

# AN6152

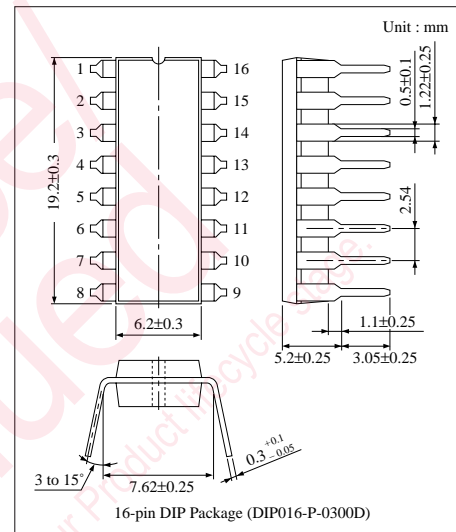
## Speech Network Circuit

### ■ Overview

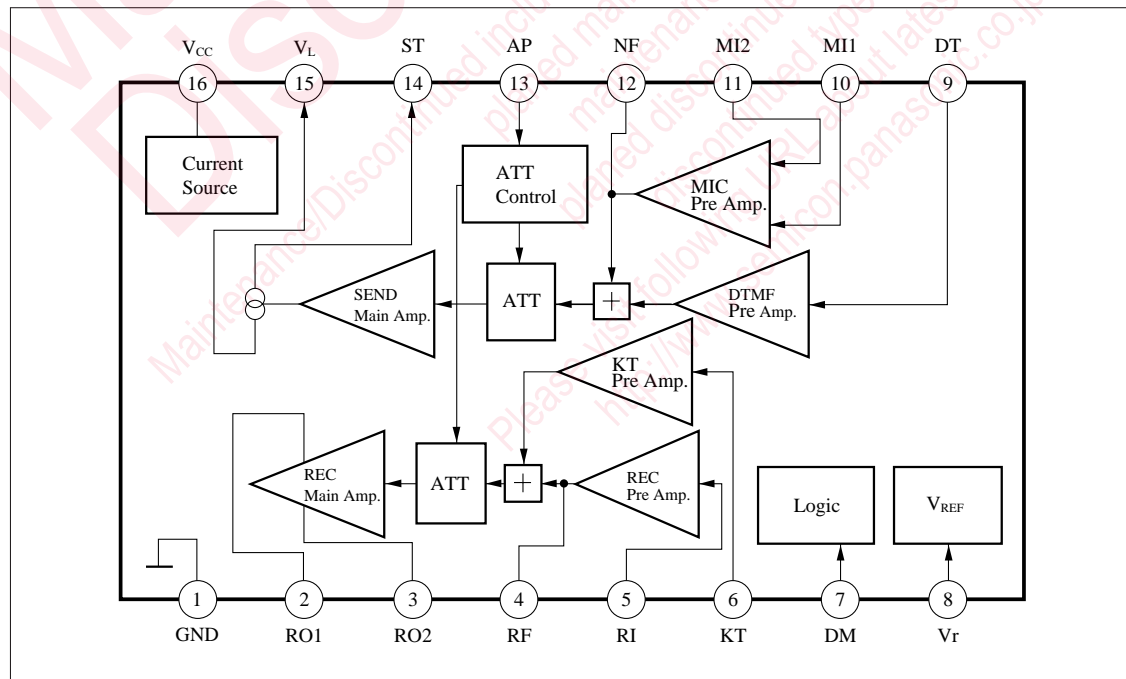
The AN6152 is an integrated circuit designed for telephone speech network. It has the basic function which is necessary to apply a sound signal onto the line and excellent in branch performance.

### ■ 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
<b>Receiver System</b>						
Receiver gain (1)	$G_{V-R1}$	$I_L=30\text{mA}$ , $V_i=-50\text{dBV}$	34.5	37.5	39.5	dB
Receiver gain (2)	$G_{V-R2}$	$I_L=80\text{mA}$ , $V_i=-50\text{dBV}$	31.5	34.0	36.5	dB
Max. receiver	$V_{O-R}$	$I_L=30\text{mA}$ , THD=5%	0	5	—	dBV
KEY IN TONE gain (1)	$G_{V-KT1}$	$I_L=30\text{mA}$ , $V_i=-50\text{dBV}$	28.5	31.0	33.5	dB
KEY IN TONE gain (2)*1	$G_{V-KT2}$	$I_L=80\text{mA}$ , $V_i=-50\text{dBV}$	25.5	28.0	30.5	dB
<b>Transmission System</b>						
Transmission gain (1)	$G_{V-T1}$	$I_L=30\text{mA}$ , $V_i=-50\text{dBV}$	33	35.5	38	dB
Transmission gain (2)	$G_{V-T2}$	$I_L=80\text{mA}$ , $V_i=-50\text{dBV}$	29.5	32.0	34.5	dB
Max. transmission level	$V_{O-T}$	$I_L=30\text{mA}$ , THD=5%	0	5	—	dBV
DTMF gain (1)	$G_{V-DT1}$	$I_L=30\text{mA}$ , $V_i=-50\text{dBV}$	28.5	30.5	32.5	dB
DTMF gain (2)	$G_{V-DT2}$	$I_L=80\text{mA}$ , $V_i=-50\text{dBV}$	25.0	27.0	29.0	dB
DTMF transmission level	$V_{O-DT}$	$I_L=30\text{mA}$ , THD=5%	0	5	—	dBV
<b>Power Supply</b>						
DC line voltage (1)	$V_{L-1}$	$I_L=20\text{mA}$	2.6	3.1	3.6	V
DC line voltage (2)	$V_{L-2}$	$I_L=120\text{mA}$	7.5	9.0	10.5	V
Internal supply voltage (1)	$V_{CC-1}$	$I_L=20\text{mA}$	1.8	2.1	2.4	V
Internal supply (2)	$V_{CC-2}$	$I_L=120\text{mA}$	5.8	6.5	7.2	V
AC impedance (1)*1	$Z_{AC-1}$	$I_L=30\text{mA}$ , $f_m=1\text{kHz}$	450	610	750	$\Omega$
AC impedance (2)*1	$Z_{AC-2}$	$I_L=90\text{mA}$ , $f_m=1\text{kHz}$	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 <sub>DM-H</sub>		0.8	—	V <sub>CC</sub>	V
Dial mute ON	V <sub>DM-L</sub>		—	—	0.3	V
Input current (1)	I <sub>DM-H</sub>	V <sub>DM</sub> =V <sub>CC</sub>	-2.0	0.1	2.0	μA
Input current (2)	I <sub>DM-L</sub>	V <sub>DM</sub> =0V	-2.0	-0.2	-0.02	μA
REC mute *1,2	M <sub>R</sub>	I <sub>L</sub> =30mA, V <sub>i</sub> =-35dBV, Dial Mute SW- ON	50	—	—	dB
KT mute *1,2	M <sub>KT</sub>	I <sub>L</sub> =30mA, V <sub>i</sub> =-30dBV, Dial Mute SW- OFF	50	—	—	dB
MIC mute *1,2	M <sub>DT</sub>	I <sub>L</sub> =30mA, V <sub>i</sub> =-35dBV, Dial Mute SW- ON	60	—	—	dB
DTMF mute *1,2	M <sub>DT</sub>	I <sub>L</sub> =30mA, V <sub>i</sub> =-30dBV, Dial Mute SW- OFF	50	—	—	dB

Note) Operating supply voltage range : V<sub>CC (opr)</sub> = 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.

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