SIEMENS

Ringing Detector

PSB 6620

Bipolar IC

Type	Ordering Code	Package
PSB 6620	Q67000-A2498	P-DIP-8

The integrated circuit PSB 6620 is designed to detect a telephone call signal (AC voltage).

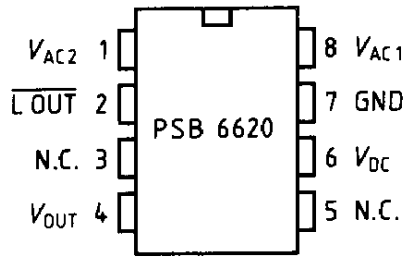
The supply voltage of the IC is devided from the AC input voltage (call signal). During the active state of the device a regulated 5 V DC voltage and a TTL/CMOS-logic level is available at the outputs. The high threshold activation voltage provides a good immunity against noise (e.g. dialing signals, total fee indicator) and a built-in voltage hysteresis guarantees the stable operation.

The regulated 5 V voltage (pin 4) of the PSB 6620 allows to supply other devices. The PSB 6620's use is not limited to telephone applications. The device can e.g. also be used to built up an inexpensive AC voltage detector.

Features

- Integrated bridge rectifier allows direct connection to an AC voltage (e.g. a telephone call signal)
- Low current consumption
- High "tapping" (noise) immunity
- Built-in hysteresis for stable operation
- Only three external components necessary
- Regulated 5 V output voltage
- Logic TTL/CMOS output signal (open collector)
- Overvoltage protection

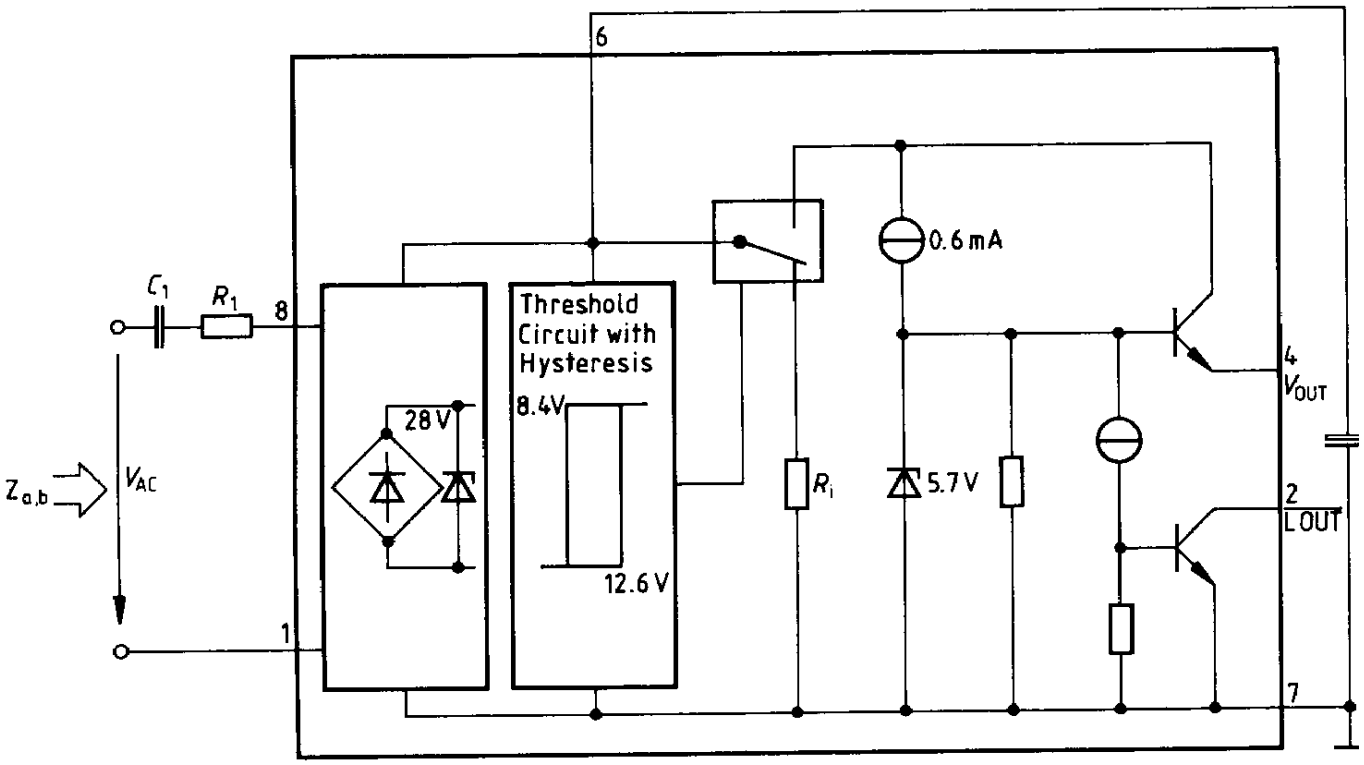
Pin configuration
(top view)



Pin Definitions and Functions

Pin No.	Symbol	Function
1	V_{AC2}	AC voltage input
2	$\overline{L\,OUT}$	Logical TTL output (low active)
3	N.C.	Not connected
4	V_{OUT}	5 V supply voltage output
5	N.C.	Not connected
6	V_{DC}	DC supply voltage input
7	GND	Ground
8	V_{AC1}	AC voltage input

Block Diagram with External Components



Absolute Maximum Ratings

Parameter	Symbol	Limit Values min.	Limit Values max.	Unit	Test Conditions
AC input voltage (pin 1 to pin 8)	$V_{AC\ 1,8}$		28	V	
DC input voltage (pin 6 to pin 7)	$V_{DC\ 6,7}$		26	V	continuous
	$V_{DC\ 6,7}$		28	V	for max 10 ms
Input current (pins 1,8)	$I_{I1\ rms}$ or $I_{I8\ rms}$		30	mA	continuous
			1	A	ON/OFF operation 100 µs/30 s
DC voltage at the logic output	$V_{DC\ 2,7}$		36	V	
Operating temperature	T_A	−20	70	°C	
Storage temperature	T_{stg}	−55	125	°C	
Junction temperature	T_j		150	°C	
Thermal resistance Junction air	$R_{th\ JA}$		140	K/W	

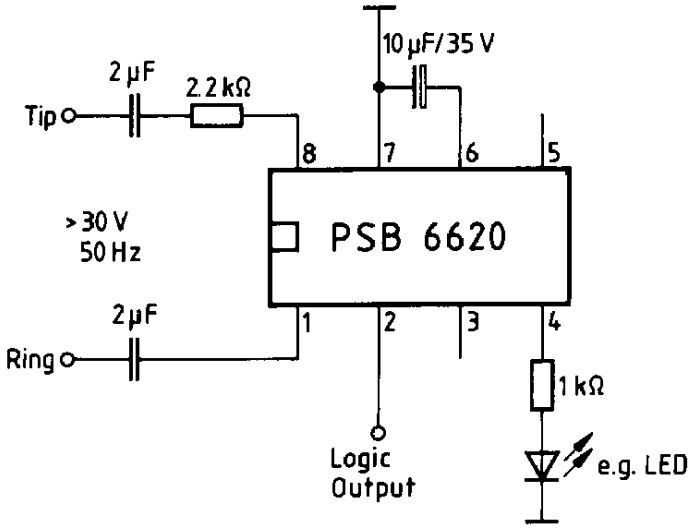
Electrical Characteristics

$T_A = -20\,°C$ to $70\,°C$

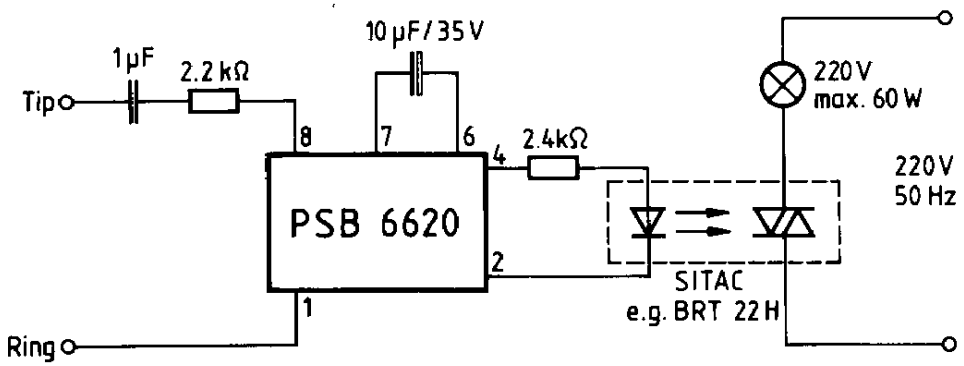
Parameter	Symbol	Limit Values min.	Limit Values typ.	Limit Values max.	Unit	Test Conditions
Operating input current	$I_{I1\ rms}$/ $I_{I8\ rms}$			18	mA	continuous
	$I_{1\ rms}$/ $I_{8\ rms}$			24	mA	ON/OFF operation 5 s/10 s
DC operating input voltage	$V_{DC\ 6,7}$			26	V	
DC operating input current	$I_{DC\ 6}$			22	mA	
DC current consumption without load	$I_{DC\ 6}$	0.4	0.6	0.85	mA	$V_{6,7} = 25$ V
Supply output voltage	$V_{O\ 4,7}$	4.5	5	5.5	V	$I_4 = -4$ mA, $T_A = 25\,°C$
Supply output current	$I_{O\ 4}$	−8	−10		mA	$R_L = 500\ \Omega$
Logic low-level output voltage (pin 2 to pin 7)	$V_{OL\ 2,7}$		0.25	0.7 1	V V	$I_2 = 5$ mA $I_2 = 10$ mA
Leakage current	$I_{leak\ 2}$			1	µA	not activated $V_{2,7} = 35$ V
Turn-on voltage $V_{6,7}$	V_{ON}	12.2	12.6	13.2	V	
Turn-off voltage $V_{6,7}$	V_{OFF}	8	8.4	8.8	V	
DC resistance	R_{DC}	5.5	7.4	9.6	kΩ	
Input impedance	$Z_{I\ 1,8}$	100			kΩ	$f \le 20$ kHz $V_{1,8\ rms} \le 1.3$ V
Temperature coefficient of supply output voltage logic output voltage	TC TC		9 0.3		mV/K mV/K	$I_4 = -5$ mA $I_2 = 10$ mA

Application Examples

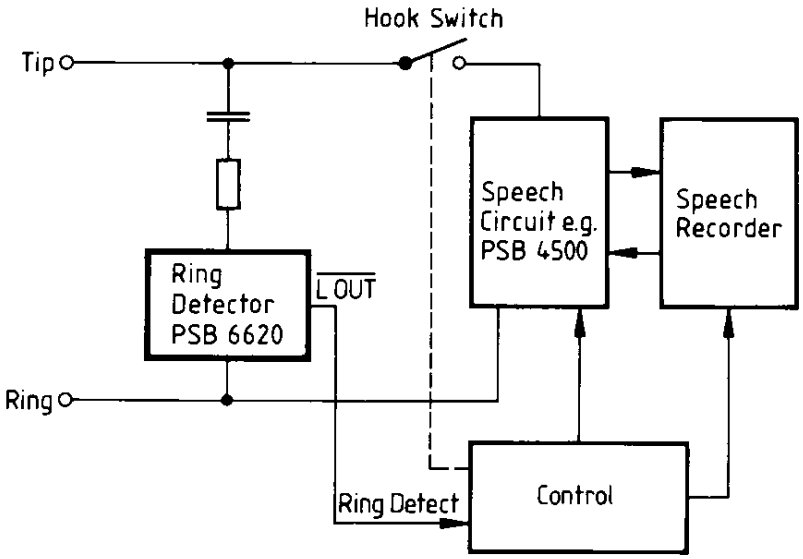
a) Call Signal Indicator



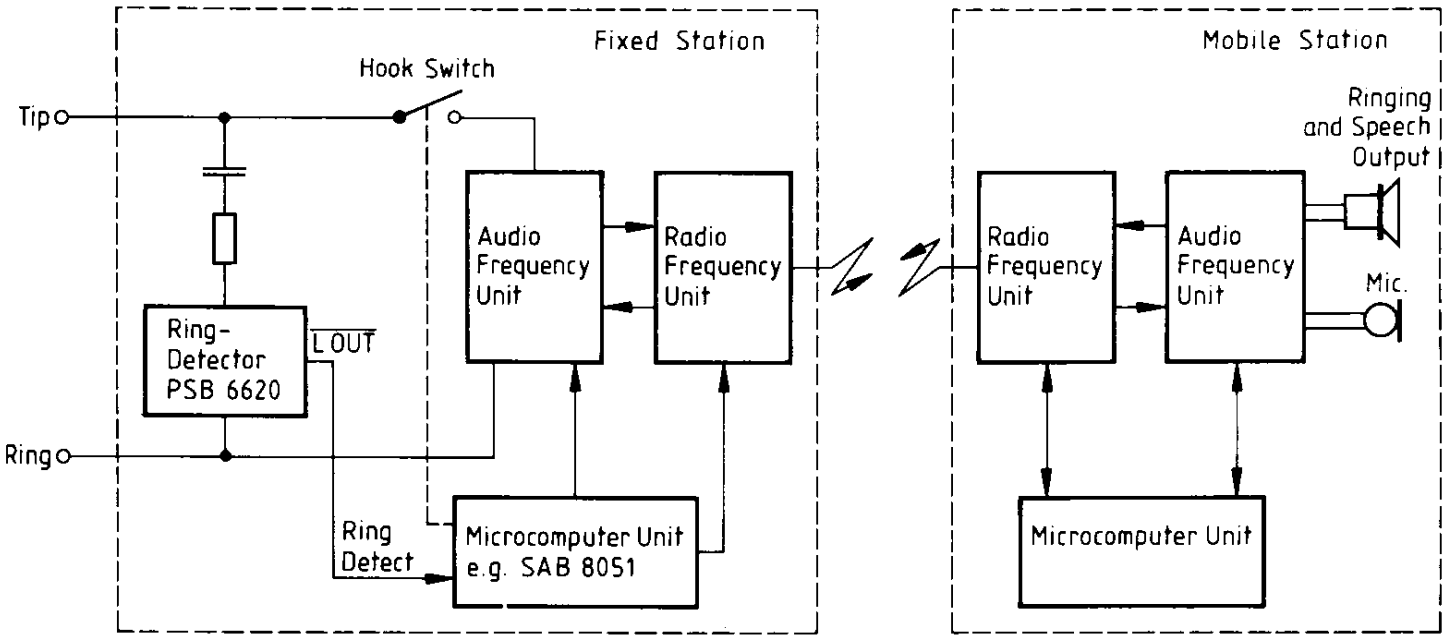
b) Optical Call Signal Indicator



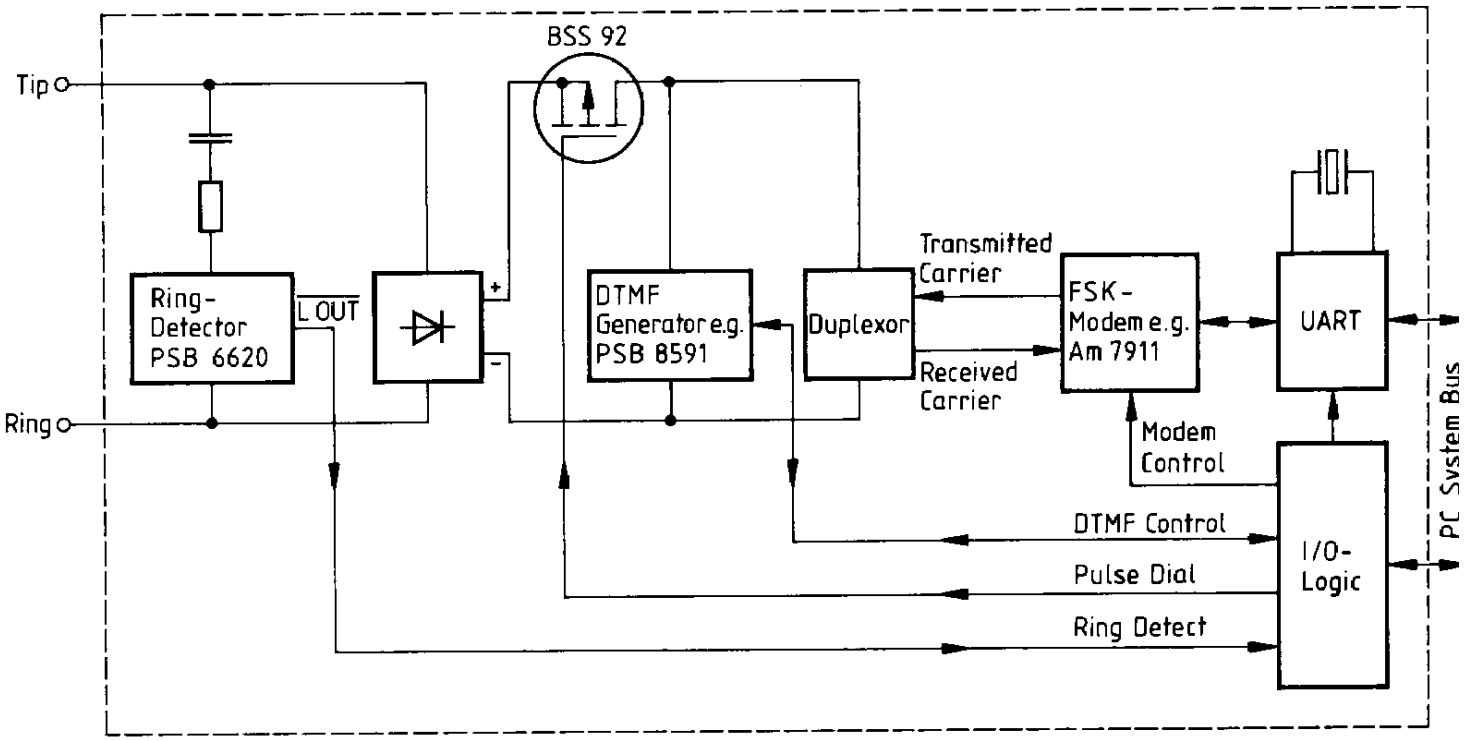
a) **Automatic Telephone Answering System**



d) **Cordless Telephone**



e) Bilingual Telephone Interface for Personal Computer



f) AC Current Indicator