

FEATURES

- Up to 1-MHz I²C interface with internal 128 Bytes FIFO
- Low power operation: under 1 mA of quiescent current
- IC supply voltage range: 3 V to 5.5 V
- IO Voltage: 1.8 V to VDD
- Programmable I²C slave address up to 3
- Immersion TS5000 Compliant
- Minimum 8 ohm load
- Support 8/4/2 kHz data sample rate
- Typical 1% THD+N
- Fast turn-on time under 0.4 ms
- Typical 2 uA standby current
- Current limit and thermal overload protection
- No external component for mobile phone PCB
- 1.21 x 1.21 mm² 9-ball WLCSP, 3 x 3 mm² QFN package
- RoHS compliant package

TYPICAL APPLICATION CIRCUIT

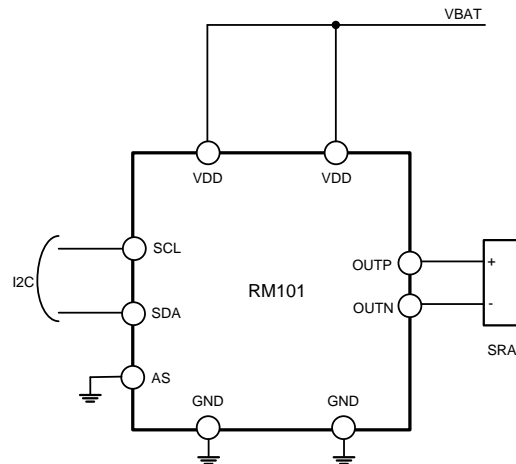


Figure 1. RM101 typical application circuit

GENERAL DESCRIPTION

The RM101 is a high definition haptic driver IC with integrated digital front end, digital-to-analog converter, and differential output driver amp. It receives digital haptic data via I²C bus. Then converts the data into high fidelity analog signal using DAC, and drives actuator with high current with only 0.4 ms of turn-on time. Current limit and thermal overload protection prevent the device from being damaged when IC is overloaded.

APPLICATIONS

- Mobile phones
- Tablets
- Portable computers
- Keyboards and Mice
- Electronic gaming
- Touch enabled devices

PIN CONFIGURATION AND FUNCTION DESCRIPTIONS

WLCSP Package

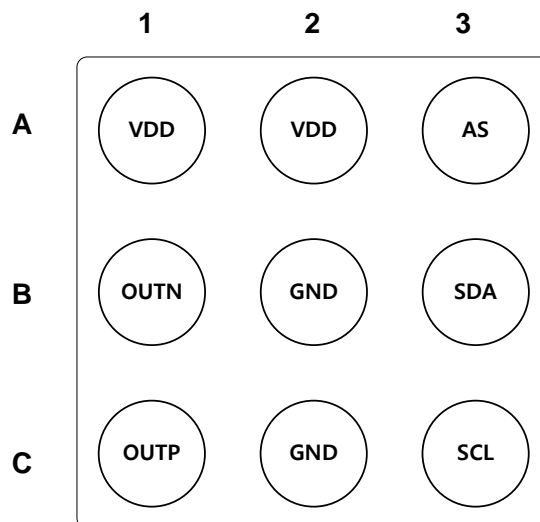


Figure 2. WLCSP ball configuration (TOP VIEW, ball side down)

Table 1. RM101 WLCSP ball function descriptions

Ball	Name	Description
A1, A2	VDD	Power supply for RM101
B2, C2	GND	Ground for RM101
C1	OUTP	Positive driver output
B1	OUTN	Negative driver output
B3	SDA	I ² C data ball
C3	SCL	I ² C CLK ball
A3	AS	Address selection ball. Please see the I ² C READ/WRITE Address section

TYPICAL PERFORMANCE CHARACTERISTICS

$T_A = 25\text{ }^{\circ}\text{C}$, $V_{DD} = 3.6\text{ V}$, $F_s = 200\text{ Hz}$, $R_L = 22\text{ }\Omega$, $V_{OUT} = 5.64\text{ V}_{pp,diff}$.

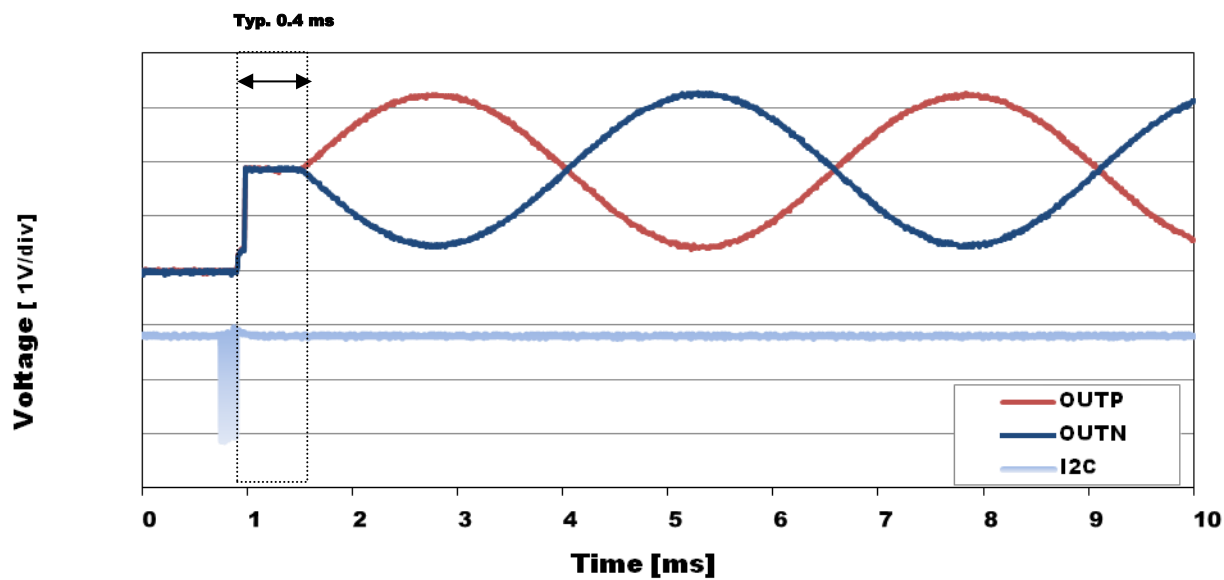


Figure 3. Turn-on time – 8 kHz sampling

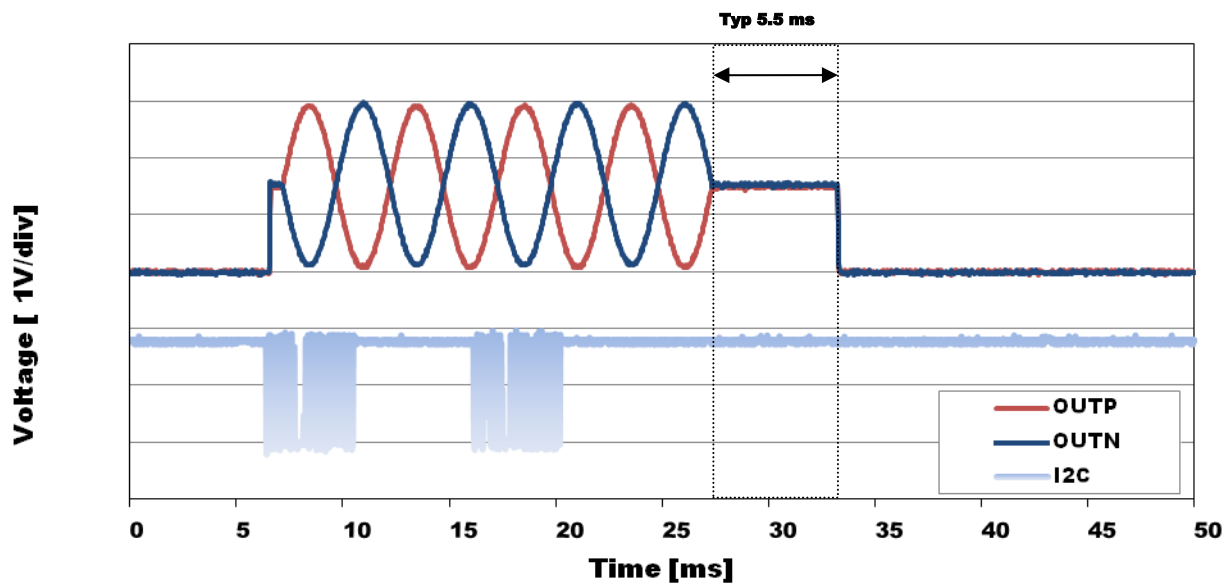


Figure 4. Turn-off time – 8 kHz sampling

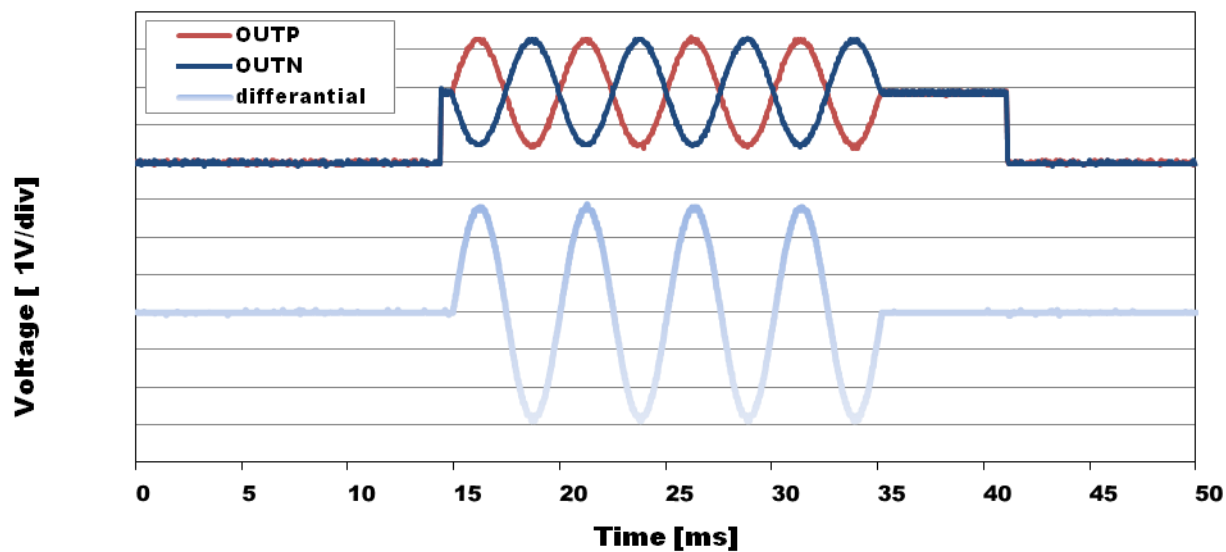


Figure 5. Typical waveform - 8 kHz sampling

ORDERING GUIDE

Model	Temperature Range	Package
RM101AW7	-40°C to + 85°C	9-ball WLCSP
RM101AQR	-40°C to + 85°C	16-pin QFN