

# AN6152

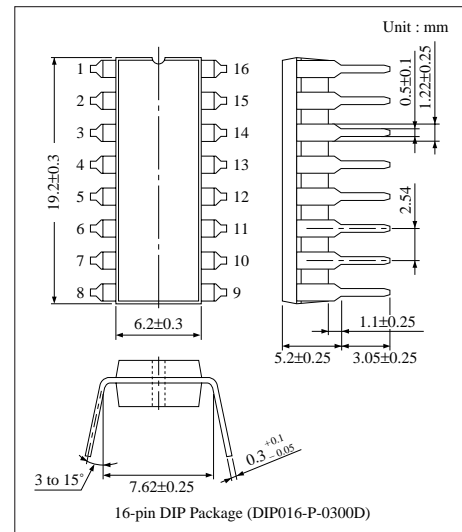
## Speech Network Circuit

### ■ Overview

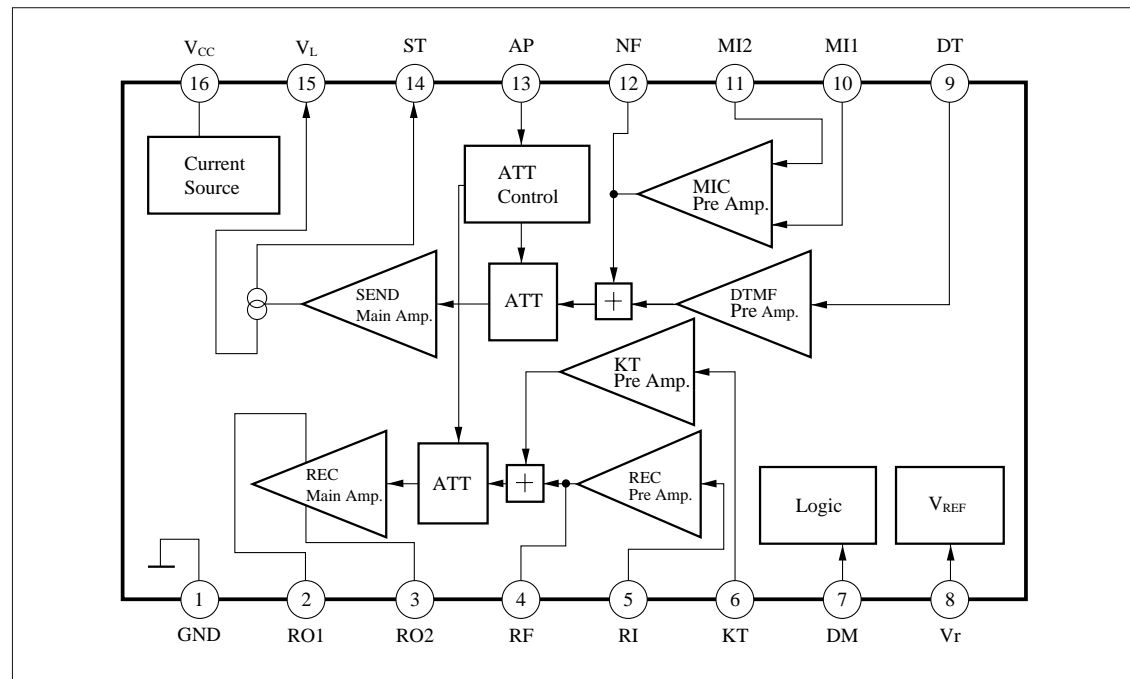
The AN6152 is an integrated circuit designed for telephone speech network. It has the basic function which is necessary to apply a sound signal onto the line and excellent in branch performance.

### ■ Features

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



### ■ Block Diagram



## ■ 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 supply voltage

## ■ Absolute Maximum Ratings (Ta=25°C)

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

## ■ Electrical Characteristics (Ta=25°C)

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	$Z_{AC-1}$	$I_L=30mA, f_m=1kHz$	450	610	750	$\Omega$
AC impedance (2)*1	$Z_{AC-2}$	$I_L=90mA, f_m=1kHz$	450	610	750	$\Omega$

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°C)

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	$\mu A$
Input current (2)	$I_{DM-L}$	$V_{DM}=0V$	-2.0	-0.2	-0.02	$\mu A$
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 :  $V_{CC(oper)} = 3$  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.