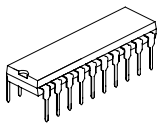
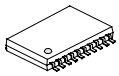
Silan
Semiconductors

SA8507

COMPANDER



DIP-20



SOP-20

DESCRIPTION

SA8507 is a automatic gain control system that is used for dynamic range compression and expansion. According to the companding the signal, this can reduce the noise components. SA8507 includes compressor, expander, pre-amp, filter amp, limiter and mute/bypath logic.

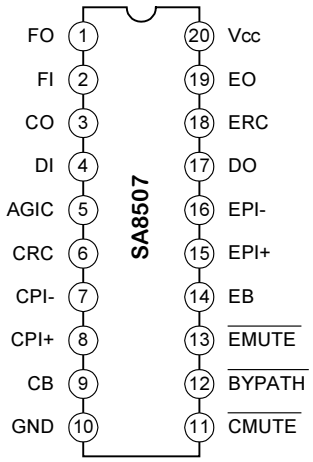
FEATURES

* Wide supply voltage: 2.4V ~ 7V
* Easy gain control
* Mute/bypath logic
* Data in/out pin

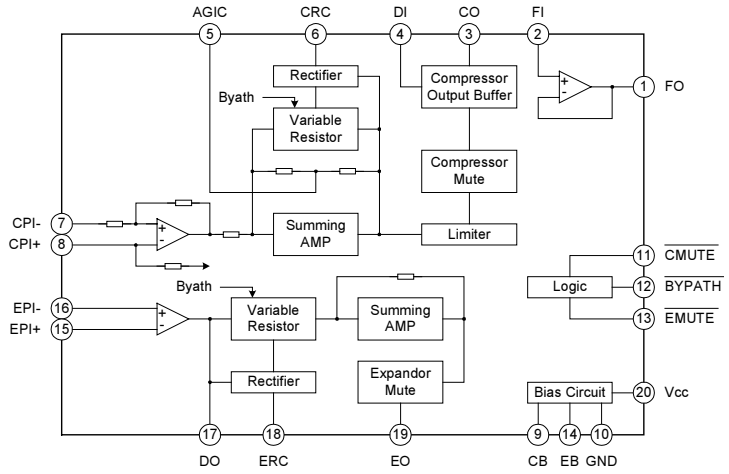
ORDERING INFORMATION

SA8507D	DIP-20-300 Package
SA8507S	SOP-20-375 Package

PIN CONFIGURATION



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

Characteristic		Symbol	Value	Unit
Supply Voltage		VCC	10	V
Power Dissipation	SA8507D	PD	1000	mW
	SA8507S		410	mW
Operating Temperature		TOPR	-22 ~ +70	°C
Storage Temperature		TSTG	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
DC ELECTRICAL CHARACTERISTICS						
Operating Voltage	V_{CC}	--	--	2.4	7.0	V
Operating Current	I_{CC}	No Signal	--	4.0	6.5	mA
COMPRESSOR PART						
Standard Output Voltage	$V_{O(COMP)}$	Vin=12.5mV	240	300	360	mVrms
Gain Deference	$\Delta G_{V1(COMP)}$	Vin=-20dB(300mV=0dB)	-0.5	0	+0.5	dB
	$\Delta G_{V2(COMP)}$	Vin=-40dB	-1.0	0	+1.0	
Bypath Gain Difference	$\Delta G_{VB(COMP)}$	Vout=0dB, BYPATH=GND	-1.5	0	+1.5	dB
Output Distortion	THD_{COMP}	Vin=0dB	--	0.5	1.0	%
Noise Output Voltage	$V_{NO(COMP)}$	Rg=620hm	--	3.0	5.5	mVrns
Mute Attenuation Radio	ATT_{MUTE}	Vin=0dB, CMUTE=GND	60	80	--	dB
Maximum Voltage	Vout	--	1.15	1.35	1.50	Vrms

(To be continued)

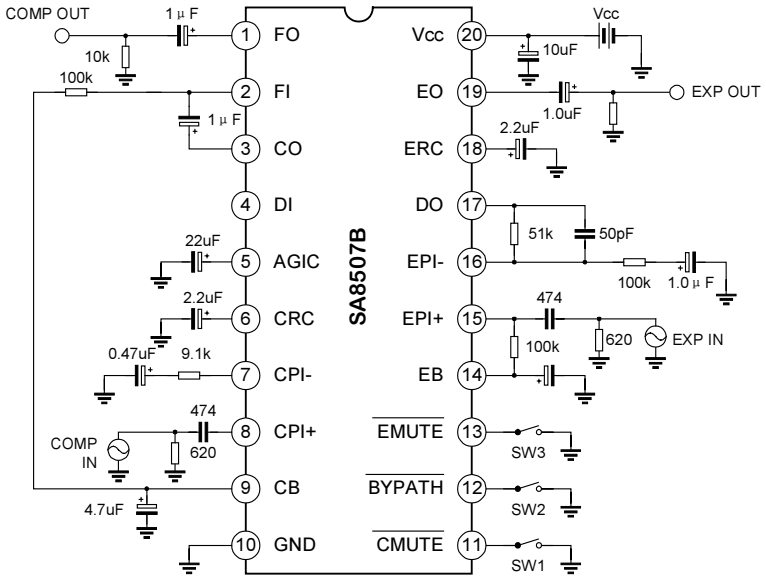
(Continued)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
EXPANDER PART						
Standard Output Level (0dB)	$V_{O(EXP)}$	Vin=30mVrms=0dB	110	130	160	mVrms
Gain Difference	$\Delta G_{V1(EXP)}$	Vin=-10dB	-0.5	0	+0.5	dB
	$\Delta G_{V2(EXP)}$	Vin=-20dB	-1.0	0	+1.0	
	$\Delta G_{V3(EXP)}$	Vin=-30dB	-1.5	0	+2.0	
Bypath Gain Difference	$\Delta G_{VB(EXP)}$	Vin=0dB, BYPATH=GND	-2.5	0	+0.5	dB
Output Distortion	THD_{EXP}	Vin=0dB	--	0.5	1.5	%
Noise Output Voltage	$V_{NO(EXP)}$	Rg=620hm	--	10.0	30.0	μVrms
Mute Attenuation Ratio	ATT_{MUTE}	Vin=0dB, EMUTE=GND	60	80	--	dB
Max. Output Voltage	$V_{OEXP(MAX)}$	THD=10%	700	800	--	mVrms

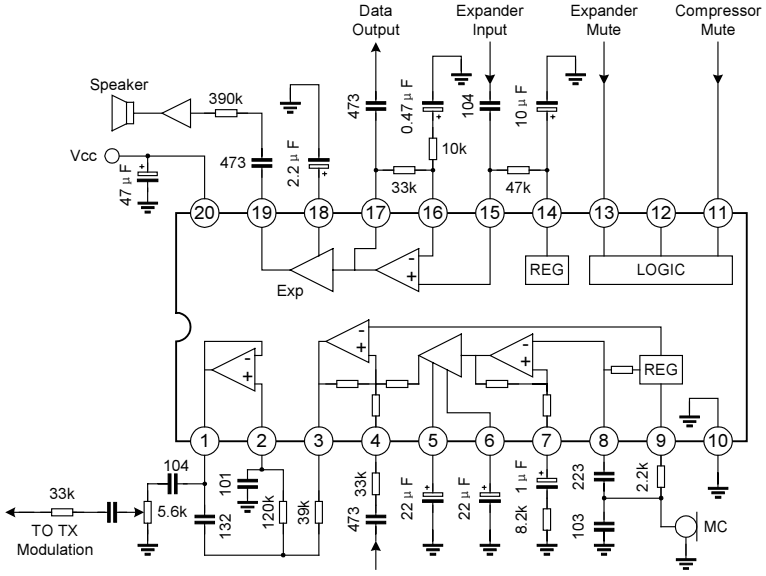
PIN DESCRIPTION

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	FO	Filter Amp Output	11	CMUTE	Compressor Mute
2	FI	Filter Amp Input	12	BYPATH	No Companding
3	CO	Compressor Output	13	EMUTE	Expander Mute
4	DI	Data Input	14	EB	Expander Reference Bias
5	AGIC	AC Gain Infinity Capacitor	15	EPI+	Expander Non-inverting Input
6	CRC	Compressor Rectifier Capacitor	16	EPI-	Expander Inverting Input
7	CPI-	Compressor Inverting Input	17	DO	Data Output
8	CPI+	Compressor Non-inverting Input	18	ERC	Expander Rectifier Capacitor
9	CB	Compressor Reference Bias	19	EO	Expander Output
10	GND	Ground	20	Vcc	Supply Voltage

TEST CIRCUIT

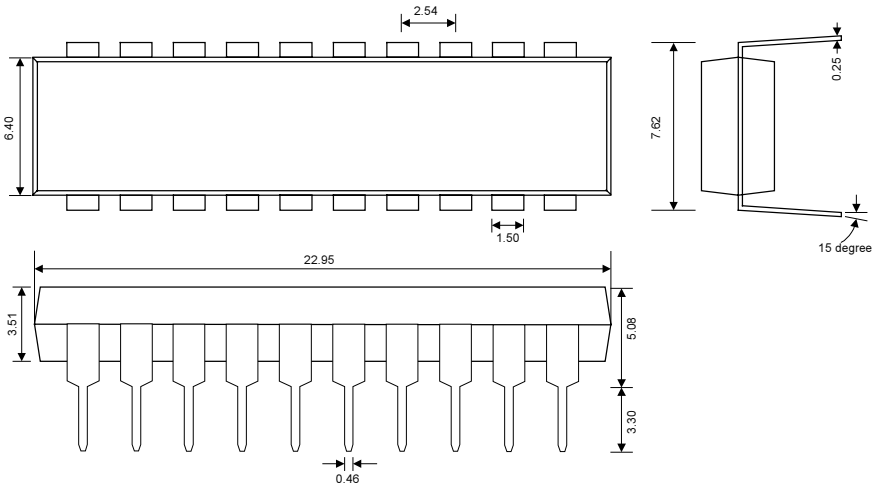


APPLICATION CIRCUIT



PACKAGE OUTLINE

DIP-20-300-2.54 UNIT: mm



SOP-20-375-1.27 UNIT: mm