Ordering number: EN7258

Monolithic Linear IC

LA5636M

DC/DC Converter Secondary Side Control IC

Overview

The LA5636M is a DC/DC Converter Secondary Side Control IC that draws power from a car battery and is ideal for use in rechargers for lithium ion batteries, etc. Because this IC incorporates only the basic functions (constant voltage control and constant current control) that are needed in an IC for charging, it can be easily used in combination with other ICs for charging.

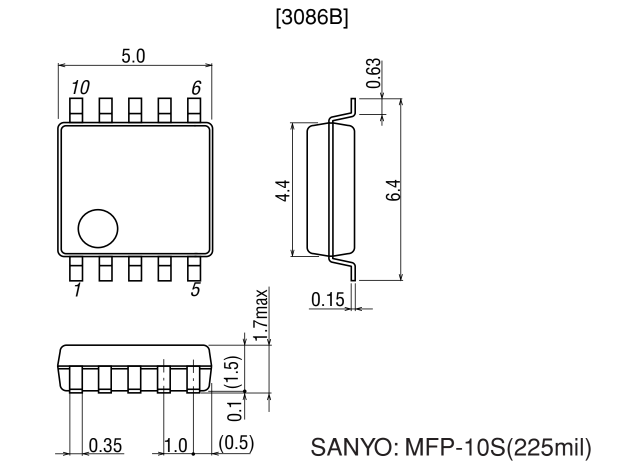
Features

- Includes integrated circuitry for preventing the malfunction of the system in the event that the input voltage (car battery voltage) drops.
- Produces constant voltage output in proportion to the PWM input signal. (Permits output voltage control by microcontroller.)
- High-precision reference current (current control amp): 92.5 µA±2.7%
- Output voltage can be set through an external resistor.
- Each loop of the voltage amp and current amp is independent.

Package Dimensions

unit: mm

3086B



Specifications

Maximum Ratings at Ta = 25°C

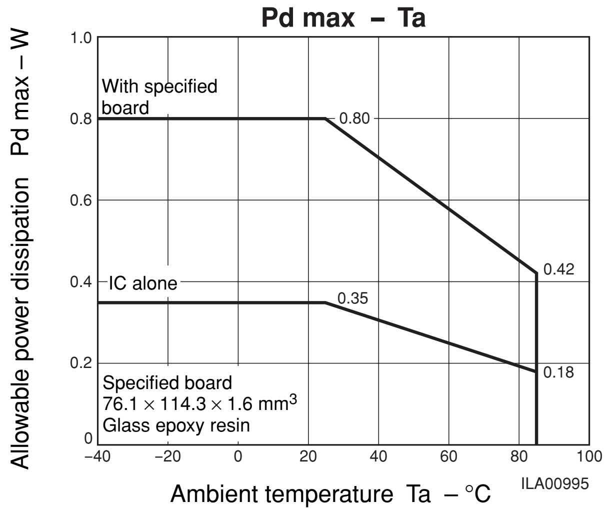
Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC} max		14.5	V
Allowable power dissipation	Pd max		350	mW
DOUT terminal current/voltage	Idtmax/Vdtmax		1/ –0.2 to V_{CC}	mA/V
PWM input voltage	V_{pwm}		–0.2 to 3.0	V
ICONST terminal voltage	VICONST		–0.2 to V_{CC}	V
C1 terminal voltage	VC1		–0.2 to V_{CC}	V
Operating temperature	Topr1		–40 to +85	°C
Performance garanteed temperature	Topr2		–25 to +75	°C
Storage temperature	Tstg		–40 to +150	°C

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

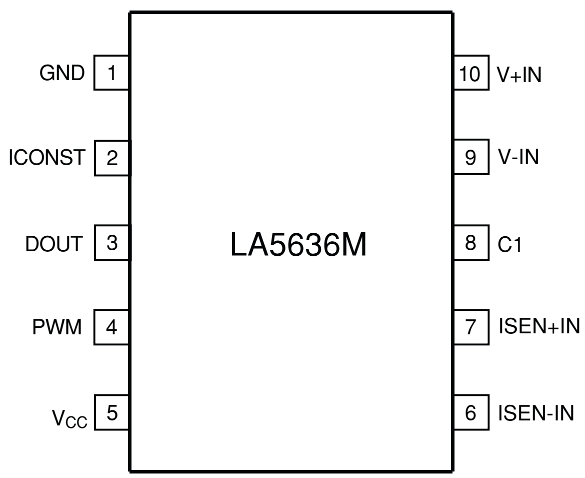
Electrical Characteristics at Ta = 25°C, V_{CC}=12V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Operating voltage	V_{CC}		10.3		13.0	V
Current drain	I_{CC}	Dout = off, V_{pwm} = off, R = 27 kΩ		4		mA
PWM input high voltage	$V_{pwm}H$		1.7		2.9	V
PWM input low voltage	$V_{pwm}L$		0		0.8	V
PWM input current	I_{pwm}	V_{pwm} = 0.0 V		30		nA
PWM input frequency	F_{pwm}		30	32	37	Hz
Reference voltage 1	V-IN1	V_{CC} = 10.5 to 13 V, PWM = L * Ta = –25 to 75°C	–4 (1.92 V)	2.0 V	+4 (2.08 V)	%
Reference voltage 2	V-IN2	V_{CC} = 10.5 to 13 V, PWM = H * Ta = –25 to 75°C	–6 (0.68 V)	0.72 V	+6 (0.76 V)	%
Reference voltage 3	V-IN3	V_{CC} = 8.5 V, PWM = L * Ta = –25 to 75°C	1.56	—	—	V
Reference voltage 4	V-IN4	V_{CC} = 8.5 V, PWM = H * Ta = –25 to 75°C	0.59	—	—	V
Reference current	IREF	V_{CC} = 10.5 to 13 V, when 27 kΩ is connected * Ta = –25 to 75°C	90.0	92.5	95.0	µA

* The design is guaranteed over the temperature range, so the temperature is not measured.

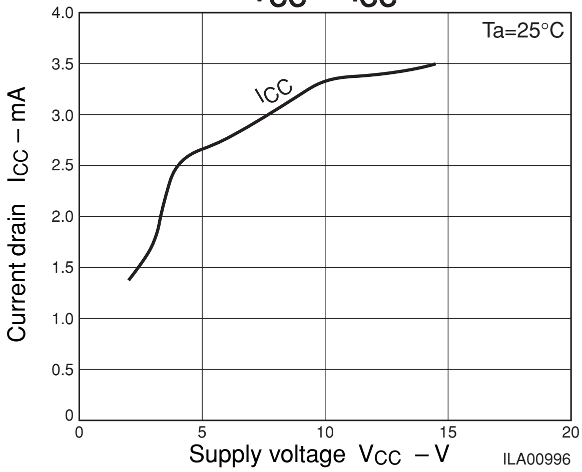


Pin Assignment

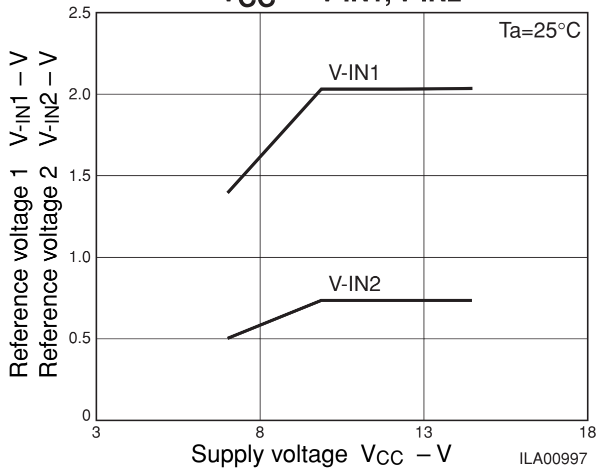


Top view

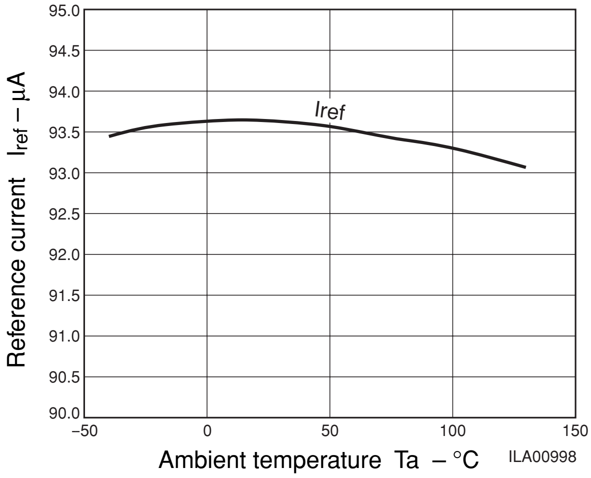
V_{CC} – I_{CC}



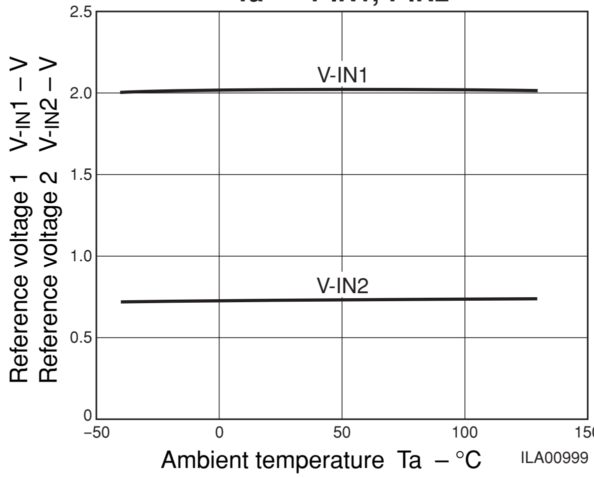
V_{CC} – V-IN1, V-IN2



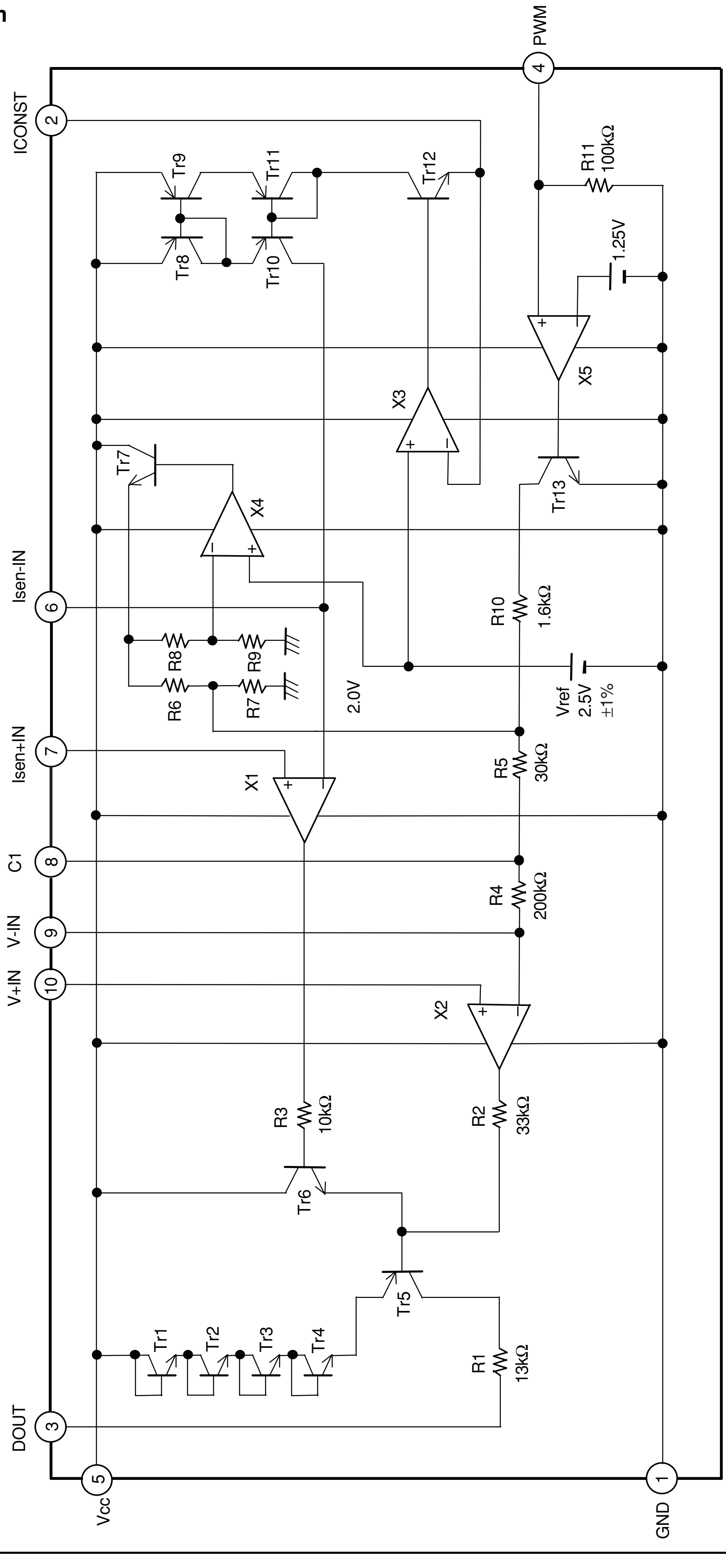
Ta – Iref



Ta – V-IN1, V-IN2

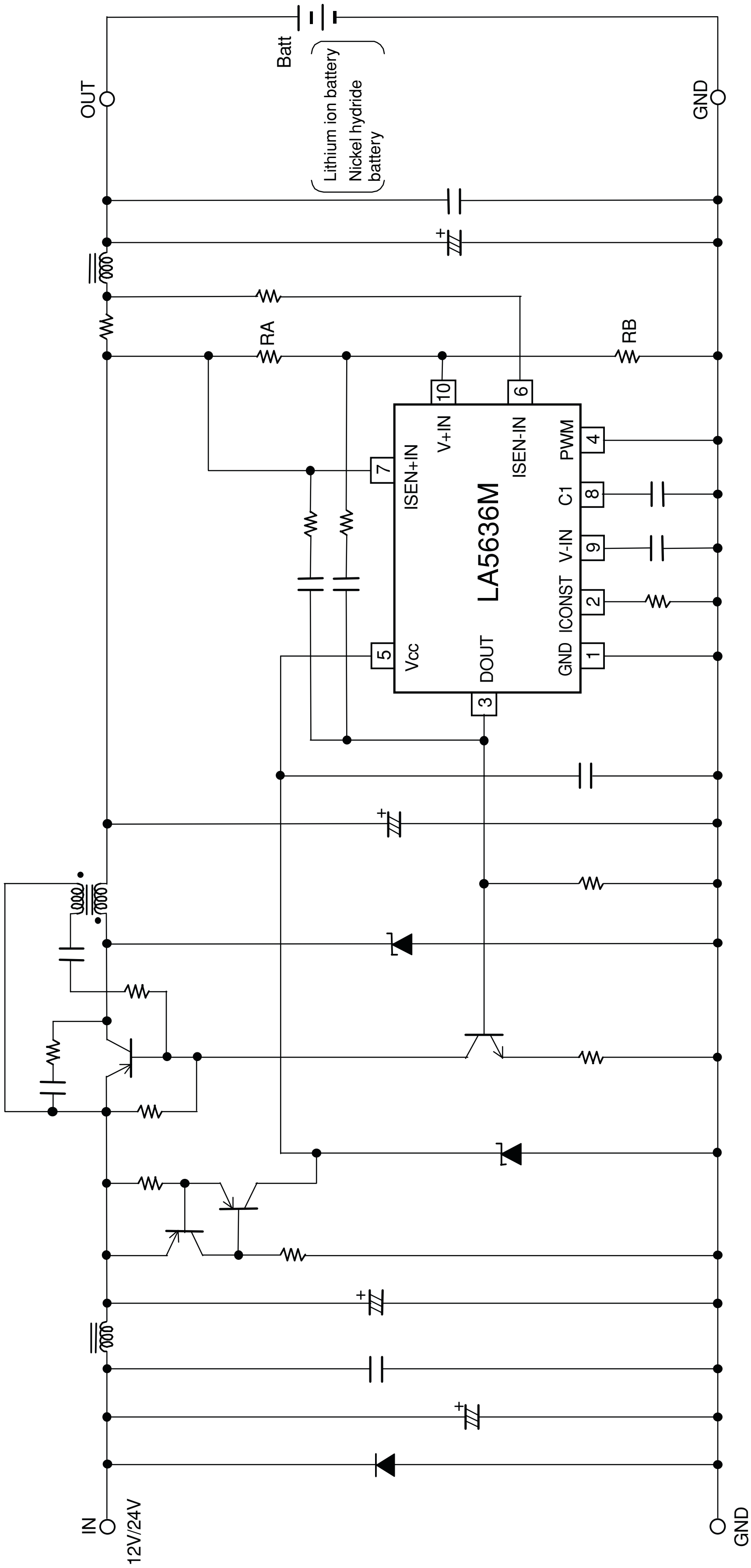


Block Diagram

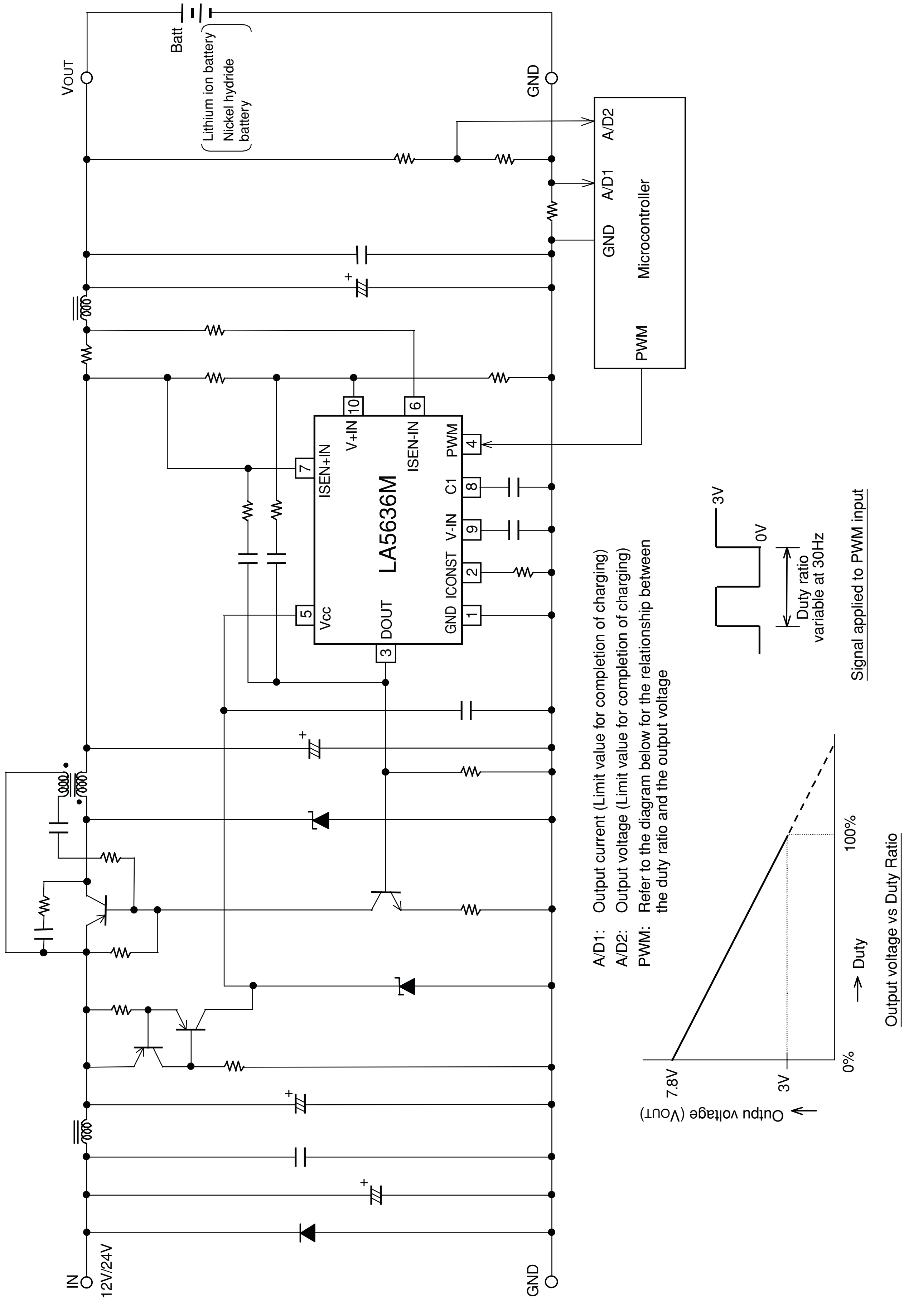


Application Circuit Diagram 1 (DC Mode)

1. OUT voltage can be set as desired by varying RA and RB.



Application Circuit Diagram 2 (PWM Mode)



This catalog provides information as of May, 2003. Specifications and information herein are subject to change without notice.