Panasonic

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APPROVED
EXTERNAL ISSUE

DOCUMENT COVER PAGE

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

Doc No.	SDSC-PSE-AN7135	Issue Level	Rev	Eff Date
		1	5	23-FEB-06
Doc Title	Product Specifications for AN7135	Total no. of pages (excluding this page)		7

Revision History

Issue	Rev	Eff Date	S/N	Page	Change Details	Remarks
1	4	15-FEB-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.	
	5	23-FEB-06	1	6A	Amended Outer Lead Surface process.	

Prepared		Product Specifications	Ref No.	A-1
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Structure	Silicon Monolithic Bipolar IC
Appearance	FP12S Pin Plastic Package (with Fin)
Application	Low Frequency Power Amplifier
Function	7.5W(3Ω) x 2 Channel Power amplifier With Standby Function

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	$1.013x10^5 \pm 0.61x10^5$	Pa	
4	Operating Constant Acceleration	Gopr	9,810	m/s^2	
5	Operating Shock	Sopr	4,900	m/s^2	
6	Supply Voltage	V_{CC}	24	V	
7	Supply Current	I_{CC}	4.0	A	
8	Power Dissipation	P_D	62.5	W	2

Operating Supply Voltage Range	V_{CC}	5V ~ 18V	Note 3

Note 1: The temperature of all item shall be Ta=25°C except storage temperature and operating ambient temperature.

Note 2: $R_{\theta j\text{-}c}$ = 2.0°C/W

Note 3: 24V during no signal.

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28-APR-94	20-APR-95	13-JUL-98	20-JUL-04

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B	Electrical Characteristics (Unless otherwise specified, the ambient temperature is 25°C ± 2°C)								
No.	Item	Symbol	Test Cir-cuit	Conditions	Limits			Unit	Note
					min	typ	max		
1	Quiescent Circuit Current	I_{CQ}	1	V_{IN}=0mV	-	14	20	mA	
2	Output Noise Voltage	V_{NO}	1	V_{IN}=0mV, R_g=10kΩ	-	0.25	0.50	mV	1
3	Voltage Gain	G_V	1	V_{IN}=3mV	42.5	44.5	46.5	dB	
4	Total Harmonic Distortion	THD	1	V_{IN}=3mV	-	0.40	0.75	%	
5	Maximum Power Output	P_O	1	THD=10%	7.0	7.5	-	W	
6	Channel Balance	CB	1	V_{IN}=3mV	-1	0	+1	dB	
7	Ripple Rejection	RR	1	Vcc(ripple) = 280mV f(ripple) = 120Hz Rg = 0Ω Sine wave	45	50	-	dB	1
8	Input Offset Voltage	$V_{IN\ (O.S)}$	1	Input pin open	-	10	30	mV	
9	Standy-by current	I_{STB}	1	Pin 3 open	-	-	30	μA	

< Vcc = 15.0V, RL = 3Ω, Freq = 1kHz, Driving 2 channel >

Note 1) Use filter 15Hz ~ 30kHz (12dB/OCT) when measurement.

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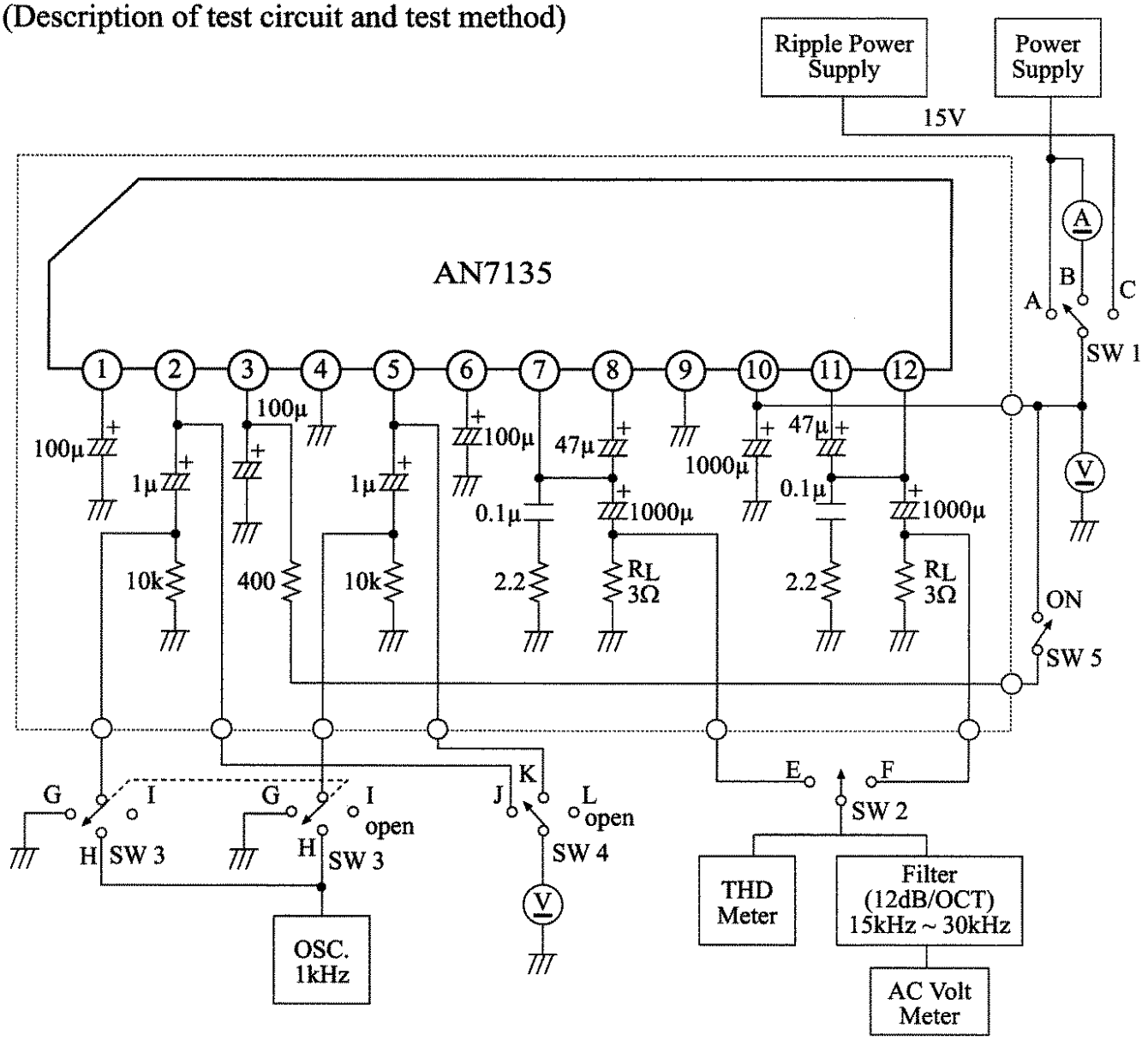
(Description of test circuit and test method)



ITEM	SW 1	SW 2	SW 3	SW 4	SW 5
B1	B	-	G	L	ON
B2	A	E or F	I	L	ON
B3	A	E or F	H	L	ON
B4	A	E or F	H	L	ON
B5	A	E or F	H	L	ON
B6	A	E or F	H	L	ON
B7	C	E or F	G	L	ON
B8	A	-	I	J or K	ON
B9	A	-	I	-	OFF

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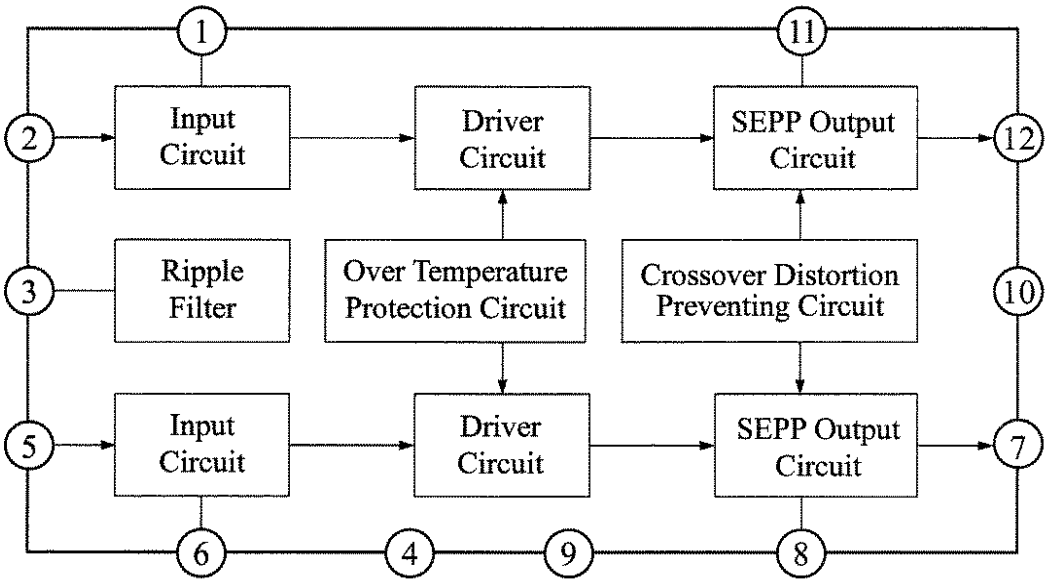
Circuit Function Block Diagram



Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Channel 1 negative feedback	7	Channel 2 output
2	Channel 1 input	8	Channel 2 bootstrap
3	Repple filter / Stand-by	9	GND (Output side)
4	GND (Input side)	10	Power supply
5	Channel 2 input	11	Channel 1 bootstrap
6	Channel 2 negative feedback	12	Channel 1 output

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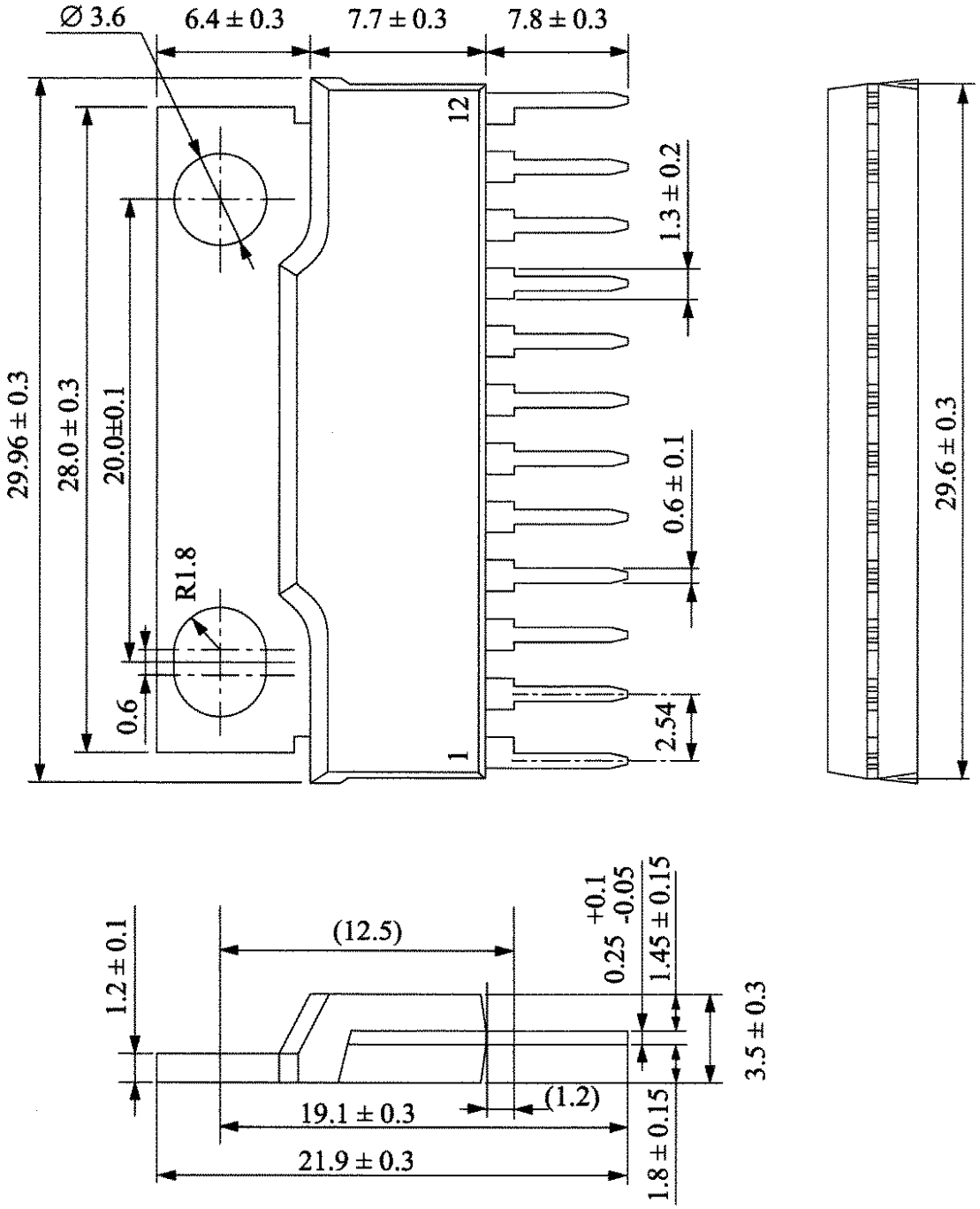
Package Name	FP 12S

Unit : mm



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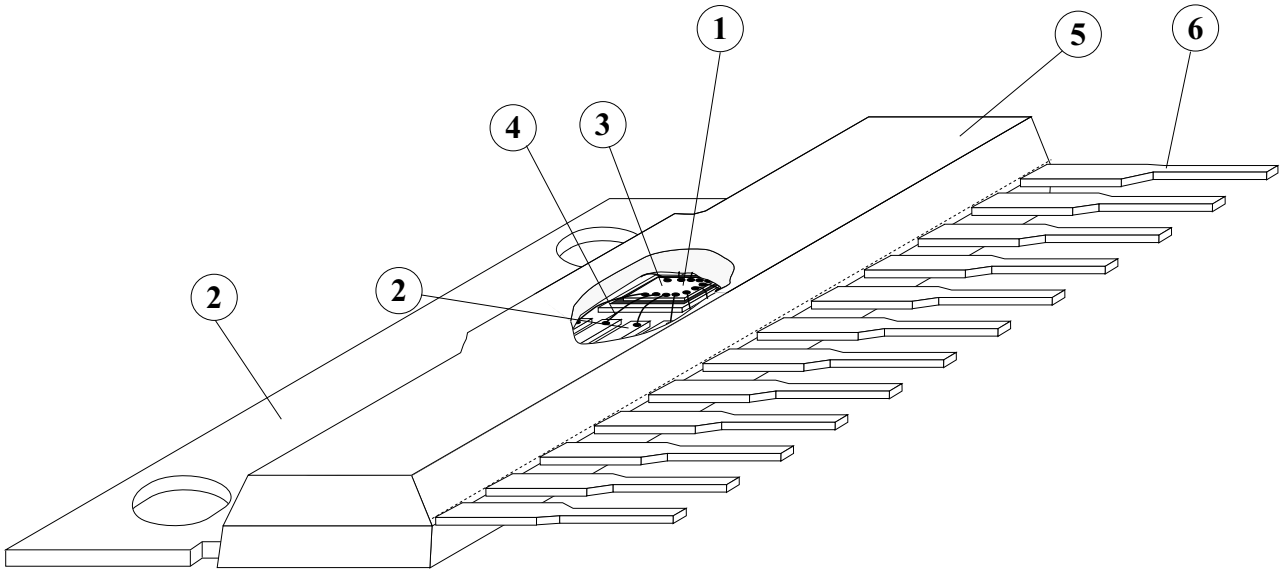
(Structure Description)

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
*5 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,** 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



*5

(a) 62.50W Unlimited heatsink (θj-c = 2°C/W)

(b) 20.83W (θf=4.0°C/W)
Heat sink of 100cm² x 3mm Al (black lacquer) or
200cm² x 2mm Al (without lacquer)

(c) 15.63W (θf=6.0°C/W)
Heat sink of 100cm² x 2mm Al (without lacquer)

(d) 3.0W at Ta=30°C(θj-a=40°C/W) No Heat sink

Power Dissipation P_D -Ta