

3A, 2.4MHz, Low-Voltage, I²C Programmable Buck Regulator

Features

- 2.7 to 5.5V Input Voltage Range
- 0.6 to 3.345V Programmable Output Voltage
 - ▶ 6.25mV steps below 1.39375V
 - ▶ 15mV steps above 1.44V
- 3.0A Output Current
- $\pm 1\%$ Accuracy at $T_A = +25^\circ\text{C}$
 - ▶ $\pm 2.5\%$ over line/load/temp/setting
- Fast Transient Response
- Dynamic Voltage Scaling (DVS) with 8 ramp rates
- Soft-Start with 10 ramp rates
- 89% Peak Efficiency at $V_{out} = 1.15625\text{V}$
- 2.4MHz with Auto-Skip at light loads
 - ▶ Programmable forced-PWM mode
- 48uA typ. No-Load Supply Current in Skip Mode
- Tiny External Components
 - ▶ $L = 330$ or 470nH (2012 or 2016 metric size)
 - ▶ $C_{in} = 10\mu\text{F}$ (0402), $C_{out} = 2 \times 22\mu\text{F}$ (2x0402)
- Over-Current, Short-Circuit, Under/Over- V_{IN} , and Thermal Shutdown Protections
- 1MHz I²C Interface
- Open-Drain $\overline{\text{IRQ}}$ Output Flag
- -40°C to 85°C Operating Temperature Range
- 15-bump Pb-free WLCSP (0.4mm pitch)
 - ▶ $1.340 \times 2.045\text{mm}$ (0.6mm height)
 - ▶ Pin/Register Compatible with FAN53526

Brief Description

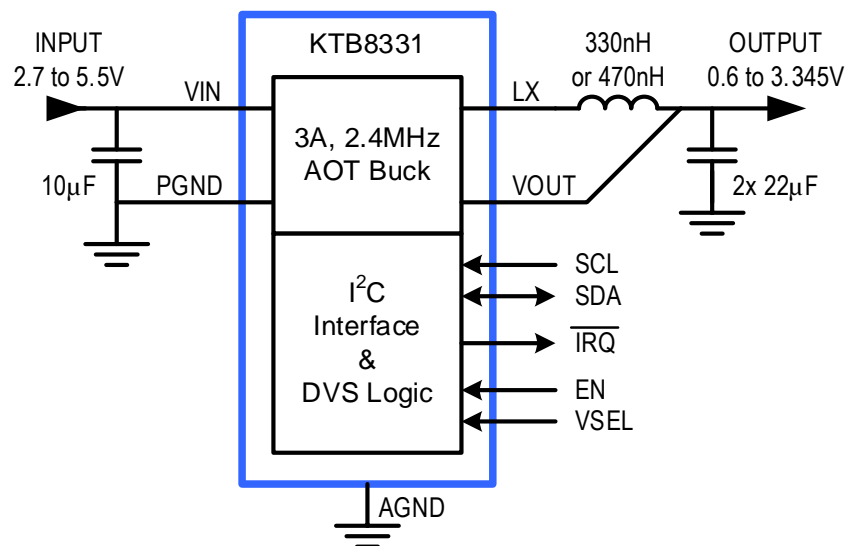
The KTB8331 is a precision adaptive-on-time (AOT) buck switching regulator with class-leading accuracy, transient response, efficiency, and solution size optimized for mobile and non-mobile application. It is I²C programmable for output voltages in the 0.6V to 3.345V range. It features soft-start and DVS with multiple programmable ramp rates. Versions with various default settings can be ordered. The features and performance make the KTB8331 suitable for a variety of applications including CPU/GPU core, DSP and baseband, DDR memory, VIO, and sensor/analog power.

The KTB8331 is available in RoHS and Green compliant 15-bump 1.340mm x 2.045mm x 0.6mm wafer-level chip-scale package (WLCSP).

Applications

- CPU, GPU, AP, DSP, FPGA, I/O, XCVR Power
- HDD, LPDDR3, LPDDR4 Memory Power
- Tablets, Netbooks, Ultra-Books
- Smartphones, Mobile Internet Devices, IoT
- DSC, Drones, Gaming Consoles, Accessories

Typical Application Schematic





Datasheet Brief

KTB8331

Ordering Information

Part Number	Marking ¹	Default Output Voltage & Mode ²		7-bit I ² C Slave Address	Package
		(VSEL = 1)	(VSEL = 0)		
KTB8331AEDAA-TR	QKXXYYZZZZ	1.15625V Forced-PWM	1.15625V Auto-Skip	1100 000=0x60h	WLCSP15

1. "WW" is the device ID, "XX" is the date code, "YY" is the assembly code, and "ZZZZ" is the serial number.

2. Contact a Kinetic Technologies representative regarding versions with other default settings.

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