AN6152

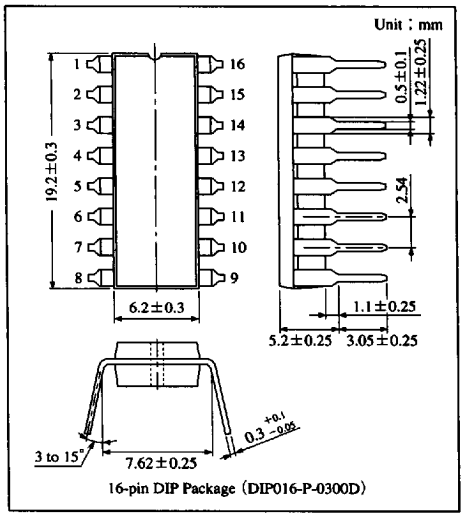
Speech Network Circuit

■ Overview

The AN6152 is an integrated circuit designed for telephone speech network. It has the basic function which is necessary to apply a sound signal onto the line and excellent in branch performance.

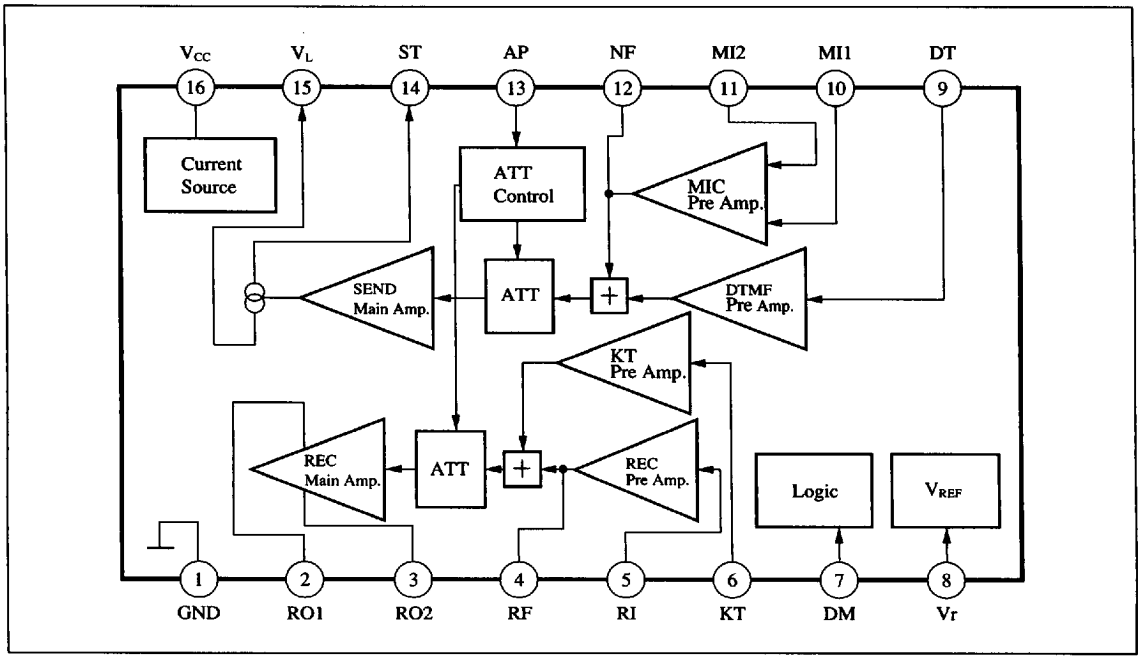
■ Features

- Wide operating voltage range : 3 to 11.5V
- Built-in amplifiers for "Dial Tone" and "DTMF"
- Amplifier
- Each amplifier gain automaticaly changeable depending on line current.
- Various types of microphone and receiver are available.



16-pin DIP Package (DIP016-P-0300D)

■ Block Diagram



ICs for Telephone

■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	GND	9	DTMF input
2	REC output	10	MIC input
3	REC output	11	MIC input
4	REC filter	12	SEND NF
5	REC input	13	ATT control
6	KEY IN TONE input	14	SIDE tone
7	DIAL mute SW	15	LINE
8	V reference	16	Internal suppuly voltage

■ Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Line voltage	V_L	14.4	V
Line current	I_L	120	mA
Power dissipation (Ta=60℃)	P_D	1380	mW
Operating ambient temperatuer	T_{opr}	−30 to +75	℃
Storage temperature	T_{stg}	−55 to +150	℃

■ Electrical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Receiver System						
Receiver gain (1)	G_{V-R1}	I_L=30mA, V_i=−50dBV	34.5	37.5	39.5	dB
Receiver gain (2)	G_{V-R2}	I_L=80mA, V_i=−50dBV	31.5	34.0	36.5	dB
Max. receiver	V_{O-R}	I_L=30mA, THD=5%	0	5	—	dBV
KEY IN TONE gain (1)	G_{V-KT1}	I_L=30mA, V_i=−50dBV	28.5	31.0	33.5	dB
KEY IN TONE gain (2) *1	G_{V-KT2}	I_L=80mA, V_i=−50dBV	25.5	28.0	30.5	dB
Transmission System						
Transmission gain (1)	G_{V-T1}	I_L=30mA, V_i=−50dBV	33	35.5	38	dB
Transmission gain (2)	G_{V-T2}	I_L=80mA, V_i=−50dBV	29.5	32.0	34.5	dB
Max. transmission level	V_{O-T}	I_L=30mA, THD=5%	0	5	—	dBV
DTMF gain (1)	G_{V-DT1}	I_L=30mA, V_i=−50dBV	28.5	30.5	32.5	dB
DTMF gain (2)	G_{V-DT2}	I_L=80mA, V_i=−50dBV	25.0	27.0	29.0	dB
DTMF transmission level	V_{O-DT}	I_L=30mA, THD=5%	0	5	—	dBV
Power Supply						
DC line voltage (1)	V_{L-1}	I_L=20mA	2.6	3.1	3.6	V
DC line voltage (2)	V_{L-2}	I_L=120mA	7.5	9.0	10.5	V
Internal supply voltage (1)	V_{CC-1}	I_L=20mA	1.8	2.1	2.4	V
Internal supply (2)	V_{CC-2}	I_L=120mA	5.8	6.5	7.2	V
AC impedance (1) *1	Z_{AC-1}	I_L=30mA, f_{in}=1kHz	450	610	750	Ω
AC impedance (2) *1	Z_{AC-2}	I_L=90mA, f_{in}=1kHz	450	610	750	Ω

Note) Operating supply voltage range : $V_{CC(opr)}$=3 to 11.5V

*1 These values are of reference values but not guaranteed values.

■ Electrical Characteristics (cont.) (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Dial Mute Input						
Dial mute OFF	V_{DM-H}		0.8	—	V_{CC}	V
Dial mute ON	V_{DM-L}		—	—	0.3	V
Input current (1)	I_{DM-H}	$V_{DM}=V_{CC}$	−2.0	0.1	2.0	μA
Input current (2)	I_{DM-L}	$V_{DM}=0V$	−2.0	−0.2	−0.02	μA
REC mute *1, 2	M_{-R}	$I_L=30mA$, $V_i=-35dBV$, Dial Mute SW−ON	50	—	—	dB
KT mute *1, 2	M_{-KT}	$I_L=30mA$, $V_i=-30dBV$, Dial Mute SW−OFF	50	—	—	dB
MIC mute *1, 2	M_{-DT}	$I_L=30mA$, $V_i=-35dBV$, Dial Mute SW−ON	60	—	—	dB
DTMF mute *1, 2	M_{-DT}	$I_L=30mA$, $V_i=-30dBV$, Dial Mute SW−OFF	50	—	—	dB

Note) Operating supply voltage range : $V_{CC(opr)}=3$ to 11.5V

*1 These values are of reference values but not guaranteed values.

*2 Measure the output signal ratio when each amp. system operates or does not operate.