

# **BLOCK DIAGRAM AND TYPICAL CIRCUIT**

Load

Figure 1. Functional Block Diagram

Figure 2. Typical Circuit

#### **ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter			Тур	Max	Unit
Vs	Supply Voltage			-	6.3	V
V <sub>IN</sub>	Input Voltage Range			_	6.3	V
TJ	Junction Temperature			-	+150	°C
T <sub>STG</sub>	Storage Temperature Range		-65	_	+150	°C
$T_L$	Reflow Temperature, Soldering		_	_	+260	°C
$\Theta_{JA}$	Package Thermal Resistance (Note 1)		-	456	_	°C/W
ESD	Electrostatic Discharge Protection	Human Body Model, JESD22-A114	-	_	5000	V
		Charged Device Model, JESD22-C101	_	_	1000	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Package thermal resistance  $(\Theta_{JA})$ , JEDEC standard, multi-layer test boards, still air.

#### **RECOMMENDED OPERATING CONDITIONS**

Symbol	nbol Parameter		Max	Unit
T <sub>A</sub>	Operating Temperature Range	-T		

# **TYPICAL PERFORMANCE CHARACTERISTICS**

(T<sub>A</sub> = 25°C, V<sub>S</sub> = V<sub>IN</sub> = 5 V, R<sub>OUT</sub> = 100  $\Omega$ , R<sub>SENSE</sub> = 100  $\Omega$ , unless otherwise noted.)

# TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

(T<sub>A</sub> = 25°C, V<sub>S</sub> = V<sub>IN</sub> = 5 V, R<sub>OUT</sub> = 100  $\Omega$ , R<sub>SENSE</sub> = 100  $\Omega$ , unless otherwise noted.)

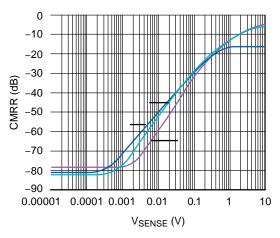


Figure 10. CMRR vs. Frequency

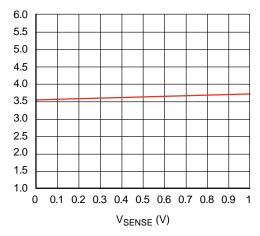


Figure 12. Supply Current vs. V<sub>SENSE</sub>

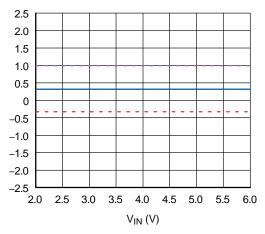


Figure 11. Output Current Error

#### **APPLICATION INFORMATION**

#### **Detailed Description**

The FAN4010 measures the voltage drop (V\_SENSE) across an external sense resistor in the high–voltage side of the circuit. V\_SENSE is converted to a linear current via an internal operational amplifier and precision  $100~\Omega$  resistor. The value of this current is V\_SENSE/100  $\Omega$  (internal). Output current flows from the  $I_{OUT}$  pin to an external resistor  $R_{OUT}$  to generate an output voltage proportional to the current flowing to the load.

Use the following equations to scale a load current to an output voltage:

$$V_{SENSE} = I_{LOAD} \cdot R_{SENSE}$$
 (eq. 1)

$$V_{OUT} = 0.01 \times V_{SENSE} \times R_{OUT}$$
 (eq. 2)

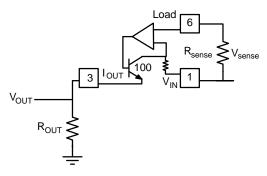


Figure 13. Functional Circuit

#### **ORDERING INFORMATION**

Device	Operating Temperature Range	Top Mark	Package	Shipping <sup>†</sup>
FAN4010IL6X	-40°C to +85°C	PX	6-Lead, Molded Leadless Package (MLP)	5000 / Tape & Reel
FAN4010IL6X-F113 (Note 6)			(Pb-Free)	

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

6. Legacy product number; please order FAN4010IL6X for new designs.

7. All packages are lead free per JEDEC: J-STD-020B standard.

8. Moisture sensitivity level for all parts is MSL-1.

### SIP6 1.45X1.0 CASE 127EB ISSUE O

DATE 31 AUG 2016

- 1. CON
- 2. DIMENSIONS ARE IN MILLIMETERS

