Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Speech network

BA6566 / BA6566F / BA6566FP

The BA6566, BA6566F, and BA6566FP are speech network ICs which possess the basic functions required for handset communications. In addition to amplifying signals from a transmitter and sending them to a telephone line, they amplify only reception signals from a telephone line and drive the receiver. They also compensate for fluctuation in the volume at which signals are transmitted and received, caused by the length of the telephone line (AGC).

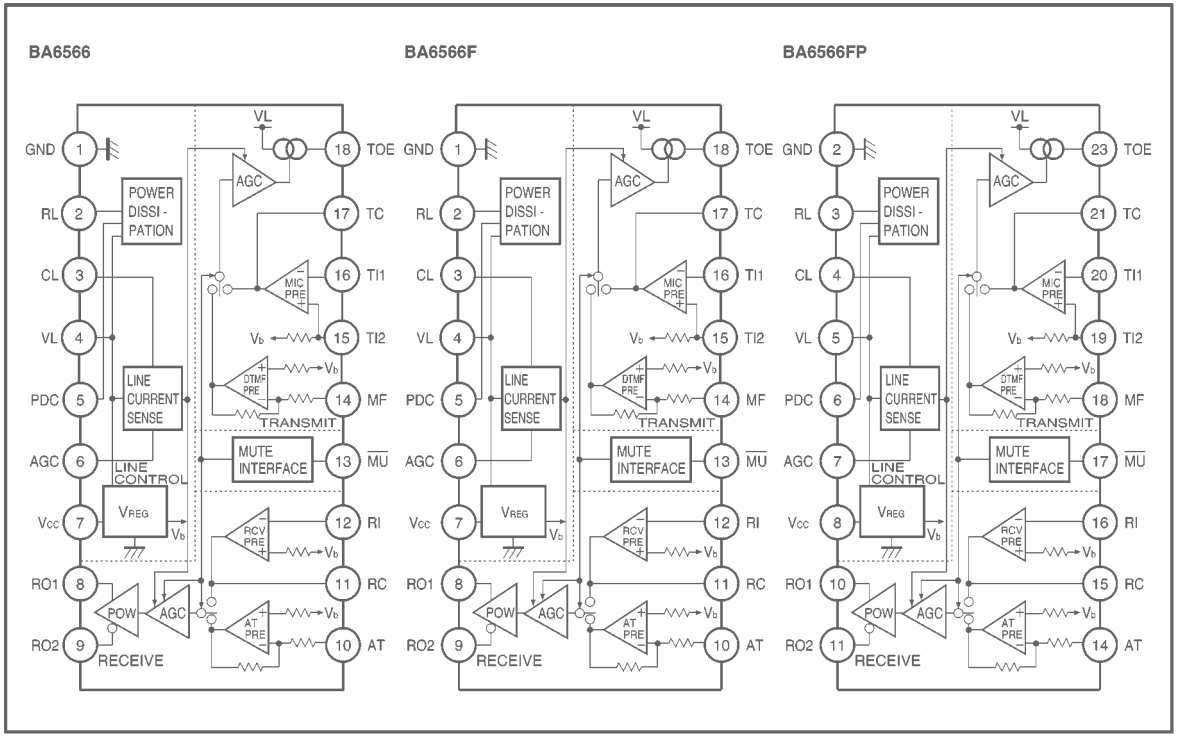
●Applications

Telephones and telephone equipment

●Features

1) Can accommodate both dynamic and piezoelectric receivers, simply by changing the circuit constant for a wide dynamic reception range.
2) Automatic gain control (AGC) is used, based on the transmission and reception telephone line current, for easier compliance with communications standards.
3) Erroneous operation caused by high-frequency electrical wave interference is minimized.
4) An HSOP package is used, eliminating the need for an attached transistor to dissipate heat. This means that a common circuit can be shared when a DIP package is used (BA6566FP).

●Block diagram



●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Applied voltage		V_L	16.5	V
Power dissipation	BA6566	Pd	1100 *1	mW
	BA6566F		600 *2	
	BA6566FP		1350 *3	
Operating temperature		Topr	−35～+60	℃
Storage temperature		Tstg	−55～+125	℃
Current dissipation		I_L	125 *4	mA

*1 Reduced by 11 mW for each increase in Ta of 1°C over 25°C.

*2 Reduced by 6 mW for each increase in Ta of 1°C over 25°C.

*3 Reduced by 13.5 mW for each increase in Ta of 1°C over 25°C.
When mounted on 90 mm × 50 mm × 1.6 mm glass epoxy board, fins should be soldered to foil pattern.

*4 With the BA6566, Reduced by 1 mA for each increase in Ta of 1°C over 50°C.
With the BA6566F, Reduced by 1.4 mA for each increase in Ta of 1°C over 50°C.
With the BA6566FP, Reduced by 1 mA for each increase in Ta of 1°C over 50°C.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions				Measurement circuit
						I_L (mA)	AGC	Mute	f=1kHz	
Line voltage (5)	$V_L(5)$	—	2.0	—	V	5	—	—	—	Fig.2
Line voltage (20)	V_L (20)	2.5	3.5	5.0	V	20	—	—	—	Fig.2
Line voltage (30)	V_L (30)	3.0	4.0	5.4	V	30	—	—	—	Fig.2
Line voltage (90)	V_L (90)	5.2	7.0	9.5	V	90	—	—	—	Fig.2
Mute input low level voltage	V_{IL}	0.1	0.18	0.25	V	20~90	—	—	—	Fig.2
Mute input low level current	I_{IL}	25	35	45	μA	20~90	—	—	—	Fig.2
Transmit gain 1 (20 - 90)	G_{T1} (20 - 90)	37	41	44	dB	20~90	OFF	OFF	V_{IN}=−50dBV	Fig.3
Transmit gain 1 (30 - 90)	G_{T1} (30 - 90)	38	41	44	dB	30~90	OFF	OFF	V_{IN}=−50dBV	Fig.3
Transmit gain 2 (20)	G_{T2} (20)	38	41	45	dB	20	ON	OFF	V_{IN}=−50dBV	Fig.3
Transmit gain 2 (30)	G_{T2} (30)	38	41	44	dB	30	ON	OFF	V_{IN}=−50dBV	Fig.3
Transmit gain 2 (90)	G_{T2} (90)	34.5	37.5	40.5	dB	90	ON	OFF	V_{IN}=−50dBV	Fig.3
Transmit distortion attenuation	D_T	—	−46	−20	dB	20~90	—	OFF	V_{IN}=−50dBV	Fig.3
Transmit noise level	N_T	—	−68	−55	dBV	20~90	—	OFF	BPF=400Hz ~30kHz	Fig.3
Maximum transmit output level (20 - 90)	O_T (20 - 90)	−2	3	—	dBV	20~90	—	OFF	Dist=−20dB	Fig.3
Maximum transmit output level (30 - 90)	O_T (30 - 90)	0	3	—	dBV	30~90	—	OFF	Dist=−20dB	Fig.3
Receive gain 1 (20 - 90)	G_{R1} (20 - 90)	−13	−10	−7	dB	20~90	OFF	OFF	S_1=1 V_{IN}=−20dBV	Fig.4
Receive gain 1 (20)	G_{R1} (20)	−13	−10	−7	dB	20	ON	OFF	S_1=1 V_{IN}=−20dBV	Fig.4
Receive gain 1 (30)	G_{R1} (30)	−13	−10	−7	dB	30	ON	OFF	S_1=1 V_{IN}=−20dBV	Fig.4
Receive gain 1 (90)	G_{R1} (90)	−16.5	−13.5	−10.5	dB	90	ON	OFF	S_1=1 V_{IN}=−20dBV	Fig.4
Receive distortion attenuation 1	D_{R1}	—	−46	−20	dB	20~90	—	OFF	S_1=1 V_{IN}=−20dBV	Fig.4
Receive noise level 1	N_{R1}	—	−70	−60	dBV	20~90	—	OFF	BPF=400Hz ~30kHz	Fig.4
Maximum receive output level 1 (20 - 90)	O_{R1} (20 - 90)	−15	−7	—	dBV	20~90	—	OFF	Dist=−20dB	Fig.4
Maximum receive output level 1 (30 - 90)	O_{R1} (30 - 90)	−11	−7	—	dBV	30~90	—	OFF	Dist=−20dB	Fig.4
Receive gain 2 (20 - 90)	G_{R2} (20 - 90)	5	8	11	dB	20~90	OFF	OFF	S_1=2 V_{IN}=−20dBV	Fig.4
Receive gain 2 (20)	G_{R2} (20)	5	8	11	dB	20	ON	OFF	S_1=2 V_{IN}=−20dBV	Fig.4

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions				Measurement circuit
						I_L (mA)	AGC	Mute	f=1kHz	
Receive gain 2 (30)	G_{R2} (30)	5	8	11	dB	30	ON	OFF	S_1=2 V_{IN}=−20dBV	Fig.4
Receive gain 2 (90)	G_{R2} (90)	1.5	4.5	7.5	dB	90	ON	OFF	S_1=2 V_{IN}=−20dBV	Fig.4
Receive distortion attenuation 2	D_{R2}	−	−46	−20	dB	20∼90	−	OFF	S_1=2 V_{IN}=−20dBV	Fig.4
Receive noise level (20 - 90)	N_{R2} (20 - 90)	−	−66	−50	dBV	20∼90	−	OFF	BPF=400Hz ∼30kHz	Fig.4
Receive noise level 2 (30 - 90)	N_{R2} (30 - 90)	−	−66	−55	dBV	30∼90	−	OFF	BPF=400Hz ∼30kHz	Fig.4
Maximum receive output level 2 (20 - 90)	O_{R2} (20 - 90)	1	7	−	dBV	20∼90	−	OFF	Dist=−20dB	Fig.4
Maximum receive output level 2 (30 - 90)	O_{R2} (30 - 90)	3	7	−	dBV	30∼90	−	OFF	Dist=−20dB	Fig.4
DTMF gain 1 (20 - 90)	G_{D1} (20 - 90)	30.5	33.5	36.5	dB	20∼90	OFF	ON	V_{IN}=−40dBV	Fig.5
DTMF gain 2 (20)	G_{D1} (20)	30	33	36	dB	20	ON	ON	V_{IN}=−40dBV	Fig.5
DTMF gain 2 (30)	G_{D2} (30)	30	33	36	dB	30	ON	ON	V_{IN}=−40dBV	Fig.5
DTMF gain 2 (90)	G_{D2} (90)	27	30	33	dB	90	ON	ON	V_{IN}=−40dBV	Fig.5
DTMF distortion attenuation	D_D	−	−41	−28	dB	20∼90	−	ON	V_{IN}=−40dBV	Fig.5
DTMF noise level (20 - 90)	N_D	−	−64	−55	dBV	20∼90	−	ON	BPF=400Hz ∼30kHz	Fig.5
Maximum DTMF output level (20 - 90)	O_D (20 - 90)	−4.5	−0.5	−	dBV	20∼90	−	ON	Dist=−28dB	Fig.5
Maximum DTMF output level (30 - 90)	O_D (30 - 90)	−3.5	−0.5	−	dBV	30∼90	−	ON	Dist=−28dB	Fig.5
AT gain 1	G_{A1}	23.5	26.5	29.5	dB	20∼90	−	ON	S_1=1 V_{IN}=−40dBV	Fig.6
AT gain 2	G_{A2}	26.5	29.5	32.5	dB	20∼90	−	ON	S_1=2 V_{IN}=−40dBV	Fig.6
AC impedance	Z_{TEL}	450	565	750	Ω	20∼90	−	−	V_{IN}=−20dBV	Fig.7
V_{CC} pin voltage	V_{CCR}	1.15	1.27	−	V	20	−	−	S_3=ON	Fig.2

●Measurement circuits

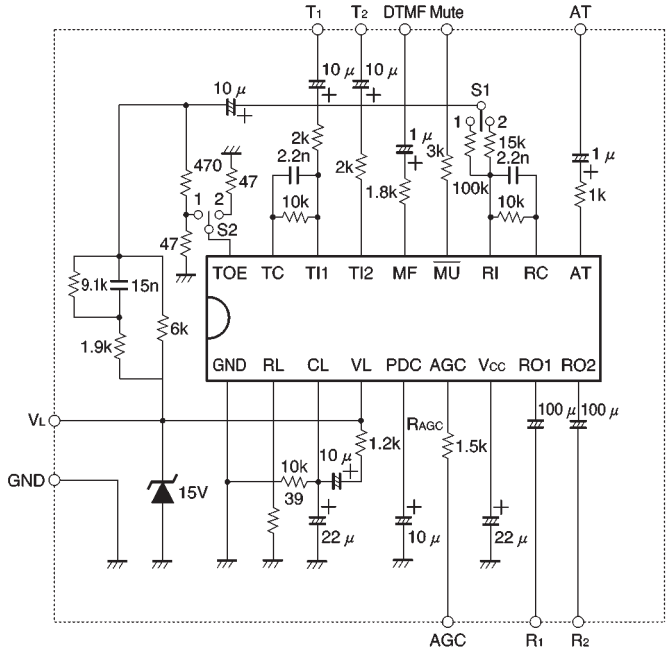


Fig. 1

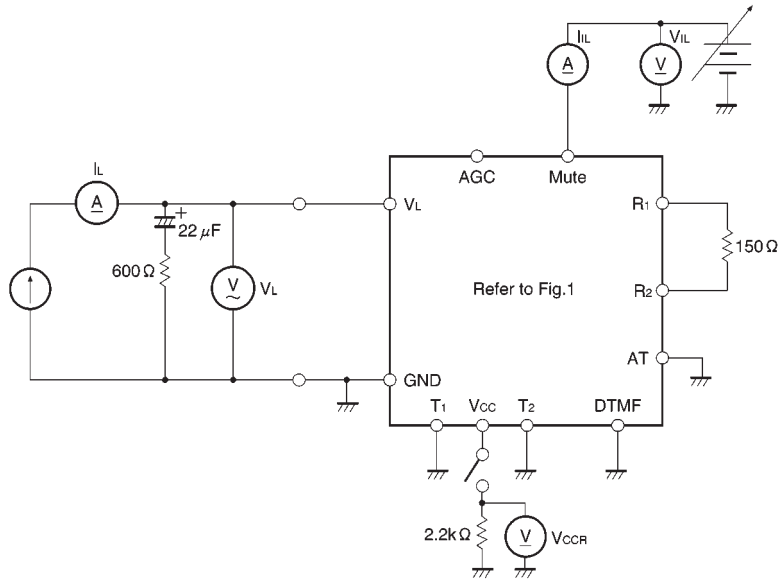


Fig. 2

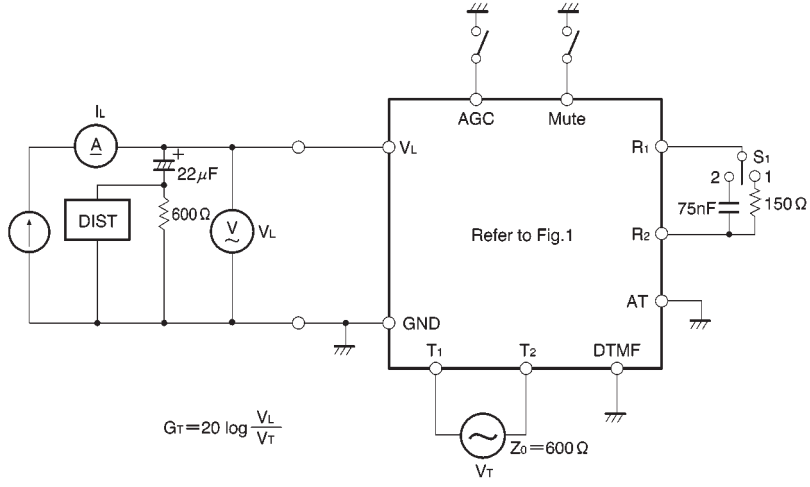

IL
A
22μF
DIST
600Ω
V
VL
AGC
Mute
VL
R1
S1
2
1
75nF
150Ω
Refer to Fig.1
R2
AT
GND
T1
T2
DTMF
GT=20 log VL/VT
Z0=600Ω
VT

Fig. 3

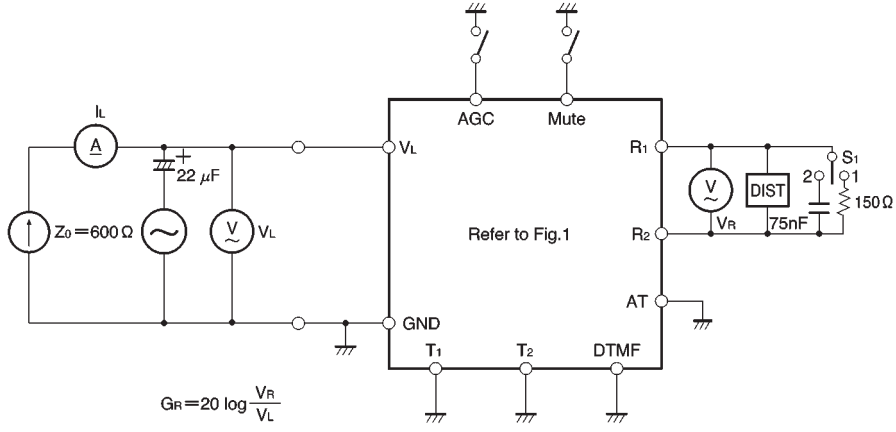

IL
A
22 μF
Z0=600Ω
V
VL
AGC
Mute
VL
R1
V
DIST
S1
2
1
150Ω
VR
75nF
Refer to Fig.1
R2
AT
GND
T1
T2
DTMF
GR=20 log VR/VL

Fig. 4

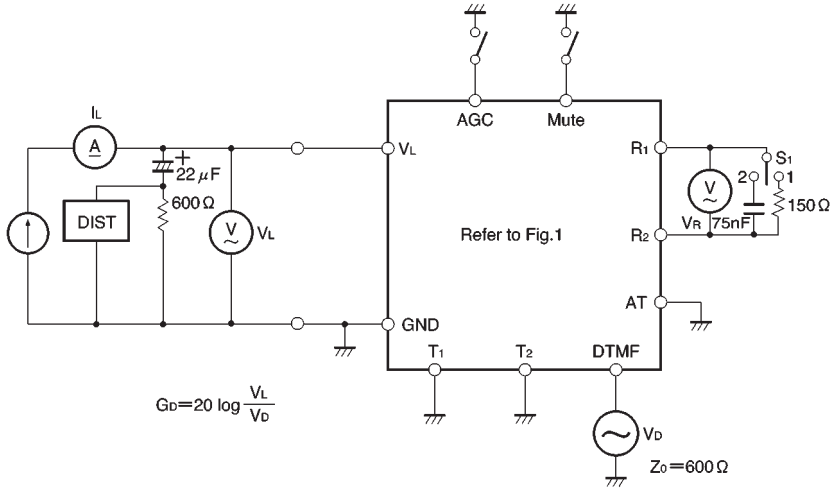

IL
A
22 μF
600 Ω
DIST
V
VL
AGC
Mute
VL
R1
S1
2
1
150 Ω
VR
75nF
Refer to Fig.1
R2
AT
GND
T1
T2
DTMF
GD=20 log VL/VD
VD
Z0=600 Ω

Fig. 5

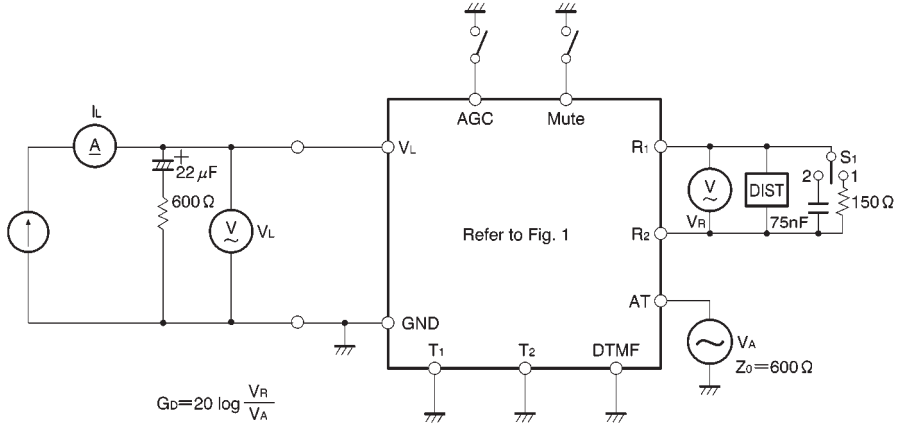

IL
A
22 μF
600 Ω
V
VL
AGC
Mute
VL
R1
S1
2
1
150 Ω
DIST
VR
75nF
Refer to Fig. 1
R2
AT
GND
T1
T2
DTMF
VA
Z0=600 Ω
GD=20 log VR/VA

Fig. 6

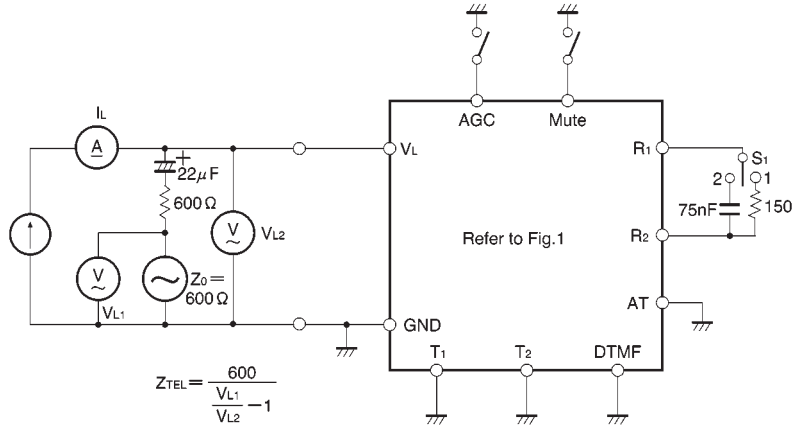
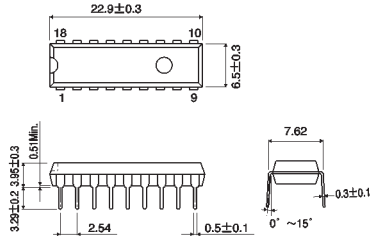

IL
A
22μF
600Ω
V
VL2
VL1
Z0=
600Ω
VL
AGC
Mute
R1
S1
2
1
75nF
150Ω
Refer to Fig.1
R2
AT
GND
T1
T2
DTMF
ZTEL= 600 / (VL1/VL2 −1)

Fig. 7

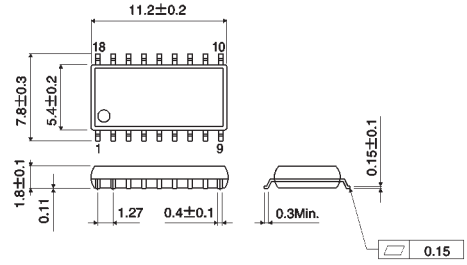
●External dimensions (Units: mm)

BA6566



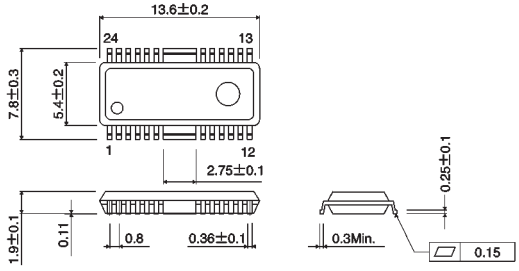
DIP18

BA6566F



SOP18

BA6566FP



HSOP24