

AN6167S, AN6167SB

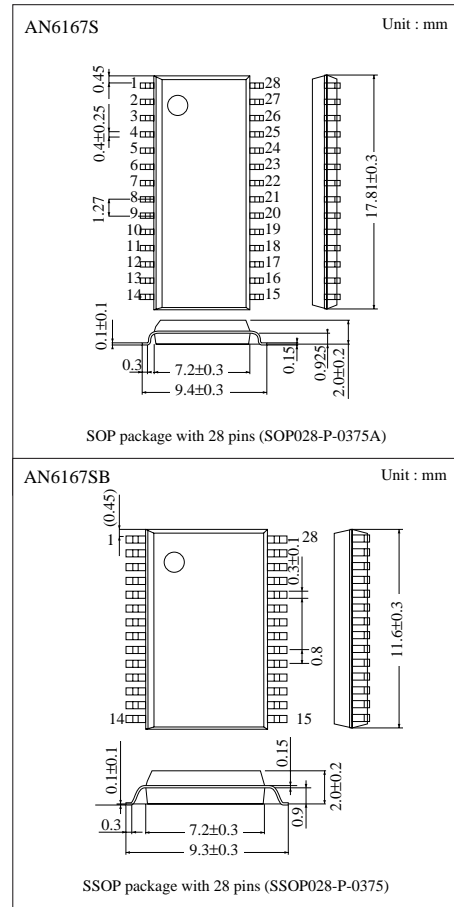
Cordless Telephone Speech Network IC

■ Overview

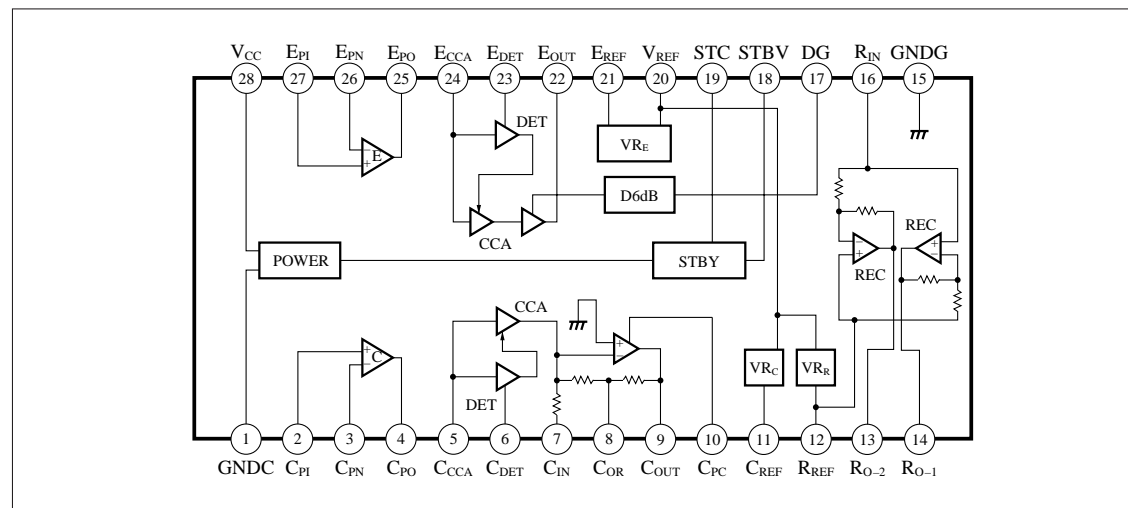
The AN6167S and AN6167SB are speech network ICs for the handset of a cordless telephone. They incorporate compressor, MIC, and receiver amplifiers. With a minimal number of external components, they can perform all the functions of the handset of a cordless telephone featuring low radio-transmission 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 amplification.
- SOP package with 1.27mm pitch pins, and USO package with 0.8mm pitch pins.



■ 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, ΔC ₁ =V _{ORC} -V _{OC1}	-11	-10	-9	dB
Δ Gain (2)	ΔC ₂	V _{in} =V _{IRC} -40dB, ΔC 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}	R _g =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, ΔE ₁ =V _{ORE} -V _{OE1}	-21	-20	-19	dB
Δ Gain (2)	ΔE ₂	V _{in} =V _{IRC} -20dB, ΔE 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}	R _g =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	GND _C	Compander GND	15	GND _R	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

