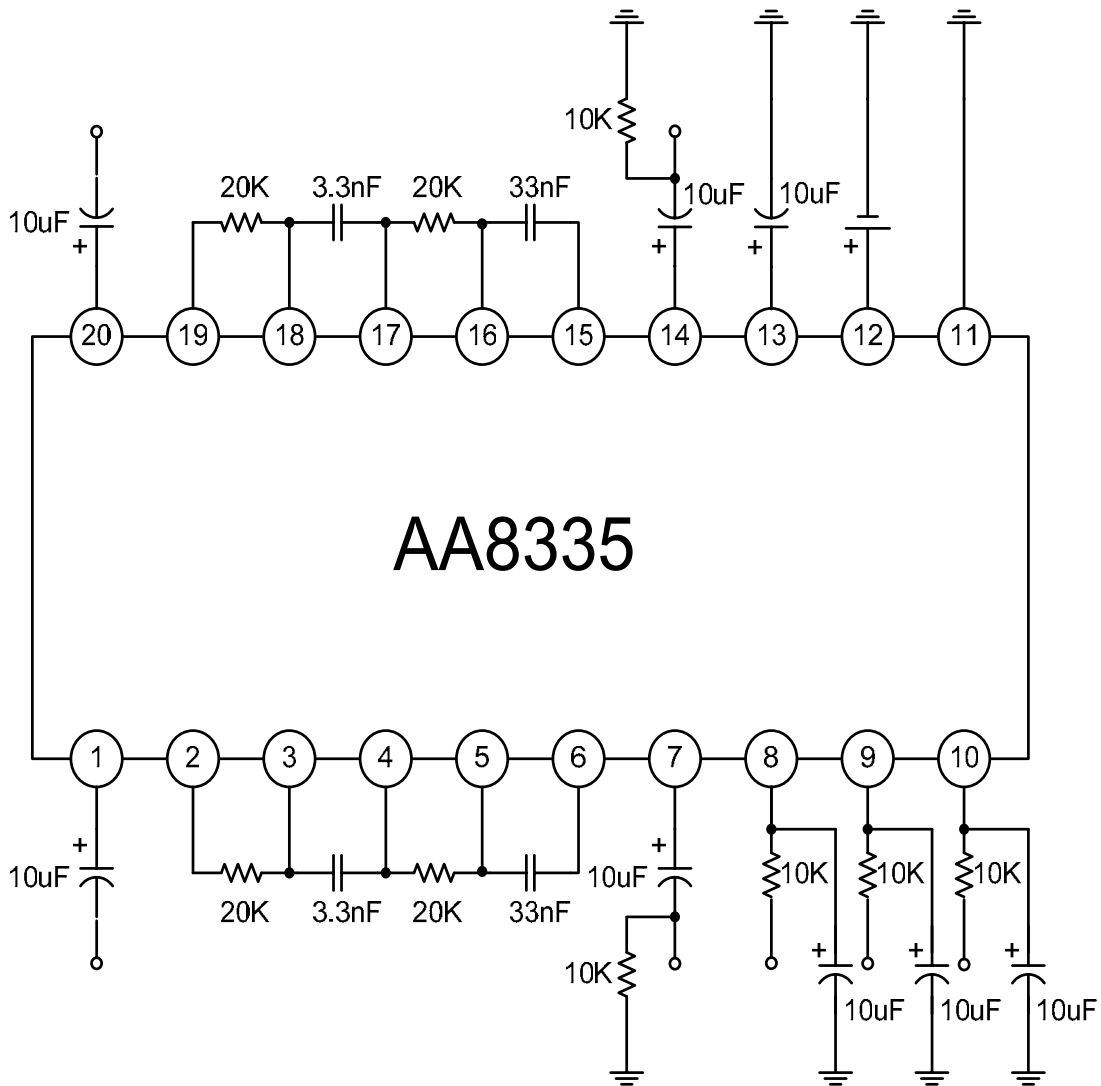
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SYMBOL	PARAMETER	CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
GBYP	Bypass	f = 1KHz Vin=0.1Vrms	-1	0	1	dB
dB1	dB Level	f=20HZ	5.0	6.0	7.0	dB
dB2		f=20HZ	8.0	9.0	10	dB
dB3		f=1KHZ	-1.2	-0.2	0.8	dB
dB4		f=20KHZ	5.0	6.0	7.0	dB
dB5		f=20KHZ	8.0	9.0	10	dB

■ **SWITCH CONTROL**

SEP	H	SEP ON
	L	BYPASS
High Band Control	H	9.0dB
	L	6.0dB
Low Band Control	H	9.0dB
	L	6.0dB

**MEASURING CIRCUIT**


**PRELIMINARY**

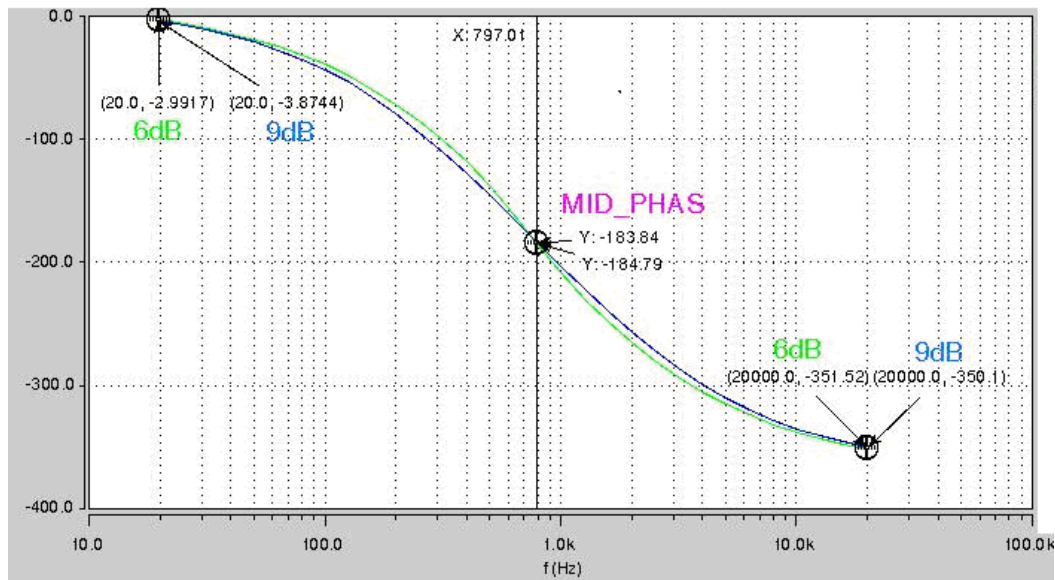
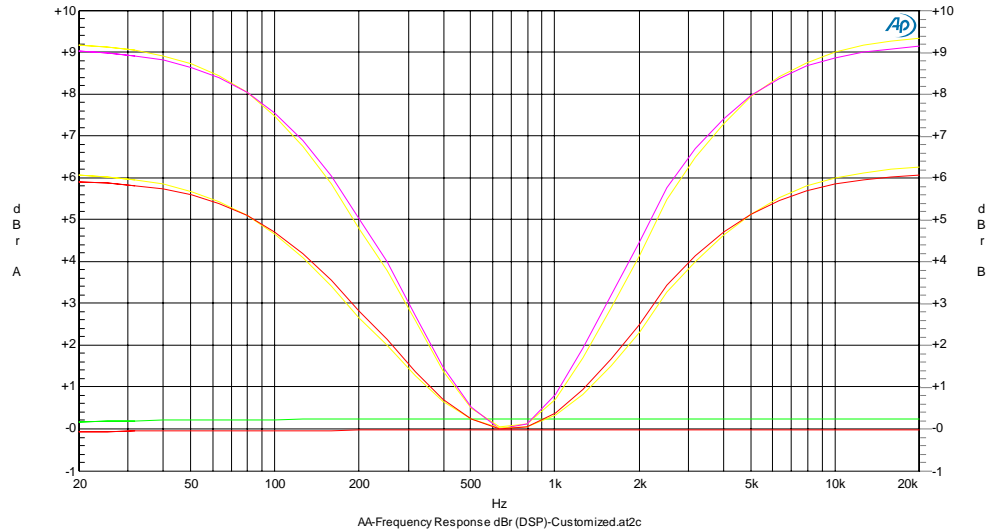
**SOUND EFFECT PROCESSOR**

**TYPICAL CHARACTERISTICS**

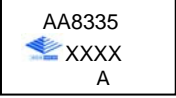

Audio Precision

Frequency Response

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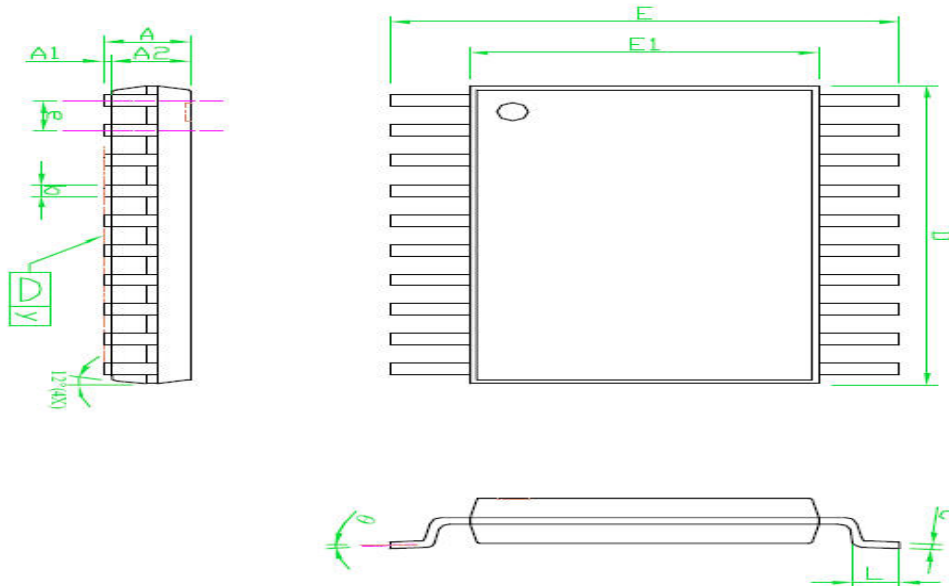


**ORDERING INFORMATION**

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

■ **PACKAGE DIMENSIONS**

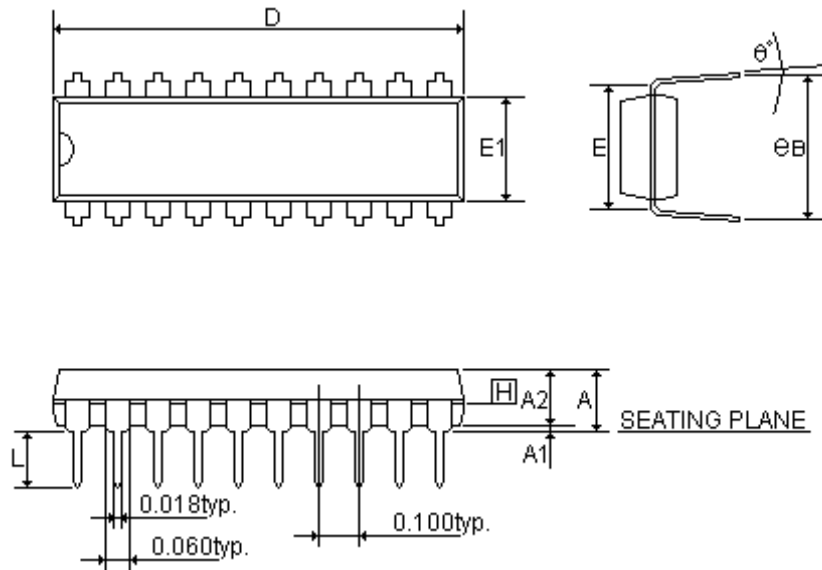
**TSSOP 20L**



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	-	-	1.20	-	-	0.048
A1	0.05	-	0.15	0.002	-	0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
b	0.19	-	0.30	0.007	-	0.012
C	0.09	-	0.20	0.004	-	0.008
D	6.40	6.50	6.60	0.252	0.256	0.260
E	6.20	6.40	6.60	0.244	0.252	0.260
E1	4.30	4.40	4.50	0.169	0.173	0.177
e	-	0.65	-	-	0.026	-
L	0.45	0.60	0.75	0.018	0.024	0.030
y	-	-	0.10	-	-	0.004
$\theta$	0°	-	8°	0°	-	8°

**NOTE:**

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

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**PDIP20L**


SYMBOLS	MIN	NOR	MAX	MIN	NOR	MAX
	(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
eB	0.335	0.355	0.375	8.509	9.017	9.525
$\theta^\circ$	0°	7°	15°	0°	7°	15°