

RS53360 – 16V, 20A Synchronous Buck Converter with PMBus

Features

Wide Input Range & High-Current Output

- 2.97V to 16V input with external bias
- 4.5V to 16V input with internal bias
- 0.6V to 5.5V output voltage
- 20A continuous output current

High-Performance Regulation & Control

- Adaptive Constant-On-Time control for fast transient response
- $\pm 0.5\%$ output voltage accuracy
- Differential remote sensing
- Programmable switching frequency from 400kHz to 2MHz
- Programmable DCM / CCM operation
- Programmable soft-start

PMBus, Configuration & Telemetry

- PMBus 1.5 interface
- Nonvolatile memory (NVM) configuration
- Integrated telemetry

Comprehensive Protection

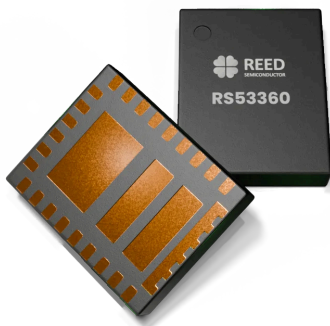
- OCP, UVP, UVLO, and OTP

Package

- 4mm × 5mm, 33-pin LGA package
- RoHS compliant and Green

Applications

- Server and AI Computing Power
- FPGA, ASIC, and Processor Power
- Networking and Telecom Equipment
- Storage Systems
- Graphics Cards and Gaming Systems
- High-Current Point-of-Load (PoL) Power Supplies



Description

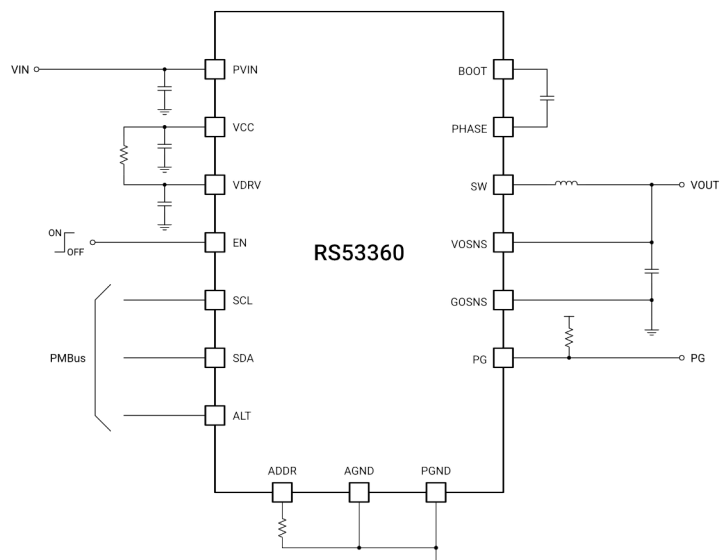
The RS53360 is a high-performance, 20A synchronous buck converter with PMBus designed for high-current point-of-load applications. The device supports a 2.97V to 16V input range with external bias, or 4.5V to 16V operation using the internal bias supply, and provides an adjustable 0V to 5.5V output.

Adaptive Constant-On-Time (COT) control provides fast transient response, while differential remote sensing and $\pm 0.5\%$ output voltage accuracy enable precise regulation at the load. The switching frequency is programmable from 400kHz to 2MHz, and selectable DCM or CCM operation allows the converter to be optimized for application requirements.

A PMBus 1.5 interface provides digital configuration and telemetry, with nonvolatile memory (NVM) supporting programmable device settings. Integrated protection includes OCP, UVP, UVLO, and OTP for robust system operation.

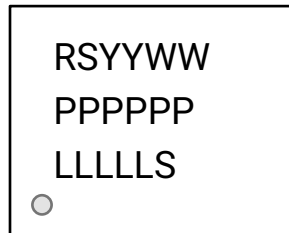
The RS53360 is well suited for servers, AI computing systems, FPGA and ASIC power, networking and telecom equipment, storage systems, and other high-current PoL applications. The device is available in a compact 4mm × 5mm, 33-pin LGA package.

Typical Application Schematic



Ordering Information

PART NUMBER	PACKAGE	SIZE	MSL RATING	SHIPPING METHOD	PACKAGE MARKING
RS53360R	LGA-33	4× 5mm	Level-3	5000u Tape & Reel	R53360

Top Marking

Line 1

- RS: Prefix of Reed Semiconductor (RS is replaced by RE for engineering lots)
- YY: Year code
- WW: Week code

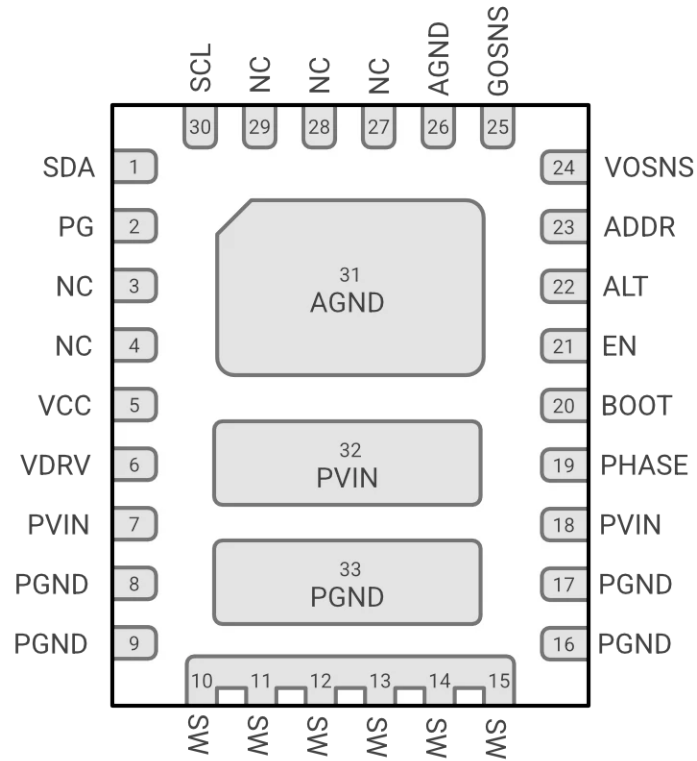
Line 2

- P P P P P P: Truncated part number

Line 3

- L L L L L: Lot code
- S: Assembly site code

Package Reference



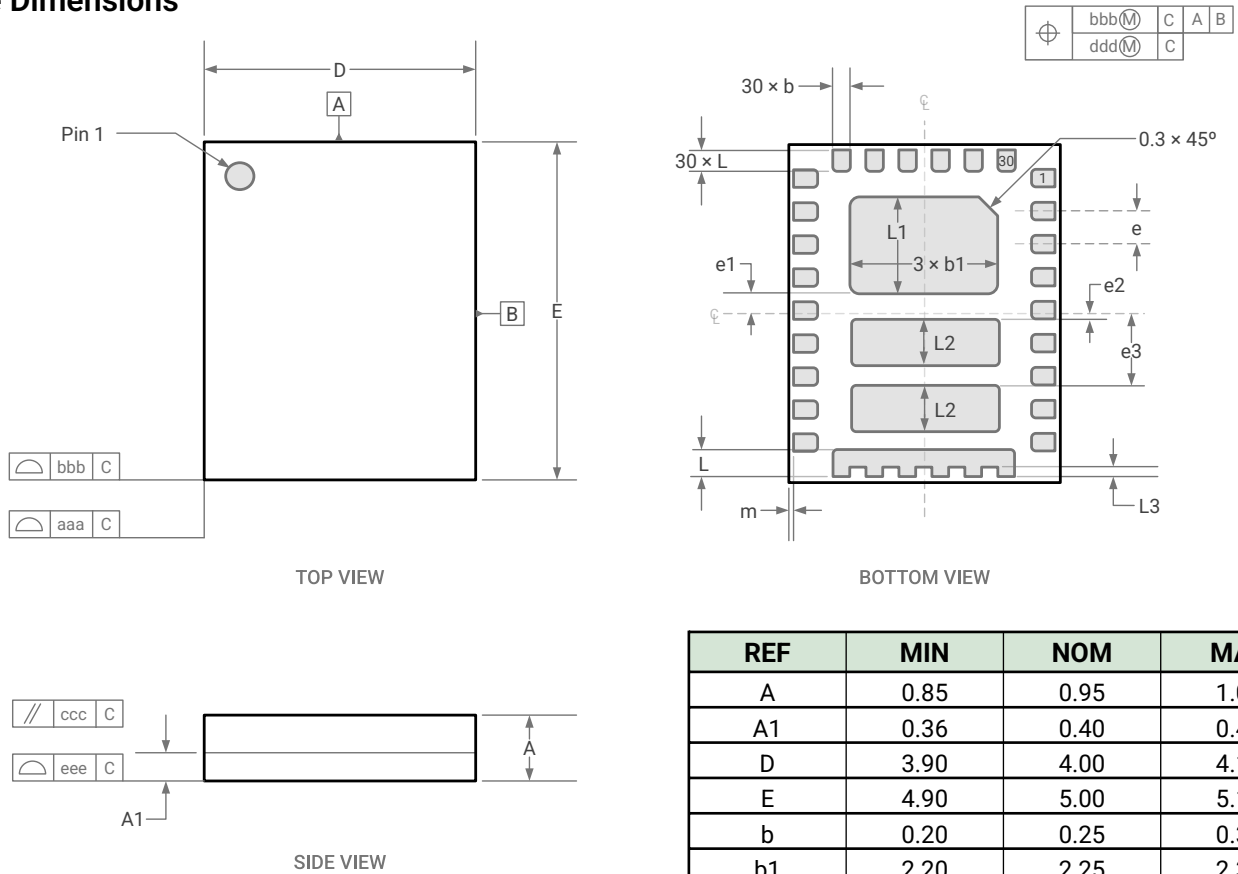
LGA-33 (4 × 5mm)

Pin Descriptions

PIN	NAME	TYPE	DESCRIPTION
1	SDA	I/O	PMBus bidirectional serial data.
2	PG	O	Active-high, open-drain Power Good output. Requires an external pull-up resistor.
3,4, 27–29	NC	—	No internal connection.
5	VCC	P	Internal LDO output. Connect a $\geq 1\mu\text{F}$ ceramic capacitor to PGND, close to the pin.
6	VDRV	P	Gate-driver supply input. Connect a $\geq 1\mu\text{F}$ ceramic capacitor to PGND, close to the pin. Connect VDRV to VCC through a 2.2Ω resistor.
7, 18, 32	PVIN	P	Power-stage and internal LDO supply input. Bypass to PGND with ceramic capacitors placed close to the pins.
8, 9, 16, 17, 33	PGND	G	Power ground.
10–15	SW	P	Power-stage switch node. Connect to the inductor using a short, wide, low-impedance copper path.
19	PHASE	P	High-side gate-driver return and switch-node sense. Internally connected to SW. Connect the bootstrap capacitor between BOOT and PHASE.
20	BOOT	P	Bootstrap supply for the high-side gate driver. Connect a $0.1\mu\text{F}$ to $1\mu\text{F}$ ceramic capacitor between BOOT and PHASE.
21	EN	I	Active-high enable input. Do not leave floating.
22	ALT	O	Active-low, open-drain PMBus ALERT output. Requires an external pull-up resistor.
23	ADDR	I	PMBus address-select input. Connect a resistor from ADDR to AGND to program the device address.
24	VOSNS	I	Positive output-voltage remote-sense input. Connect to the output voltage at the load.
25	GOSNS	I	Negative output-voltage remote-sense input. Connect to the load ground.
26	AGND	G	Analog ground. Connect to PGND using a Kelvin connection.
30	SCL	I	PMBus serial clock input.

Type: I = Input, O = Output, I/O = Bidirectional, P = Power, G = Ground, — = No Connect.

Package Dimensions



Notes

1. All dimensions are in millimeters.
2. Drawing is not to scale.

REF	MIN	NOM	MAX
A	0.85	0.95	1.05
A1	0.36	0.40	0.44
D	3.90	4.00	4.10
E	4.90	5.00	5.10
b	0.20	0.25	0.30
b1	2.20	2.25	2.30
L	0.30	0.35	0.40
e	0.50 BSC		
e1	0.25 BSC		
e2	0.10 BSC		
e3	1.10 BSC		
L1	1.375	1.475	1.575
L2	0.65	0.70	0.75
L3	0.10 BSC		
m	0.075 BSC		
Geometric Tolerancing			
aaa	0.10		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		

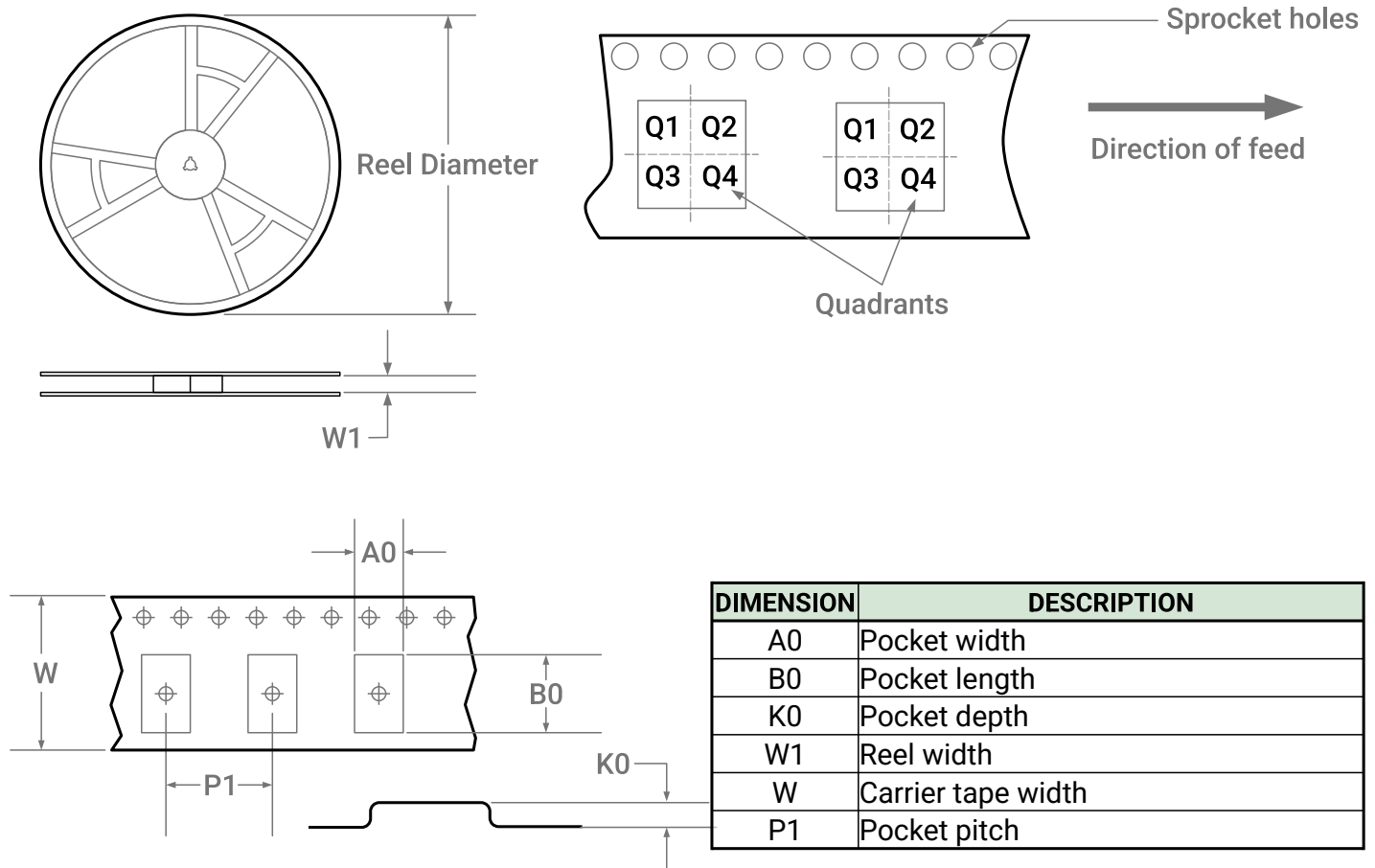
Technical drawing of a mechanical part with dimensions in mm. The part is symmetrical about a vertical centerline (C-C).

Key dimensions and features:

- Overall width: 3.826
- Overall height: 4.826
- Central rectangular feature: 1.475 x 1.475
- Central feature holes: 3 x 2 grid, diameter 0.2
- Base width: 24 x 0.55
- Top width: 24 x 0.25
- Other dimensions: 0.50, 0.25, 0.85, 0.70, 1.150, 0.988, 0.70, 0.325, 1.25, 6 x 0.25, 0.275, 0.50

1. All dimensions are in millimeters
2. All measurements are nominal
3. Drawing is not to scale

Tape and Reel Information

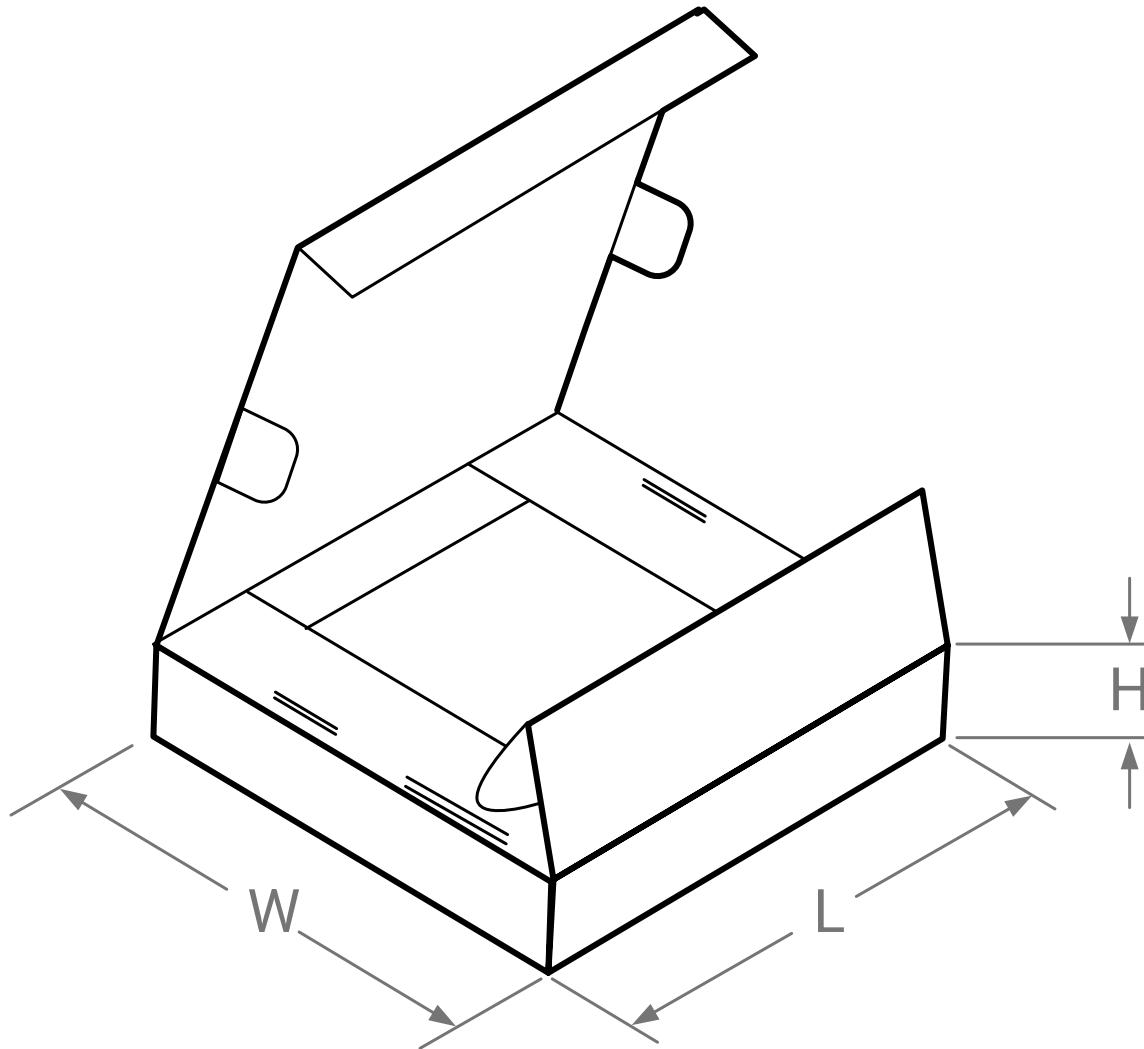


PACKAGE SIZE	REEL DIAMETER	W1	A0	B0	K0	P1	W	QUADRANT
4 × 5	330	12.4	4.3	5.3	1.30	8.00	12.0	Q1

Note:

1. All dimensions are nominal
2. All dimensions are in millimeters (mm)

Pizza Box Dimensions



PACKAGE SIZE	UNITS / BOX	LENGTH	WIDTH	HEIGHT
4 × 5	5000	355	340	50

Notes:

1. All measurements are in millimeters;
2. All measurements are nominal.