

Panasonic

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DOCUMENT COVER PAGE

APPROVED
EXTERNAL ISSUE



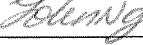
Note: This cover page establishes the Doc No., Title and current status of the attached document.

Doc No.	SDSC-PSE-AN7164	Issue Level	Rev	Eff Date
		1	4	27-FEB-06
Doc Title	Product Specifications for AN7164	Total no. of pages (excluding this page)		8

Revision History

Issue	Rev	Eff Date	S/N	Page	Change Details	Remarks
1	3	16-DEC-04	1	-	Added this cover page.	
			2	6	Removed this page.	
			3	6A	Added this page for leadfree specification.	
			4	6A	Amended Outer Lead Surface Process & Chip Mounting method.	
4	27-FEB-06		1	5	Removed physical product marking indication.	
			2	6A	Amended outer lead surface process.	

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EXTERNAL ISSUE

Prepared		<h1 style="margin: 0;">Product Specifications</h1> <h2 style="margin: 0;">AN7164</h2>	Ref No.	A-1
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Approved			Page No.	1

Structure	Silicon Monolithic Bipolar IC
Appearance	FP12S Plastic Package (Power Type with Fin attached)
Application	Stereo Set • Karaoke • TV
Function	Low Frequency Power Amplifier

A Absolute Maximum Ratings					
No.	Item	Symbol	Ratings	Unit	Note
1	Storage Temperature	Tstg	-55 ~ +150	° C	1
2	Operating Ambient Temperature	Topr	-30 ~ +75	° C	1
3	Operating Ambient Pressure	Popr	1.013x10 ⁵ ±0.61x10 ⁵ (1.0±0.6)	Pa (atm)	
4	Operating Constant Acceleration	Gopr	9,810 (1000)	m/s ² (G)	
5	Operating Shock	Sopr	4,900 (500)	m/s ² (G)	
6	Supply Voltage	Vcc	30	V	2
7	Supply Current	Icc	5.0	A	
8	Power Dissipation	P _D	62.5	W	θ _{j-c} = 2.0 (°C/W)

Operating Supply Voltage Range	Vcc	8.3V ~ 24V
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Note 1) The temperature of all items shall be Ta=25°C except storage temperature and operating ambient temperature.
 2) No signal.

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6-SEP-88	30-MAY-95	17-JUL-98	

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Product Specifications




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B Electrical Characteristics		(Unless otherwise specified, the ambient temperature is 25°C ± 2°C, Vcc=21V, RL=8Ω, freq=1kHz, BTL operation.)							
No	Item	Symbol	Test Circuit	Conditions	Limits			Unit	Note
					min	typ	max		
1	Quiescent Circuit Current	ICQ	1	Vin=0	-	55	100	mA	
2	Output Noise Voltage	Vno	1	Rg=10kΩ	-	0.85	1.3	mV	3
3	Output Offset Voltage	Voffset	1	Vin=0	-	0	300	mV	
4	Total Harmonic Distortion	THD	1	PO=1W	-	0.07	0.3	%	
5	Voltage Gain	Gv	1	PO=1W	49.5	51.5	53.5	dB	
6	Maximum Power Output	PO	1	THD=10%	24	30	-	W	
7	Ripple Rejection Ratio	R.R	1	Rg=0 Supply ripple	45	51	-	dB	3,4
8	Standby Current	ISTB	1	Pin 6 OPEN	-	-	3	μA	

Note 3) Measure with DIN/Audio filter.
 4) Ripple frequency = 120Hz, 1Vrms.

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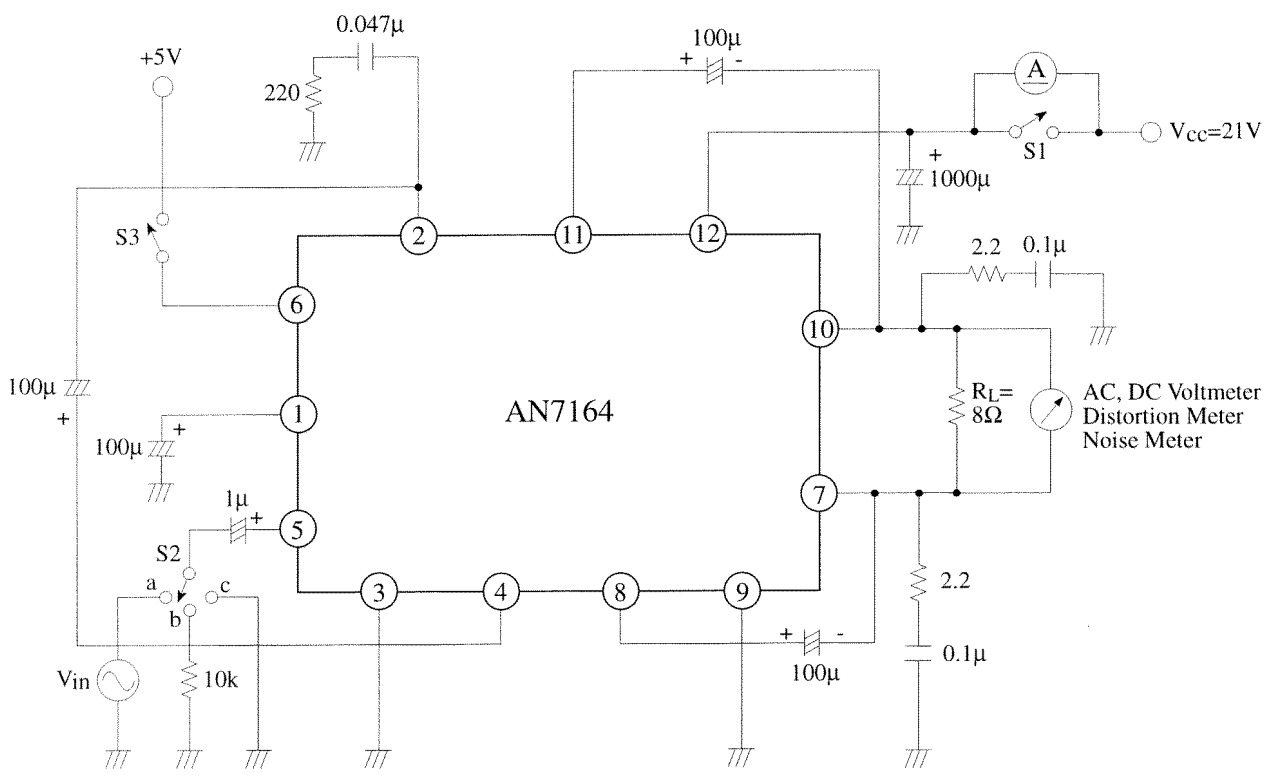
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(Description of test circuit and test method)

Test Circuit 1



No.		S1	S2	S3
1	IcQ	OFF	c	ON
2	Vno	ON	b	ON
3	Voffset	ON	c	ON
4	THD	ON	a	ON
5	Gv	ON	a	ON
6	Po	ON	a	ON
7	R.R	ON	c	ON
8	ISTB	OFF	c	OFF

Note) Pin 6 is a stand-by pin.

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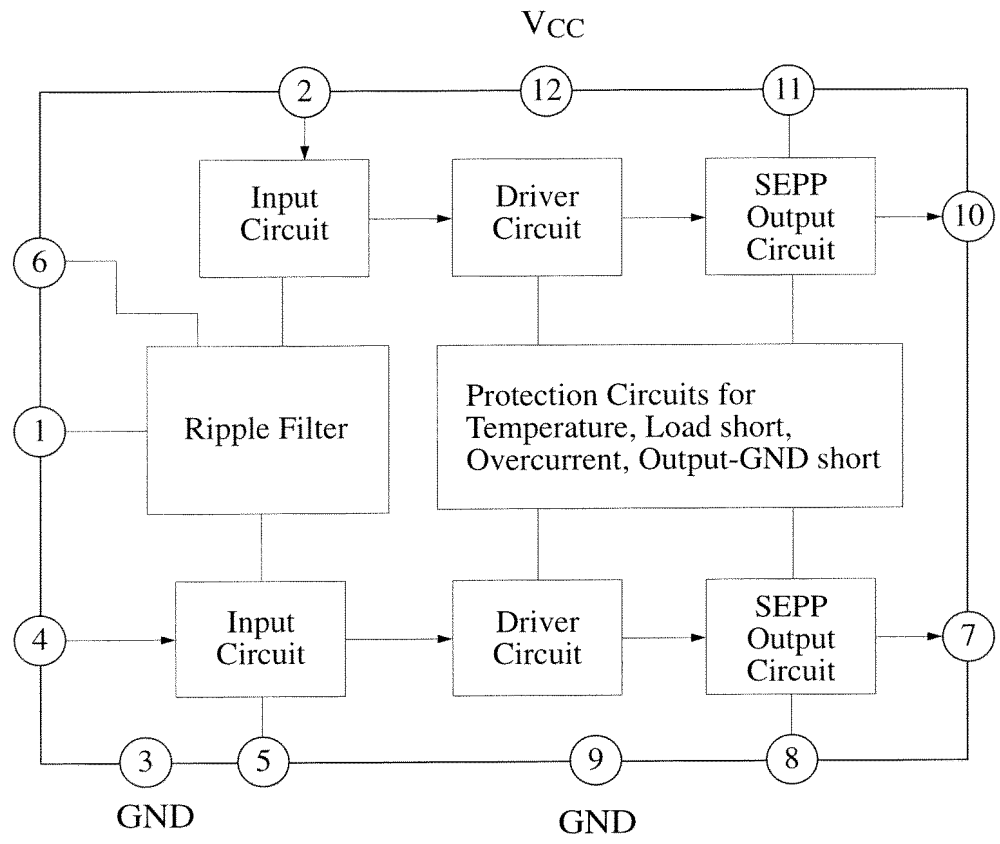
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Circuit Function Block Diagram



Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Ripple Filter	7	Output (Ch1)
2	Negative Feedback (Ch2)	8	Bootstrap (Ch1)
3	GND (Input)	9	GND (Output)
4	Negative Feedback (Ch1)	10	Output (Ch2)
5	Input	11	Bootstrap (Ch2)
6	Standby / Mute	12	Vcc

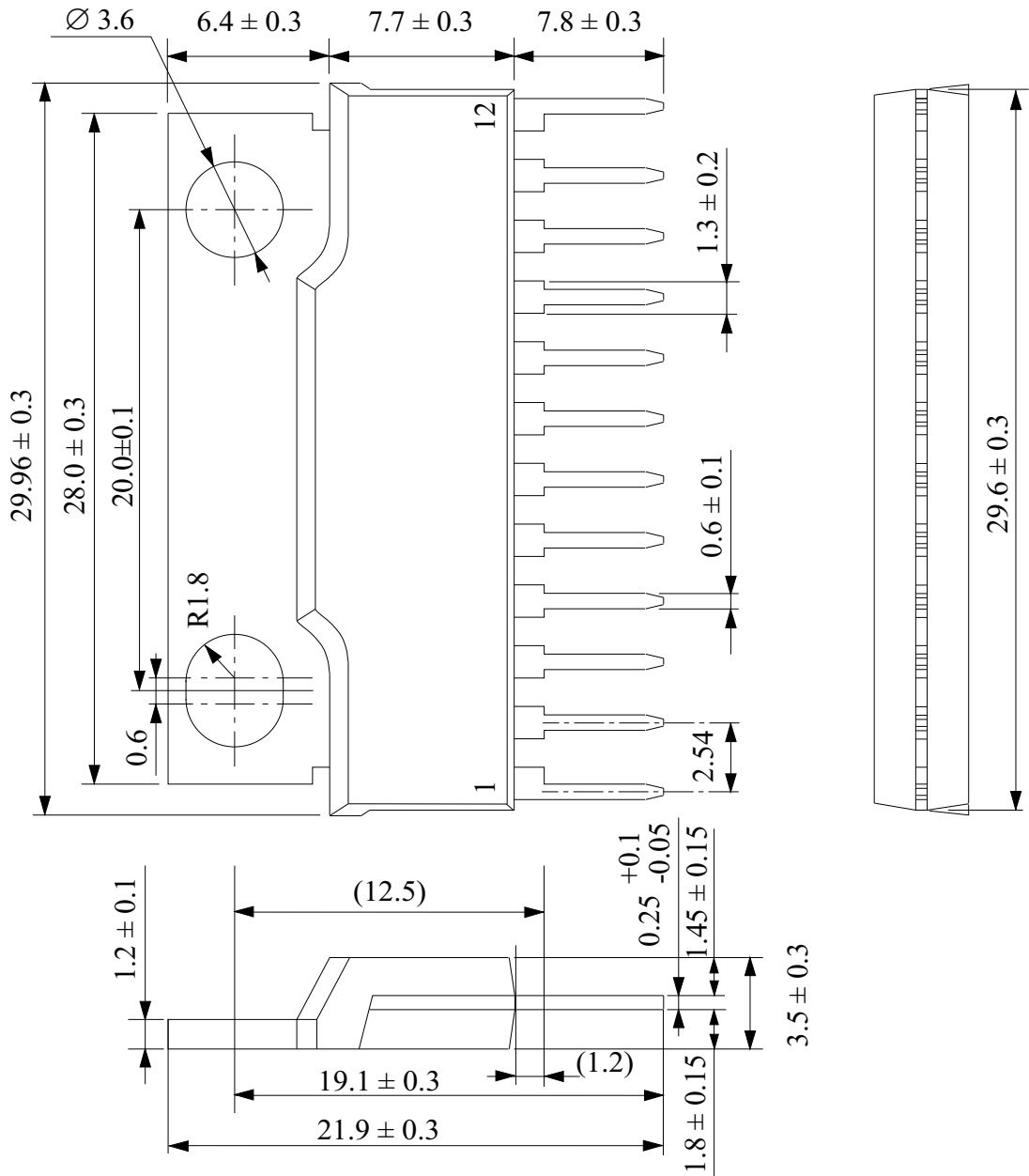
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Package Name	FP12S
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Unit : mm



() : Reference value

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Prepared	Yiap Shi Hui
Checked	John Ng
Approved	T. Sugimura

Product Specifications
(Leadfree)
AN7164

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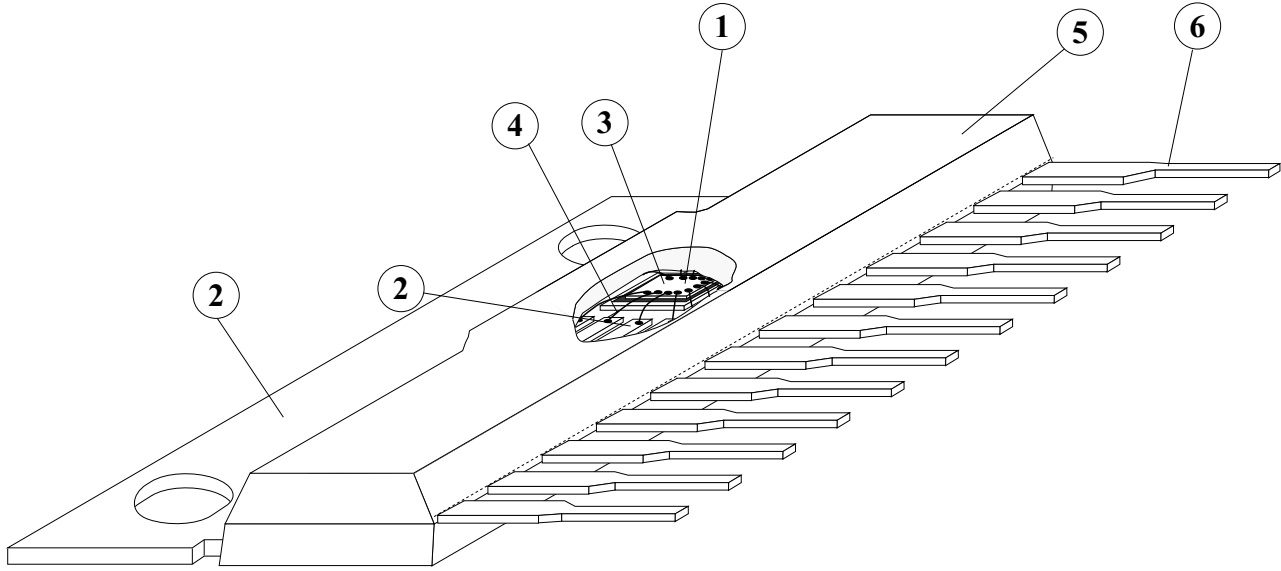
(Structure Description)

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Chip surface passivation	SiN, PSG , Others ()	①
Lead frame material	Fe group, Cu group , Others ()	②, ⑥
Inner lead surface process	Ag plating , Au plating, Others ()	②
Outer lead surface process	General Customer: Solder Plating (98Sn-2Bi) SC Buyback: Solder Dip (95.5Sn-2Ag-2Bi-0.5Cu)	⑥
Chip mounting method	Ag paste, Au-Si alloy, Solder (95.5Pb-2.5Ag-2Sn)** ,	③
Wire bonding method	Thermalsonic bonding , Others ()	④
Wire material	Au , Diameter 38 μm, Others ()	④
Mold material	Epoxy , Others ()	⑤
Molding method	Transfer mold , Multiplunger mold, Others ()	⑤
Fin material	Cu group , Others ()	⑦

** Under RoHS exemption clause, Lead (Pb) in high melting temperature type solder (ie. tin-lead solder alloy containing more than 85% of lead), is exempted until 2010.

Package FP12S



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Product Specifications

(Technical Data)

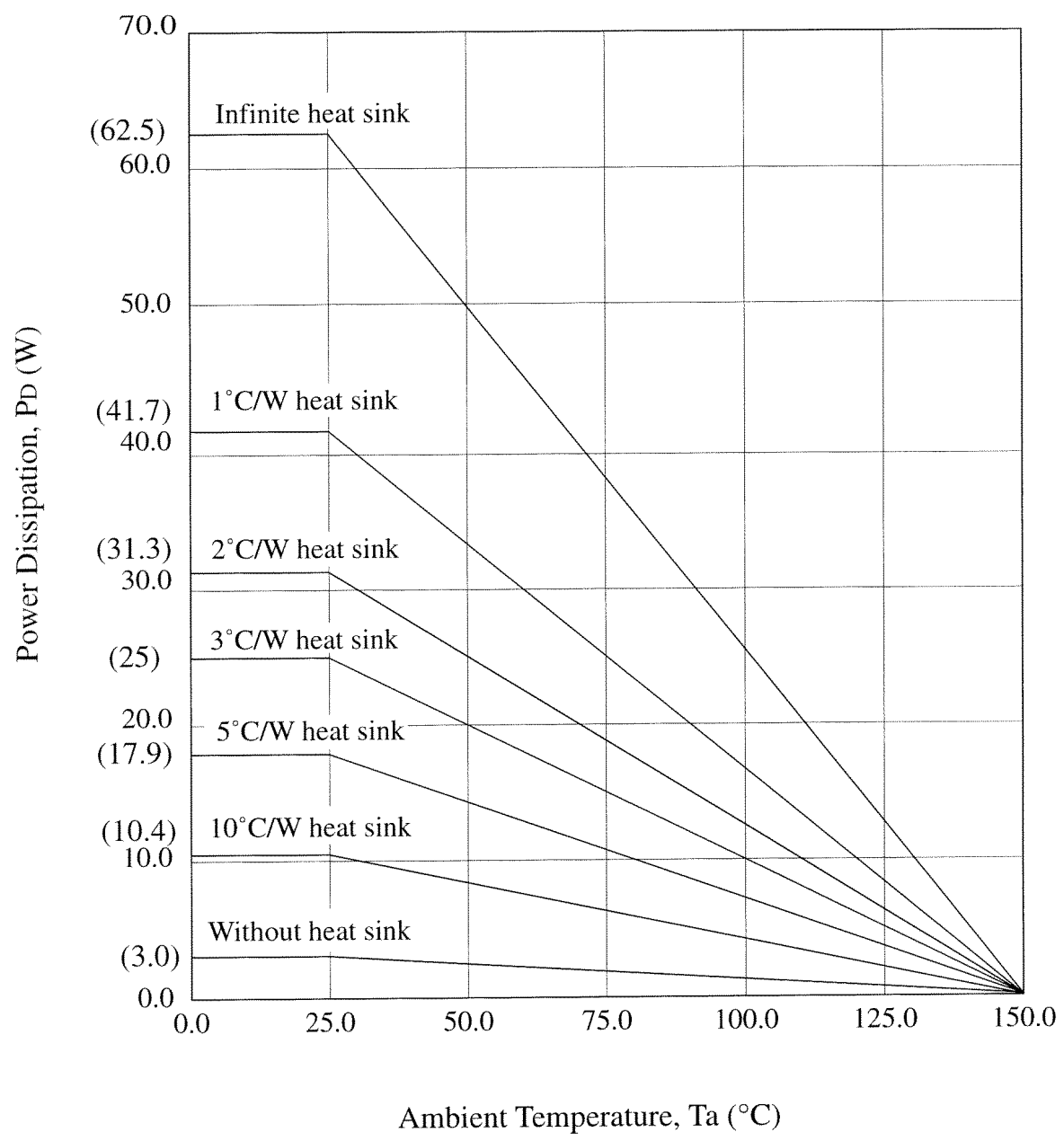
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FP-12S Package Power Dissipation

Pd - Ta

$$\left(\begin{array}{l} R_{th(j-c)} = 2^{\circ}C/W \\ R_{th(j-a)} = 42^{\circ}C/W \end{array} \right)$$



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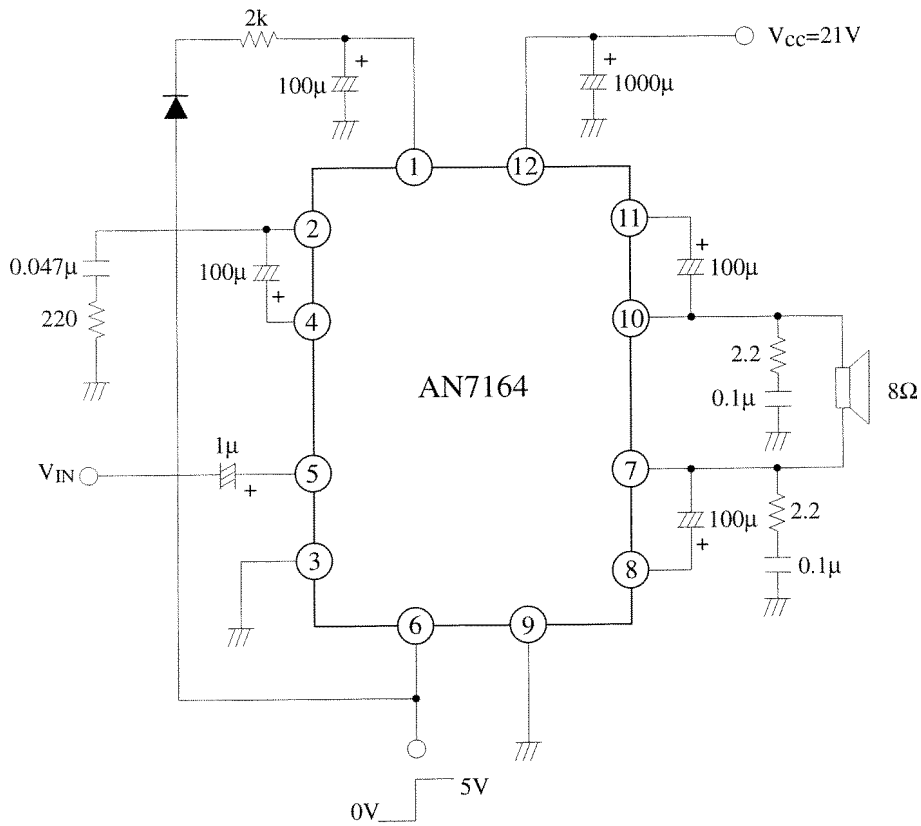
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(Precaution)

When standby is OFF (apply 5V at pin 6) at high temperature, the output disappears because ripple filter fast discharge circuit misoperates. It is necessary to force about 1mA of current into pin 1 when standby is OFF.
 Below is one of the example for the application circuit.



Note) Please take note if the external circuit used is by following the test circuit, the standby function may misoperate and IC cannot function.

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