

APPROVED

EXTERNAL ISSUE

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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 ±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	VCC	24	V	
7	Supply Current	ICC	4.0	A	
8	Power Dissipation	PD	62.5	W	2

Operating Supply Voltage Range	VCC	5V ~ 18V	Note 3
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Note 1: The temperature of all item shall be Ta=25°C except storage temperature and operating ambient temperature.

Note 2: R_{θj-c} = 2.0°C/W

Note 3: 24V during no signal.

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B Electrical Characteristics (Unless otherwise specified, the ambient temperature is 25°C ± 2°C)									
No.	Item	Symbol	Test Circuit	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	V _{cc} (ripple) = 280mV f(ripple) = 120Hz R _g = 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	

< V_{cc} = 15.0V, R_L = 3Ω, Freq = 1kHz, Driving 2 channel >

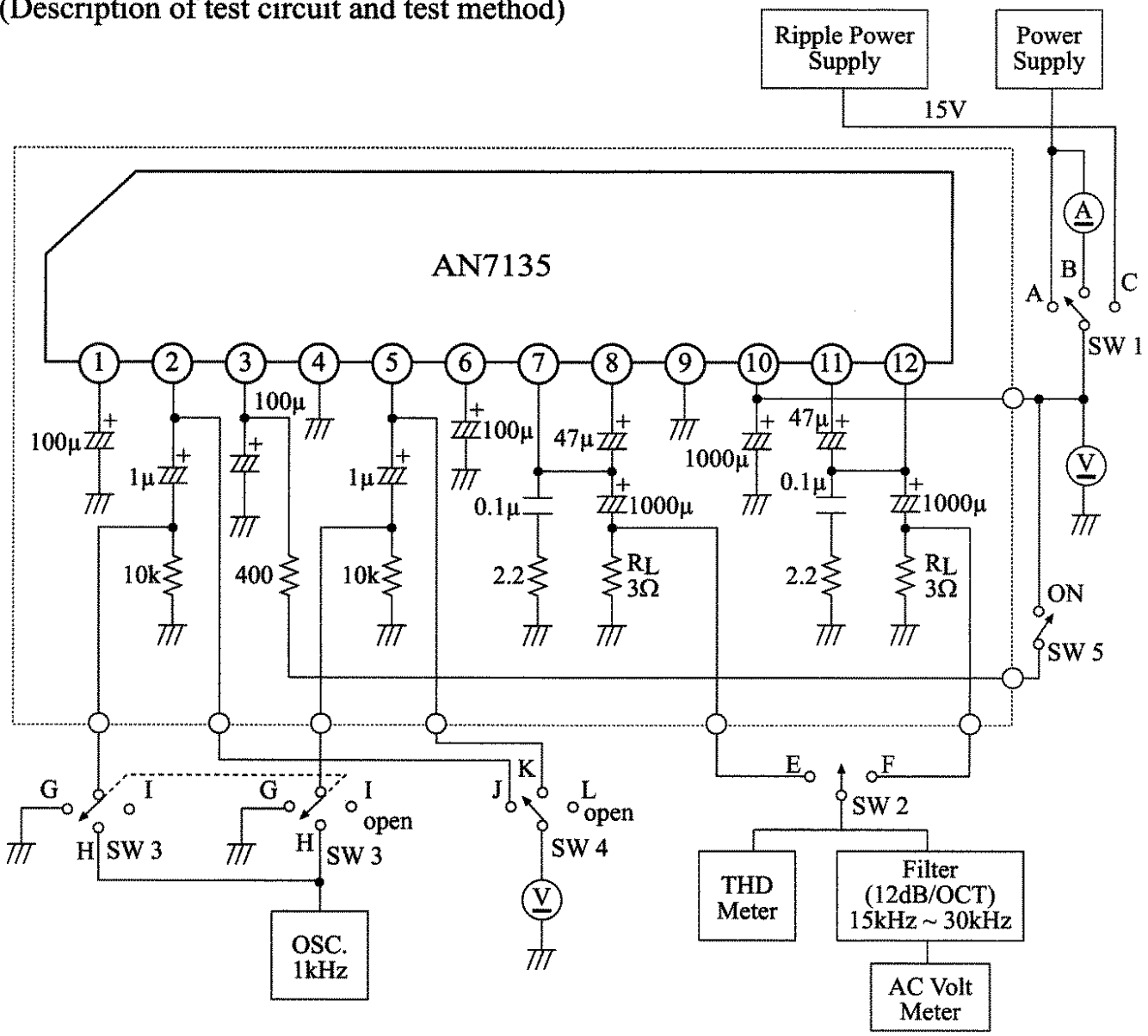
Note 1) Use filter 15Hz ~ 30kHz (12dB/OCT) when measurement.

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(Description of test circuit and test method)

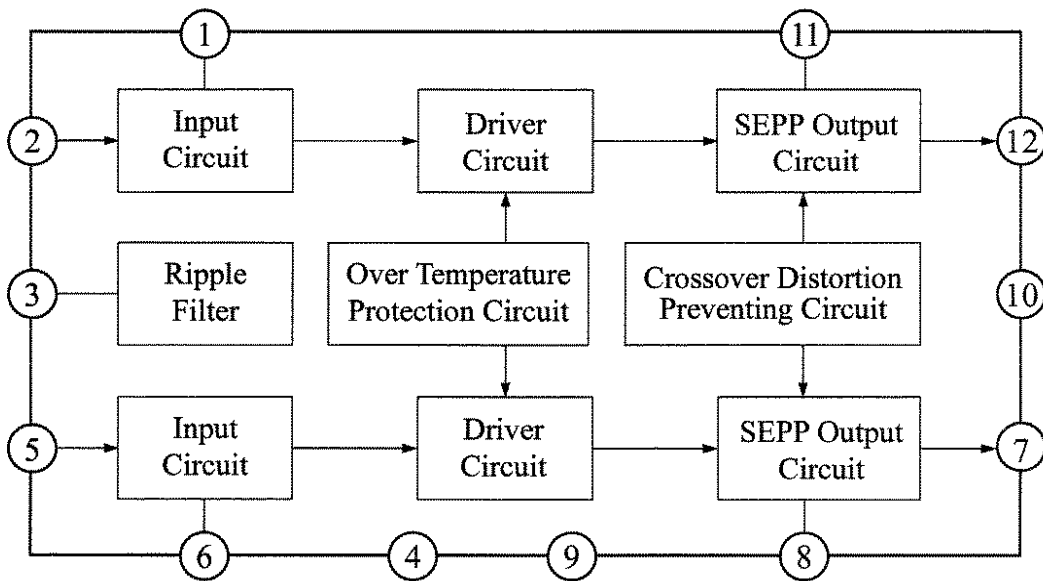


ITEM	SW 1	SW 2	SW 3	SW 4	SW 5
B1	B	-	G	L	ON
B2	A	E or F	I	L	ON
B3	A	E or F	H	L	ON
B4	A	E or F	H	L	ON
B5	A	E or F	H	L	ON
B6	A	E or F	H	L	ON
B7	C	E or F	G	L	ON
B8	A	-	I	J or K	ON
B9	A	-	I	-	OFF

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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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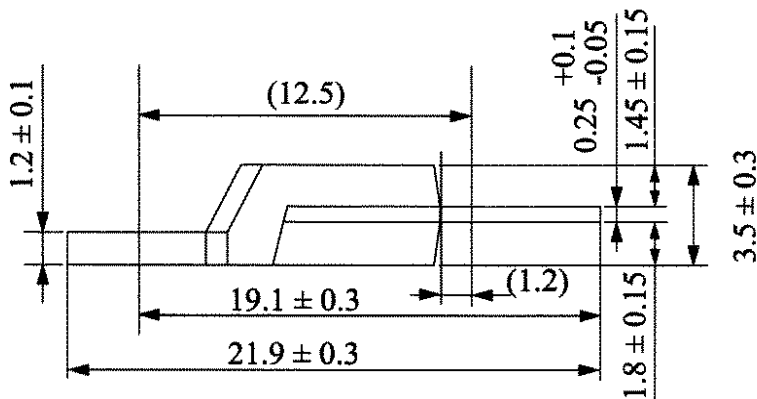
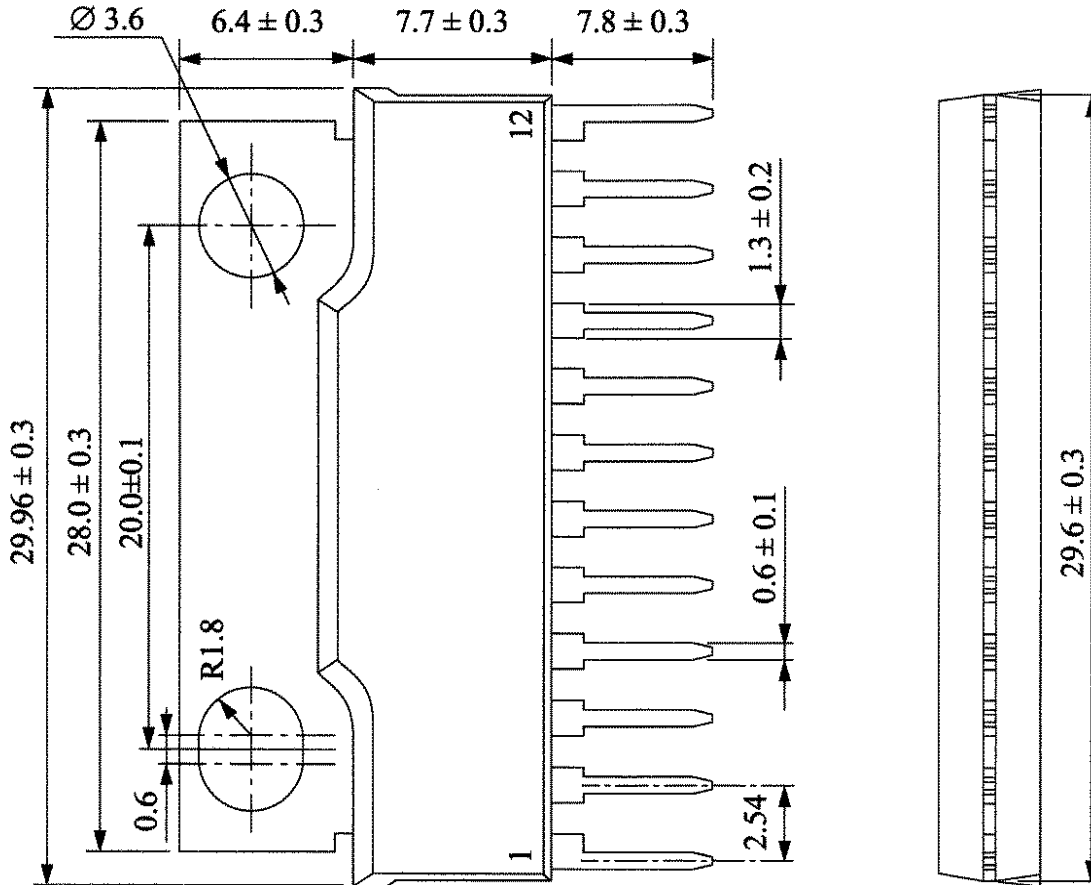
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Product Specifications

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Package Name	FP 12S
Unit : mm	



() : Reference value

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Prepared	Yiap Shi Hui	Product Specifications (Leadfree) AN7135	Ref. No. APPROVED	D
Checked	John Ng		Total Page 7	EXTERNAL ISSUE
Approved	T. Sugimura		Page No.	6A

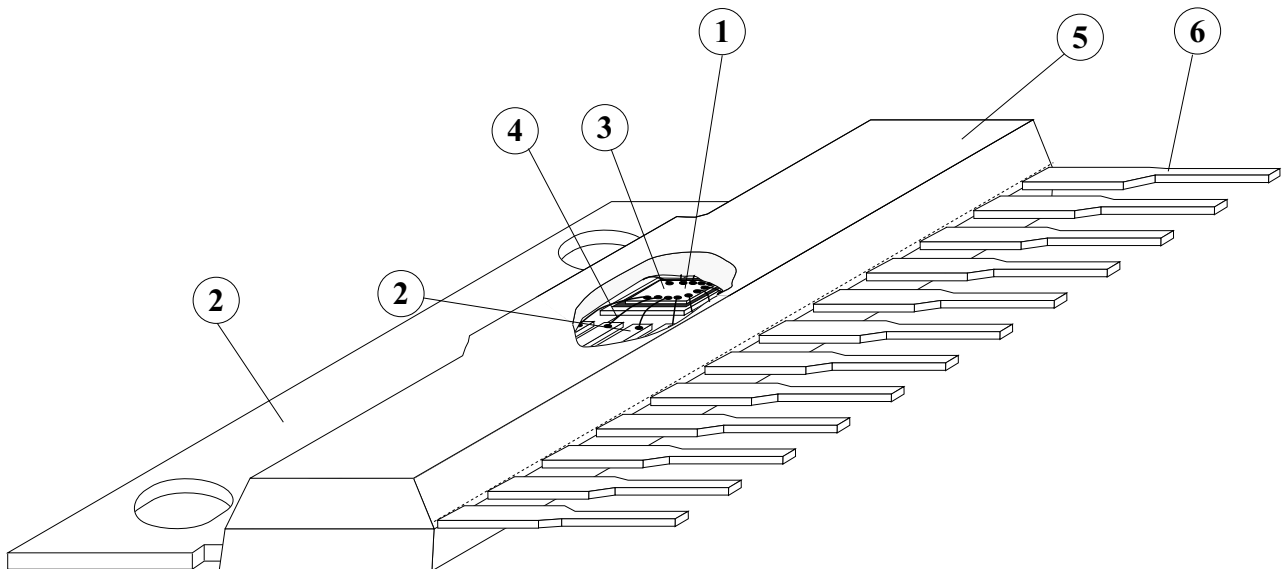
(Structure Description)

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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)** , Others ()	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



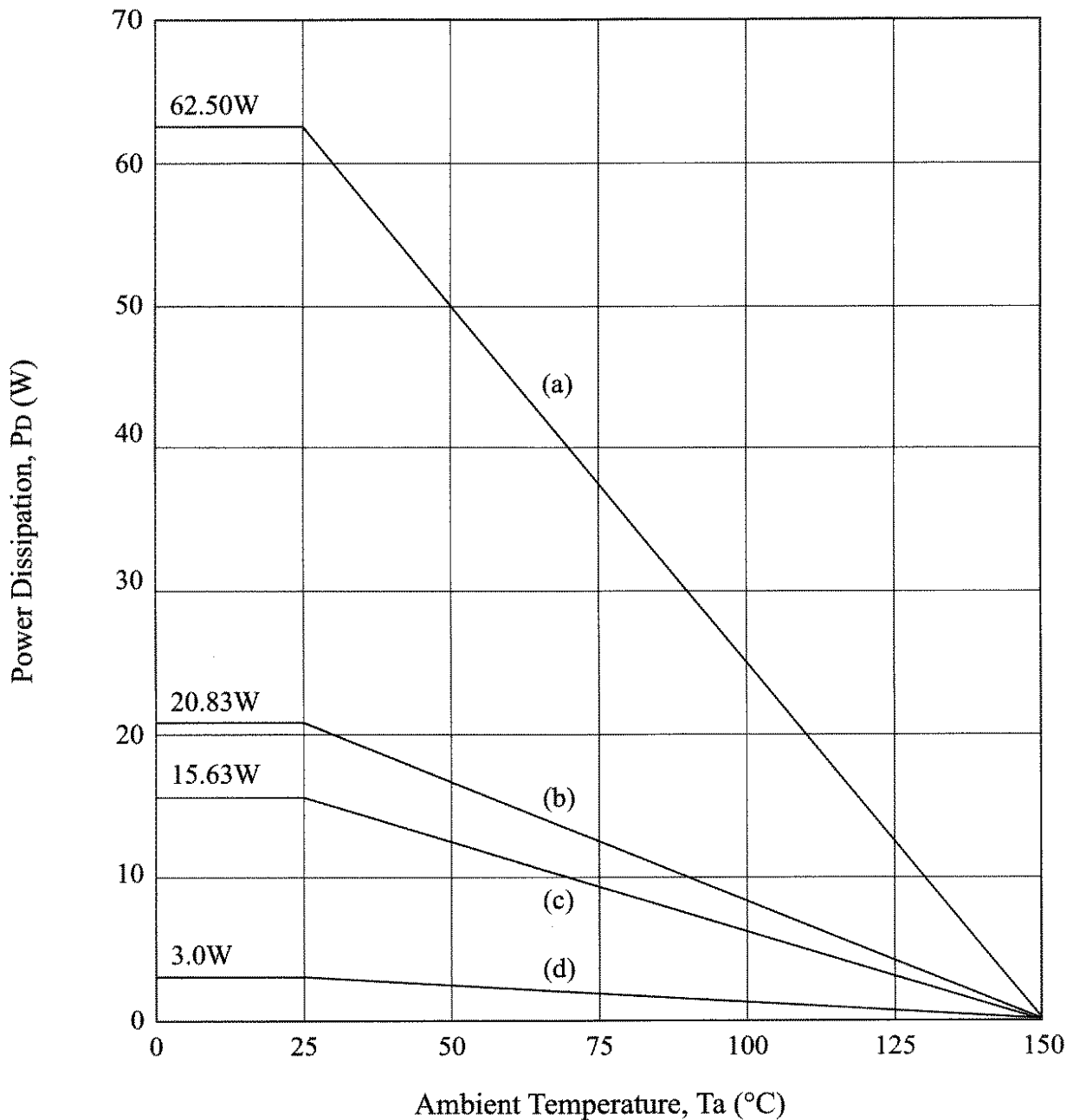
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- (a) 62.50W Unlimited heatsink ($\theta_{j-c} = 2^{\circ}\text{C/W}$)
- (b) 20.83W ($\theta_f = 4.0^{\circ}\text{C/W}$)
Heat sink of 100cm² x 3mm Al (black lacquer) or
200cm² x 2mm Al (without lacquer)
- (c) 15.63W ($\theta_f = 6.0^{\circ}\text{C/W}$)
Heat sink of 100cm² x 2mm Al (without lacquer)
- (d) 3.0W at $T_a = 30^{\circ}\text{C}$ ($\theta_{j-a} = 40^{\circ}\text{C/W}$) No Heat sink

Power Dissipation P_D - T_a



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