

**LA5527**

## Low-Voltage DC Motor Speed Controller

### Overview

Especially suited for controlling speed of a low-voltage (3V min.) DC motor for cassette tape recorders, 8mm motion-picture cameras, record players.

### Features

- Wide operating voltage range (1.8 to 10V).
- Easy to very speed.
- Large starting torque.
- Easy to control rotational speed from very low speed to high speed.

### Specifications

#### Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		12	V
Allowable power dissipation	$P_d\text{ max}$		1	W
Operating temperature	$T_{opr}$		-20 to +80	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +150	$^\circ\text{C}$
Motor current	$I_m$		1000	mA

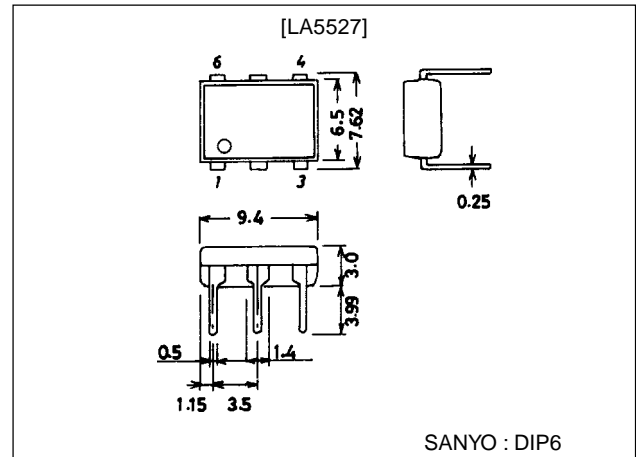
#### Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage range	$V_{CC\text{ op}}$		1.8 to 10	V
Recommended operating temperature	$T_{opg}$		-10 to +60	$^\circ\text{C}$

### Package Dimensions

unit:mm

#### 3048A-DIP6



■ 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 Business Headquarters**

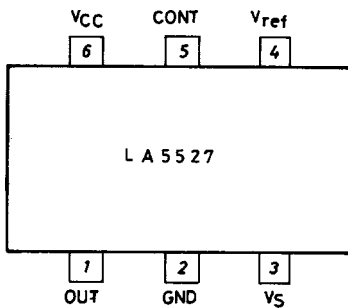
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# LA5527

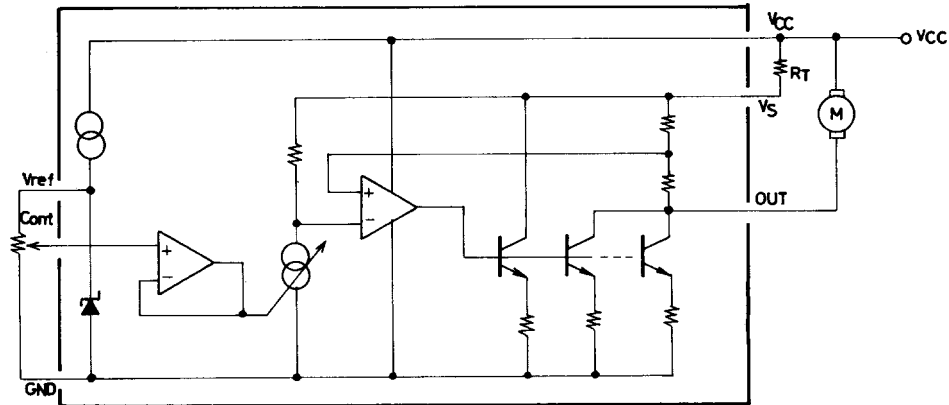
## Operating Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Reference voltage	$V_{ref}$	$V_{CC}=3V, I_m=100mA$	1.15	1.25	1.3	V
Quiescent flow-in current	$I_d$	$V_{CC}=3V, I_m=100mA$		3.0	6.0	mA
Shunt ratio	$K$	$V_{CC}=3V, I_m=50mA, 150mA$	45	50	55	
Residual voltage	$V_{sat}$	$V_{CC}=3V, I_m=200mA, V_{ref}, V_{cont}$		0.3	0.5	V
Voltage of characteristic of reference voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta V_{CC}$	$I_m=100mA, V_{CC}=1.8 \text{ to } 10V$		0.1	0.3	%/V
Voltage of characteristic of shunt ratio	$\frac{\Delta K}{K} / \Delta V_{CC}$	$I_m=50-150mA, V_{CC}=1.8 \text{ to } 10V$		0.05	0.3	%/V
Current characteristic of reference voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta I_m$	$I_m=20 \text{ to } 200mA, V_{CC}=3V$		0.005	0.01	%/mA
Current characteristic of shunt ratio	$\frac{\Delta K}{K} / \Delta I_m$	$V_{CC}=3V, I_m=20mA, 50mA \text{ to } 170mA, 200mA$	-0.02	-0.005	0.02	%/mA
Temperature characteristic of reference voltage	$\frac{\Delta V_{ref}}{V_{ref}} / \Delta T_a$	$V_{CC}=3V, I_m=100mA, T_a=-20 \text{ to } +80^\circ\text{C}$		0.02		%/°C
Temperature characteristics of shunt ratio	$\frac{\Delta K}{K} / \Delta T_a$	$V_{CC}=3V, I_m=50mA, 150mA, T_a=-20 \text{ to } +80^\circ\text{C}$		-0.002		%/°C

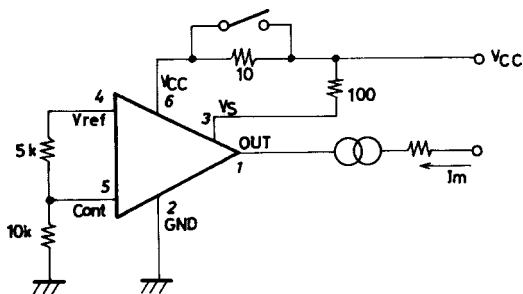
## Pin Assignment



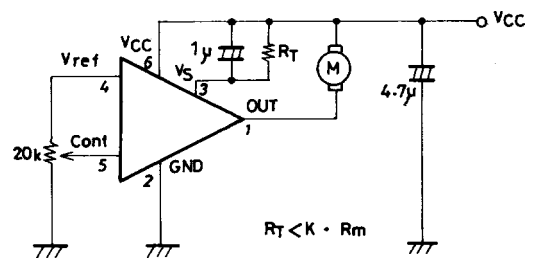
## Equivalent Circuit Block Diagram

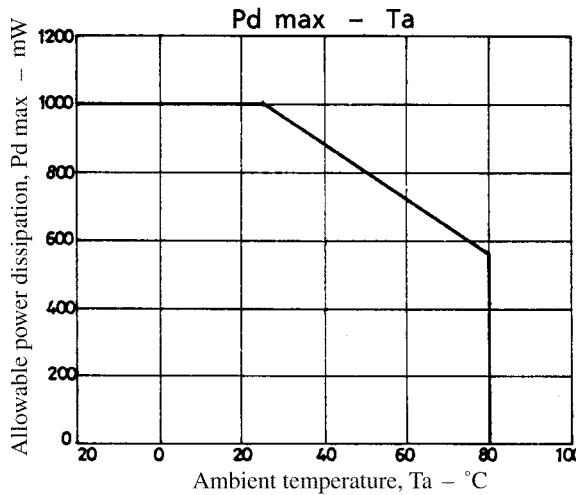


## Test Circuit



## Sample Application Circuit





- 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 and all SANYO products described or contained herein fall under strategic products (including services) controlled under the Foreign Exchange and Foreign Trade Control Law of Japan, such products must not be exported without obtaining export license from the Ministry of International Trade and Industry 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 July, 1998. Specifications and information herein are subject to change without notice.