

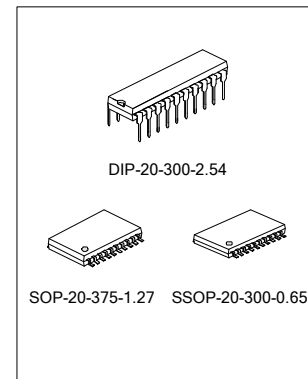
VOICE SIGNAL COMPRESSION AND EXPANSION CIRCUIT WITH AUTO GAIN CONTROL

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

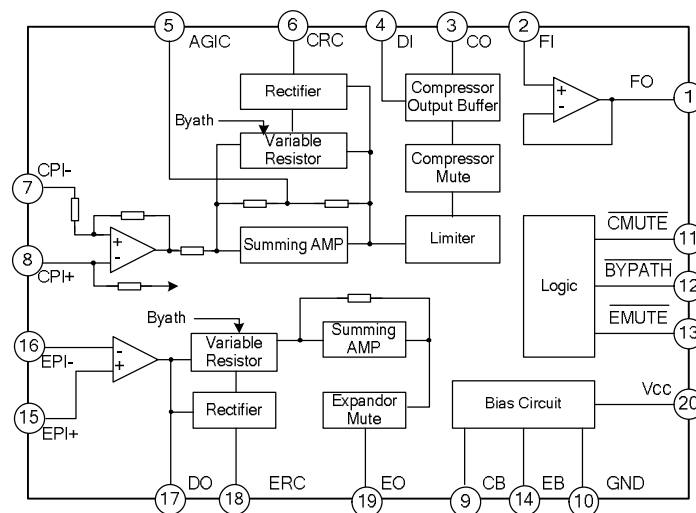
- * Wide supply voltage: 2.4V ~ 7V
- * Easy gain control
- * Mute/bypath logic
- * Data in/out pin



ORDERING INFORMATION

Device	Package
SA8507D	DIP-20-300-2.54
SA8507S	SOP-20-375-1.27
SA8507A	SSOP-20-300-0.65

BLOCK DIAGRAM



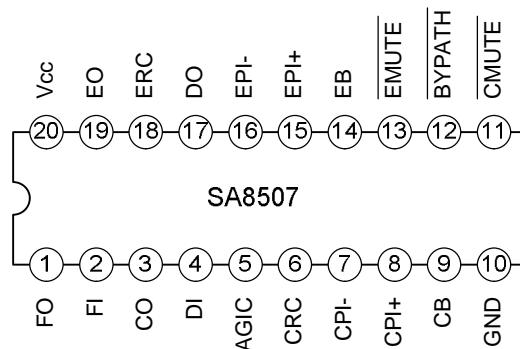
ABSOLUTE MAXIMUM RATINGS (Tamb=25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	VCC	10	V
Power Dissipation	SA8507D	1000	mW
	SA8507S	410	mW
	SA8507A	350	mW
Operating Temperature	TOPR	-22 ~ +70	°C
Storage Temperature	TSTG	-55 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Tamb=25°C)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
DC ELECTRICAL CHARACTERISTICS						
Operating Voltage	VCC	--	--	2.4	7.0	V
Operating Current	ICC	No Signal	--	4.0	6.5	mA
COMPRESSOR PART						
Standard Input Voltage (0dB)	VI(COMP)	Vout=300mV(0dB)	8.0	12.5	17.0	mVrms
Gain Diference	Δ GV1(COMP)	Vin=-20dB	-0.5	0	+0.5	dB
	Δ GV2(COMP)	Vin=-40dB	-1.0	0	+1.0	
Bypass Gain Difference	Δ GVB(COMP)	Vout=0dB, BYPATH=GND	-1.5	0	+1.5	dB
Output Distortion	THDCOMP	Vin=0dB	--	0.5	1.0	%
Noise Output Voltage	VNO(COMP)	Rg=620hm	--	3.0	5.5	mVrms
Mute Attenuation Radio	ATTMUTE	Vin=0dB, CMUTE=GND	60	80	--	dB
Maximum Voltage	Vout	--	1.15	1.35	1.50	Vrms
EXPANDER PART						
Standard Output Level (0dB)	VO(EXP)	Vin=30mVrms=0dB	110	130	160	mVrms
Gain Difference	Δ GV1(EXP)	Vin=-10dB	-0.5	0	+0.5	dB
	Δ GV2(EXP)	Vin=-20dB	-1.0	0	+1.0	
	Δ GV3(EXP)	Vin=-30dB	-1.5	0	+2.0	
Bypass Gain Difference	Δ GVB(EXP)	Vin=0dB, BYPATH=GND	-2.5	0	+0.5	dB
Output Distortion	THDEXP	Vin=0dB	--	0.5	1.5	%
Noise Output Voltage	VNO(EXP)	Rg=620hm	--	10.0	30.0	μ Vrms
Mute Attenuation Ratio	ATTMUTE	Vin=0dB, EMUTE=GND	60	80	--	dB
Max. Output Voltage	VOEXP(MAX)	THD=10%	700	800	--	mVrms

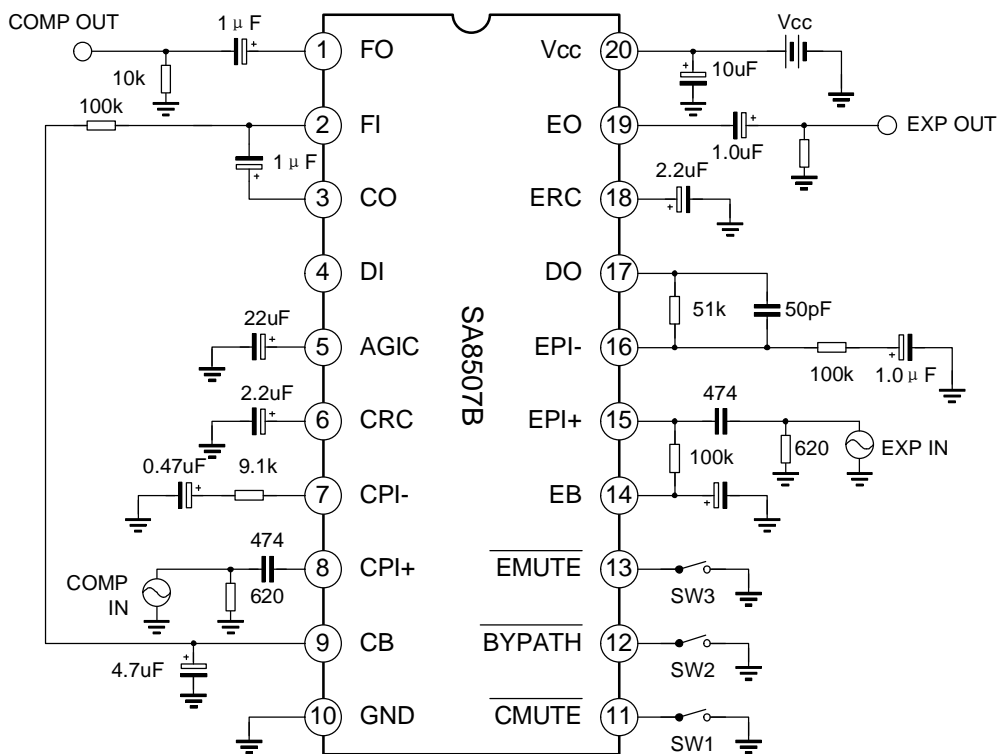
PIN CONFIGURATION



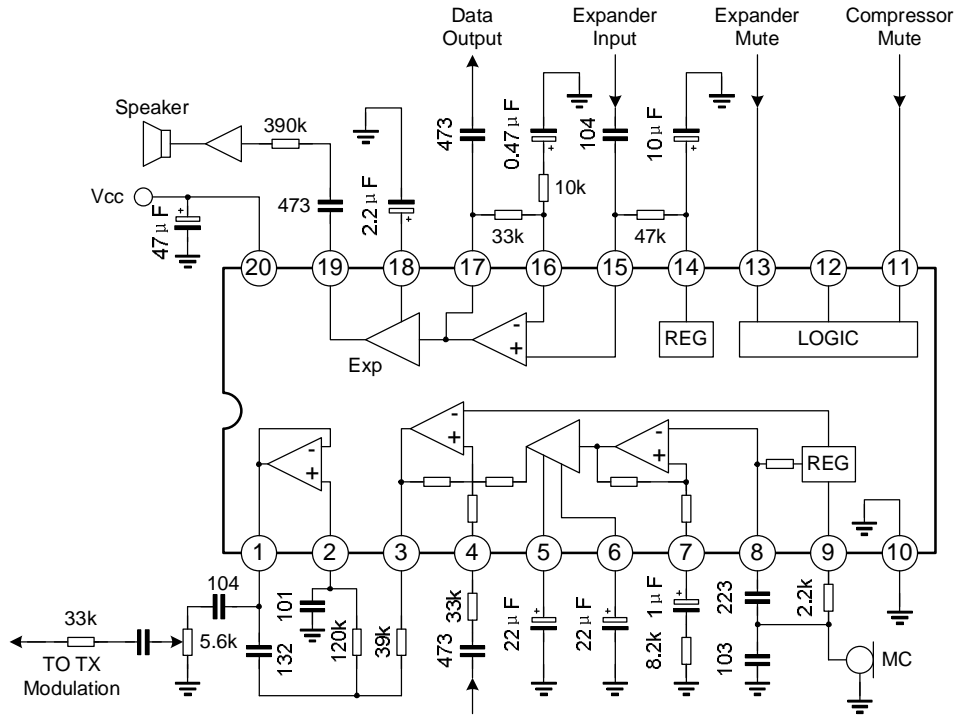
PIN DESCRIPTION

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 Comanding
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



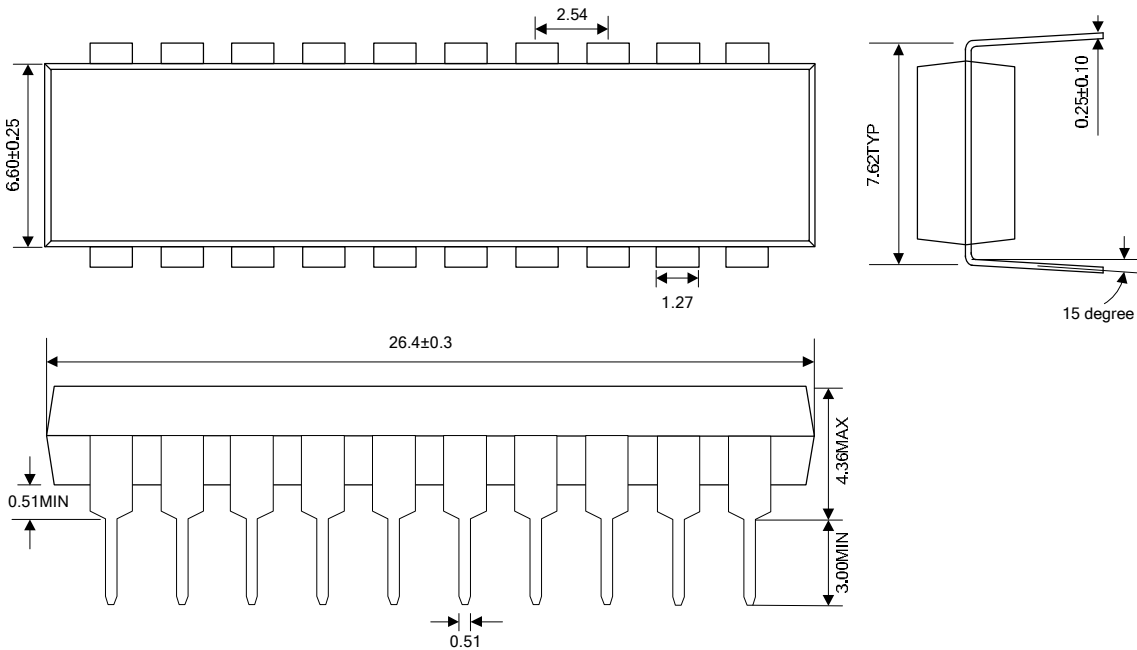
APPLICATION CIRCUIT



PACKAGE OUTLINE

DIP-20-300-2.54

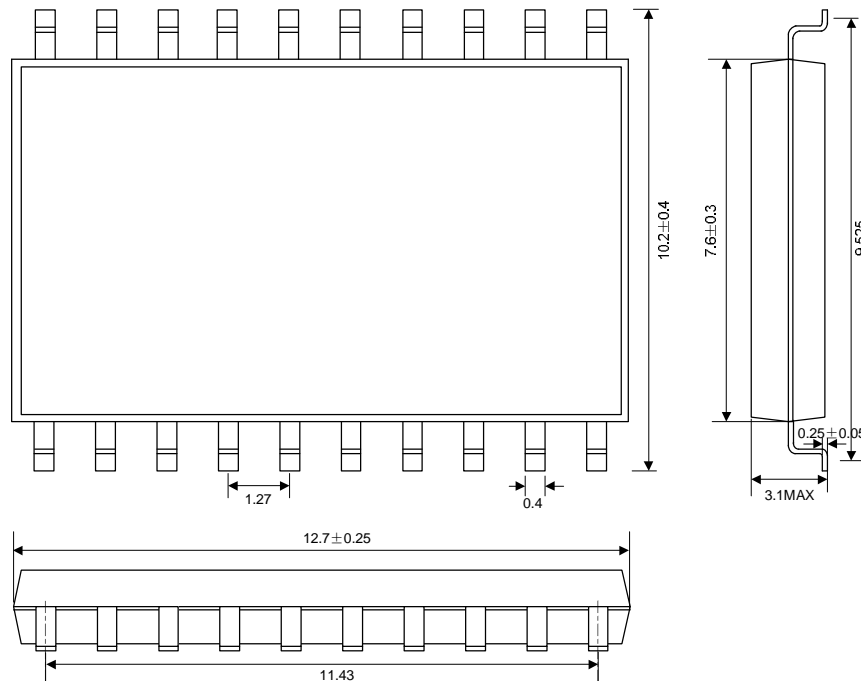
UNIT: mm



PACKAGE OUTLINE

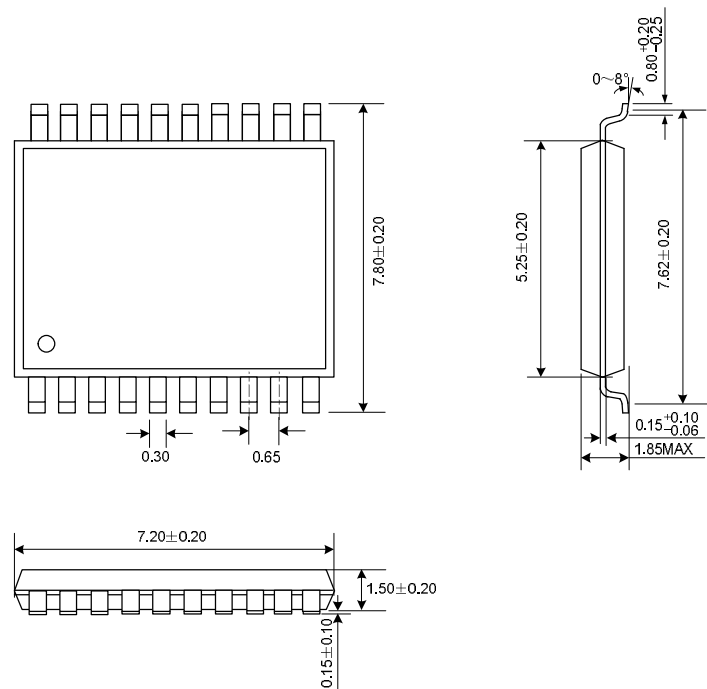
SOP-20-375-1.27

UNIT: mm



SSOP-20-300-0.65

UNIT: mm





ATTACH

Revision History

Data	REV	Description	Page
2001.01.15	1.0	Original	
2005.12.29	1.1	Add the package of "SSOP-20-300-0.65"	