

### 3A, 2.4MHz, Low-Voltage, I<sup>2</sup>C 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
- ±1% Accuracy at T<sub>A</sub> = +25°C
  - ▶ ±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<sub>out</sub> = 1.15625V
- 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<sub>in</sub> = 10μF (0402), C<sub>out</sub> = 2x22μF (2x0402)
- Over-Current, Short-Circuit, Under/Over-V<sub>IN</sub>, and Thermal Shutdown Protections
- 1MHz I<sup>2</sup>C Interface
- Open-Drain IRQ\ Output Flag
- -40°C to 85°C Operating Temperature Range
- 15-bump Pb-free WLCSP (0.4mm pitch)
  - ▶ 1.340 x 2.045mm (0.6mm height)
  - ▶ Pin/Register Compatible with FAN53526

#### Brief Description

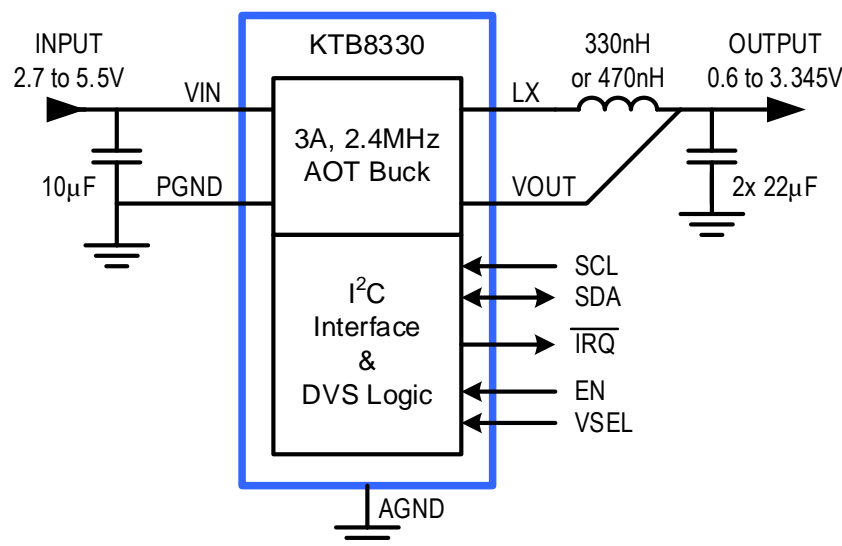
The KTB8330 is a precision adaptive-on-time (AOT) buck switching regulator with class-leading accuracy, transient response, efficiency, and solution size optimized for mobile and non-mobile application. It is I<sup>2</sup>C programmable for output voltages in the 0.6V to 3.345V range. It features soft-start and DVS with multiple programmable ramp rates. Versions with various default settings can be ordered. The features and performance make the KTB8330 suitable for a variety of applications including CPU/GPU core, DSP and baseband, DDR memory, VIO, and sensor/analog power.

The KTB8330 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





### Ordering Information

Part Number	Marking	Default Output Voltage & Mode <sup>1</sup>		Operating Temperature	Package
		(VSEL = 1)	(VSEL = 0)		
KTB8330AEDAA-TR	NVXXYYZZZZ <sup>2</sup>	1.15625V Forced-PWM	1.15625V Auto-Skip	-40°C to +85°C	WLCSP15
KTB8330BEDAA-TR	NYXXYYZZZZ <sup>2</sup>	3.300V Forced-PWM	3.150V Auto-Skip	-40°C to +85°C	WLCSP15
KTB8330CEDAA-TR	NZXXYYZZZZ <sup>2</sup>	1.000V Forced-PWM	0.900V Auto-Skip	-40°C to +85°C	WLCSP15

1. Contact a Kinetic Technologies representative regarding versions with other default settings.
2. XX = Date Code, YY = Assembly Code, ZZZZ = Serial Number.

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