

Secondary-Side Voltage Positioning Controller

1 Description

The iW600 is a secondary-side voltage position controller to detect the voltage undershoot. It can be used in Dialog's primary-side control systems to achieve ultra-low no-load power consumption and fast dynamic load response. The iW600 operates in "Normally-OFF" mode with negligible power consumption during power supply normal steady state operation, while monitoring dynamic load change through the voltage on the secondary rectifier. A wake-up signal is transferred through the flyback power transformer to the primary side when a dynamic load change is detected. The iW600 eliminates loop compensation components and the optocoupler on the secondary side to minimize the bill of material cost.

2 Features

- Fast system output voltage detection
- Transmits detection signal to the primary side through flyback transformer
- Two-electrical-terminal connection simplifies system PCB layout
- No external components
- Enables <10mW no-load power consumption in typical 5V-output systems
- Available in 3-lead SOT-23 and 2-lead DFN packages

3 Applications

- AC/DC adapters/chargers

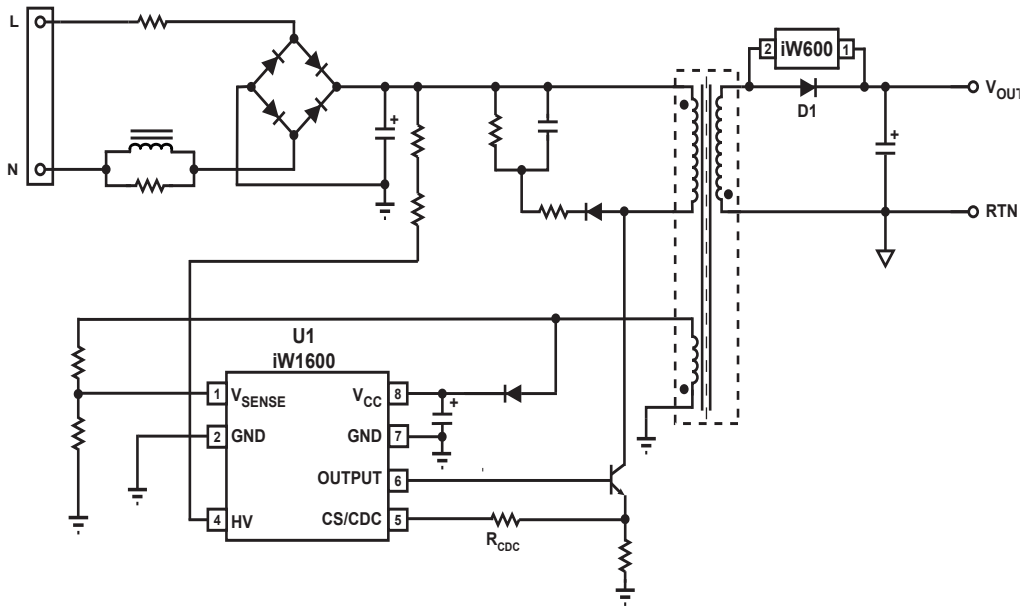


Figure 3.1: iW600 Typical Application Circuit (Using iW1600 as Primary-Side Controller) (Achieving < 10mW No-load Power Consumption in 5V/2A 10W Adapter with Fast Dynamic Load Response)

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4 Pinout Description

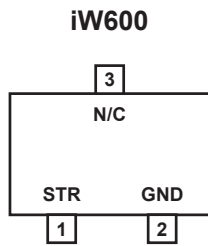


Figure 4.1: 3-Lead SOT-23 Package

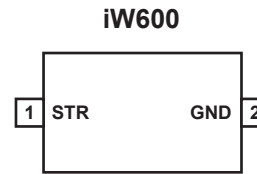


Figure 4.2: 2-Lead DFN Package

Pin No.	Name	Type	Pin Description
1	STR	Power Input/ Analog Input/ Power Output	Stroke pin. Controller Power input and voltage monitoring input. It also builds in a open-drain circuit to drive the flyback power transformer when dynamic load is detected.
2	GND	Ground	Ground.
3	N/C	N/C	Not connected. Recommend design a solder pad and solder this pin on the printed circuit board for mechanical stability.

Note 1: The N/C pin is only available in the 3-lead SOT-23 package.

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5 Absolute Maximum Ratings

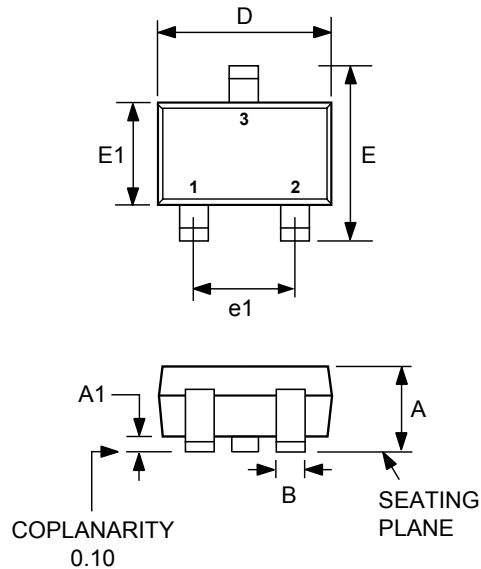
Absolute maximum ratings are the parameter values or ranges which can cause permanent damage if exceeded. For maximum safe operating conditions, refer to Electrical Characteristics (Section 6).

Parameter	Symbol	Value	Units
Input voltage range	V_{STR}	-1 to 60	V
Continuous DC supply current at V_{STR} pin ($V_{STR} = 60V$)	I_{CC_OP}	1	mA
Open-draining pull-down pulse current ($V_{STR} = 40V$)		400	mA
Maximum junction temperature	T_{JMAX}	150	°C
Operating junction temperature	T_{JOPT}	-40 to 150	°C
Storage temperature	T_{STG}	-65 to 150	°C
Thermal resistance junction-to-ambient (SOT-23)	θ_{JA}	260	°C/W
Thermal resistance junction-to-ambient (DFN)	θ_{JA}	680	°C/W
ESD rating per JEDEC JESD22-A114		±2,000	V

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6 Physical Dimensions

3-Lead SOT-23 Package



Symbol	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.035	0.044	0.89	1.11
A1	0.001	0.004	0.01	0.10
B	0.015	0.020	0.37	0.50
C	0.003	0.007	0.09	0.18
D	0.110	0.120	2.80	3.04
E	0.083	0.104	2.10	2.64
E1	0.047	0.081	1.20	1.40
e1	0.070	0.020	1.78	2.04

Compliant to JEDEC Standard TO236

Controlling dimensions are in millimeters

This package is RoHS compliant, and conform to Halide free limits.

Soldering Temperature Resistance:

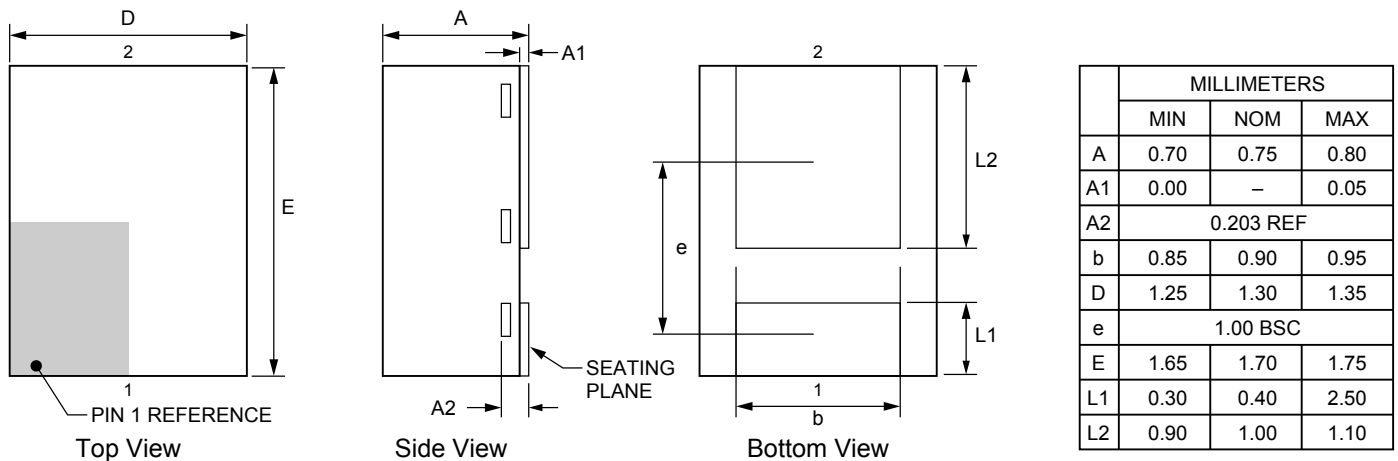
[a] Package is IPC/JEDEC Std 020D Moisture Sensitivity Level 1

[b] Package exceeds JEDEC Std No. 22-A111 for Solder Immersion resistance; packages can withstand 10 s immersion @ < 260 °C

Dimension D does not include mold flash, protrusions or gate burrs. Mold flash, protrusions or gate burrs shall not exceed 0.25 mm per end. Dimension E1 does not include interlead flash or protrusion. Interlead flash or protrusion shall not exceed 0.25 mm per side.

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2-Lead DFN Package



All dimensions are in millimeters.

Coplanarity applies to the exposed pad as well as the terminals.

Coplanarity shall not exceed 0.05 millimeters.

Warpage shall not exceed 0.05 millimeters.

Soldering Temperature Resistance:

[a] Package is IPC/JEDEC Std 020D Moisture Sensitivity Level 1.

[b] Package exceeds JEDEC Std No. 22-A111 for Solder Immersion Resistance; package can withstand 10 seconds immersion < 260°C.

7 Ordering Information

Part Number	Options	Package	Description
iW600-00-ST3	N/A	SOT-23L-3L	Tape & Reel ¹
iW600-00-DFN2	N/A	DFN-1.3m-2L	Tape & Reel ¹

Note 1: Tape & Reel packing quantity is 3,000/reel. Minimum ordering quantity is 3,000.

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