

Features

- Input voltage range 2.7V to 5.5V
- Output voltage range up to 30V
- 500mA peak Internal Switch Current
- Up to 1MHz Switching Frequency
- Internal Soft Start
- Cycle by Cycle Current Limit
- Low Quiescent Current: 0.3mA
- RoHS and Halogen free compliance
- Compact package: SOT23-5

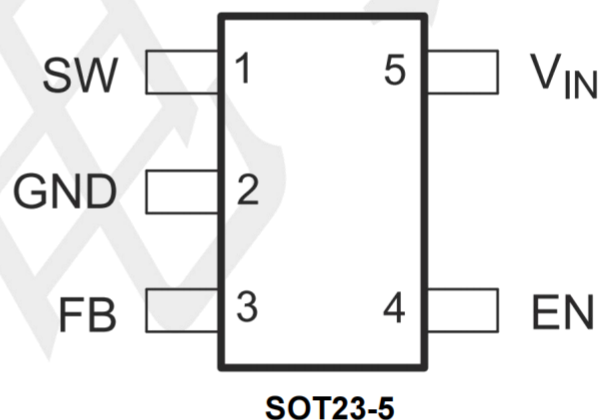
Applications

- LCD Bias Supply
- Digital Camera
- PDAs, Handheld PCs
- Internet Audio Players
- White-LED Supply for LCD Backlights

General Description

The is a high-frequency boost converter dedicated for small to medium LCD bias supply and white LED backlight supplies. The device is ideal to generate output voltages up to 30 V from a dual-cell NiMH/NiCd or a single-cell Li-Ion battery. The part can also be used to generate standard 3.3-V or 5-V to 12-V power conversions.

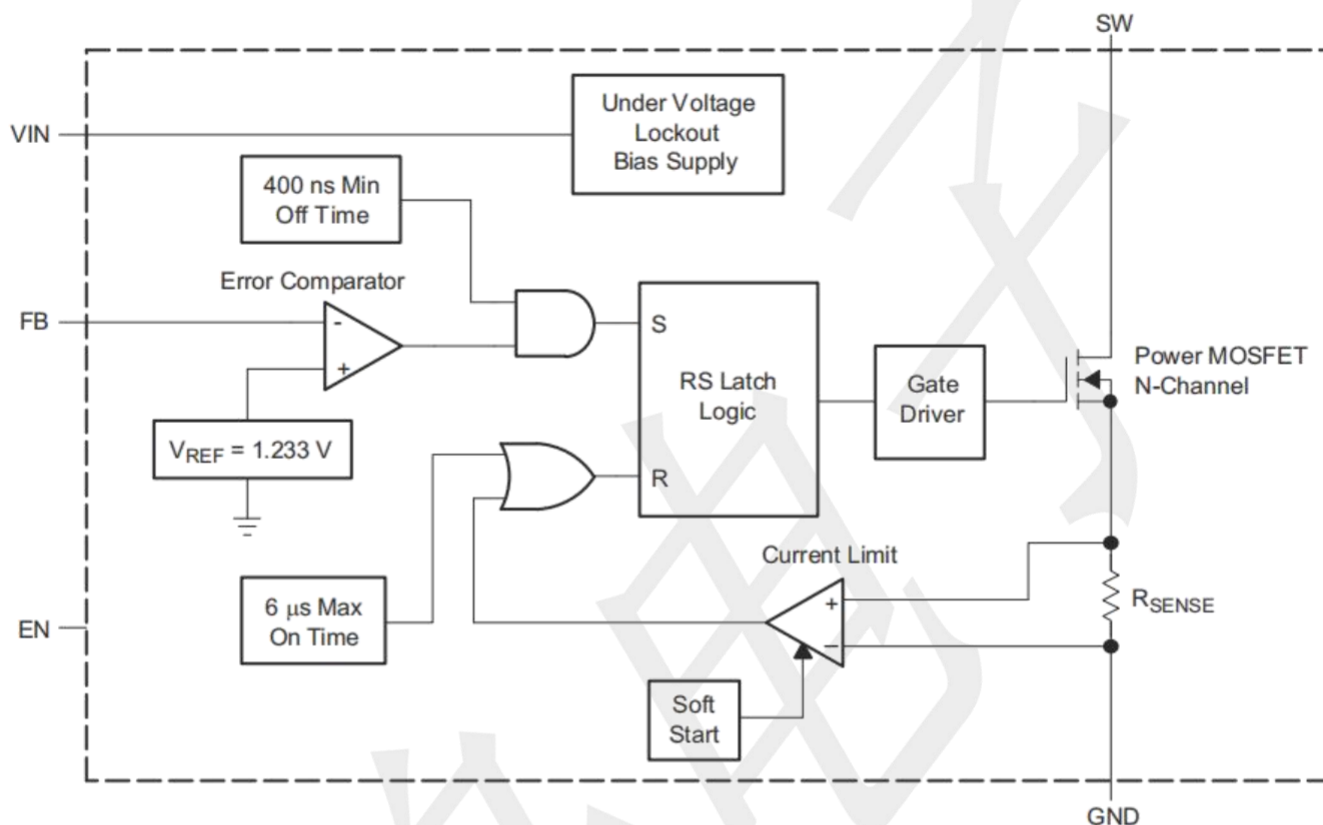
Pin Configurations



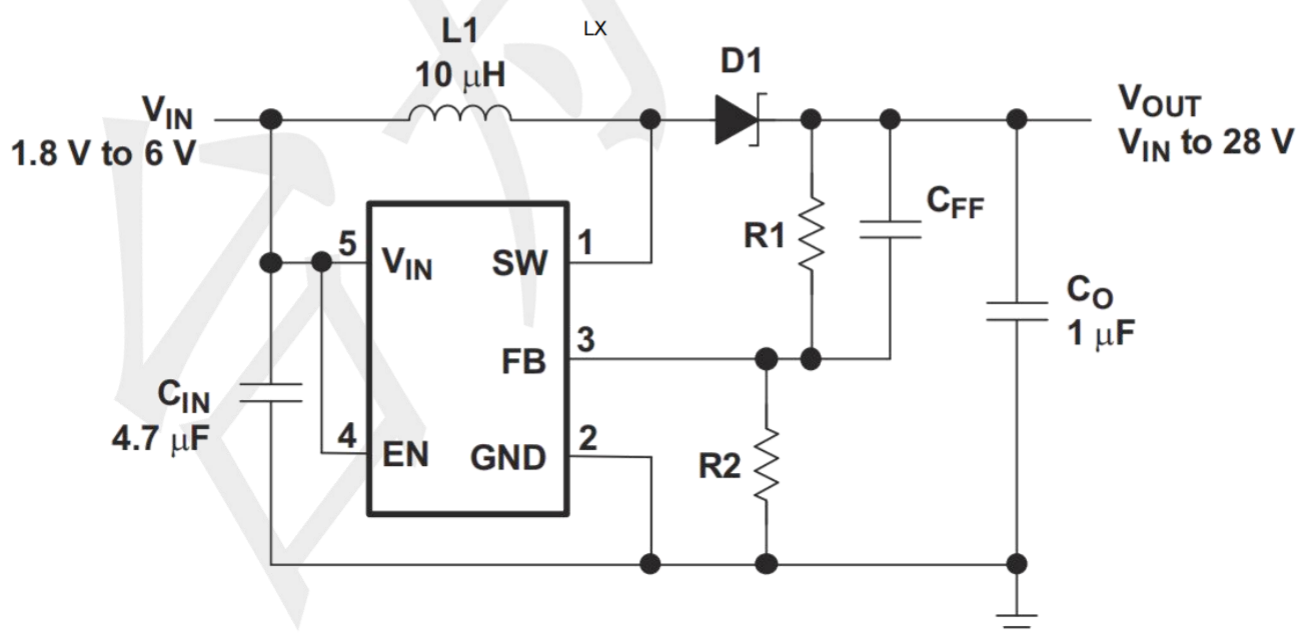
Pin Assignment

Pin Number	Pin Name	Pin Function
1	SW	Switch pin connected to the internal MOSFET switches and inductor terminal. Connect the inductor of the input to this pin.
2	GND	Analog ground pin.
3	FB	Feedback pin
4	EN	Enable pin
5	VIN	Supply Voltage

BLOCK DIAGRAM



Typical Application Circuit



Absolute Maximum Ratings

over operating free-air temperature range (unless otherwise noted)

PARAMETER		MIN	MAX	UNIT
VIN	Continuous input voltage range	-0.3	7.0	V
SW	SW voltage range	-0.3	35	V
EN	EN pin voltage range	-0.3	VIN	V
FB	FB, pin voltage range	-0.3	VIN	V
PD	PD @ TA = 25°C	0.4		W
LT	Lead Temperature (Soldering, 10 sec.)	300		°C
Temperature	Junction Temperature , TJ	-40	125	°C
	Storage, Tstg	-65	150	°C
θJA	Thermal Resistance from Junction to ambient	250		°C/W

Note:

(1) The pressure listed below the absolute maximum rated value may cause permanent damage to the device. These are only pressure ratings and do not represent the device under these conditions or recommended operating conditions

Can operate normally under any other conditions except for the item. Prolonged exposure to absolute maximum rated conditions may affect the reliability of the device.

(2) All voltage values are based on the network ground terminal.

Recommended Operating Conditions

PARAMETER		MIN	MAX	UNIT
VIN	Continuous input voltage range	2.7	5.5	V
VOOUT	OUT voltage range	--	30	V
L	Energy storage inductor	0.7	13	uH
COOUT	output capacitance	1	100	uF
Temperature	Junction Temperature , TJ	-40	125	°C

Electrical Characteristics

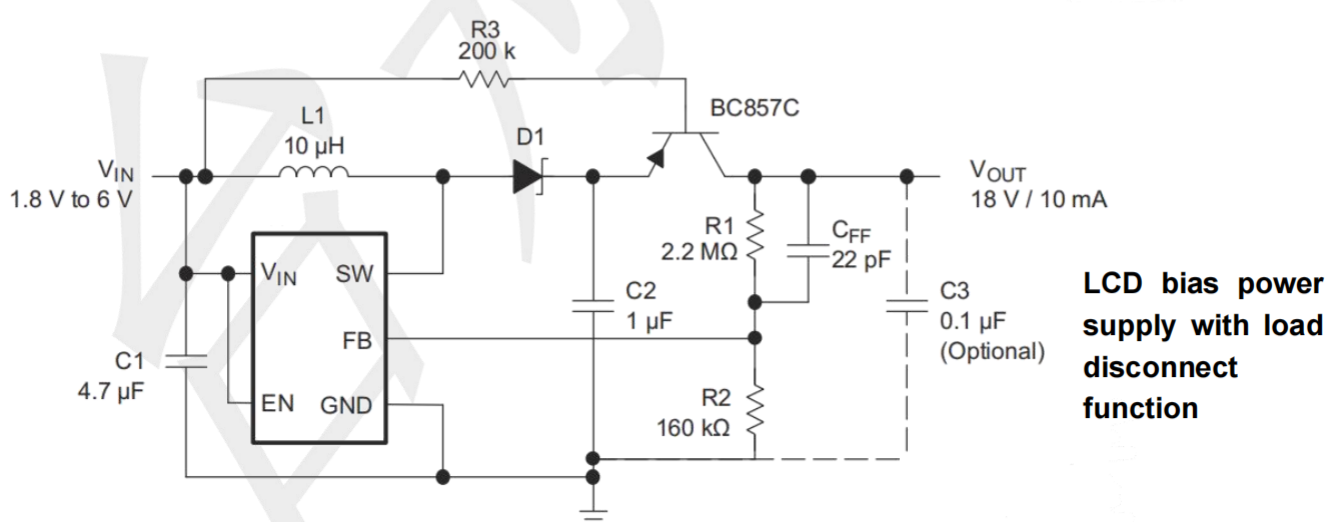
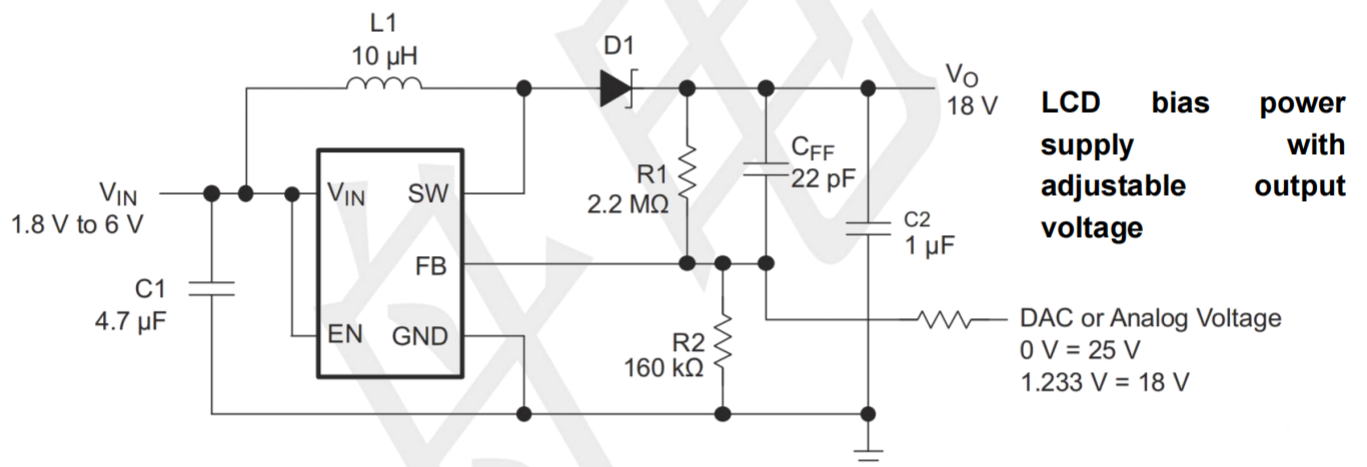
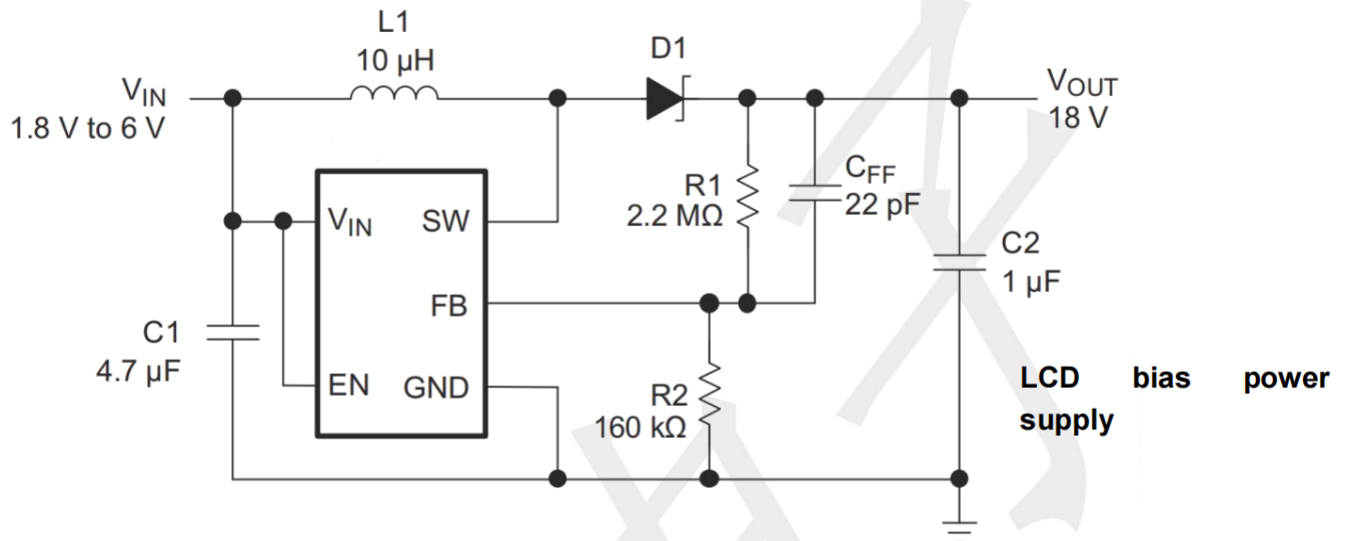
($V_{IN}=V_{EN}=3.6V$, $T_J=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Operating Input Voltage	V_{IN}		2.7	--	5.5	V
Quiescent Current	I_Q	No Switching	--	0.2	0.3	mA
Shutdown Current	I_{SD}	$V_{EN} = 0V$	--	0	1	uA
Enable pin high level	V_{IHEN}		1.5	--	--	V
Enable pin low level	V_{ILEN}		--	--	0.8	V
V_{IN} UVLO Rising	V_{UVLO}		2	2.25	2.5	V
Switching Frequency	f_{SW}		--	1	--	MHz
Maximum Duty Cycle	D_{MAX}		85	90	--	%
Feedback Voltage	V_{FB}		1.225	1.250	1.275	V
Power MOS R_{ON}	R_{ON}		--	700	--	m Ω
LX Leakage Current	I_{LX}	$V_{EN} = 0V$, $V_{LX} = 35V$	--	--	10	uA
Switching Current Limit	I_{LIM}	Duty Cycle = 80%	500	850	1300	mA
Soft Start time	T_{SS}		--	0.5	--	mS
Thermal Shutdown Temperature	T_{SD}		--	130	--	C
Thermal Shutdown Hysteresis	T_{SDHY}		--	20	--	C

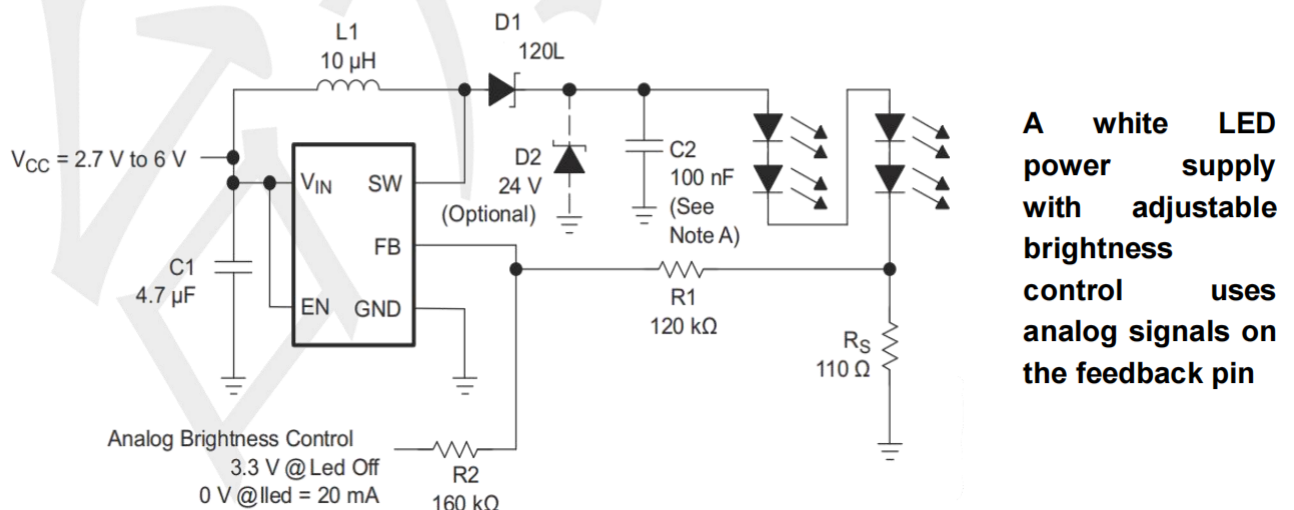
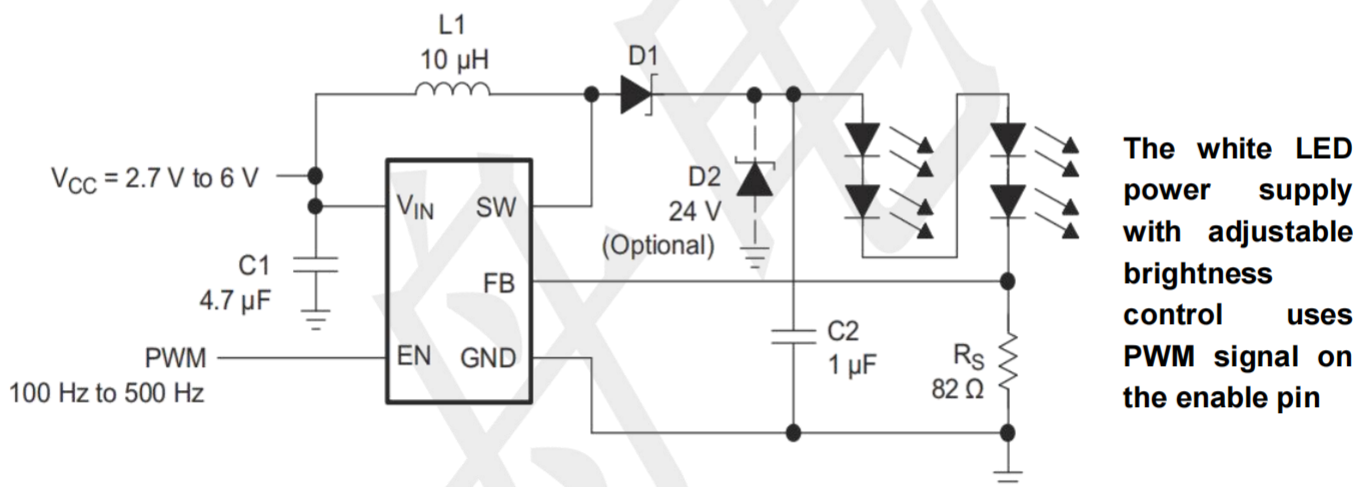
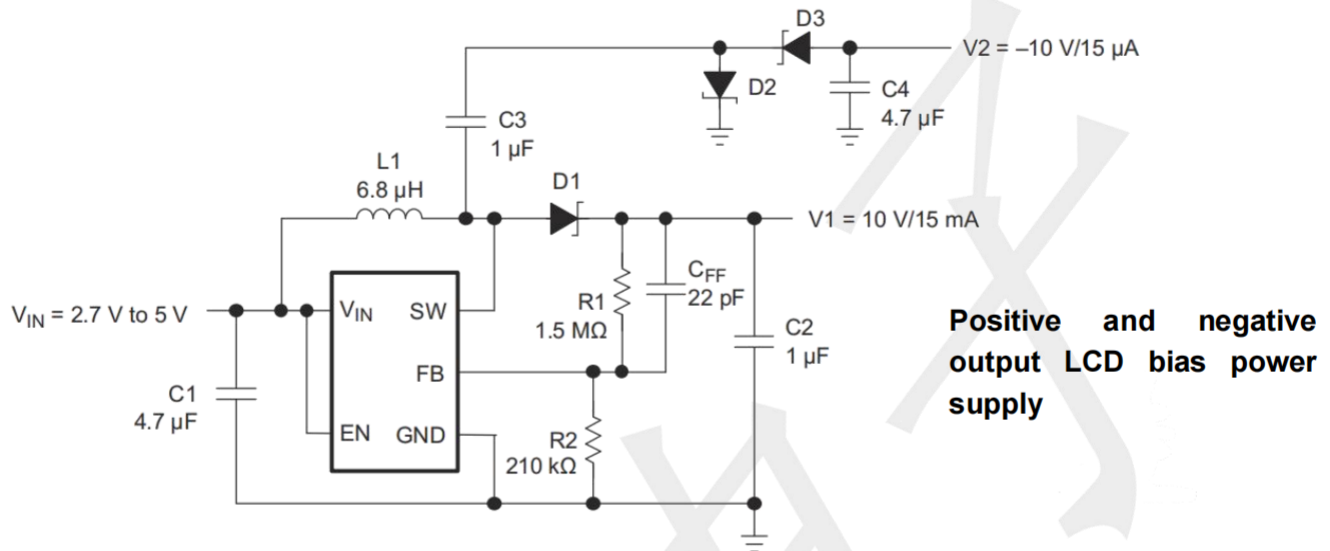
Application Information

This design has an output voltage of up to 28V, an input voltage range of 1.8V to 6V, and a peak current limit of 500mA. The device operates using a pulse frequency modulation (PFM) scheme and has a constant peak current control function. This control scheme maintains high efficiency throughout the entire load current range and has a switching frequency of up to 1MHz, allowing the device to use very compact external components.

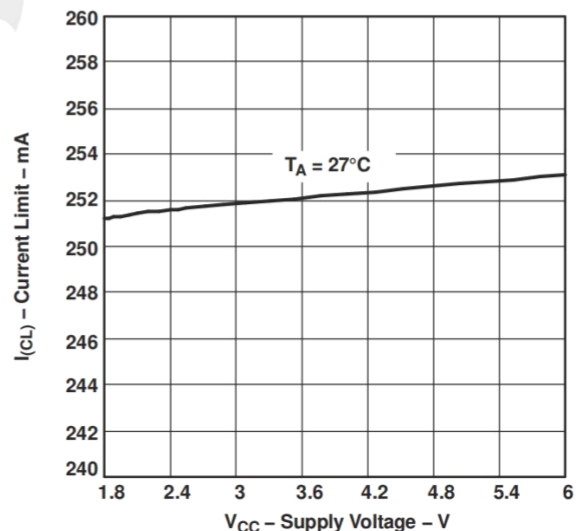
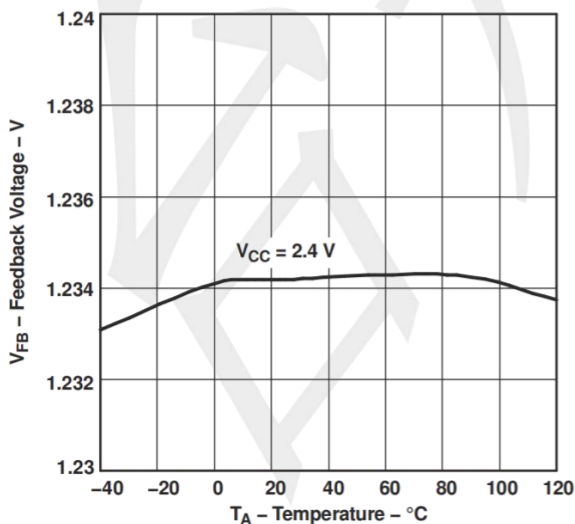
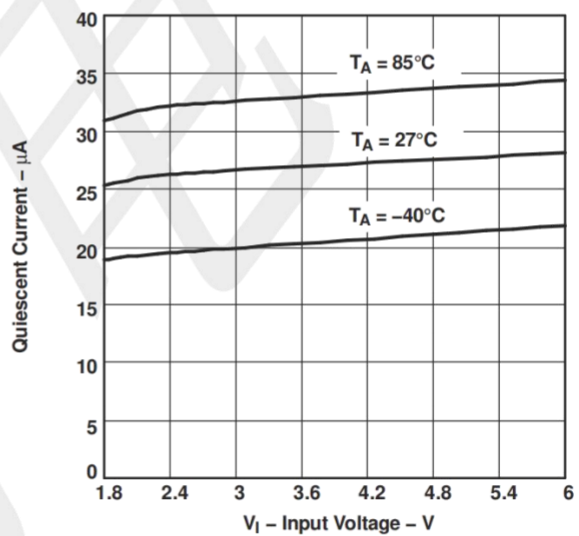
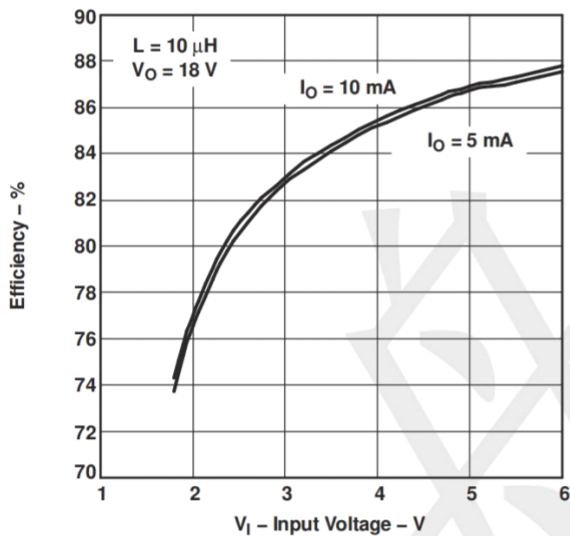
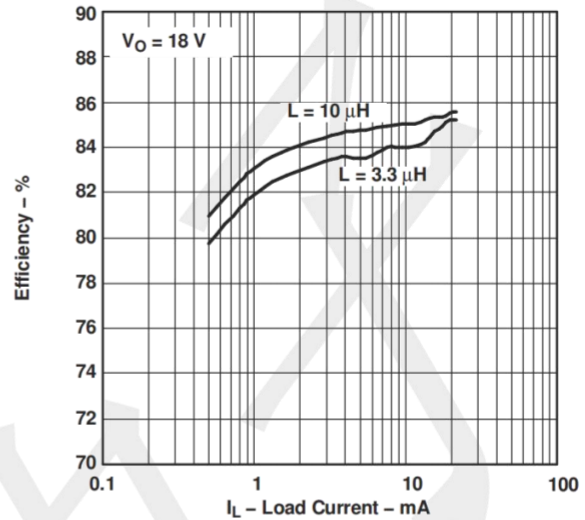
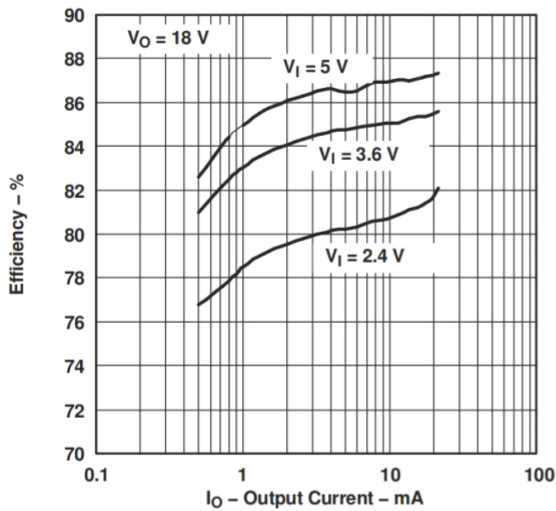
Typical applications



Typical applications

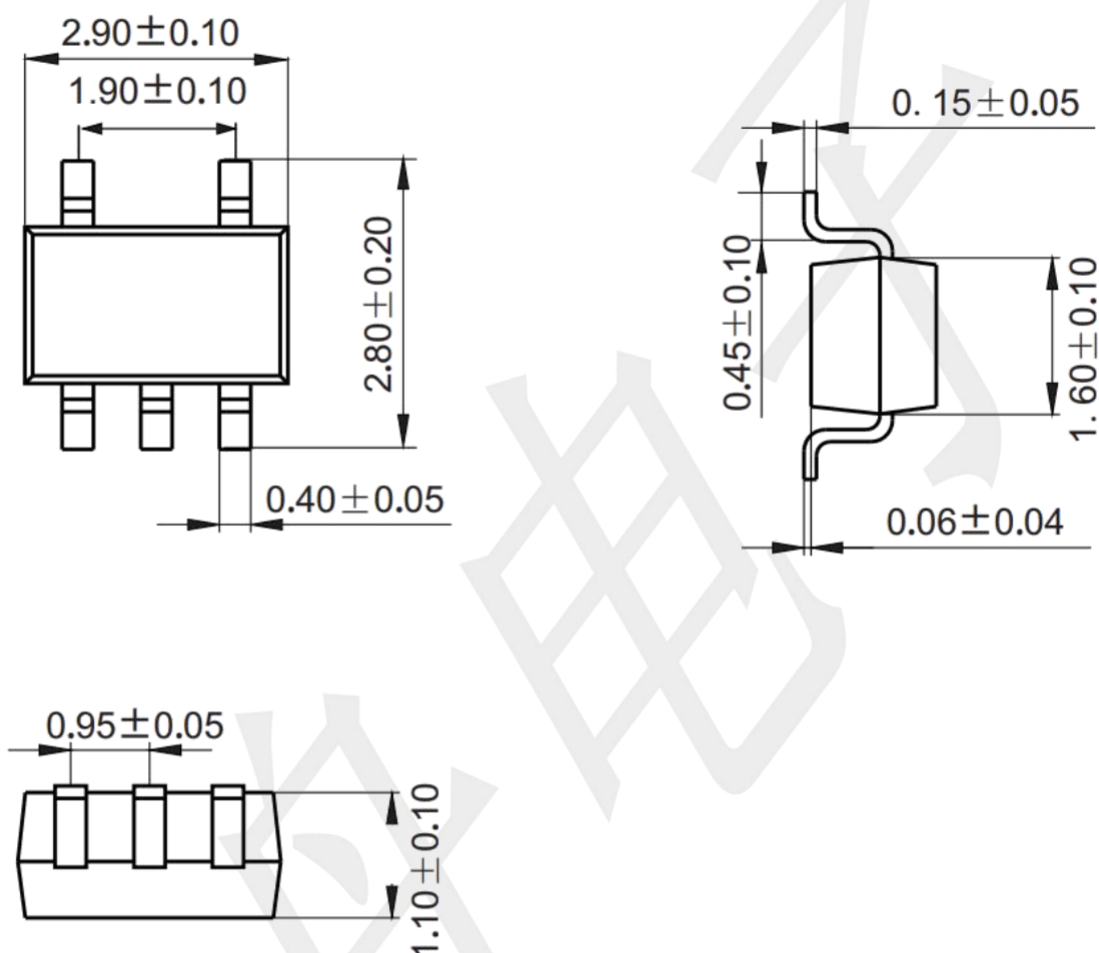


Typical Operating Characteristics



Package Outline Dimensions (unit: mm)

SOT23-5



Mounting Pad Layout (unit: mm)

