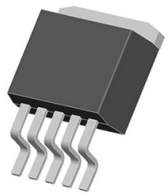
DESCRIPTION

DL6019 is a monolithic integrated circuit that provide all of the power and control functions for step-up (boost), flyback, and forward converter switching regulators.

Included on the chip is a 5A PMOSFET switch and its associated protection circuitry, consisting of current and thermal limiting, and undervoltage lockout. Other features include a 200 kHz fixed-frequency oscillator that requires no external components, a soft start mode to reduce in-rush current during start-up, and current mode control for improved rejection of input voltage and output load transients.



TO263-5L

FEATURES

■Wide Input Voltage Range:3.6V to 36V
■Output Voltage Versions: 12V, 24V, and Adj
■Fixed 200KHz Switching Frequency
■Max 5A Switching Current Capability
■Up to 92% efficiency
■EN PIN TTL shutdown capability
■Excellent line and load regulation
■Internal Optimize Power MOSFET
■Built in Frequency Compensation
■Built in Soft-Start Function
■Built in Thermal Shutdown Function■
Built in Current Limit Function
■Package:TO263-5L

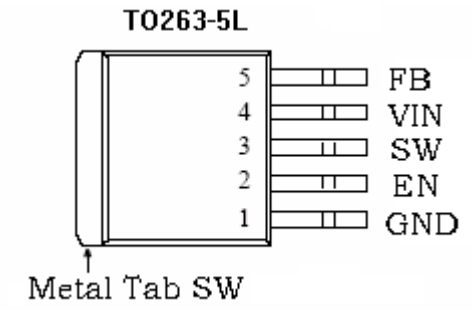
APPLICATIONS

■Simple boost regulator
■Flyback and forward regulators
■Multiple-output regulator

ORDERING INFORMATION

Device	Out Voltage	Operating Temperature Range	Package	Shipping
DL6019	ADJ	-40°C to + 125°C	TO263-5L	800/Tape & Reel

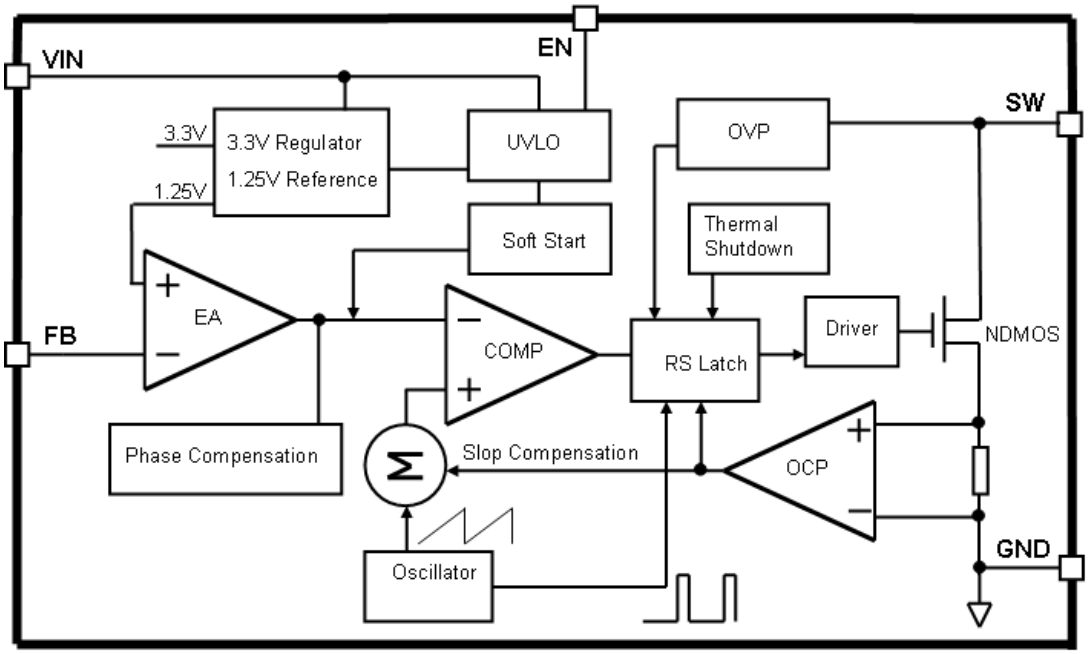
PIN DESCRIPTION



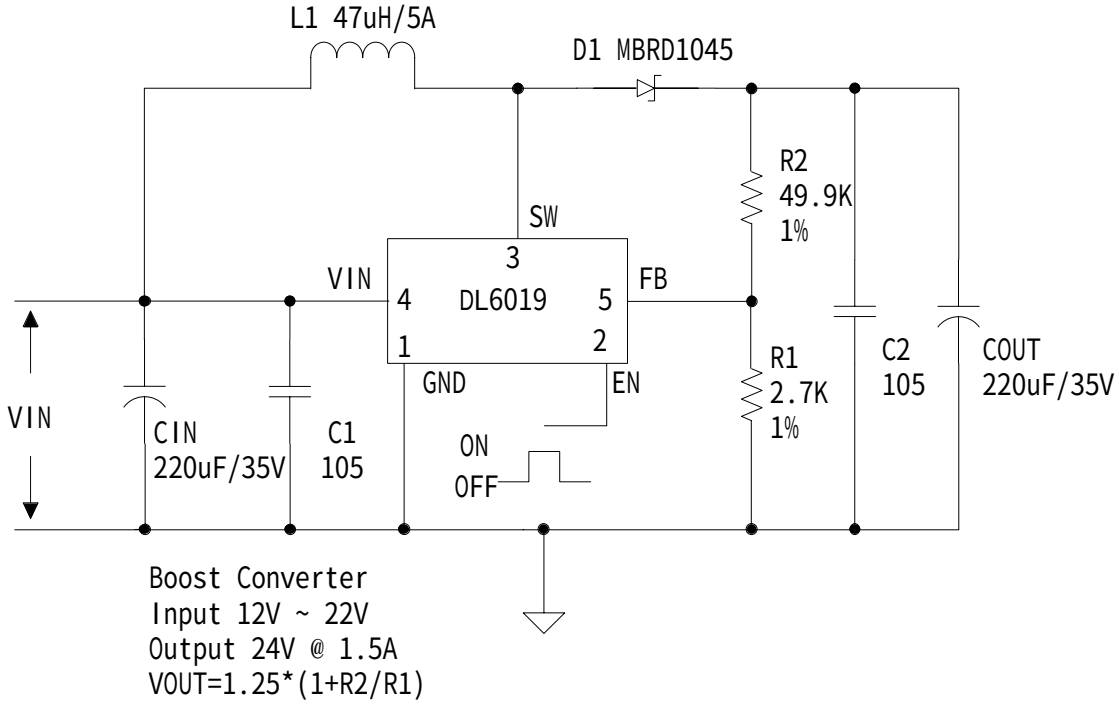
DL6019 PIN CONNECTION

PIN NO.	PIN NAME	Description
1	GND	Ground pin.
2	EN	Enable Pin.Drive EN pin low to turn off the device,drive it high to turn on.Floating is default high.
3	SW	Power Switch Output Pin (SW). Output is the switch node that supplies power to the output.
4	VIN	Supply Voltage Input Pin. DL6019 operates from a 3.6V to 36V DC voltage.Bypass Vin to GND with a suitable large capacitor to eliminate noise on the input.
5	FB	Feedback Pin (FB).The feedback threshold voltage is 1.25V.

BLOCK DIAGRAM



ADJ TYPE APPLICATION CIRCUITS



ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

Characteristic	Limit	Unit
Input voltage	-0.3 ~ 36	V
Feedback pin voltage	-0.3 ~ Vin	V
EN pin voltage	-0.3 ~ Vin	V
Output switch pin voltage	-0.3 ~ 60	V
Power dissipation	Internally limited	mW
Thermal resistance (Junction to ambient,no heatsink,free air)	30	℃/W
Operating temperature	-40 ~ +125	℃
Storage temperature	-65 ~ +150	℃
Lead temperature (soldering,10sec)	260	℃
ESD (HBM)	>2000	V

ELECTRICAL CHARACTERISTICS

(T_A= 25℃ unless otherwise specified.)

Characteristic		Conditions	Min.	Typ.	Max	Unit
System paramrters test circuit figure						
Feedback voltage	VFB	Vin=5V to 12V,Vout=24V Iload=0.1~1A	1.230	1.250	1.270	V
Efficiency	η	Vin=12V,Vout=24V Iout=1A		93		%
FIXED Voltage 12V	Vout	Vin=5V,Iout=1A	11.76	12	12.24	V
FIXED Voltage 24V	Vout	Vin=12V,Iout=1A	23.52	24	24.48	V

ELECTRICAL CHARACTERISTICS (DC parameters)

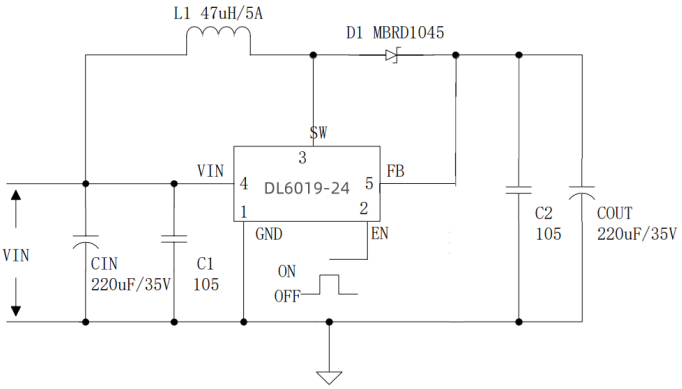
(V_{IN}=12V, GND=0V, Iout=0.1A, Ta = 25℃; the others floating unless otherwise specified.)

Characteristic	Symbol	Conditions	Min.	Typ.	Max	Unit
Input operation voltage	Vin		3.6		36	V
Shutdown supply current	I_{STBY}	V_{EN}=0V		70	100	μA
Quiescent supply current	Iq	V_{EN}=2V, V_{FB}=Vin		2.5	5	mA
Oscillator frequency	F_{OSC}		160	200	240	kHz
Switch current limit	I_L	V_{FB}=0		5		A
Output power NMOS	Rdson	Vin=12V, I_{SW}=5A		110	120	mohm
EN pin threshold	V_{EN}	High(regulator ON) Low(regulator OFF)		1.4 0.8		V
EN pin input leakage current	I_H	V_{EN}=2V(ON)		3	10	μA
	I_L	V_{EN}=0V(OFF)		3	10	μA
Max. duty cycle	D_{MAX}	V_{FB}=0V		90		%

APPLICATION CIRCUITS

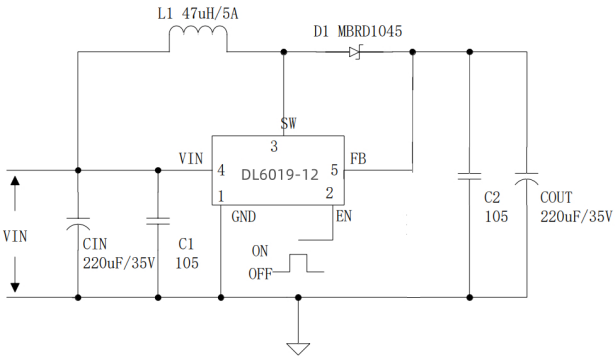
FIXED VOLTAGE 24V

(VIN=12V, VOUT=24V)



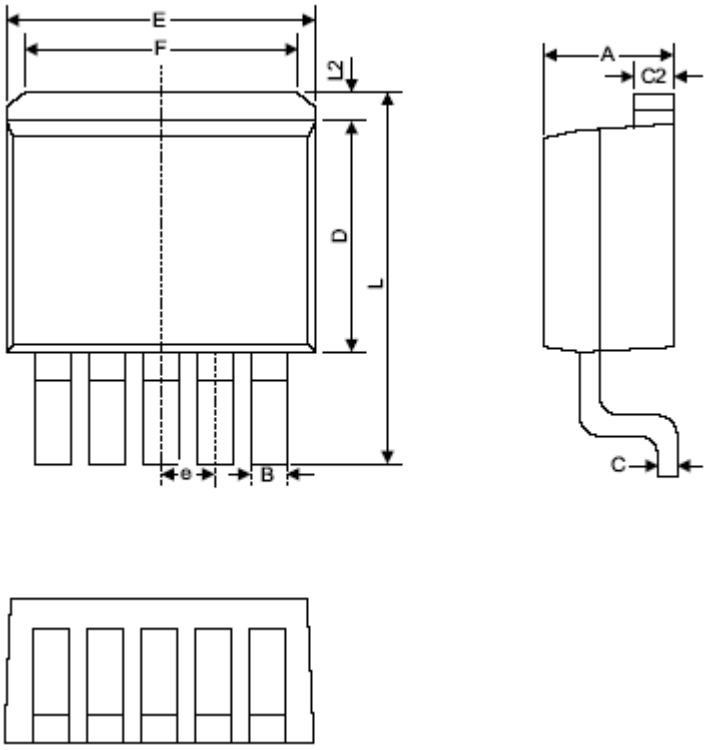
FIXED VOLTAGE 12V

(VIN=5V, VOUT=12V)



OUTLINE DRAWING

TO263-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.440	4.650	0.175	0.183
B	0.710	0.970	0.028	0.038
C	0.360	0.640	0.014	0.025
C2	1.255	1.285	0.049	0.051
D	8.390	8.890	0.330	0.350
E	9.960	10.360	0.392	0.408
e	1.550	1.850	0.061	0.073
F	6.360	7.360	0.250	0.290
L	13.950	14.750	0.549	0.581
L2	1.120	1.420	0.044	0.056