

POWER MANAGEMENT

Description

The SC1543 provides a glitch free 3.3V output when one of two 3.3V input sources is present. It does not require external logic to sequence from one input source to the other. Whenever VIN1 exceeds a predetermined threshold value the internal MOSFET connects it's source voltage to the output. If the input at VIN1 is below the threshold another internal MOSFET connects VIN2 to the output. If both inputs are at 3.3V then VIN1 will be connected to the output.

The SC1543 is designed to provide 400mA from the main input (VIN1) and 200mA from the secondary input (VIN2). A very low quiescent current of 10 μ A in shutdown mode reduces power dissipation.

The internal logic and control circuitry detects the voltage levels of VIN1 and VIN2, and compares them to an input reference voltage of 2.9V. An internally controlled period of switch overlap ensures that the transition between supplies is as glitch-free as possible.

The SC1543 is available in the MSOP-8 surface mount package.

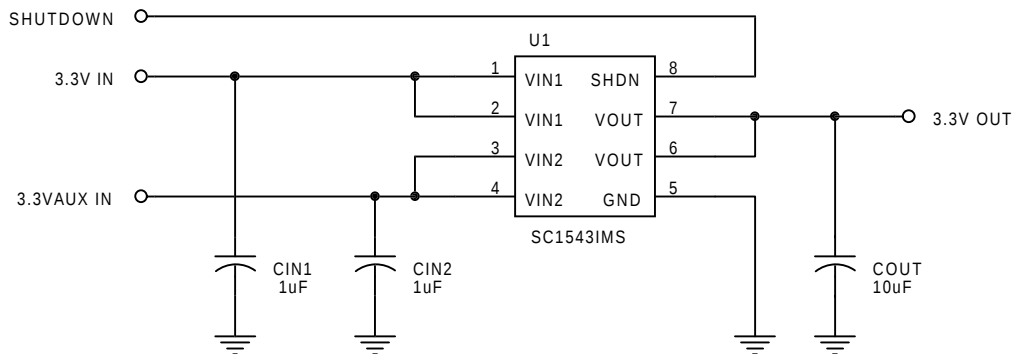
Features

- ◆ Glitch free transitions between inputs
- ◆ Internal logic selects appropriate input
- ◆ 400mA load current capability from main input
- ◆ Low power shutdown mode
- ◆ Industrial temperature range
- ◆ MSOP-8 package

Applications

- ◆ Mini PCI cards
- ◆ Peripheral cards
- ◆ Instantly available power supplies

Typical Application Circuit



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Absolute Maximum Ratings

Parameter	Symbol	Limits	Units
Input Supply Voltage	VIN1,2	-0.5 to +6	V
Output Current From: VIN1 VIN2	I _O	400 200	mA
Operating Ambient Temperature Range	T _A	-40 to +85	°C
Operating Junction Temperature Range	T _J	-40 to +125	°C
Storage Temperature Range	T _{STG}	-65 to +150	°C
Lead Temperature (Soldering) 10 sec	T _{LEAD}	300	°C
Thermal Impedance Junction to Ambient	θ _{JA}	206	°C/W
ESD Rating (Human Body Model)	V _{ESD}	2	kV

Electrical Characteristics

Unless specified: T_A = 25°C, SHDN = 0V, C_O = 10μF, I_O = 400mA (when power is being supplied from VIN1, 200mA when power is being supplied from VIN2). Values in **bold** apply over full operating temperature range.

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
VIN1						
Supply Voltage	VIN1		3.0	3.3	3.6	V
Quiescent Current	I _{Q1}	VIN1 > VIN2, I _O = 0mA		150	300	μA
		VIN1 < VIN2		15	50	
		VIN1 = SHDN = 3.3V		1	10	
Reverse Leakage From VIN2 ⁽¹⁾	I _{VIN1}	VIN1 = 0V, VIN2 = 3.6V, I _O = 0mA		0.25	1.00	μA
VIN2						
Supply Voltage	VIN2		3.0	3.3	3.6	V
Quiescent Current	I _{Q2}	VIN2 > VIN1, I _O = 0mA		150	300	μA
		VIN2 < VIN1		1	10	
		VIN2 = SHDN = 3.3V		1	10	
Reverse Leakage From VIN1 ⁽¹⁾	I _{VIN2}	VIN1 = 3.6V, VIN2 = 0V, I _O = 0mA		0.25	1.00	μA
VIN1 Threshold Voltage						
Threshold Voltage	V _{TH}		2.80	2.90	3.00	V
Hysteresis	V _{HYST}			130		mV

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Electrical Characteristics⁽¹⁾ (Cont.)

Unless specified: $T_A = 25^\circ\text{C}$, SHDN = 0V, $C_O = 10\mu\text{F}$, $I_O = 400\text{mA}$ (when power is being supplied from VIN1, 200mA when power is being supplied from VIN2). Values in **bold** apply over full operating temperature range.

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Power Switches						
VIN1 Pass Device $R_{DS(ON)}^{(1)}$	$R_{DS(ON)1}$	VIN1 = 3.3V, VIN2 = 0V		100	250	m Ω
VIN2 Pass Device $R_{DS(ON)}^{(1)}$	$R_{DS(ON)2}$	VIN2 = 0V, VIN2 = 3.3V		150	400	m Ω
SHDN						
Input High Voltage	V_{IH}		1.8			V
Input Low Voltage	V_{IL}				0.4	V
Over Temperature Protection						
High Trip Level	T_{HI}			165		$^\circ\text{C}$
Hysteresis	T_{HYS}			20		$^\circ\text{C}$

Note:

(1) Guaranteed by design.

Output Truth Table

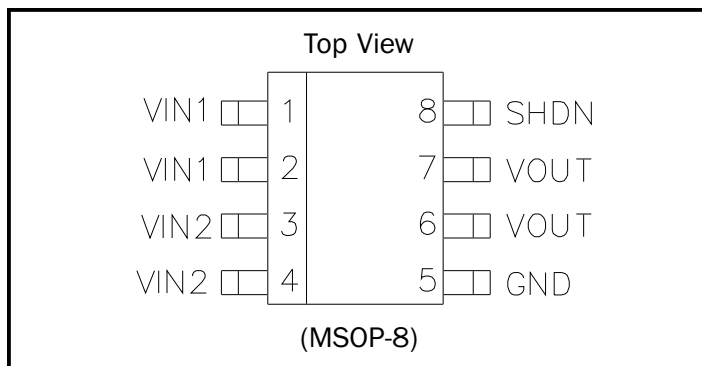
Input Conditions ⁽¹⁾	VOUT
$V_{IN1} > V_{TH}$	Connected to VIN1
$V_{IN1} < V_{TH}$	Connected to greater of VIN1 and VIN2

Note:

(1) See Electrical Characteristics for definition for V_{TH} .

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Pin Configuration



Ordering Information

Part Number ⁽¹⁾	Package
SC1543IMSTR	MSOP-8

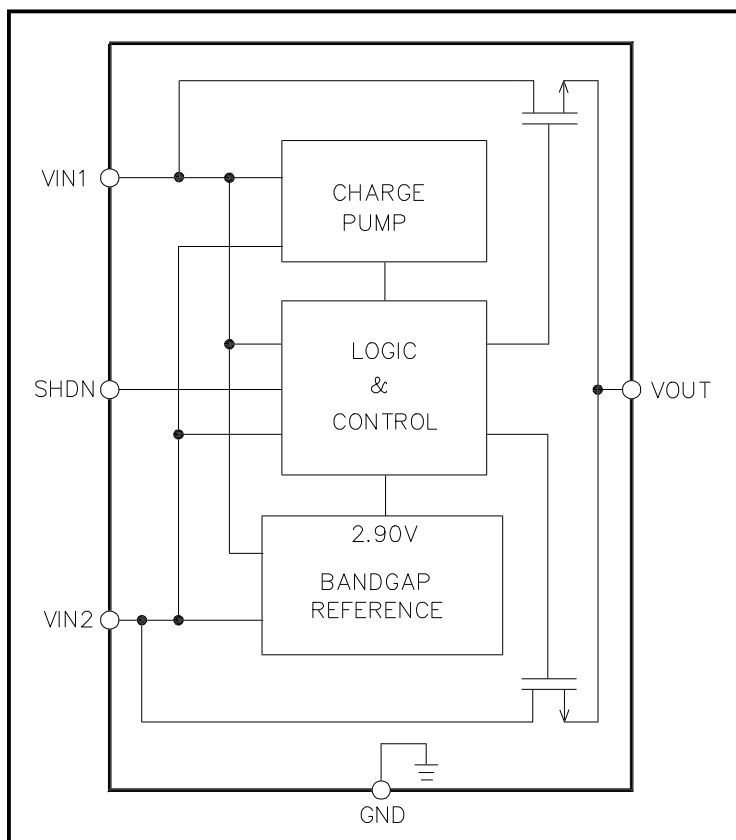
Note:

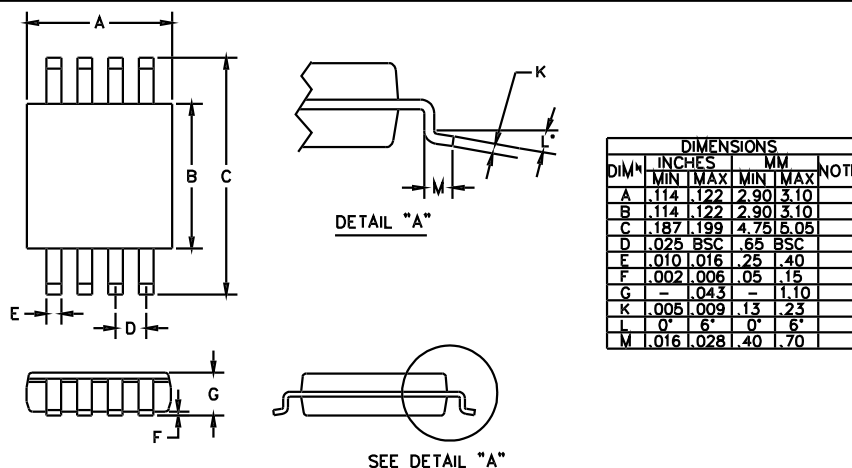
(1) Only available in tape and reel packaging. A reel contains 2500 devices.

Pin Descriptions

Pin	Pin Name	Pin Function
1,2	VIN1	Primary input supply, nominally 3.3V.
3,4	VIN2	Secondary input supply, nominally 3.3V.
5	GND	Power and logic ground.
6,7	VOUT	3.3V output.
8	SHDN	Shutdown, with internal pull-down. Device is OFF when this pin is High. Leave open if shutdown feature is not required.

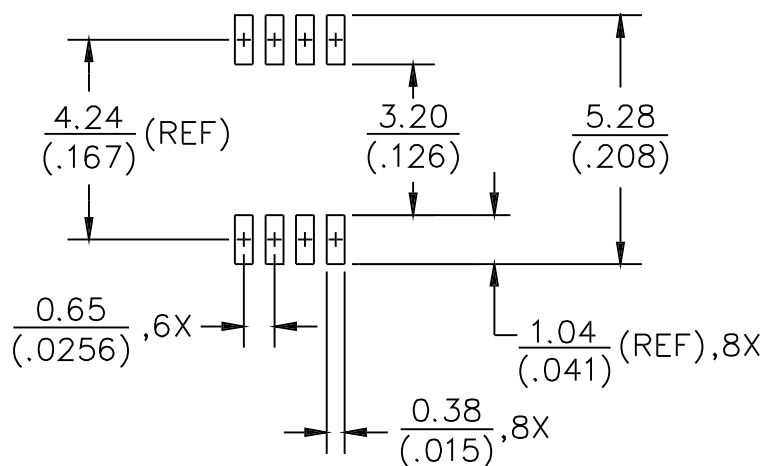
Block Diagram



POWER MANAGEMENT
Outline Drawing - MSOP-8


② PACKAGE OUTLINE EXCLUSIVE OF MOLD FLASH AND METAL BURR.

① CONTROLLING DIMENSIONS: MILLIMETERS.

Land Pattern - MSOP-8


① DIMENSIONS ARE IN MILLIMETERS (INCHES).

Contact Information

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