

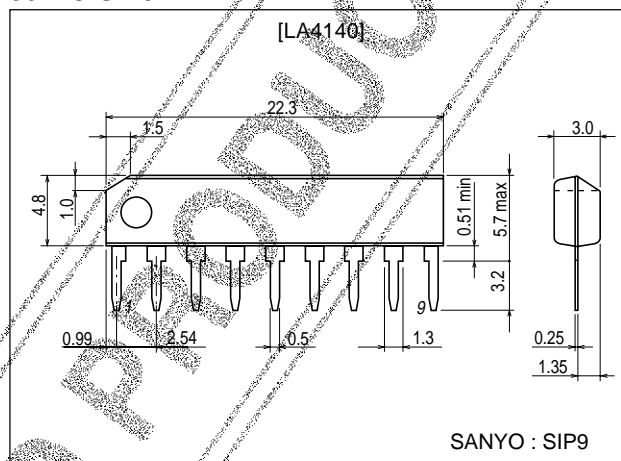
SANYO**LA4140****0.5W AF Power Amplifier****Features**

- Output power 0.5W typ ($V_{CC}=6V$, $R_L=8\Omega$, THD=10%).
- Low quiescent current.
- Wide operating voltage range : $V_{CC}=3.5$ to 12V.
- 9-pin SIP permitting sets to be small-sized and eliminating the need to use a heat sink.

Package Dimensions

unit:mm

3017C-SIP9

**Specifications****Absolute Maximum Ratings** at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum Supply Voltage	$V_{CC\text{ max}}$	Quiescent mode	14	V
		Operating mode $R_L=16\Omega$	14	V
		Operating mode $R_L=8\Omega$	12	V
Maximum Output Current	I_O		500	mA
Allowable Power Dissipation	$P_d\text{ max}^*$		*750	mW
Operating Temperature	T_{opr}		-20 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

* $P_d\text{ max}$: Installed on 50×50mm² PCB, See figure of $P_d\text{ max}$ - T_a .**Recommended Operating Conditions** at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply Voltage	V_{CC}		6	V
Load Resistance	R_L		8	Ω

■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

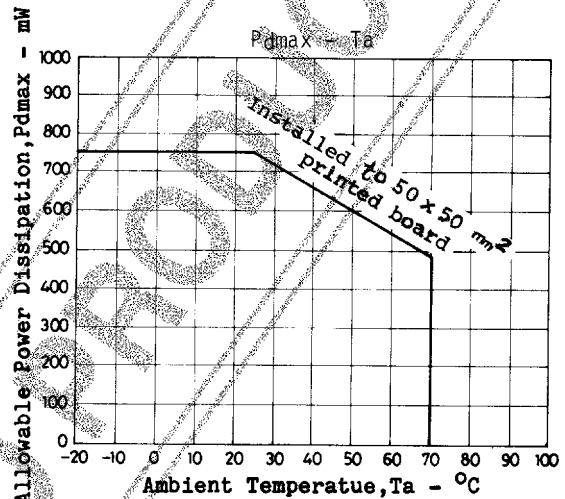
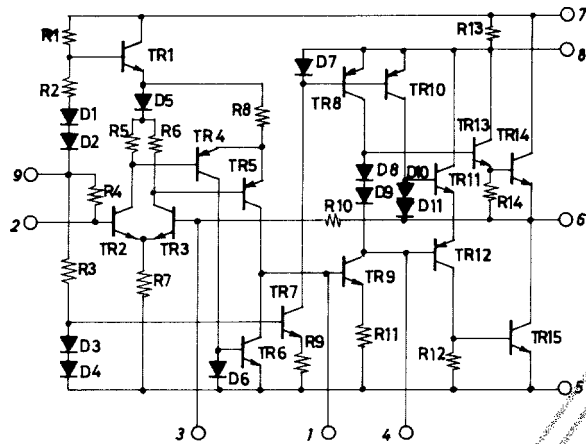
12800TH (KT)/O217KI/4195MW/9300KI, TS No.528-1/5

LA4140

Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC}=6\text{V}$, $R_L=8\Omega$, $R_g=600\Omega$, $R_f=47\Omega$, $f=1\text{kHz}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent Current	I_{CCO}			11		mA
Voltage Gain	VG		47	50	52	dB
Output Power	P_o	THD=1%	0.45	0.5		V
Total Harmonic Distortion	THD	$P_o=100\text{mW}$		0.3	1.0	%
Input Resistance	r_i			15k		Ω
Output Noise Voltage	V_{NI}	$R_g=10\text{k}\Omega$, via filter of 50Hz to 20kHz		0.4	1.0	mV

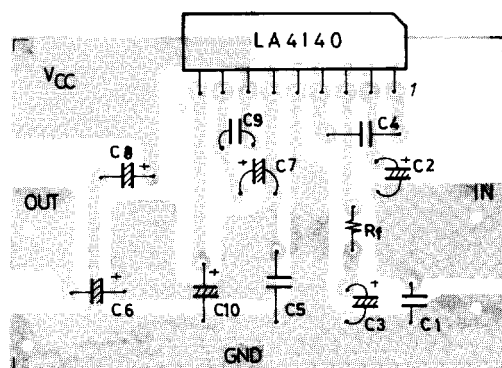
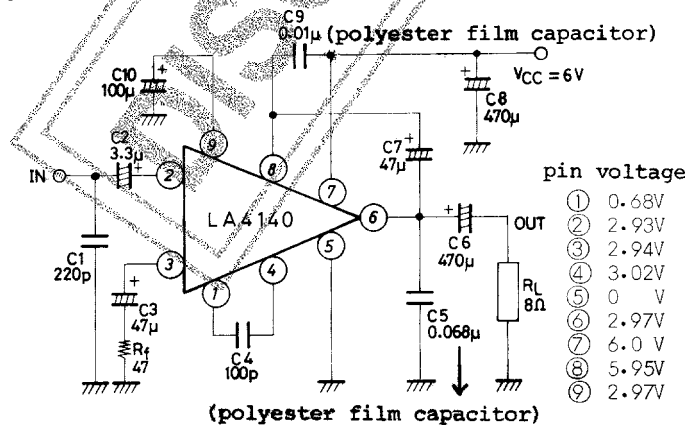
Equivalent Circuit



Notice for Using IC

- Maximum Ratings**
Enough margin converting supply voltage drifting should be prepared and disigning over maximum ratings should be absolutely avoided because operation near these ratings causes going across the ratings and leading to destruction.
- Terminating Pins**
Turning the circuit on leaving pin to pin of IC shorted causes destruction of failure. Turn on ascertaining that solder has never shorted pins when setting IC to printed board.
- Location**
When used in a radio receiver, IC is designed to locate apart from a bar antenna enough.
- Printed Pattern Designing**
As designing a printed pattern, lines of power supply, output adn ground are to be widely short and pattern and peripheral parts are considerably set not to feedback from output to input.
Also, a capacitor C8 at power line, C5 and C9 of anti-oscillator are to be arranged near to pins of IC.

Application

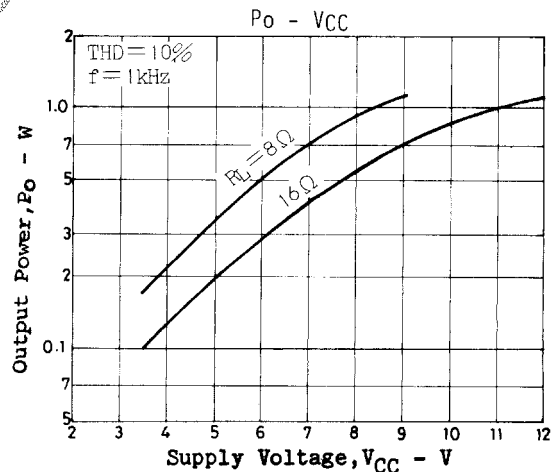
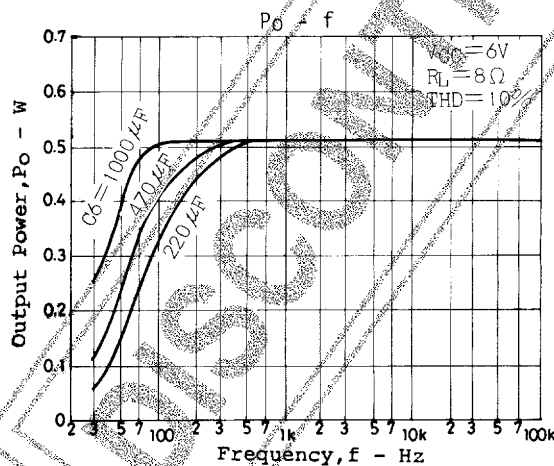
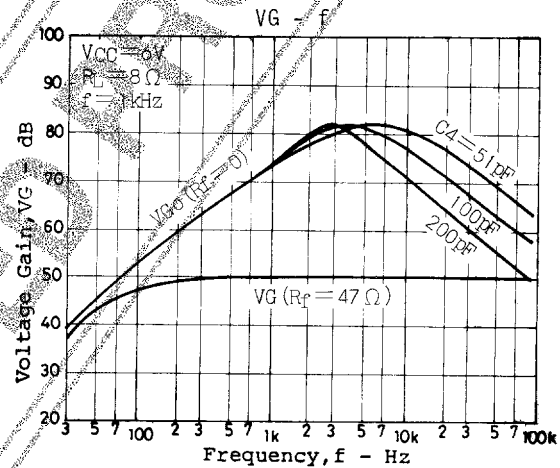
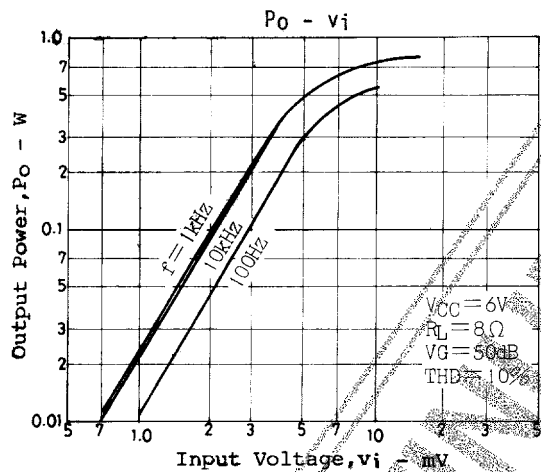


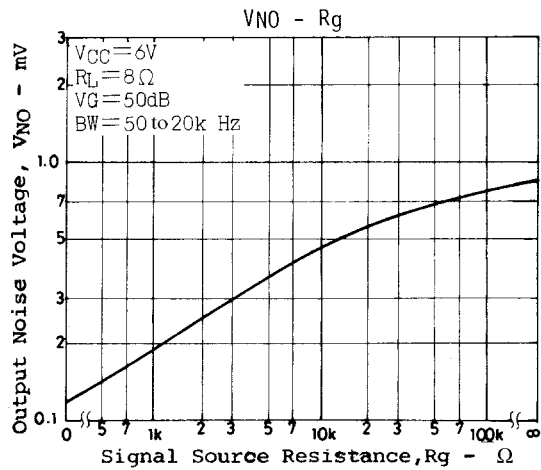
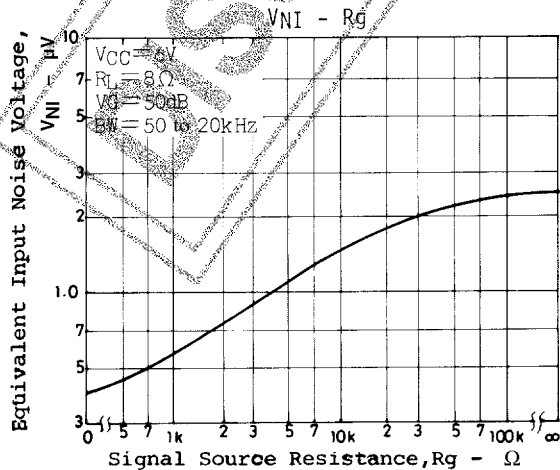
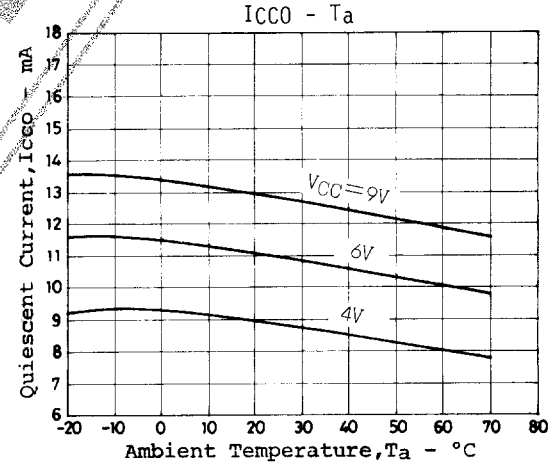
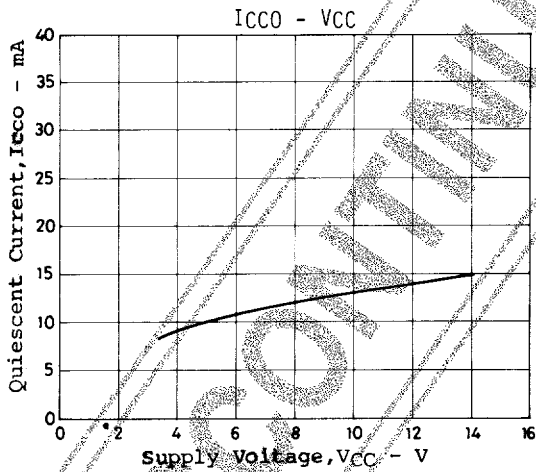
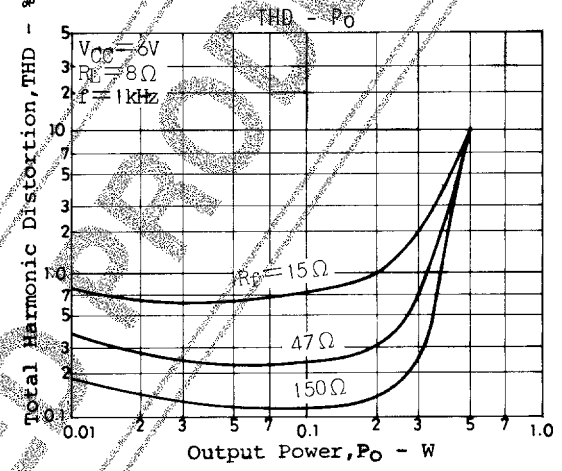
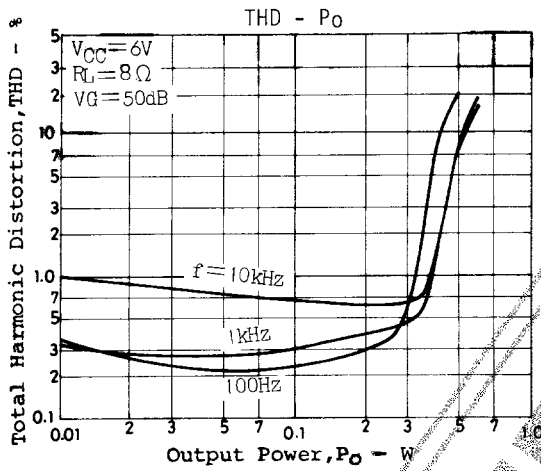
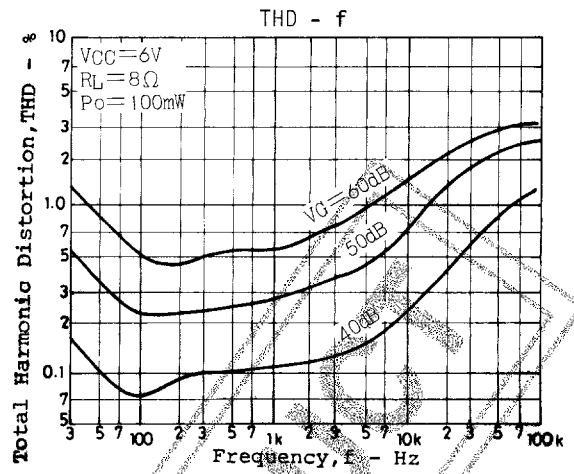
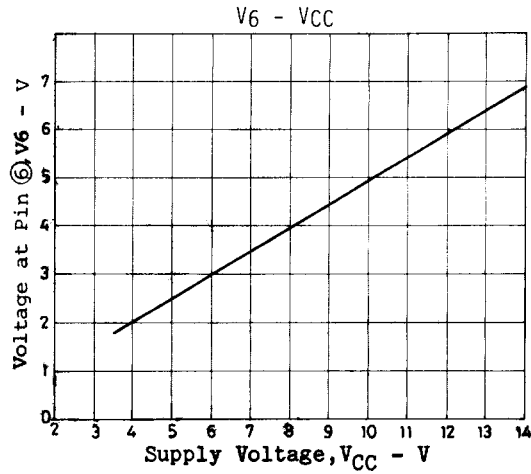
An Example of Printed Pattern
(bottom view, 35 x 50 mm²)

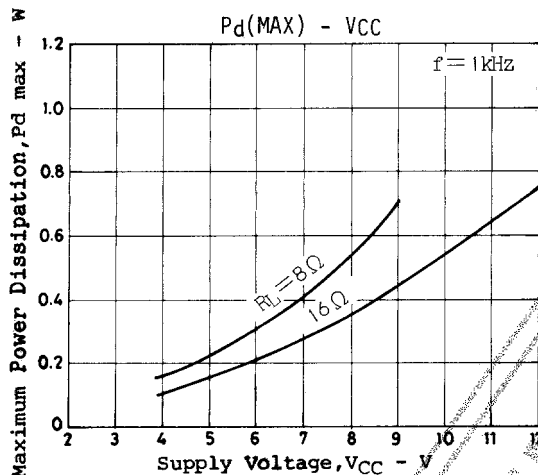
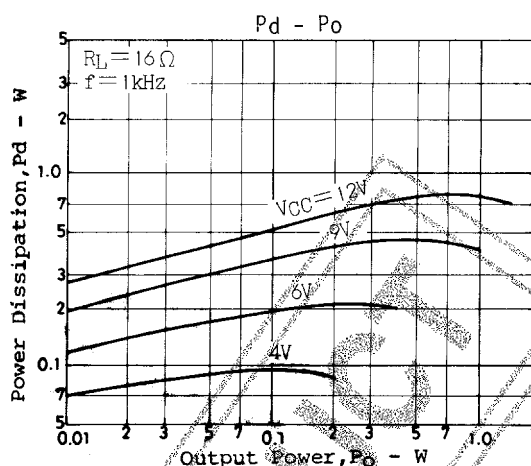
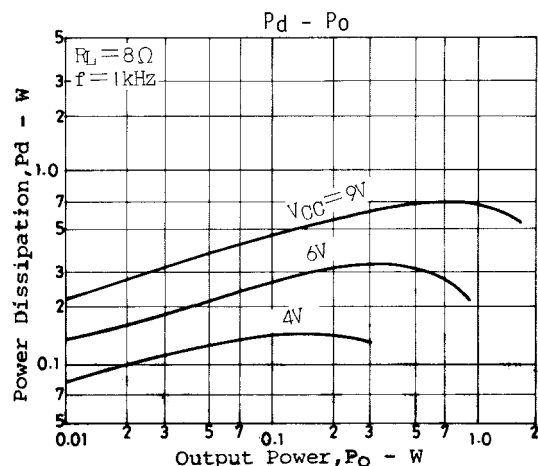
[Peripheral Parts]

- C1, 220pF : Anti-noise capacitor.
 C2, 3.3μF : Coupling capacitor. Large C2 makes operating noise of variable resistor large. Small one makes frequency response of low frequency range narrow.
 C3, 47μF : Feedback capacitor. Small C3 makes the starting time short, but frequency response of low range narrow.
 C4, 100pF : For frequency response adjusting of high range, but excessive small one is apt to oscillate.
 C5, 0.068μF : For anti-oscillation. Polyester film capacitor is available which has good thermal and high frequency characteristics.
 C6, 470μF : Output capacitor. It decides power of low frequency.
 C7, 47μF : Bootstrap capacitor. Excessive small C7 causes wave from clipping point to be unbalanced at low frequency range.
 C8, 470μF : Filter capacitor.
 C9, 0.01μF : Anti-oscillation. Polyester film capacitor is available.
 C10, 100μF : Filter capacitor. Rejects power line hum. Small C10 decreases ripple rejection ratio.
 R_f, 47Ω : Decides voltage gain. Closed loop voltage gain is nearly calculated as follows. But about ±3dB tolerance should be prepared owing to scatter of internal resistance of IC

$$VG = 20 \log (15000/R_f [\Omega]) \text{ [dB]}$$







- Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of January, 2000. Specifications and information herein are subject to change without notice.

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.