January 2011

FAN5646
Programmable Indicator "Soft" LED Blinker with TinyWire™ Single-Wire Interface

Features

- LED "Soft" Blink: with Logarithmic Fade Up and Fade Down for Power Savings
- Follow or Repeat Pattern Mode for Blinking when Applications Processor is Powered Down
- Default Pattern Optionally Modified using TinyWire™ Single-Wire Digital Control for:
  - LED Current Rise / Fall Time
  - t_{ON} and t_{OFF} for Up to Two Pulses
- High-Side Constant Current LED Driver:
  - 20mA Maximum Output Current
  - 80mV Drop-out at 20mA I_{OUT}
  - External R_{SET} (SC70 only) or Internal Current Programming
- 35μA Operating Quiescent Current
- Short-Circuit, Under-Voltage, and Thermal Protections
- Wide Input Range: 2.7 to 5.5V
- 4-Bump WLCSP, 0.4mm pitch or 5-Lead SC70 (EIAJ SC88)

Applications

- Cell Phone
- Pocket PCs and Digital Cameras
- Bluetooth® Headsets PMP and MP3 players

Description

The FAN5646 is a flexible and compact solution for a blinking or "breathing" LED indicator. The internal programmable blink algorithm eliminates any need for continual system processor control. This means longer battery life for a hand-held system because the system processor is not awakened from sleep mode to blink an LED.

Very low dropout of 80mV allows driving an LED without any inductors or switch capacitors. LED blink rate, rise and fall time, and CTRL line behavior can be programmed by a TinyWire™ single-wire digital interface. The on-time and time between pulses can be set for up to two different pulse widths.

The default for FAN5646 option 01 is "follow" mode, where the LED turns on with the programmed rise time, then stays on as long as CTRL remains HIGH. When CTRL falls, the LED turns off at the programmed fall time. For option 00; when CTRL is HIGH continuously, the LED repeats the programmed pattern.

The FAN5646 is available in a four-pin wafer-level chip-scale package with 0.4mm pitch or a five-lead SC70 package.

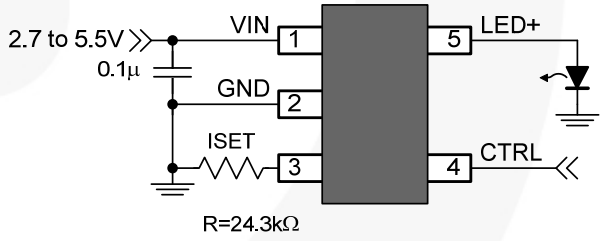

Figure 1. Typical Application

Ordering Information

Part Number	Option	Follow Bit Default	Temperature Range	Package	Packing
FAN5646UC00X	00	0	-40 to 85°C	WLCSP-4, 0.4mm Pitch	Tape and Reel
FAN5646S700X	00	0	-40 to 85°C	5-Lead SC70, EIAJ SC88	Tape and Reel
FAN5646UC01X	01	1	-40 to 85°C	WLCSP-4, 0.4mm Pitch	Tape and Reel
FAN5646S701X	01	1	-40 to 85°C	5-Lead SC70, EIAJ SC88	Tape and Reel

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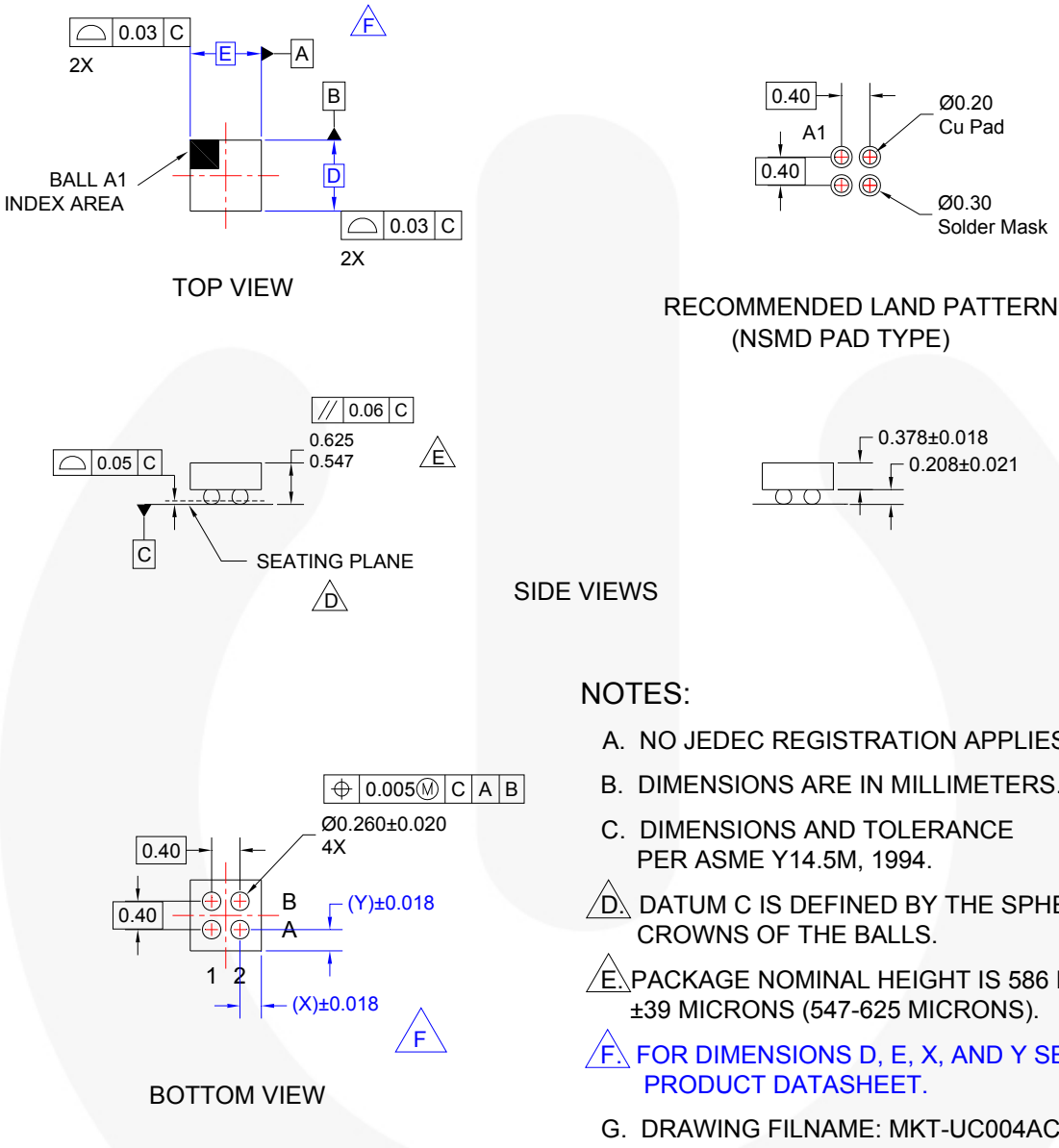
Important: *Contact a Fairchild Semiconductor sales representative for additional performance information and specifications.*

Physical Dimensions



NOTES:

A. NO JEDEC REGISTRATION APPLIES.

B. DIMENSIONS ARE IN MILLIMETERS.

C. DIMENSIONS AND TOLERANCE PER ASME Y14.5M, 1994.

D. DATUM C IS DEFINED BY THE SPHERICAL CROWNS OF THE BALLS.

E. PACKAGE NOMINAL HEIGHT IS 586 MICRONS ±39 MICRONS (547-625 MICRONS).

F. FOR DIMENSIONS D, E, X, AND Y SEE PRODUCT DATASHEET.

G. DRAWING FILNAME: MKT-UC004ACrev2.

Figure 15. 4-Bump WLCSP, 0.4mm Pitch

Product-Specific Dimensions

Product	D	E X Y		
FAN5646UC	0.820mm	0.820mm	0.210mm	0.210mm

Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent revision. Package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty therein, which covers Fairchild products.

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Physical Dimensions (Continued)

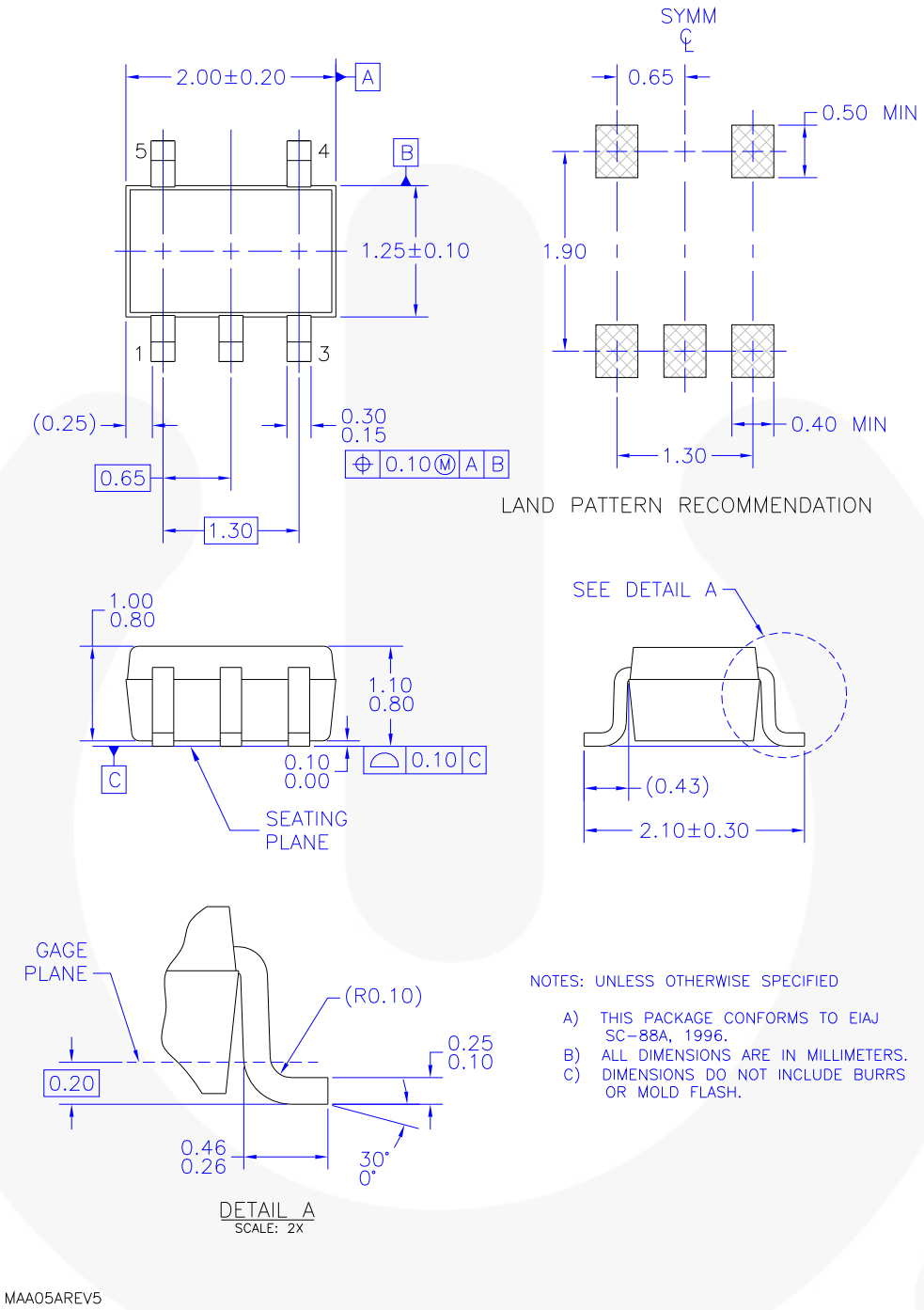

Figure 16. 5-Lead SC70 (EIAJ SC88)

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