

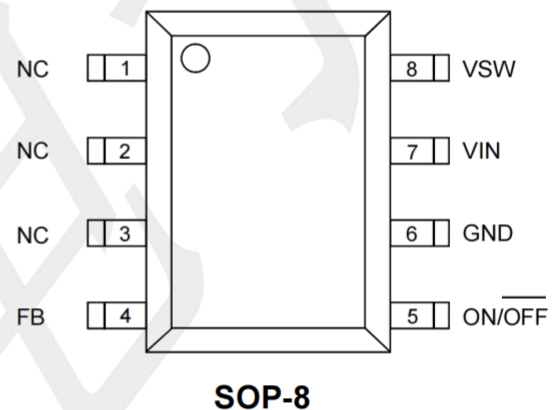
Features

- 3.3V, 5V, 12V and Adjustable Output Versions
- Wide Input Voltage Range up to 40V
- Guaranteed 0.5A Output Current
- High Efficiency
- Requires only 4 External Components
- 300 kHz Fixed Frequency Internal Oscillator
- TTL Shutdown Capability, Low Power Standby Mode
- Uses Readily Available Standard Inductors
- Thermal Shutdown and Current Limit Protection
- Adjustable Version Output Voltage Range, 1.23V to 37V $\pm 4\%$ Max Over Line and Load Conditions
- Low Quiescent Current: 50 μ A(Typ)
- RoHS and Halogen free compliance
- Compact package: SOP-8

Applications

- industrial equipment
- Sensor power supply module
- PLC control board
- DSL Modem
- Access Point Router
- Portable Medical Devices
- Set Top Box

Pinout (top view)



Pin Configurations

Pin Number	Pin Name	Pin Function
1、2、3	NC	Not connected
4	FEEDB ACK	Senses the regulated output voltage to complete the feedback loop
5	ON/OFF	Allows the switching regulator circuit to be shut down using logic level signals.
6	GND	Circuit Ground
7	VIN	This is the positive input supply for the IC switching regulator. A suitable input bypass capacitor must be present at this pin to minimize voltage transients and to supply the switching currents needed by the regulator.
8	SW	Internal switch, the voltage at this pin switches between (+VIN VSAT) and approximately -0.5V. To minimize coupling to sensitive circuitry, the PC board copper area connected to this pin should be kept to a minimum.

Ordering Information

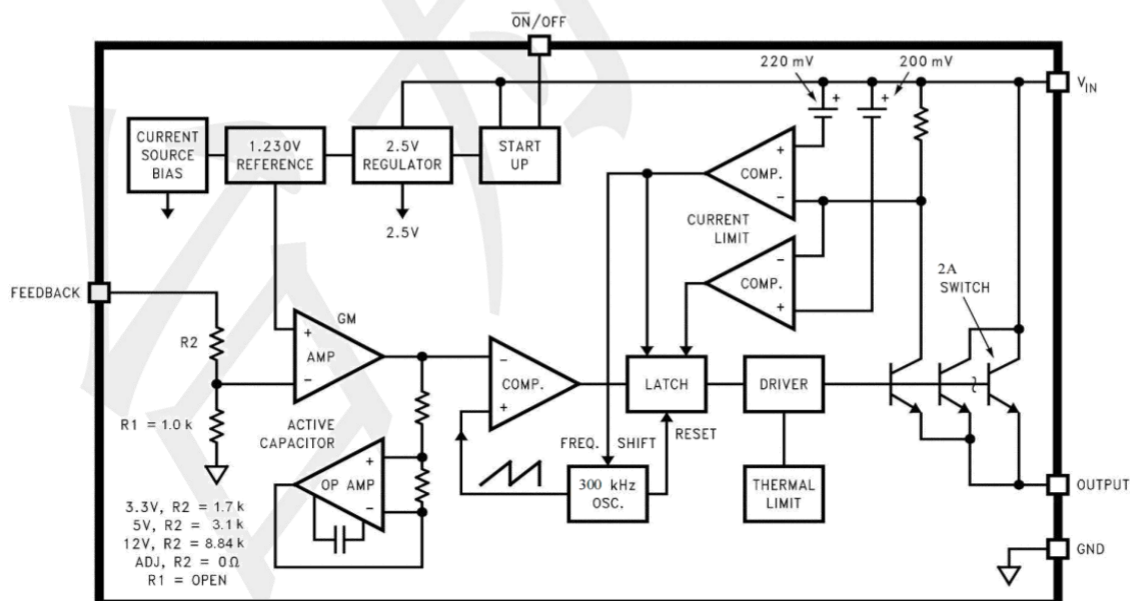
ORDER NUMBER	Output Versions	PACKAGE DESCRIPTION	PACKAGE OPTION
LM2674MX-3.3-TP	3.3V:±4%	SOP-8	Tape and Reel,2500
LM2674MX-5.0-TP	5.0V:±4%	SOP-8	Tape and Reel,2500
LM2674MX-12-TP	12V:±4%	SOP-8	Tape and Reel,2500
LM2674MX-ADJ-TP	FB=1.23V:±4%	SOP-8	Tape and Reel,2500

Absolute Maximum Ratings

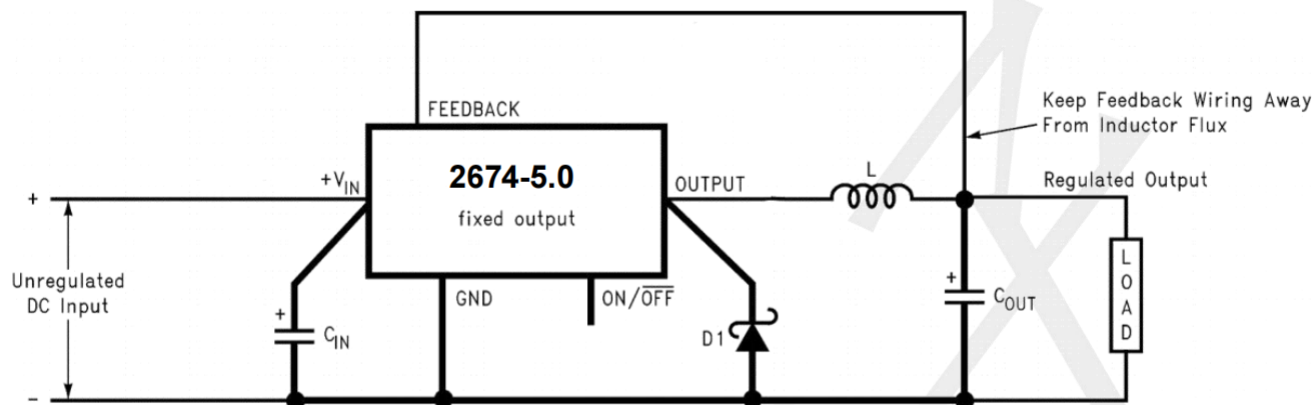
over operating free-air temperature range (unless otherwise noted)

Parameter Name	Symbol	Value	Unit
Maximum Supply Voltage	V_{IN}	45	V
ON / OFF Pin Input Voltage	ON/OFF	$-0.3V \leq V \leq V_{IN}$	V
Output Voltage to Ground (steady state)	V_{OUT}	-1	V
Power Dissipation	P_{DMAX}	Internally Limited	
Storage Temperature Range	T_{stg}	-65~+150	°C
Maximum Junction Temperature	T_{JA}	150	°C
ESD Susceptibility (Human Body Model)	ESD	2	kV
Lead Temperature (Soldering, 10 Seconds)	T_L	260	°C

BLOCK DIAGRAM



Typical Application Circuit



CIN - 100 μ F, 50V Tantalum

COU - 220 μ F, 25V Tantalum

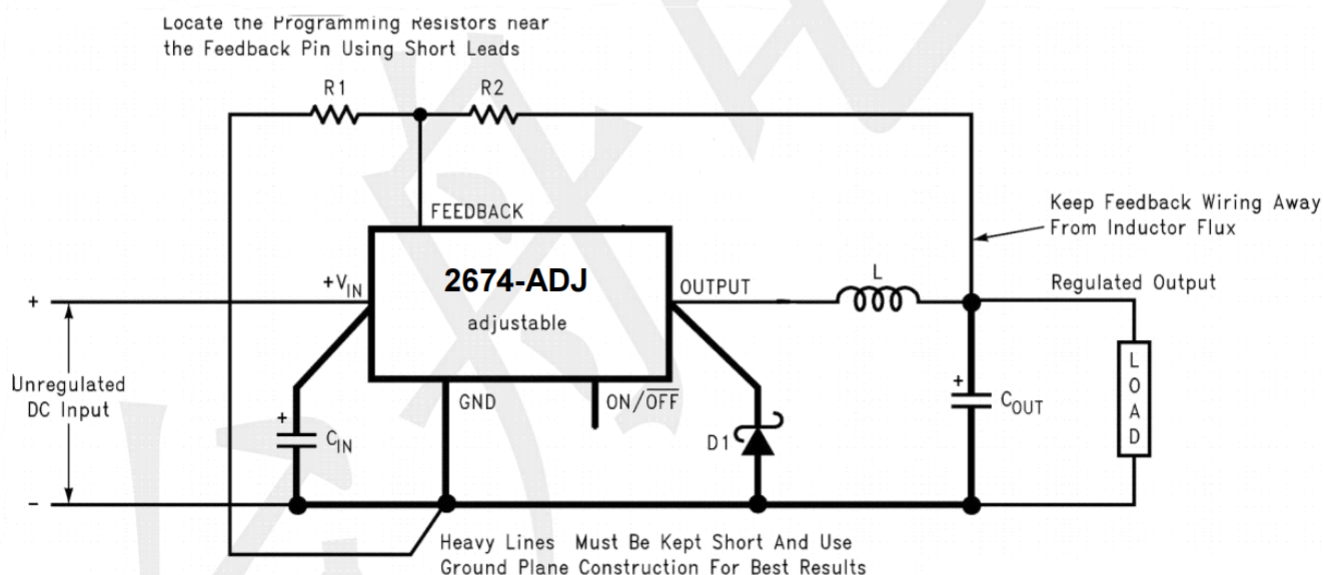
D1 - 2.0A, 50V Schottky Rectifier

L1 - 68 μ H

C B - 0.01 μ F, 50V Ceramic Typical

Heavy Lines Must Be Kept Short And Use
Ground Plane Construction For Best Results

Standard Test Circuits Fixed Output Voltage Versions



CIN - 100 μ F, 50V Tantalum

COU - 220 μ F, 25V Tantalum

D1 - 2.0A, 50V Schottky Rectifier

L1 - 68 μ H Sumida

R1 - 1.5 k Ω , 1%

C B - 0.01 μ F, 50V Ceramic

For a 5V output, select R2 to be 4.75 k Ω 1%

Heavy Lines Must Be Kept Short And Use
Ground Plane Construction For Best Results

Standard Test Circuits Adjustable Output Voltage Version

Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

Parameter Name	Symbol	Test Conditions	Min	Typ	Max	Units
Device Parameters						
Feedback Bias Current	I_b	Adjustable version only, $V_{OUT}=5V$	--	50	100	nA
Oscillator Frequency	f_o		270	300	330	kHz
V_{SAT} Saturation Voltage	V_{SAT}	$I_{OUT}=0.5A$	--	1.4	1.8	V
Max. Duty Cycle(ON)	DC		93	98	--	%
Current Limit	I_{CL}	(Note 1)	0.8	1.2	2.0	A
Output Leakage Current	I_L	Output=0V	--	--	2	mA
		Output=-1V	--	7.5	30	mA
Quiescent Current	I_Q		--	5	10	mA
Standby Quiescent Current	I_{STBY}	ON / OFF pin=5V(OFF)	--	50	200	μA
ON/OFF Control						
ON/ OFF Pin Logic Input Level	V_{IL}	$V_{OUT}=0V$	--	--	0.8	V
	V_{IH}	$V_{OUT}=\text{nominal output voltage}$	2.0	--	--	V
	I_{IL}	ON/ OFF pin=0V(OFF)	3	--	37	μA
Recommended Operating Conditions						
Supply Voltage	V_{IN}		6.0	--	40	V
Operating temperature range	T_{opr}		-40	--	+125	$^\circ\text{C}$

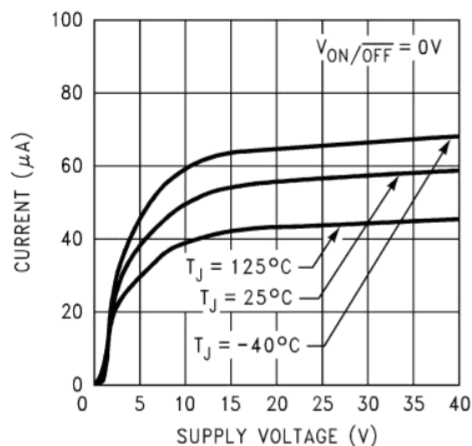
Electrical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

Parameter Name	Symbol	Test Conditions	Min	Typ	Max	Units
Recommended Operating Conditions						
Output Voltage 3.3V	V_{OUT}	$V_{IN}=12\text{V}, I_O=500\text{mA}$	3.234	3.3	3.366	V
		$6\text{V} \leq V_{IN} \leq 40\text{V}$ $0.25\text{A} \leq I_{LOAD} \leq 0.5\text{A}$	3.168	3.3	3.450	V
Efficiency	η	$V_{IN}=12\text{V}, I_{LOAD}=0.5\text{A}$	--	73	--	%
Output Voltage 5.0V	V_{OUT}	$V_{IN}=12\text{V}, I_O=500\text{mA}$	4.90	5.00	5.10	V
		$8\text{V} \leq V_{IN} \leq 40\text{V}$ $0.25\text{A} \leq I_{LOAD} \leq 0.5\text{A}$	4.80	5.00	5.20	V
Efficiency	η	$V_{IN}=12\text{V}, I_{LOAD}=0.5\text{A}$	--	77	--	%
Output Voltage 12V	V_{OUT}	$V_{IN}=25\text{V}, I_O=500\text{mA}$	11.76	12.000	12.24	V
		$15\text{V} \leq V_{IN} \leq 40\text{V}$ $0.25\text{A} \leq I_{LOAD} \leq 0.5\text{A}$	11.52	12.00	12.48	V
Efficiency	η	$V_{IN}=25\text{V}, I_{LOAD}=0.5\text{A}$	--	88	--	%
Output Voltage ADJ	V_{OUT}	$V_{IN}=12\text{V}, I_O=500\text{mA}, V_{OUT}=5\text{V}$	1.217	1.230	1.243	V
		$8\text{V} \leq V_{IN} \leq 40\text{V}, V_{OUT}=5\text{V}$ $0.25\text{A} \leq I_{LOAD} \leq 0.5\text{A}$	1.193	1.230	1.267	V
Efficiency	η	$V_{IN}=12\text{V}, I_{LOAD}=0.5\text{A}, V_{OUT}=5\text{V}$	--	77	--	%

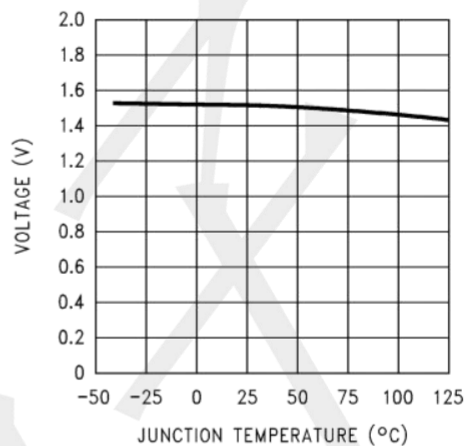
Note 1: The oscillator frequency reduces to approximately 11 kHz in the event of an output short or an overload which causes the regulated output voltage to drop approximately 40% from the nominal output voltage. This self protection feature lowers the average power dissipation of the IC by lowering the minimum duty cycle from 5% down to approximately 2%.

Output pin sourcing current. No diode, inductor or capacitor connected to output.

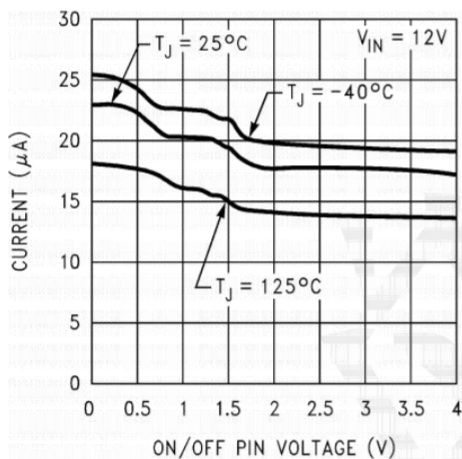
Typical Operating Characteristics



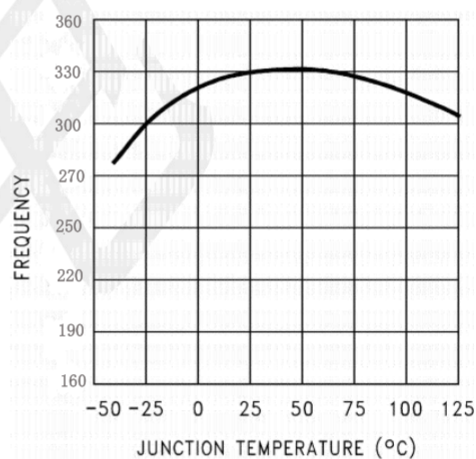
Standby Quiescent Current



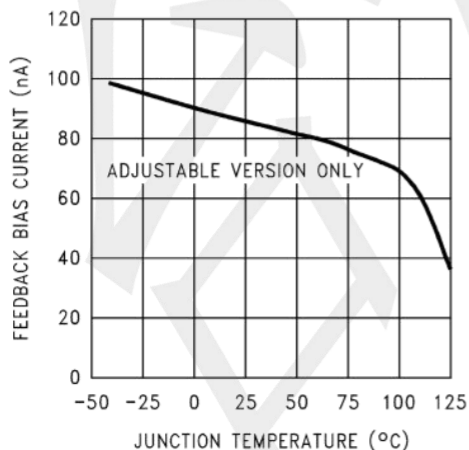
ON/ OFF Threshold Voltage



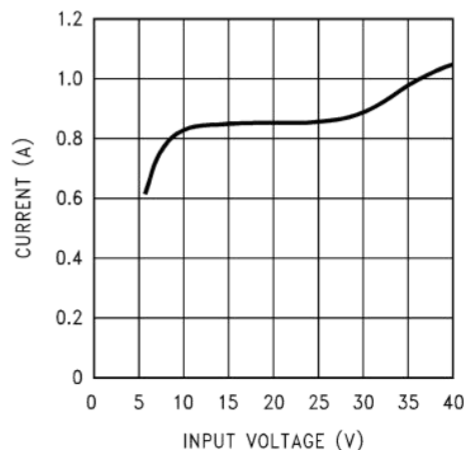
ON/ OFF Pin Current (Sourcing)



Switching Frequency



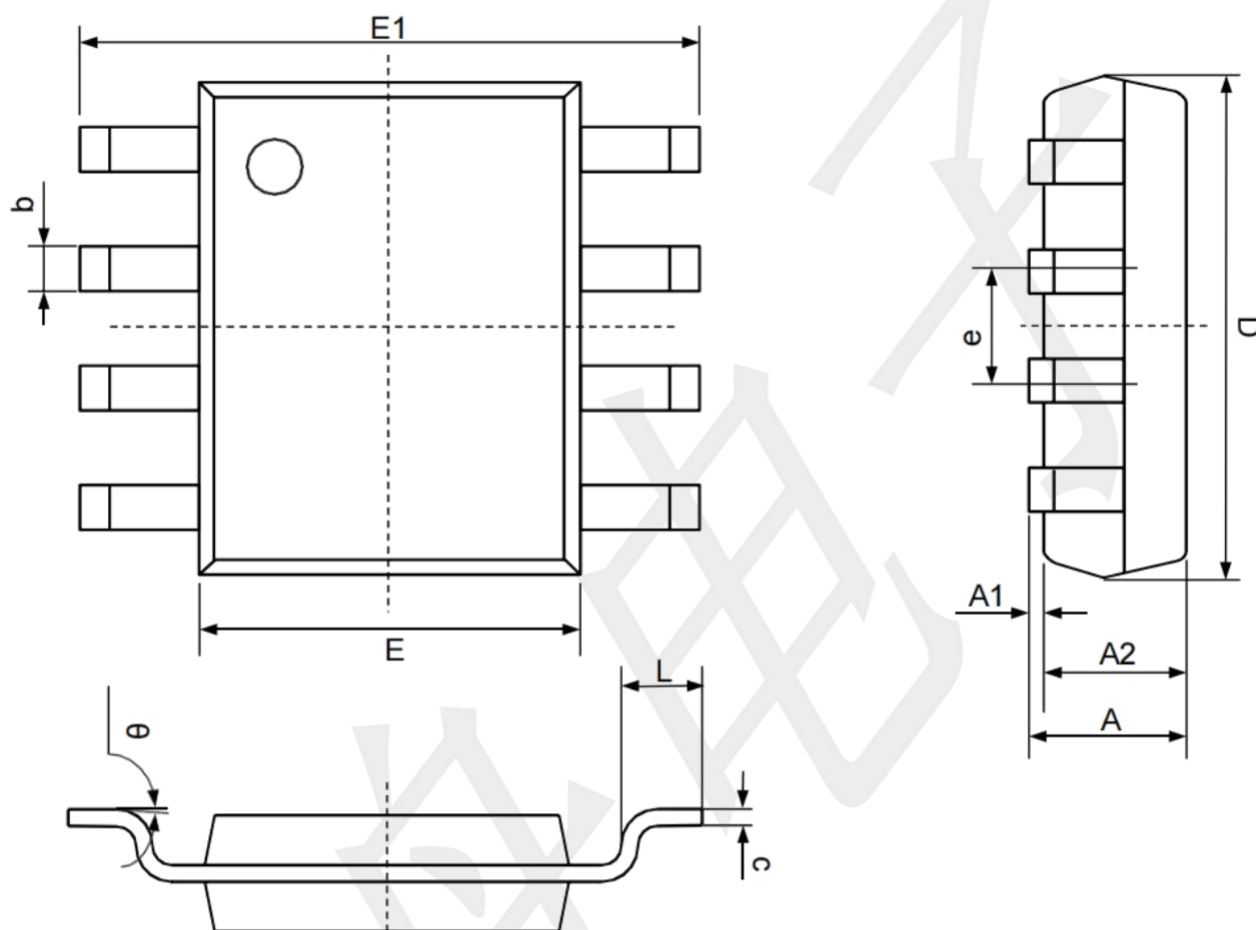
Feedback Pin Bias Current



Peak Switch Current

Package Outline Dimensions (unit: mm)

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°
A	1.350	1.750	0.053	0.069