AN6167S, AN6167SB

Cordless Telephone Speech Network IC

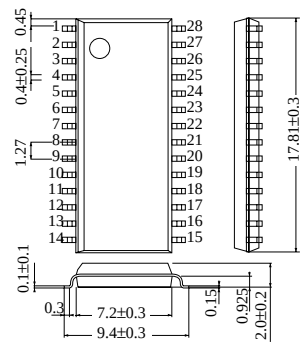
■ Overview

The AN6167S and AN6167SB are speech network ICs for the handset of a cordless telephone. They incorporate compander, MIC, and receiver amplifiers. With a minimal number of external components, they can perform all the functions of the handset of a cordless telephone featuring low radio-transmission noise.

■ Features

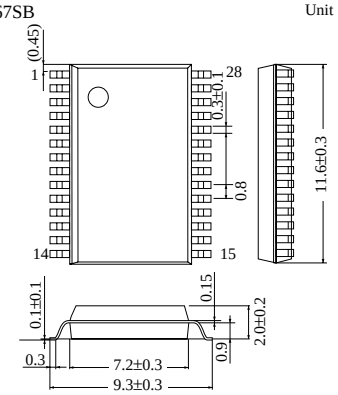
- The compressor/expander circuit incorporates preamplifiers to make level and frequency adjustments easier.
- The standby circuit provides for a low-power consumption cordless telephone.
- The expander has a 6-dB amplifier to allow received-signal amplificaition.
- SOP package with 1.27mm pitch pins, and USO package with 0.8mm pitch pins.

AN6167S Unit : mm



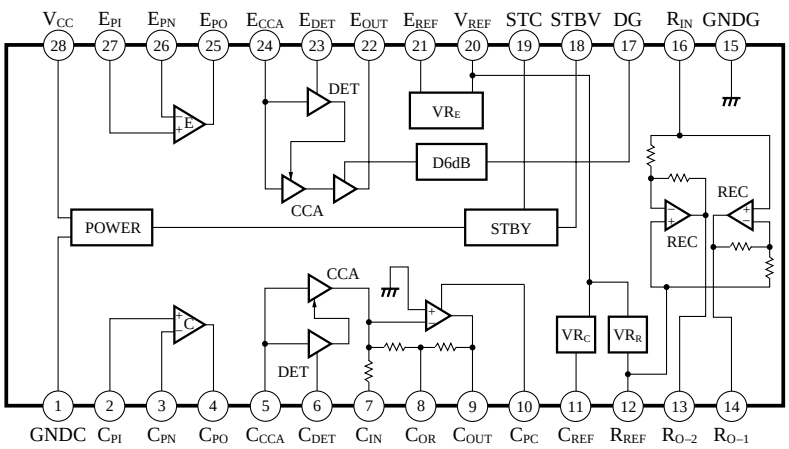
SOP package with 28 pins (SOP028-P-0375A)

AN6167SB Unit : mm



SSOP package with 28 pins (SSOP028-P-0375)

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25˚C)

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	7.5	V
Input supply voltage	V_{in}	– 0.3 to V_{CC} + 0.3	V
Output supply voltage	V_{out}	– 0.3 to V_{CC} + 0.3	V
Power dissipation (Ta = 75˚C)	P_D	280	mW
Operating ambient temperature	T_{opr}	–20 to + 75	˚C
Storage temperature	T_{stg}	–55 to +150	˚C

■ Recommended Operating Range (Ta=25˚C)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	2 to 5V

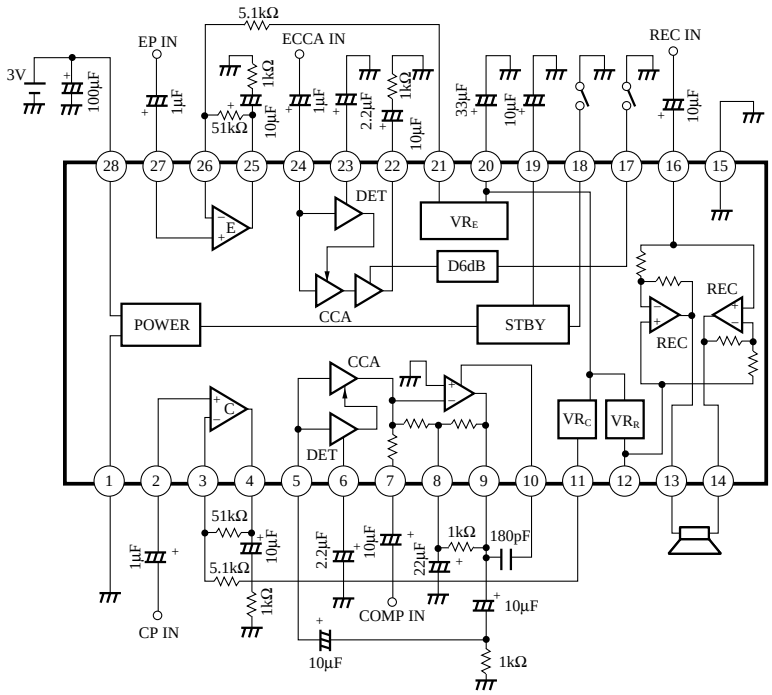
■ Electrical Characteristics (Ta=25˚C)

Parameter	Symbol	Condition	min	typ	max	Unit
Compressor						
Preamplifier voltage gain	G_{PC}	RA/RB=51kΩ/5.1kΩ, V_{in}=–40dBV	20	21	22	dB
Preamplifier output voltage	V_{PC}	RA/RB=51kΩ/5.1kΩ, THD=5%, R_L=1kΩ	–10	–7	—	dBV
Reference output	V_{ORC}	V_{IRC}=–20dBV (Ref. output)	–13	–11	–9	dBV
Δ Gain (1)	ΔC_1	$V_{in}=V_{IRC}$–20dB, $\Delta C_1=V_{ORC}-V_{OC1}$	–11	–10	–9	dB
Δ Gain (2)	ΔC_2	$V_{in}=V_{IRC}$–40dB, $\Delta C_2=V_{ORC}-V_{OC2}$	–22	–20	–19	dB
Distortion	THD_C	V_{in}=–20dBV	—	0.5	1	%
Maximum output voltage	V_{OCM}	THD=5%, R_L=1kΩ	–10	–7	—	dBV
Output noise voltage	V_{NOC}	Rg=2kΩ with a CCITT filter	—	–64	–56	dBV
Expander						
Preamplifier voltage gain	G_{PE}	RA/RB=51kΩ/5.1kΩ, V_{in}=–40dBV	20	21	22	dB
Preamplifier output voltage	G_{PE}	RA/RB=51kΩ/5.1kΩ, THD=5%, R_L=1kΩ	–10	–7	—	dBV
Reference output	V_{ORE}	V_{IRE}=–20dBV (Ref. output)	–32	–29	–26	dBV
Δ Gain (1)	ΔE_1	$V_{in}=V_{IRC}$–10dB, $\Delta E_1=V_{ORE}-V_{OE1}$	–21	–20	–19	dB
Δ Gain (2)	ΔE_2	$V_{in}=V_{IRC}$–20dB, $\Delta E_2=V_{ORE}-V_{OE2}$	–41.5	–40	–38.5	dB
Distortion	THD_E	V_{in}=–20dBV	—	0.5	1	%
Maximum output voltage	V_{OFM}	THD=5%, R_L=1kΩ	–10	–7	—	dBV
Output noise voltage	V_{NOE}	Rg=2kΩ with a CCITT filter	—	–95	–90	dBV
Receiver amp. gain	ΔG_E	Pin17 ON [GND]	4	6	8	dB
Receiver amplifier						
Receiver voltage characteristics	G_{VR}	V_{in}=–30dB, R_L=1kΩ	18	20	22	dB
Maximum output voltage	V_{OEM}	THD=5%, R_L=1kΩ	2	5	—	dBV
Power supply						
Current consumption	I_{CC}	V_{CC}=3V, no signal	3	5	8	mA
Receiver voltage characteristics	I_{SC}	Standby pin (H)	—	1	10	μA

■ Pin Descriptions

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	GNDC	Compander GND	15	GNDR	REC GND
2	C_{PI}	COMP preamp. input (+)	16	R_{IN}	REC external signal input
3	C_{PN}	COMP preamp. input (–)	17	DG	REC 6-dB amplification
4	C_{PO}	COMP preamp. output	18	STBY	Standby
5	C_{CCA}	COMP-CCA input	19	STC	Standby adjustment
6	C_{DET}	COMP detection	20	V_{REF}	Compander V_{REF}
7	C_{IN}	COMP signal input	21	E_{REF}	EXP-V_{REF}
8	C_{OR}	COMP output V_{REF}	22	E_{OUT}	EXP output
9	C_{OUT}	COMP output	23	E_{DET}	EXP detection
10	C_{PC}	COMP phase adjustment	24	E_{CCA}	EXP-CCA input
11	C_{REF}	COMP-V_{REF}	25	E_{PO}	EXP preamp. output
12	R_{REF}	REC-V_{REF}	26	E_{PN}	EXP preamp. input (–)
13	R_{O-2}	REC output (2)	27	E_{PI}	EXP preamp. input (+)
14	R_{O-1}	REC output (1)	28	V_{CC}	Supply voltage

■ Application Circuit



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