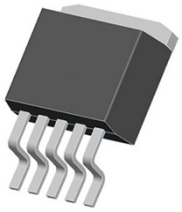
General Description

The DL4015 is a monolithic IC designed for a step-down DC/DC converter, and owe the ability of driving a 5A load without additional transistor,It saves board space. The external shutdown function can be controlled by logic level and then come into standby mode. The internal compensation makes feedback control having good line and load regulation without external design. Regarding protected function, thermal shutdown is to prevent over temperature operating from damage, and current limit is against over current operating of the output switch. If current limit function occurs and V_{FB} is down below 0.5V, the switching frequency will be reduced.



TO263-5L

The DL4015 operates at a switching frequency of 180KHz thus allow smaller sized filter Components than what would be needed with lower frequency switching regulators. Other features include a guaranteed ±4% tolerance on output voltage under specified input voltage and output load conditions, and ±10% on the oscillator frequency.

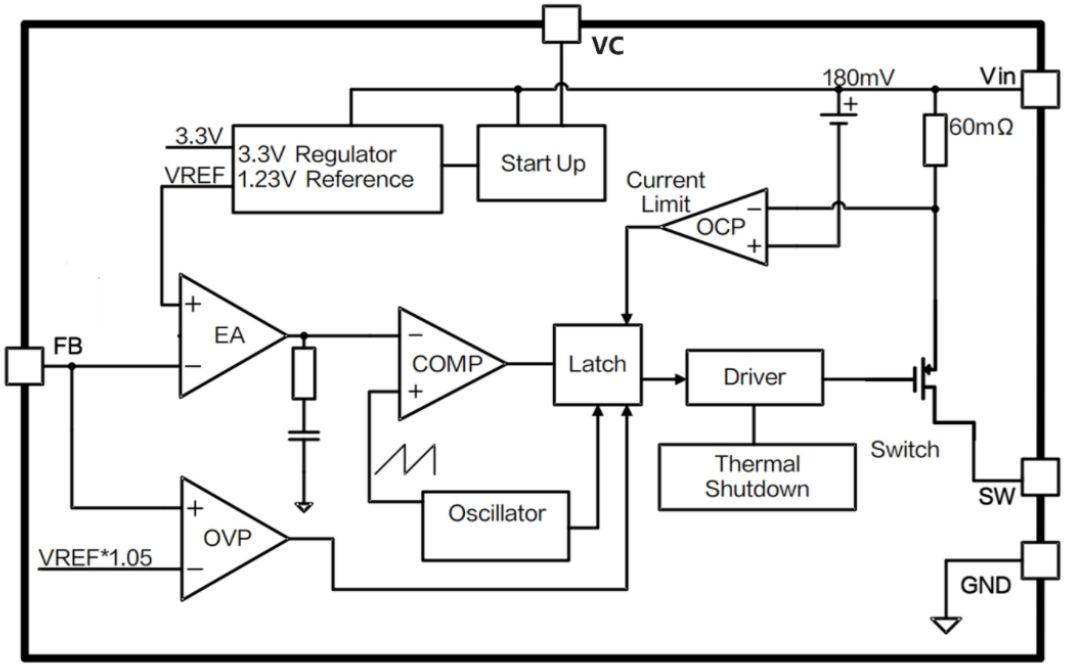
Features

- Output Adjustable Voltage From 1.250V to 37V
- Fixed 180KHz Switching Frequency
- Voltage Mode Non-synchronous PWM Control
- ON/OFF Shutdown Control Input
- Wide 3.6V to 40V Input Voltage Range
- Output Load Current: 5A
- Low Power Standby Mode
- Built-in Switching MOSFET on Chip

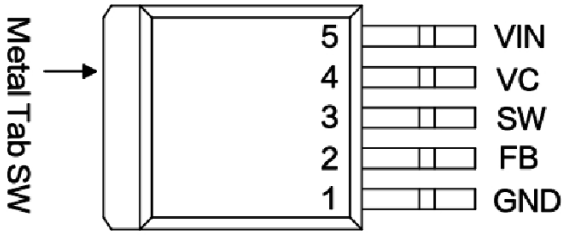
Ordering Information

Device	Operating Temperature Range	Package	Shipping
DL4015	-40°C to +125°C	TO263-5L	800/Tape & Reel

Block Diagram



Pin Description



Pin No. TO263-5L	Pin Name	Description
1	GND	Ground Pin.
2	FB	Feedback Pin (FB).
3	SW	Power Switch Output Pin (SW).
4	VC	Internal Voltage Regulator Bypass Capacity.
5	VIN	Supply Voltage Input Pin.
Metal Table		Power Switch Output Pin (SW).

Absolute Maximum Ratings

Characteristics	Symbol	Value	Unit
Supply Voltage	V_{IN}	+45	V
ON/OFF pin input voltage	V_{SD}	-0.3 ~ V_{IN}	V
Feedback pin voltage	V_{FB}	-0.3 ~ V_{IN}	V
Power dissipation	PD	Internally limited	W
Storage temperature	Tstg	-65 ~ +150	℃
Operating temperature	Topr	-40 ~ +125	℃
Operating voltage	V_{OP}	+3.6 ~ +40	V

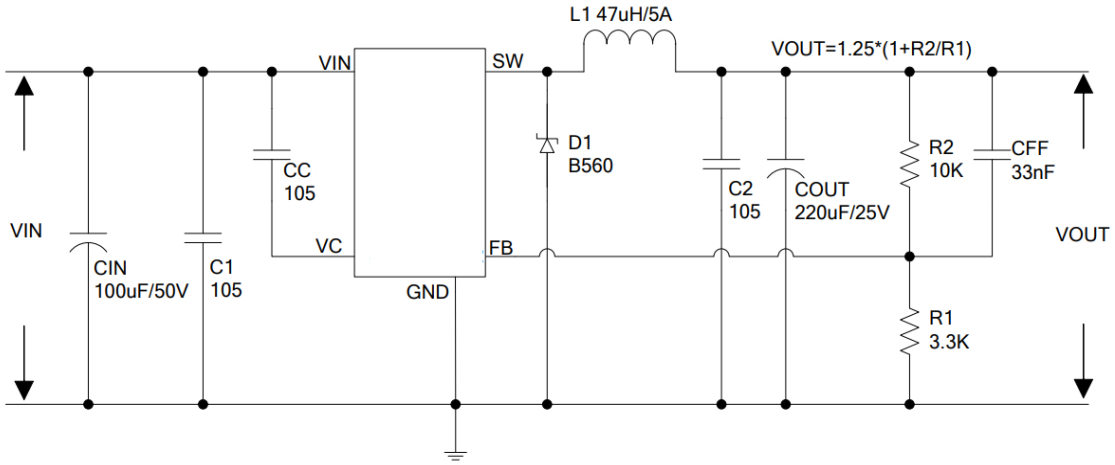
Electrical Characteristics

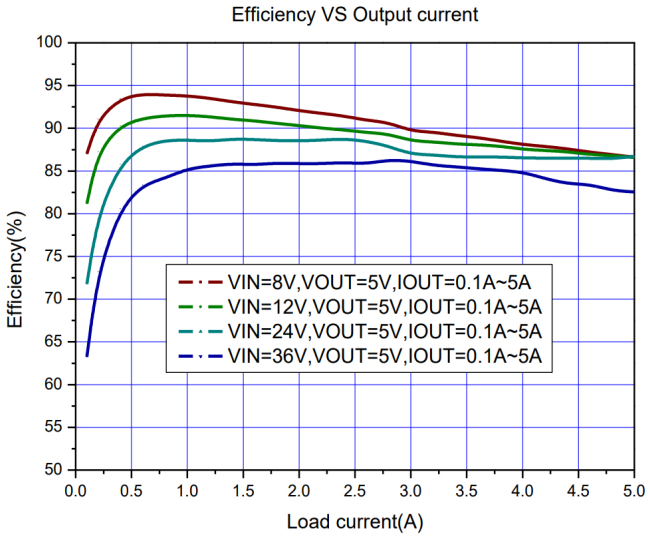
(Refer to the test circuit, V_{IN}=12V , I_{LOAD}=0.5A)

Characteristics	Symbol	Test Conditions	Min	Typ	Max	Unit
Input voltage	V_{IN}	(Adjustable version only)	3.6		40	V
Shutdown supply current	I_{STBY}			60	90	uA
Supply current	I_{CC}	V_{FB} =2.0V force driver off (Adjustable version only)		3.8	6	mA
Feedback voltage	V_{FB}	V_{IN} =3.6V to 40V	1.225	1.250	1.275	V
Feedback bias current	I_{FB}	V_{FB}=2.0V force driver off		100	200	nA
Switch current limit	I_{LIM}	Peak current, No outside circuit V_{FB}=0V force driver on		8		A
Oscillator frequency	F_{OSC}		144	180	216	kHz
Frequency of current limit or short circuit protection	F_{OSC1}	V_{FB}=0V force driver on		50		kHz
Internal PMOS R_{DSON}	R_{DSON}	V_{IN} =12V, V_{FB} =0V I_{out}=5A		80		mΩ
Max. duty cycle	D_{MAX}	V_{FB} =0V,I_{SW} =0.1A		100		%
Thermal shutdown	T_{OTSD}			165		℃
DL4015-ADJ						
Output Feedback	V_{FB}	3.6V≤V_{IN}≤40V, 0.2A≤I_{LOAD}≤5A	1.225	1.250	1.275	V
Efficiency	η	V_{IN}=12V,Vout=5V, I_{LOAD}=5A		87		%

Application Circuit

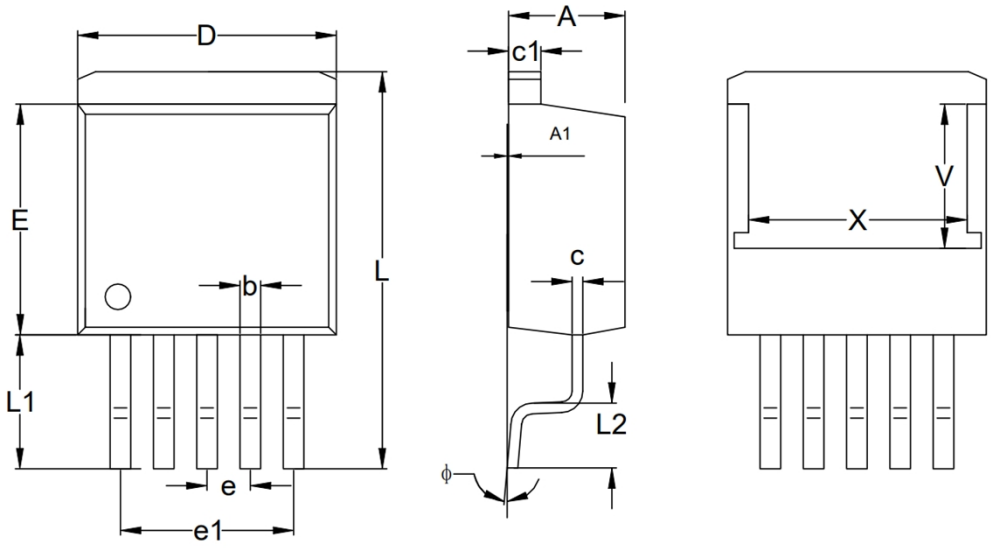
ADJ Version Typical System Application for Vout=5V/5A





OUTLINE DRAWING

TO263-5L



TOP VIEW SIDE VIEW BOTTOM VIEW

编号	尺寸(mm)		
	Min	TYP	Max
A	4.470	4.570	4.670
A1	0.000	0.063	0.150
b	0.710	0.810	0.910
c	0.310	0.420	0.530
c1	1.170	1.270	1.370
D	10.010	10.160	10.310
E	8.700	9.050	9.400
e	1.700TYP		
e1	6.700	6.800	6.900
L	14.940	15.230	15.500
L1	4.950	5.250	5.450
L2	2.340	2.540	2.740
ϕ	0	4	8
V	5.550REF		
X	6.900REF		