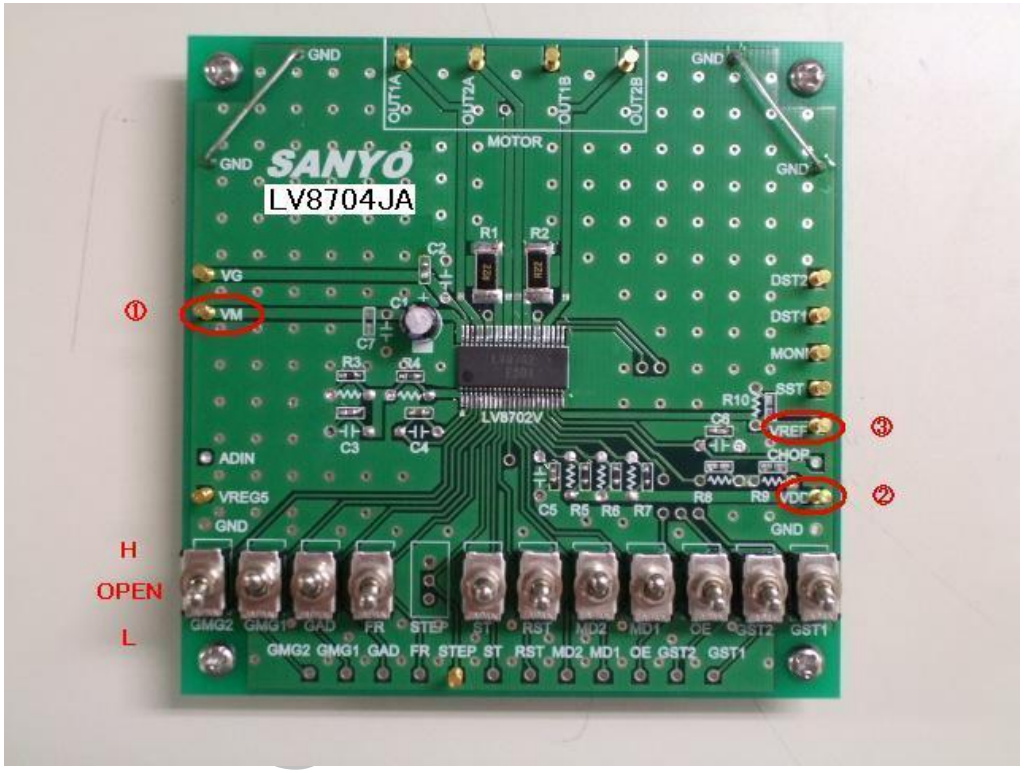
LV8704JA Evaluation board overview **Ver1.3**

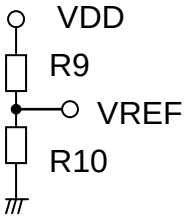
Power Device Development Dept.
Standard LSI Division
SANYO Semiconductor Co., Ltd.

The overview of LV8704JA evaluation board is described as follows.
See LV8704JA development specification for the electrical characteristics.

◆LV8704JA Evaluation board



(1) VM power supply.
(2) Power supply (VDD) for logic input.
(3) VREF power supply.
To supply power to VREF power supply by dividing VDD power supply with resistors, use R9 and R10 as shown below.



◆Input pin description

Toggle type switch is used. ON (L: fixed to GND), OFF（Hi-Z）, ON（H: fixed to VDD）

<Basic pins>

・ST

Chip enable switch.

L: Standby status

H: Operation status

・STEP

Step signal input pin.

Make sure to input step pulse from STEP test pin.

・MD2, MD1

Excitation mode setting switch.

LL: 2 phase excitation mode (High efficiency drive: OFF)

LH: 1-2 phase excitation mode

HL: W1-2 phase excitation mode

HH: 1-2 phase full-torque excitation mode

・RST

Reset switch.

L: Normal operation

H: Reset status

・OE

Driver output enable switch.

L: Output ON

H: Output OFF

・FR

Rotation direction setting switch.

L: CW

H: CCW

<High-efficiency drive pin>

・GAD

Switch to turn on/off high-efficiency drive

During external signal input, GAD setting switch should be Hi-Z.

L: High-efficiency→ OFF

H: High-efficiency→ ON

・GMG2, GMG1

Margin adjustor switch for step-out. The larger the margin is, more stable the motor rotation becomes. However, consumption current increases.

LL: Small margin

LH: Middle margin

HL: Large margin

HH: Setting is inhibited

・GST2, GST1

Boost-up adjustor switch.

This motor driver IC enables current boost-up when a possible step-out is detected due to load or speed variation.

This switch adjusts boost-up level.

LL: Boost-up level→ minimum

LH: Boost-up level→ low

HL: Boost-up level→ high

HH: Boost-up level→ maximum

* When the boost-up level is set to the maximum level (HH), a current boosts up abruptly, which may be the cause of motor vibration.

◆Output pin description

・MONI

Position detection monitor pin.

・DST2, DST1

DST2 outputs warning for step-out margin and error status.

When the step-out margin is small, DST2 outputs 1-step L.

When error is detected (output short or overheat status), DST2 are fixed to L.

DST1 outputs warning against step-out and error status.

When DST1 detects step-out status, it outputs 1-step L pulse.

Depends on an operation condition, step-out may not be detected.

When DST1 detects error status (output short or overheat status), it is fixed to L.

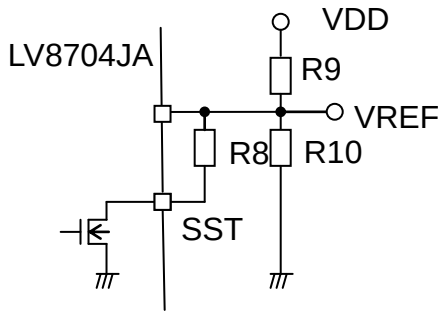
DST2	DST1	Status
H	H	Normal
H	L	Step-out status (supports high-efficient drive only)
L	H	Small step-out margin (supports high-efficient drive only)
L	L	Output short or overheat

・SST

Motor stop detection output pin.

When STEP signal is not input for about 16ms (min: 13ms, max: 23ms), SST determines that motor rotation is stopped and SST turns on. When SST is on, high-efficient function turns off automatically and the value Iout becomes the maximum which is set by VREF. And then by inputting STEP signal, SST is turned off and high-efficient drive is enabled.

With the following circuit and by decreasing VREF voltage when the motor is stopped, Iout consumption current is saved.



◆Power supply process:

Turn on VM power supply → Turn on power supply for logic input (VDD) → Turn on VREF power supply

And then, set each pin (ST=L→H) and input STEP signal.

◆Power supply stop process:

Set ST=H→L and stop STEP signal.

Then turn off VREF power supply → Turn off power supply for logic input（VDD）→ Turn off VM power supply