

Vin:~40.0V Iout:3.0A, 52kHz, Step-Down(Buck) Switching Regulator

DESCRIPTION

The **LM2576** series of regulators are monolithic integrated circuits ideally suited for easy and convenient design of a step-down(buck converter) switching regulator. All circuits of this series are capable of driving a 3.0A load with excellent line and load regulation. These devices are available in fixed output voltages of 3.3V, 5.0V, 12.0V and an adjustable output version.

These regulators were designed to minimize the number of external components to simplify the power supply design. Standard series of inductors optimized for use with the LM2576 are offered by several diaerent inductor manufacturers.

Since the LM2576 converter is a switch-mode power supply, its efficiency is significantly higher in comparison with popular three-terminal linear regulators, especially with higher input voltages.

In many cases, the power dissipated is so low that no heatsink is required or its size could be reduced dramatically. A standard series of inductors optimized for use with the LM2576 are available from several different manufacturers. This feature greatly simplifies the design of switch-mode power supplies. The LM2576 features include a guaranteed ±4% tolerance on output voltage within specified input voltages and output load conditions, and ±10% on the oscillator frequency (±2% over 0°C to 125°C).

External shutdown is included, featuring 80uA(typical) standby current. The output switch includes cycle-by-cycle current limiting, as well as thermal shutdown for full protection under fault conditions.

FEATURES

- 3.3V, 5.0V, 12.0V and Adjustable Output Versions
- Adjustable Version Output Voltage Range, 1.23 to 37.0V +/- 4% AG10 Maximum Over Line and Load Conditions
- Guaranteed 3.0A Output Current
- Wide Input Voltage Range
- Requires Only 4 External Components
- 52kHz Fixed Frequency Internal Oscillator
- TTL Shutdown Capability, Low Power Standby Mode
- High Efficiency
- Uses Readily Available Standard Inductors
- Thermal Shutdown and Current Limit Protection
- Moisture Sensitivity Level 3 for SMD packages

APPLICATION

- Simple High-Efficiency Step-Down(Buck) Regulator
- Efficient Pre-Regulatorfor Linear Regulators
- On-Card Switching Regulators
- Positive to Negative Converter(Buck-Boost)
- Negative Step-Up Converters
- Power Supply for Battery Chargers

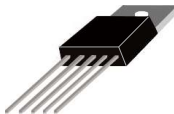
TO-263 PKG



ESOP-8L PKG



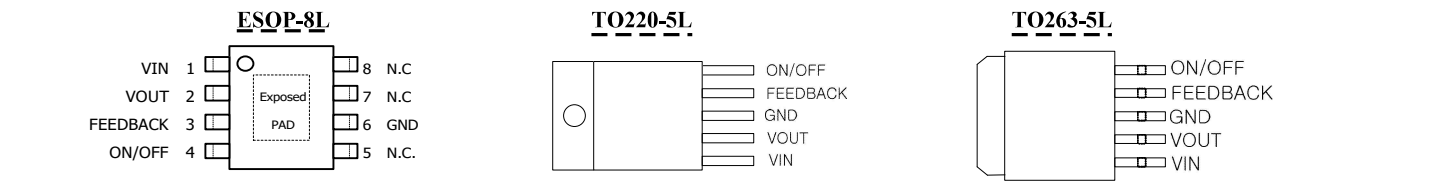
TO-220 PKG



ORDERING INFORMATION

Device	Package
LM2576S08-*. *	ESOP-8L
LM2576T2-*. *	TO-220-5L
LM2576T3-*. *	TO-263-5L

PIN CONFIGURATION



PIN DESCRIPTION

Package		Symbol	Description
TO-220-5L TO-263-5L	ESOP-8L		
1	1	VIN	This pin is the positive input supply for the LM2576 step-down switching regulator. In order to minimize voltage transients and to supply the switching currents needed by the regulator, a suitable input bypass capacitor must be present. (Cin in Figure 1).
2	2	VOUT	This is the emitter of the internal switch. The saturation voltage V _{SAT} of this output switch is typically 1.5V. It should be kept in mind that the PCB area connected to this pin should be kept to a minimum in order to minimize coupling to sensitive circuitry.
3	6	GND	Circuit ground pin. See the information about the printed circuit board layout.
4	3	FEEDBACK	This pin senses regulated output voltage to complete the feedback loop. The signal is divided by the internal resistor divider network R2, R1 and applied to the non-inverting input of the internal error amplifier. In the adjustable version of the LM2576 switching regulator this pin is the direct input of the error amplifier and the resistor network R2, R1 is connected externally to allow programming of the output voltage.
5	4	ON / OFF	It allows the switching regulator circuit to be shutdown using logic level signals, thus dropping the total input supply current to approximately 80uA. The threshold voltage is typically 1.4V. Applying a voltage above this value (up to +Vin) shuts the regulator off. If the voltage applied to this pin is lower than 1.4V or if this pin is left open, the regulator will be in the "on" condition
.	5,7,8	N.C.	No Connect.

* Exposed Pad of ESOP-8L package should be externally connected to GND.

Typical Application (Fixed Output Voltage Versions)

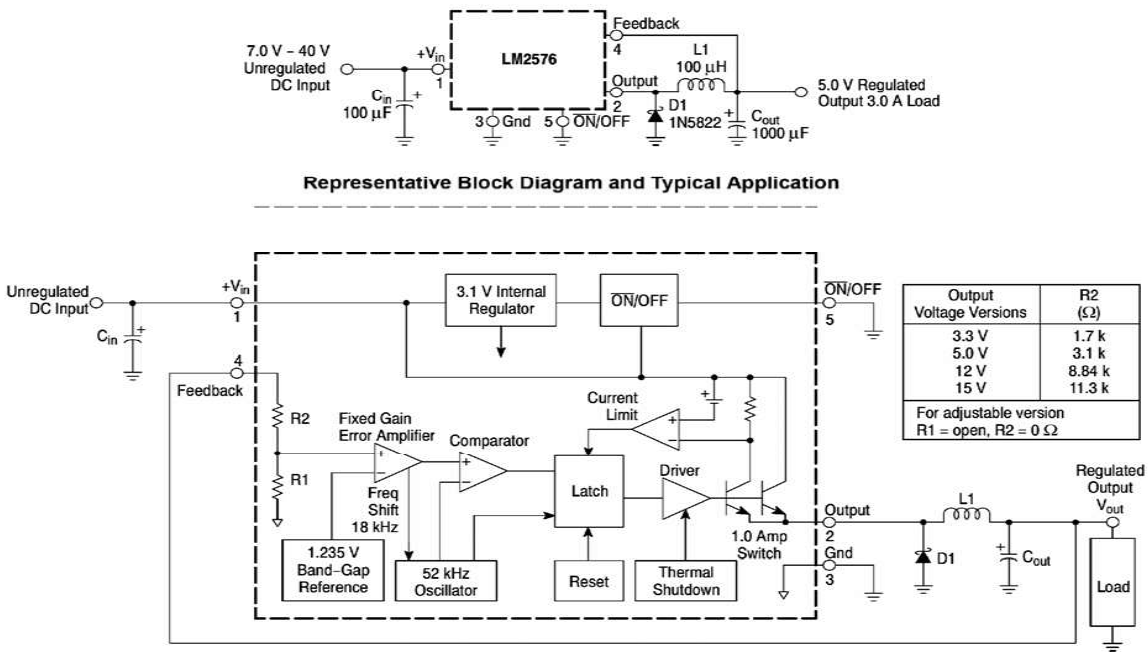
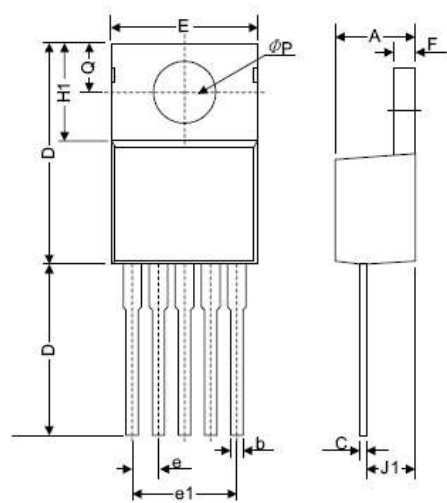


Figure 1. Block Diagram and Typical Application

■ Package Information

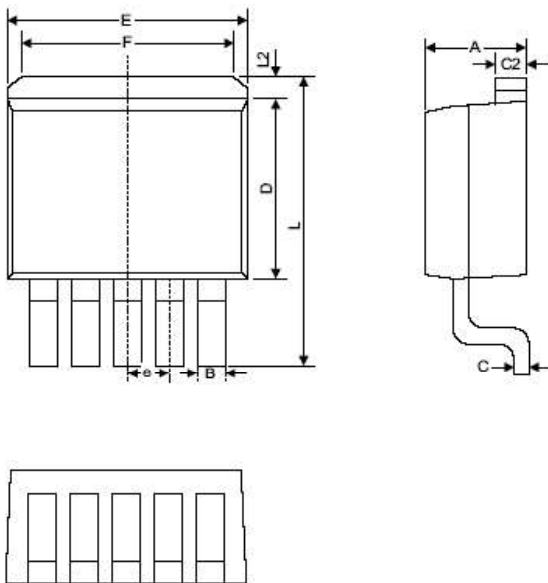
- Type: TO-220-5L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.06	4.83	0.160	0.190
b	0.76	1.02	0.030	0.040
C	0.36	0.64	0.014	0.025
D	14.22	15.49	0.560	0.610
E	9.78	10.54	0.385	0.415
e	1.57	1.85	0.062	0.073
e(1)	6.68	6.93	0.263	0.273
F	1.14	1.40	0.045	0.055
H(1)	5.46	6.86	0.215	0.270
J(1)	2.29	3.18	0.090	0.125
L	13.21	14.73	0.520	0.580
ϕP	3.68	3.94	0.145	0.155
Q	2.54	2.92	0.100	0.115

■ Package Information

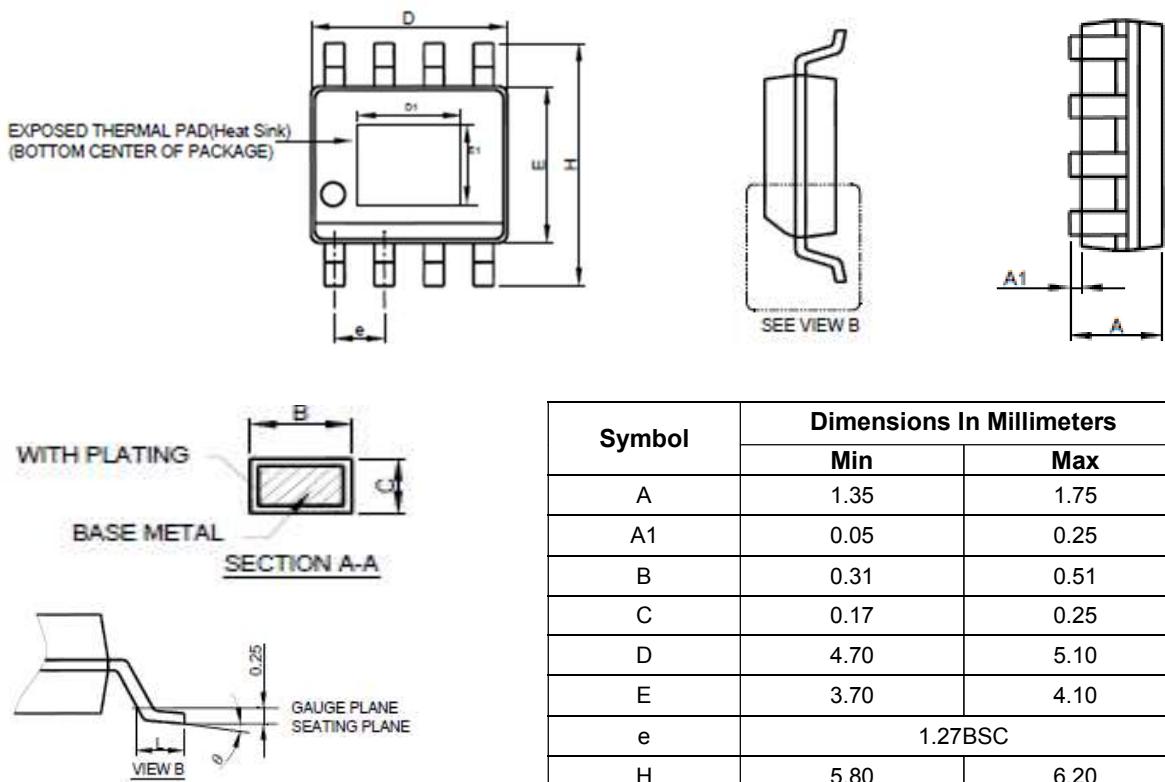
- Type: TO-263-5L



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

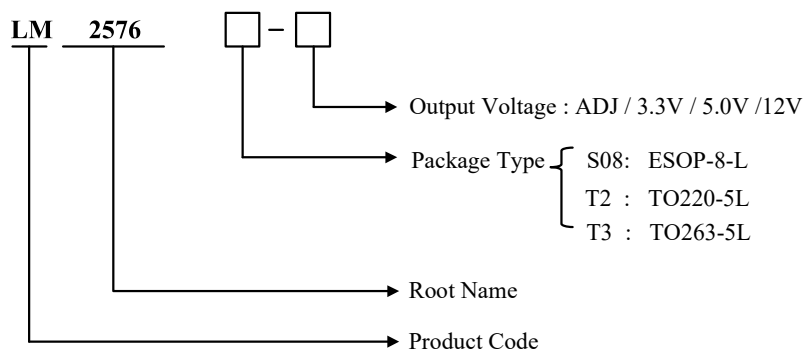
■ Package Information

- Type: ESOP-8L



Symbol	Dimensions In Millimeters	
	Min	Max
A	1.35	1.75
A1	0.05	0.25
B	0.31	0.51
C	0.17	0.25
D	4.70	5.10
E	3.70	4.10
e	1.27BSC	
H	5.80	6.20
L	0.40	1.27
θ	0°	8°
D1	3.10REF	
E1	2.21REF	

■ Ordering Information



VOUT	Package	Order Number	Description	Top Marking	Status
ADJ	ESOP-8L	LM2576S08-ADJ	3.0A, Adjustable, 52kHz, On/off	LM2576-ADJ	Contact Us
	TO220-5L	LM2576T2-ADJ			Active
	TO263-5L	LM2576T3-ADJ			
3.3V	ESOP-8L	LM2576S08-33	3.0A, Fixed, 52kHz, On/off	LM2576-3.3	Contact Us
	TO220-5L	LM2576T2-33			Active
	TO263-5L	LM2576T3-33			
5.0V	ESOP-8L	LM2576S08-50	3.0A, Fixed, 52kHz, On/off	LM2576-5.0	Contact Us
	TO220-5L	LM2576T2-50			Active
	TO263-5L	LM2576T3-50			
12.0V	ESOP-8L	LM2576S08-120	3.0A, Fixed, 52kHz, On/off	LM2576-120	Contact Us
	TO220-5L	LM2576T2-120			Active
	TO263-5L	LM2576T3-120			

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➤ Update by Jan.2017