LV8731V Evaluation Board Manual

8/1/2008

[Supply Voltage] VM (9 to 32V): Power Supply for LSI
VREF (0 to 3V): Const. Current Control for Reference Voltage
VDD (2 to 5V): Logic “High” voltage for toggle switch

[Toggle Switch State] Upper Side: High (VDD)
Middle: Open, enable to external logic input
Lower Side: Low (GND)

[Operation Guide]

For stepping motor control

1. **Initial Condition Setting:** Set “Open” the toggle switch STEP/D22, and “Open or Low” the other switches
2. **Motor Connection:** Connect the Motors between OUT1A and OUT1B, between OUT2A and OUT2B.
3. **Power Supply:** Supply DC voltage to VM, VREF and VDD.
4. **Ready for Operation from Standby State:** Turn “High” the ST terminal toggle switch. Channel 1 and 2 are into 2-phase excitement initial position (100%, -100%).
5. **Motor Operation:** Input the clock signal into the terminal STEP/DC22.
6. **Other Setting** (See LV8731V datasheet for detail)
   i. ATT1, ATT2: Motor current attenuation.
   ii. EMM: Short circuit protection mode change.
   iii. RST/BLK: Initial Mode.
   iv. FR/DC21: Motor rotation direction (CW / CCW) setting.
   v. MD1/DC11, MD2/DC12: Excitation mode.
   vi. OE: Output Enable.

For DC motor control

1. **Initial Condition Setting:** Set “Open” the toggle switch DM, and “Open or Low” the other switches
2. **Motor Connection:** Connect the Motor(s) between OUT1A and OUT1B, between OUT2A and OUT2B.
3. **Power Supply:** Supply DC voltage to VM, VREF and VDD.
4. **Ready for Operation from Standby State:** Turn “High” the ST terminal toggle switch.
5. **Motor Operation:** Set MD1/DC11, MD2/DC12 and STEP/DC22 terminals according to the purpose (See LV8731V datasheet).
6. **Other Setting** (See LV8731V datasheet for detail)
   i. ATT1, ATT2: Motor current attenuation.
   ii. EMM: Short circuit protection mode change.
   iii. RST/BLK: Blanking time change.
   iv. OE: Output enable.

[Setting for External Component Value]

1. Constant Current (100%)

At VREF=1.5V

Iout =VREF [V] / 5 / RF [ohm]
=1.5 [V] / 5 / 0.22 [ohm]
=1.36 [A]

2. Chopping Frequency

Fchop =Ichop [uA] / (Cchop x Vt x 2)
=10 [uA] / (180 [pF] x 0.5 [V] x 2)
=55 [kHz]

3. Short Protection Latch Time

Tscp =CEM [pF] x Vt[V] / Ichg [uA]
=100 [pF] x 1 [V] / 10 [uA]
=10 [uS]