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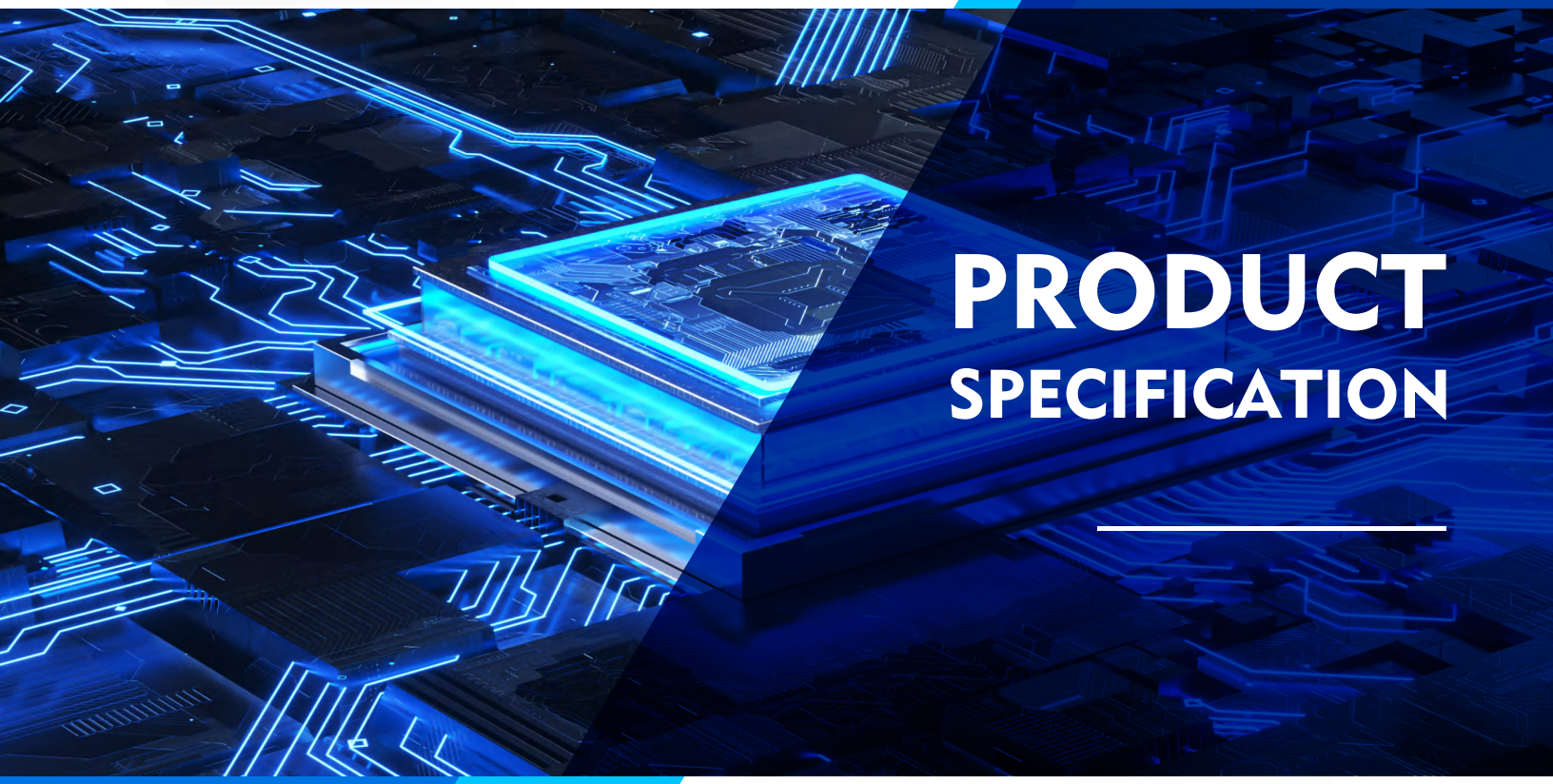


PRODUCT SPECIFICATION

MAIN PRODUCTS

1 FEATURES

- 2.5V to 5.5V input voltage
- Up to 2.0A max output current
- Efficiency up to 96%
- Fixed frequency 1MHz
- Low quiescent current:60uA
- PFM mode in light load
- Internal soft start
- Over current protection and Hiccup
- Over temperature protection

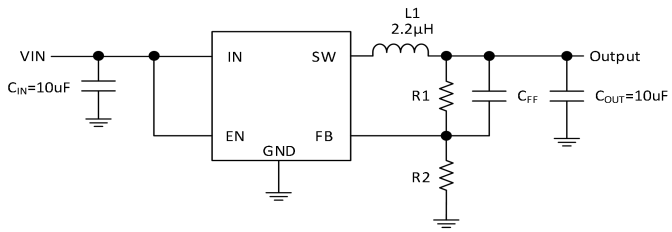
2 APPLICATIONS

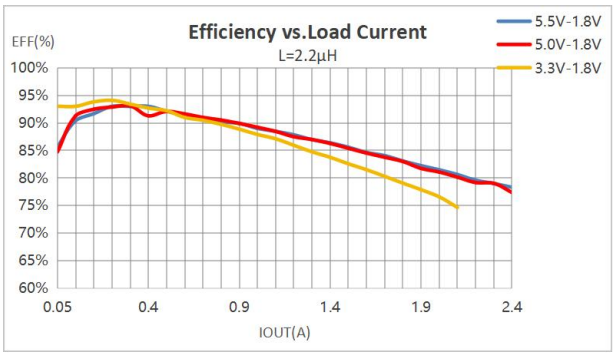
- MIDs, Tablet PC
- Set Top Boxes
- USB ports/Hubs
- Hot Swaps
- Cellphones
- PC Cards

3 DESCRIPTION

The TLV62569 is a high-efficiency, DC-to-DC step-down switching regulator, capable of delivering up to 2.0A of output current. The devices operate from an input voltage range of 2.5V to 5.5V and provide output voltages from 0.6V to V_{IN}, making the TLV62569 ideal for low voltage power conversions. Running at a fixed frequency of 1MHz allows the use of small inductance value and low DCR inductors, thereby achieving higher efficiencies. Other external components, such as ceramic input and output caps, can also be small due to higher switching frequency, while maintaining exceptional low noise output voltages. PWM/PFM mode operation provides very low output ripple voltage for noise sensitive applications. Internal soft-start control circuitry reduces inrush current. Short-circuit and thermal-overload protection improves design reliability. TLV62569 is housed in a tiny SOT23-5L SOT23-6L package.

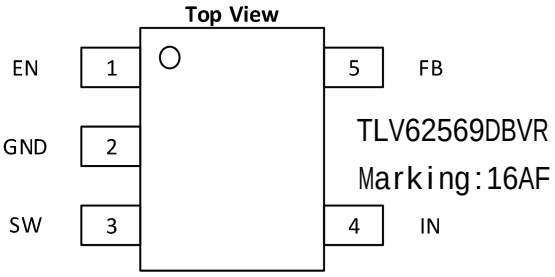
TYPICAL APPLICATION



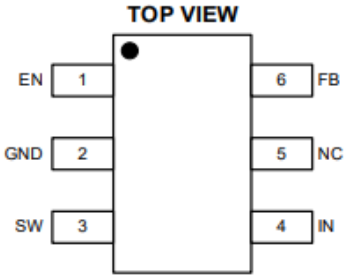


EFFICIENCY

4 PIN CONFIGURATION AND FUNCTIONS



TLV62569DBVR
Marking:16AF



TLV62569PDDCR
Marking:6D9

Pin	Symbol	Description
1	EN	Enable pin for the IC. Drive this pin high to enable the part, low to disable.
2	GND	Ground
3	SW	Inductor Connection. Connect an inductor Between SW and the regulator output.
4	IN	Supply Voltage. Bypass with a 10μF ceramic capacitor to GND
5/6	FB	Feedback Input. Connect an external resistor divider from the output to FB and GND to set the output to a voltage between 0.6V and V_{IN}

5 ABSOLUTE MAXIMUM RATINGS

Parameter	Parameter	Rating	UNIT
V_{IN}	Supply Voltage	-0.3 to 6	V
V_{EN}	Enable Voltage	–0.3 to V_{IN}+0.3V	V
V_{SW}	Switch Node	–0.3 to V_{IN}+0.3V	V
I	Peak SW Sink and Source Current	3	A
T_J	Junction Temperature	+150	°C
T_{STO}	Storage Temperature Range	–65 to +150	°C
θ_{JA}	Thermal Resistance	170	°C/W
θ_{JC}	Thermal Resistance	130	°C/W
T_{OP}	Operating Temperature Range	-40 to 85	°C
T_L	Lead Temperature	260	°C
ESD	HBM	2	KV
ESD	HM	200	V

Stresses above those listed in “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

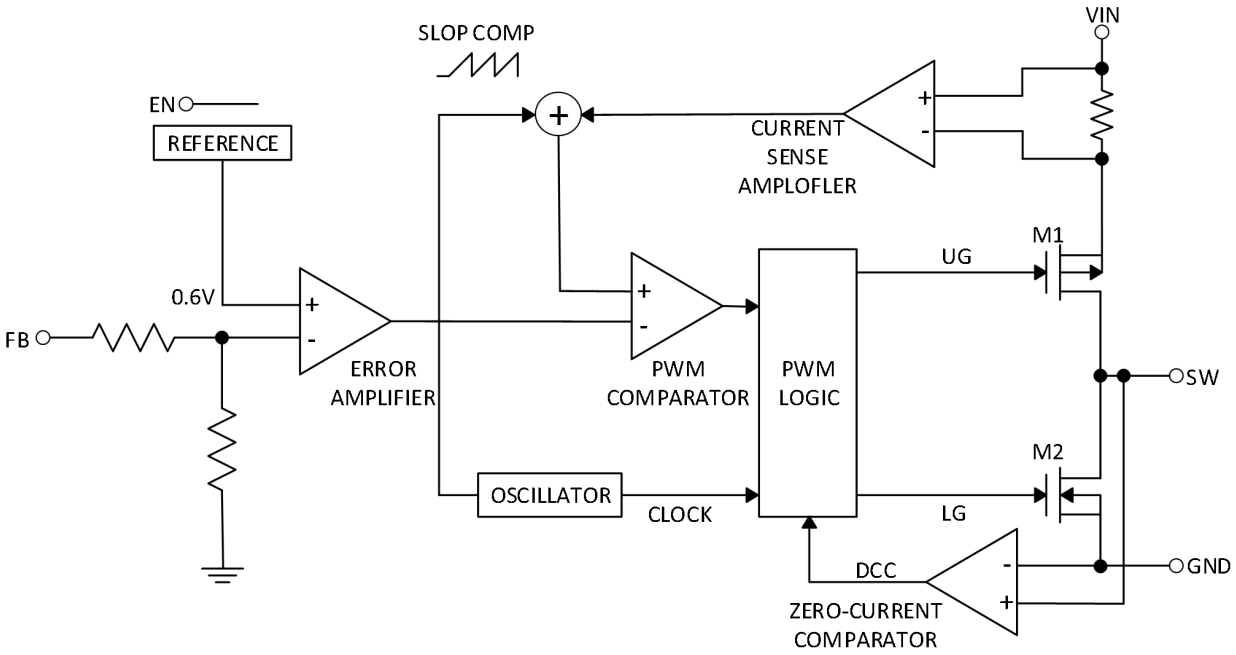
6 RECOMMENDED OPERATING CONDITIONS

Parameter	Parameter	Rating	UNIT
V_{IN}	Supply Voltage	2.5 to 5.5	V
T_J	Junction Temperature Range	-40 to 125	°C
T_A	Ambient Temperature Range	-40 to 85	°C

7 PACKAGE THERMAL CHARACTERISTICS

Parameter	Parameter	Rating	UNIT
θ_{JA}	Thermal Resistance	130	°C/W
θ_{JC}	Thermal Resistance	60	°C/W

8 BLOCK DIAGRAM



Functional Block Diagram

9 ELECTRICAL CHARACTERISTICS

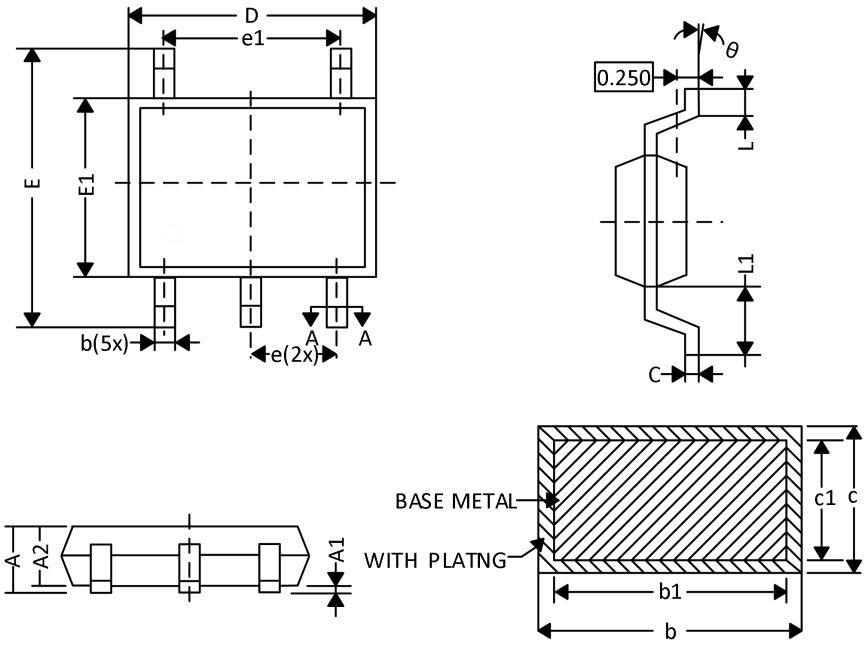
(V_{IN} = 5V, V_{OUT}= 1.8V, L = 2.2uH, C_{OUT} = 10uF, T_A = 25°C, unless otherwise specified)

PARAMETER	Symbol	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{IN}		2.5		5.5	V
UVLO Thershold	V_{uvlo}			2.1		V
FB Feedback Voltage	V_{ref}	V_{IN} =5V	0.586	0.6	0.614	V
Feedback Leakage current	I_{FB}			0.1		μA
Shutdown Supply Current	I_S	V_{EN} = 0V			1	μA
Quiescent Current	I_Q	V_{EN} = V_{IN}, V_{FB} = 0.7V		60		μA
Line Regulation	LnReg	V_{IN} =2.5 to 5.5V,I_{load}=1A		0.1	0.2	%/V
Load Regulation	LdReg	I_{OUT}= 0.01A to 2.5A		0.1	0.2	%/A
Switching Frequency	F_{OSC}			1		MHz
PMOS Rdson	RdsonP	I_{SW} = 100mA		120		mΩ
NMOS Rdson	RdsonN	I_{SW} = −100mA		90		mΩ
SW Leakage Current	I_{swlk}	V_{EN} = 0V, V_{SW} = 0V or V_{IN}			1	μA
EN Leakage Current	I_{enlk}				1	μA
EN Input High Voltage	V_{h_en}	−40°C ≤ T_A ≤ 85°C		1.1		V
EN Input Low Voltage	V_{l_en}	−40°C ≤ T_A ≤ 85°C		0.8		V
Soft-Start Period	t_s			120		μs
Thermal Shutdown *	T_S			160		°C
Thermal Hysteresis	T_H			20		°C

* Guaranteed by design, not tested.

PACKAGE DIMENSIONS

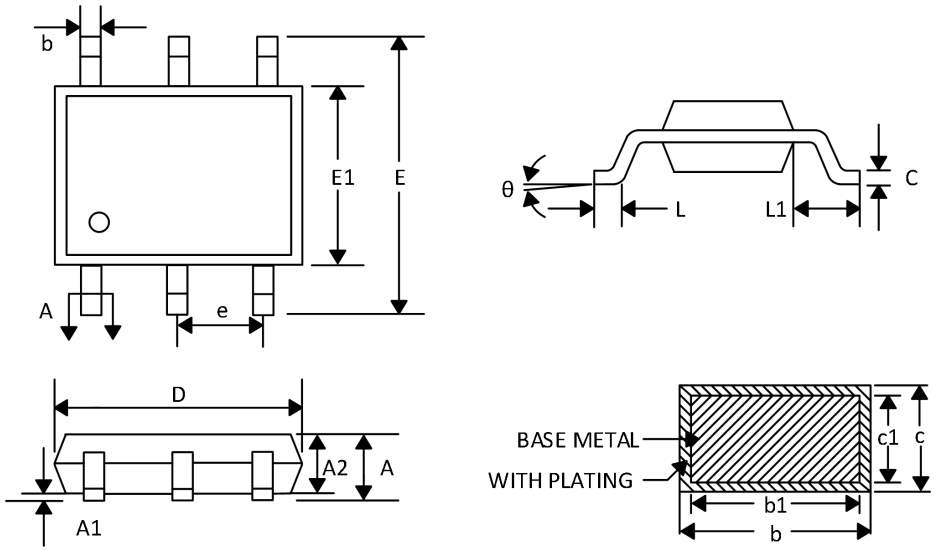
SOT23-5



SYMBOLS	MIN	NOM	MAX
A	-	-	1.25
A1	0.03	0.08	0.15
A2	1.05	1.10	1.15
b	0.27	-	0.35
b1	0.26	0.285	0.31
c	0.135	-	0.23
c1	0.127	0.152	0.178
D	2.82	2.92	3.02
E	2.60	2.90	3.00
E1	1.50	1.62	1.70
e	0.95 BSC		
e1	1.90 BSC		
L	0.35	0.45	0.55
L1	0.49	0.64	0.79
θ	0°	-	8°

PACKAGE DIMENSIONS

SOT23-6



Symbol	MIN	NOM	MAX
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