

Cylinder Motor Driver ICs for VCR

The AN3813K and AN3814K are ICs developed to drive VCR cylinder motor. They provide sensorless drive which requires no position-detecting Hall elements.

- Position detecting Hall elements unrequired.
- 3-phase half-wave overlap drive.
- PG/FG composite three-valued output.
- Built-in thermal protection circuit.
- Max. output current 1.5A.
- The AN3813K incorporates a current modulator which reduces an electromagnetic sound.



The block diagram illustrates the internal architecture of the AN3813K microcontroller, organized around a central bus system. The top bus (pins 10-18) includes V_{CC} (pin 10), an Oscillator (pin 11), a Preset (pin 12), an Interface (pin 14), and pins 13, 15, 16, 17, and 18. The bottom bus (pins 1-9) includes pins 1, 2, 3, 4, 5, 6, 7, 8, and 9. Key functional blocks include:

- Power Unit (NPN × 3)**: Connected to pins 1, 2, 3, 16, 17, and 18.
- Multiplier**: A central processing block connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- PG/FG Process**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Ext. Sync.**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Mode Select** and **1/16 Freq. Divider**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Stop Detect**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Start error detect**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Waveform Shaping**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Stop**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Interface**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Charger/Discharger**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- BEMF Detect**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Current Modulation**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Torque Command**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Saturation Detect**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.
- Thermal Shutdown**: Connected to pins 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, and 17.

※ Current modulation is provided for the AN3813K only.