

ADVANCED INFORMATION

HIGH CURRENT STEP-UP CONVERTER WITH BATTERY MONITOR

FEATURES

- Very Low Quiescent Current (10 μ A)
- Extremely Low Operating Current (25 μ A)
- Internal Battery Monitor
- Regulates Down to 1.8 V
- Short Circuit Protection
- Synchronous Rectification
- Up To 95% Efficient

DESCRIPTION

The TK653xx mid power step-down converter is designed for portable battery powered systems, capable of operating from single Li-ion battery cells or two NiCad battery cells. The TK653xx provides the power switch, synchronous rectifier, and the control circuit for a buck step-down converter. Only three external components are required to complete the step-down conversion.

The TK653xx provides laser-trimmed output voltages ranging from 1.8 V to 3.3 V. The low resistance MOSFET switch and synchronous rectifier allow average currents up to 800 mA, while maintaining peak efficiencies up to 95%. A low-battery threshold and turn-off threshold can be individually programmed by the user, utilizing a single resistor divider connected to the Low Battery Input (LBI) pin. When the resistively-divided supply voltage on the LBI pin drops below approximately 1.25 V, the Low Battery Output (LBO) pin will become asserted. The dual-function LBI pin can alternatively be used as a Standby (SB) pin. Driving the SB pin low will disable the TK653xx and drop the quiescent current on the input supply to approximately 10 μ A.

Pulse Burst Modulation (PBM) is used to regulate the voltage at the V_{OUT} pin of the IC. When the output voltage of the TK653xx drops below the regulation threshold, a current pulse is transferred from the input supply to the

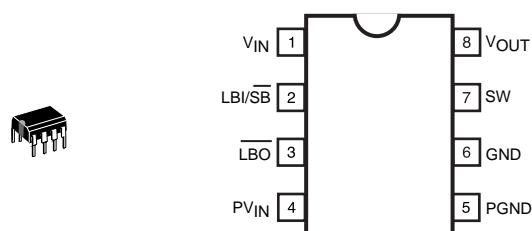
APPLICATIONS

- Battery Powered System
- Cellular Telephones
- Pagers
- Personal Communications Equipment
- Radio Controlled Systems
- Toys

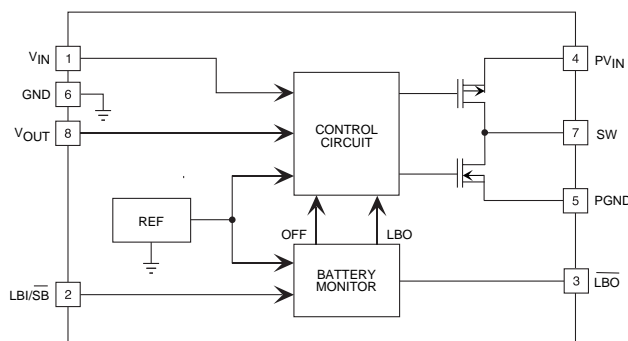
output. The TK653xx utilizes a proprietary control scheme, where the average amplitude of the current pulse is varied depending upon the current loads. The proprietary architecture allows fast transient response and minimal ripple while maintaining ease-of-use and low component count.

The TK653xx is available in SOP-8 and DIP-8 packages.

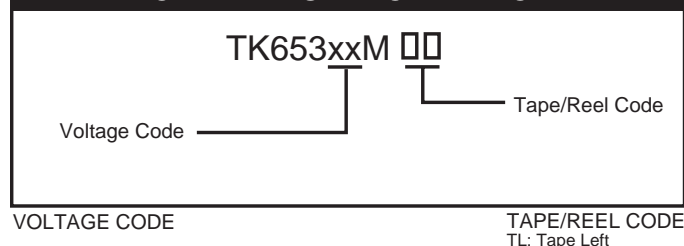
TK653xxM



BLOCK DIAGRAM

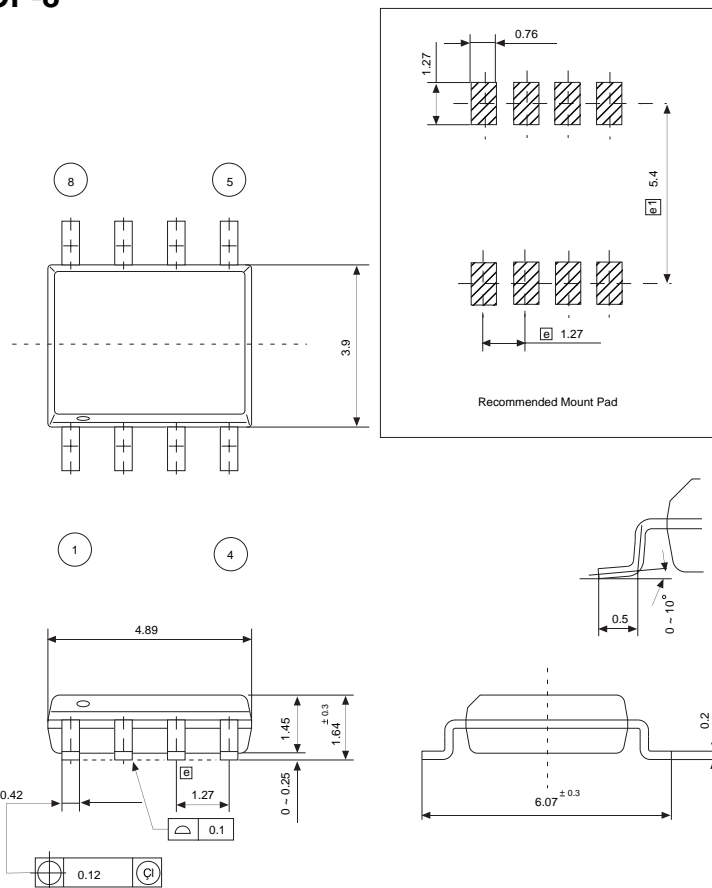


ORDERING INFORMATION



PACKAGE OUTLINE

SOP-8



Dimensions are shown in millimeters
Tolerance: x.x = ± 0.2 mm (unless otherwise specified)

Marking Information

TK653xx

Marking



Toko America, Inc. Headquarters
1250 Feehanville Drive, Mount Prospect, Illinois 60056
Tel: (847) 297-0070 Fax: (847) 699-7864

TOKO AMERICA REGIONAL OFFICES

Midwest Regional Office
Toko America, Inc.
1250 Feehanville Drive
Mount Prospect, IL 60056
Tel: (847) 297-0070
Fax: (847) 699-7864

Western Regional Office
Toko America, Inc.
2480 North First Street, Suite 260
San Jose, CA 95131
Tel: (408) 432-8281
Fax: (408) 943-9790

Eastern Regional Office
Toko America, Inc.
107 Mill Plain Road
Danbury, CT 06811
Tel: (203) 748-6871
Fax: (203) 797-1223

Semiconductor Technical Support
Toko Design Center
4755 Forge Road
Colorado Springs, CO 80907
Tel: (719) 528-2200
Fax: (719) 528-2375

Visit our Internet site at <http://www.tokoam.com>

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