TWR-KM34Z75M Quick Start Guide

Power-Efficient, 75 MHz ARM® Cortex®-M0+-based MCUs

Tower System Development Platform

Get to Know the TWR-KM34Z75M

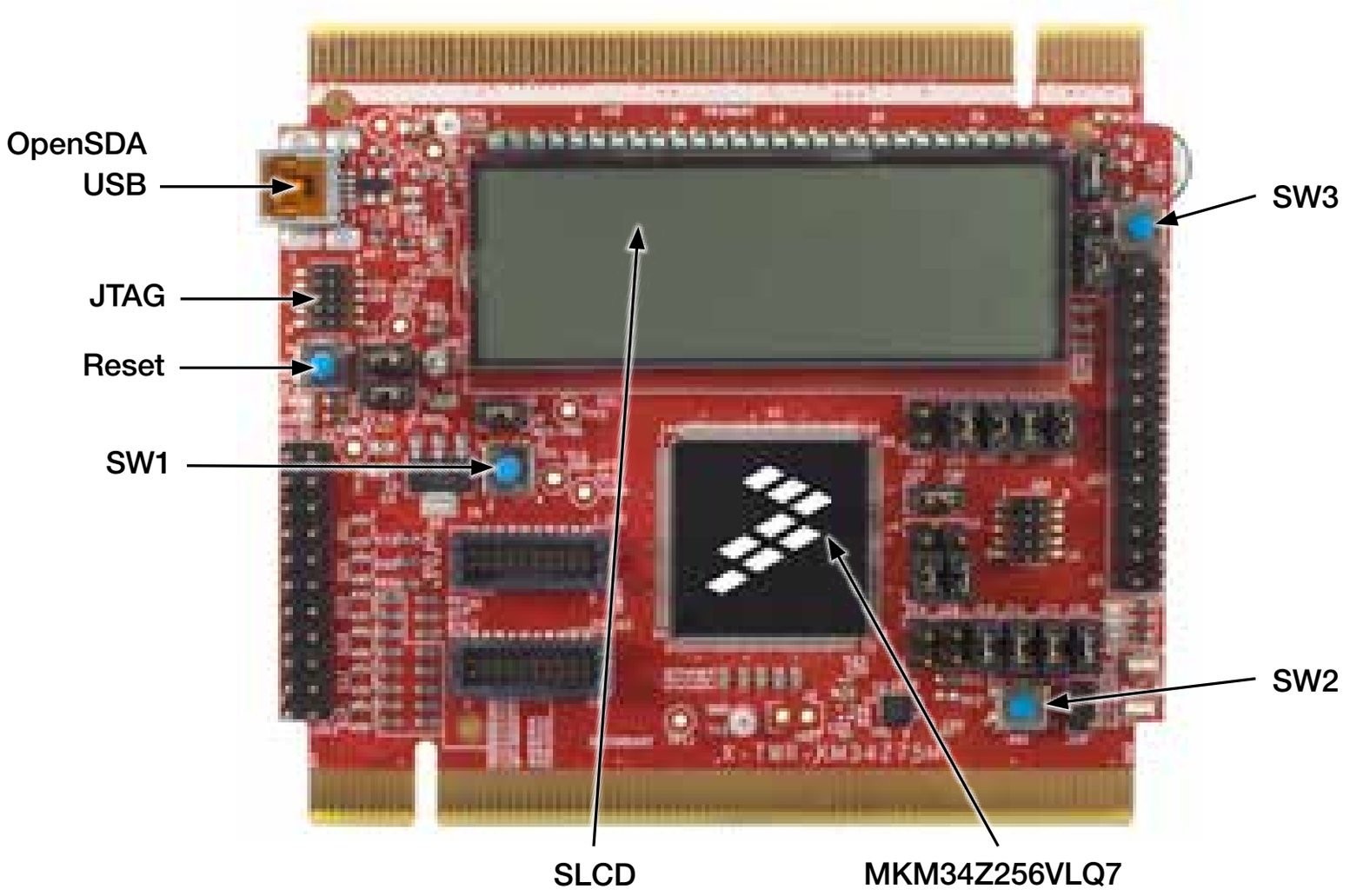

Figure 1: Front side of TWR-KM34Z75M

Figure 2: Back side of TWR-KM34Z75M

TWR-KM34Z75M

Freescale Tower System Development Platform

The TWR-KM34Z75M board is designed to work either in standalone mode or as part of the Freescale Tower System, a modular development board platform that enables rapid prototyping and tool re-use through reconfigurable hardware. Begin constructing your Tower System evaluation board platform today by visiting **freescale.com/Tower** for additional Tower System boards and compatible peripherals.

TWR-KM34Z75M

Features

- Tower-compatible microcontroller module
- KM34Z256VLQ7 MCU (75 MHz, 256 KB Flash, 32 KB RAM, low power, LQFP144 package)
- USB interface with mini-B USB connector
- Large 160-segment glass LCD
- On-board debug circuit: Open source JTAG/SWD (OpenSDA) with virtual serial port
- Three-axis accelerometer/anti tamper tilt sensor (MMA8451Q)
- Four user-controllable LEDs
- Two user push button switches for GPIO interrupts
- One user push button switch for tamper detection
- One user push button switch for MCU reset
- Potentiometer
- Headers for direct GPIO and ADC access
- External tamper pins
- Independent, battery-operated power supply for real-time clock (RTC) and tamper detection modules
- IRDA support
- NTC temperature sensor
- General-purpose tower plug-in (TWRPI) socket

Tools

- IAR EWARM V7.30 or higher

Step-by-Step Installation Instructions

In this Quick Start Guide, you will learn how to set up the TWR-KM34Z75M board and run the included demonstrated software. For more detailed information, review the user manual at **freescale.com/TWR-KM34Z75M.**

1 Download Software and Tools

"Jump Start Your Design" at **freescale.com/TWR-KM34Z75M**.

2 Install Software and Tools

Install the OpenSDA Tower Toolkit to install the OpenSDA and USB-to-Serial drivers.

3 Configure the Hardware

Connect one end of the USB cable to the PC, and the other end to the Power/OpenSDA mini-B connector (J27) on the TWR-KM34Z75M module. Allow the PC to automatically configure the USB drivers if needed.

4 Confirm Segment LCD

All segments are turned on and kept immediately, and LEDs are blinking.

5 Explore Further

Learn more about Kinetis M series MCUs, find Sigma-Delta ADC performance and low power modes, as well as software peripheral drivers and additional labs at freescale.com/TWR-KM34Z75M.

Expanded Software and Tools Now Available for Kinetis MCUs

Additional details regarding the Quick Start Demo are included as part of the Kinetis software development kit (SDK).

To take your design to the next level, leverage the Kinetis SDK and other online enablement software and tools for Kinetis MCUs, available for download at the relevant links listed here.

- Kinetis software development kit at **freescale.com/ksdk**
- Kinetis Design Studio IDE at **freescale.com/kds**
- Bootloader for Kinetis MCUs at **freescale.com/kboot**

PWR-KIVI34Z75M Jumper Options

The following is a list of all the jumper options. The default installed jumper settings are indicated in the shaded boxes.

Jumper	Option	Setting	Description
J1	MCU power connection	**1-2**	Connect VBAT to on-board 3.3 V supply
		2-3	Connect VBAT to the higher voltage between MCU supply (MCU_PWR) or VBAT
J9	SPI NOR flash	**ON**	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J12	SPI NOR flash	**ON**	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J13	SPI NOR flash	**ON**	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J15	SPI NOR flash	**ON**	Connect MCU SPI signal to NOR flash
		OFF	Disconnect MCU SPI signal to NOR flash
J17	Orange LED drive	**ON**	Connect MCU GPIO to drive orange LED
		OFF	Disconnect MCU GPIO to drive orange LED

PWR-KIVI34Z75M Jumper Options (cont.)

Jumper	Option	Setting	Description
J18	IRDA transmit	**ON**	Connect MCU IRDA transmit signal
		OFF	Disconnect MCU IRDA transmit signal
J19	IRDA receive	**ON**	Connect MCU IRDA receive signal
		OFF	Disconnect MCU IRDA receive signal
J3	MCU_PWR selection	**ON**	MCU powered from V_BRD 3.3V on board reg.
		OFF	MCU can be supplied by ext. voltage connected to J6 - pin 1
J7	Analog power enable	**ON**	Connect analog voltages to V_BRD
		OFF	External VDDA can be applied
J21	Pot. enable	**ON**	Connect PTF1/ADC0_SE8 to pot. R21
		OFF	Disconnect PTF1/ADC0_SE8 to pot. R21
J9	Temp. sensor enable	**ON**	Connect PTF0/AD7 to temp. sensor
		OFF	Disconnect PTF0/AD7 to temp. sensor

TWR-KM34Z75M Jumper Options (cont.)

Jumper	Option	Setting	Description
J28	OpenSDA reset enabled	**ON**	KM34 reset input driven by K20 OpenSDA
		OFF	KM34 reset input isolated from OpenSDA
J4	8M Crystal	**1-2**	Connect MCU EXTAL PIN to crystal
		2-3	Connect MCU EXTAL PIN to external clock
J7	8M Crystal	**1-2**	Connect MCU XTAL PIN to crystal
		2-3	Connect MCU XTAL pin to GND

GPIO Header (J25) Signal Connections

MCU Signal	J25 PIN		MCU Signal
SW3 (Tamper swich)	1	2	SW3 to TAMPER0 (when closed)
SW3 (Tamper swich)	3	4	SW3 to TAMPER1(when closed)
SW3 (Tamper swich)	5	6	SW3 to TAMPER2(when closed)
V_BRD	7	8	PTK5/UART1_RX
PTK6/UART1_TX	9	10	GND
PTL0/I2C0_SDA	11	12	PTK7/I2C0_SCL
PTF6/SPI1_MOSI	13	14	PTF5/SPI1_MISO
PTF4/SPI1_SCK	15	16	PTF3/SPI1_PCS0
PTD0/CMP0_IN0	17	18	PTF7/CLKOUT
PTL1/XBAR0_IN10	19	20	PTG0/QTMR0_TMR1/LPTMR0_ALT3
PTK4/AFE_CLK	21	22	PTK2/UART0_TX/ADC0_SE14
PTL2/XBAR0_OUT10	23	24	PTK3/UART0_RX/ADC0_SE15
VSSA	25	26	GND

Analog Inputs / Generator Outputs (J31)

MCU Signal	J31 PIN		MCU Signal
EXT_PWM0	1	2	EXT_SD_ADP0
VSSA_AFE	3	4	EXT_SD_ADM0
EXT_PWM1	5	6	EXT_SD_ADP1
VSSA_AFE	7	8	EXT_SD_ADM1
EXT_PWM2	9	10	EXT_SD_ADP2
VSSA_AFE	11	12	EXT_SD_ADM2
EXT_PWM3	13	14	EXT_SD_ADP3
VSSA_AFE	15	16	EXT_SD_ADM3
EXT_PWM4	17	18	EXT_SAR_AD0
EXT_PWM5	19	20	EXT_SAR_AD1
EXT_PWM6	21	22	EXT_SAR_AD2

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Download installation software and documentation under **“Jump Start Your Design”** at **freescale.com/TWR-KM34Z75M.**

Visit **freescale.com/TWR-KM34Z75M** or **freescale.com/Kinetis** for more information on the TWR-KM34Z75M board.

Support

Visit **freescale.com/support** for a list of phone numbers within your region.

Warranty

Visit **freescale.com/warranty** for complete warranty information.

For more information, visit freescale.com/TWR-KM34Z75M, freescale.com/Kinetis or freescale.com/Tower

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