



P1690

LINEAR INTEGRATED CIRCUIT

0.4A, 150KHZ 65V BUCK DC TO DC CONVERTER

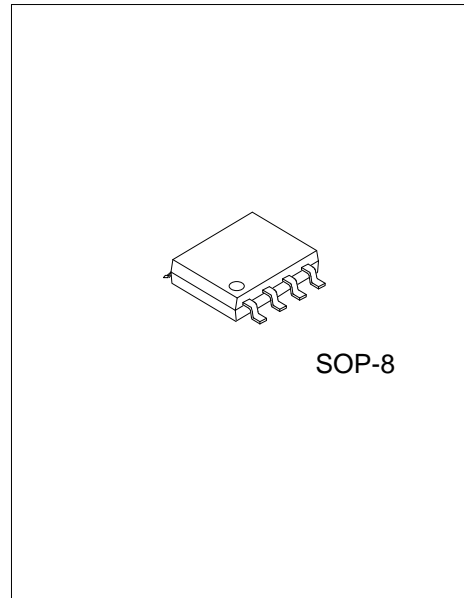
DESCRIPTION

The UTC **P1690** is a PWM buck (step-down) DC/DC converter, fixed frequency of 150KHz, capable of driving a 0.4A load with high efficiency, low ripple and excellent line and load regulation.

The P1690 built kinds of protect circuit inside. Such as OTP SCP and so on.

FEATURES

- * Wide 5V~ 65V Operation Voltage
- * Output Adjustable from 1.25V~25V
- * High efficiency up to 85%
- * Maximum Duty Cycle 100%
- * Fixed 150KHz Switching Frequency
- * Built in OTP
- * Built in SCP
- * Built in OCP

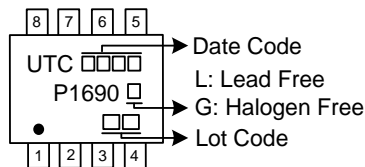


ORDERING INFORMATION

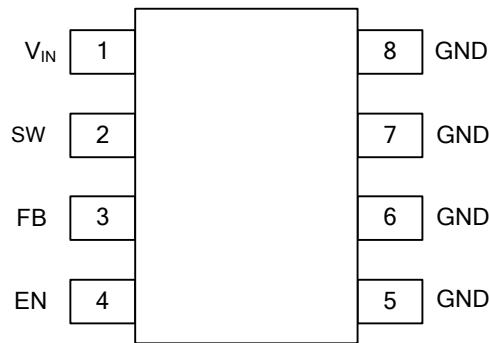
Ordering Number		Package	Packing
Lead Free	Halogen Free		
P1690L-S08-R	P1690G-S08-R	SOP-8	Tape Reel

<p>P1690G-S08-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



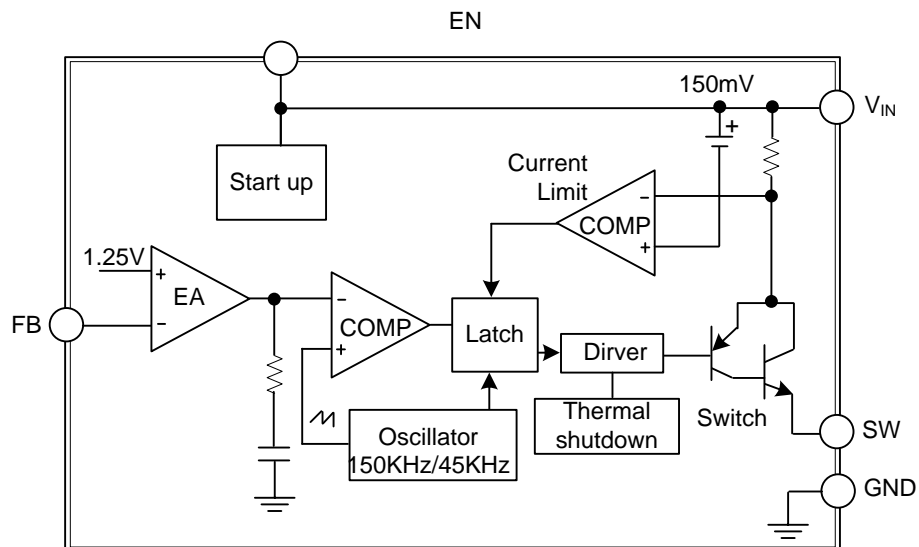
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V _{IN}	Supply Voltage Input Pin.
2	SW	Power Switch Output Pin (SW).
3	FB	Feedback voltage Pin (FB).
4	EN	Enable Pin.
5,6,7,8	GND	Ground Pin.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	-0.3 ~ 70	V
Feedback Pin Voltage	V_{FB}	-0.3 ~ V_{IN}	V
EN Pin Voltage	V_{EN}	-0.3 ~ V_{IN}	V
Output Switch Pin Voltage	V_{SW}	-0.3 ~ V_{IN}	V
Power Dissipation	P_D	Internally limited	mW
Junction to Ambient, No Heatsink, Free Air	θ_{JA}	60	°C/W
Operating Junction Temperature	T_J	-40 ~ 125	°C
Storage Temperature	T_{STG}	-65 ~ 150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
System Parameters Test Circuit Figure1						
FB Voltage	V_{FB}	$V_{IN}=36\text{V}\sim 65\text{V}$, $I_{load}=0.05\text{A}\sim 0.3\text{A}$	1.225	1.25	1.275	V
Efficiency	η	$V_{IN}=36\text{V}$, $V_{OUT}=15\text{V}$, $I_{OUT}=0.3\text{A}$		88		%
Efficiency	η	$V_{IN}=48\text{V}$, $V_{OUT}=15\text{V}$, $I_{OUT}=0.4\text{A}$		87		%
Efficiency	η	$V_{IN}=60\text{V}$, $V_{OUT}=15\text{V}$, $I_{OUT}=0.4\text{A}$		83		%

■ ELECTRICAL CHARACTERISTICS (DC PARAMETERS)

($V_{IN}=48\text{V}$, $GND=0\text{V}$, V_{IN} & GND parallel connect a 33uf/100V capacitor; $I_{OUT}=0.2\text{A}$, $T_A=25^\circ\text{C}$ the others floating unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Operation Voltage	V_{IN}		5		65	V
Shutdown Supply Current	I_{STBY}	$V_{EN}=2\text{V}$		85	200	uA
Quiescent Supply Current	I_q	$V_{ON/OFF}=0\text{V}$, $V_{FB}=V_{IN}$		2.5	5	mA
Oscillator Frequency	F_{OSC}		120	150	180	KHz
Switch Current Limit	I_L	$V_{FB}=0$		0.4		A
EN Pin Threshold	V_{EN}	High (Regulator OFF)		1.6		V
		Low (Regulator ON)		0.8		V
EN Pin Input Leakage Current	I_H	$V_{EN}=2.5\text{V}$ (OFF)		6	20	uA
	I_L	$V_{EN}=0.5\text{V}$ (ON)		1	20	uA
Output Saturation Voltage	V_{CE}	$V_{FB}=0\text{V}$, $I_{OUT}=0.4\text{A}$		0.85		V
Max. Duty Cycle	D_{MAX}	$V_{FB}=0\text{V}$		100		%

■ TYPICAL APPLICATION CIRCUIT

$V_{OUT}=15V$

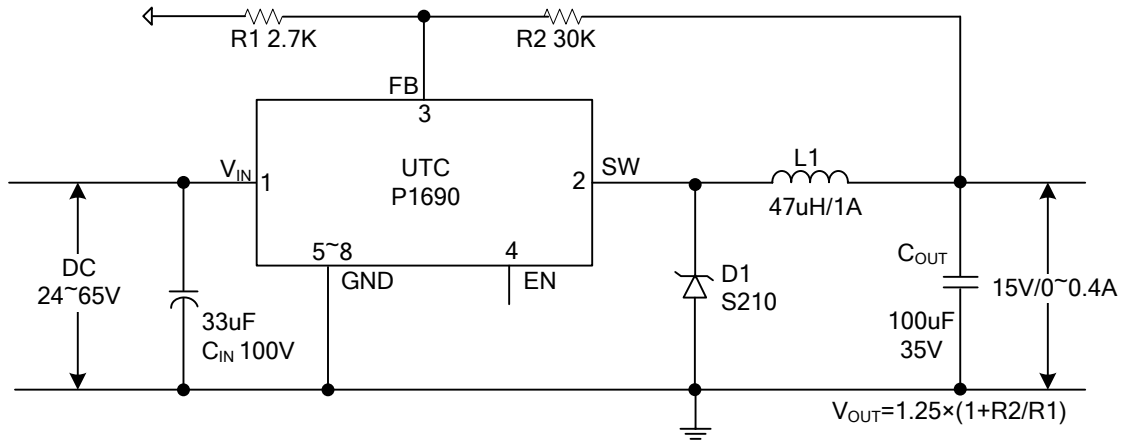


Figure 1.

$V_{OUT}=5V$

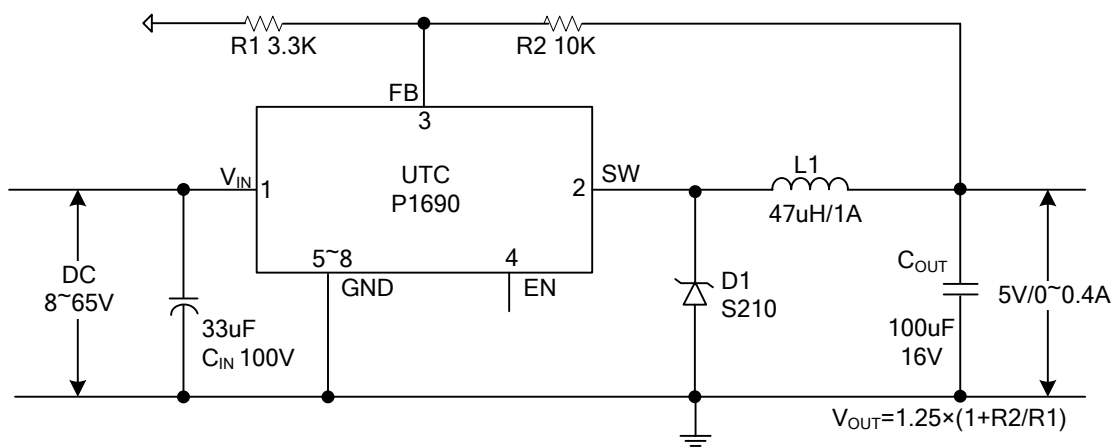
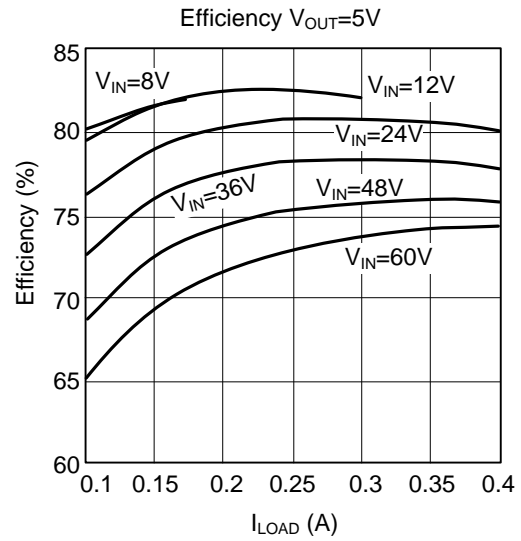
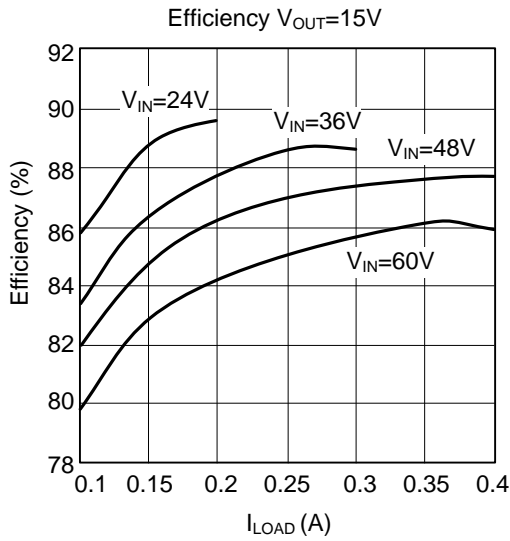


Figure 2

Note: Under different input and output voltage, in order to achieve loop stability, the need to use different capacity inductance.

■ TYPICAL CHARACTERISTICS



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