

60V, 3.0A, 150kHz, Step-down(Buck) Switching Regulator

DESCRIPTION

The **LM2596H** series of regulators are monolithic integrated circuits that provide all the active functions for a step-down (buck) switching regulator, 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.

Available in a standard 5-lead TO-220 package and a 5-lead TO-263 surface mount package.

External shutdown is included, featuring typically 30.0 μ A standby current. The output switch includes cycle-by-cycle current limiting, as well as thermal shutdown, and protection from output short for full protection under fault conditions.

FEATURES

- 3.3V, 5.0V, 12.0V and Adjustable output versions
- Adjustable version output voltage range: 1.23V to 57.0V
- $\pm 4\%$ max over line and load condition
- Available in TO-220, TO-263 and ESOP-8L
- Guaranteed 3.0A output load current
- Input voltage range up to 60.0V
- Requires only 4 external components
- Excellent line and load regulation specifications
- 150kHz fixed frequency internal oscillator
- Low power standby mode, I_{STB} typically 30 μ A
- High efficiency
- Thermal shutdown and current limit protection
- Output short protection by reduction of frequency by 3 times

APPLICATION

- Simple high-efficiency step-down (buck) regulator
- Efficient pre-regulator for linear regulators
- On-card switching regulators

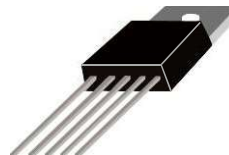
TO-263 PKG



SOP-8L PKG



TO-220 PKG



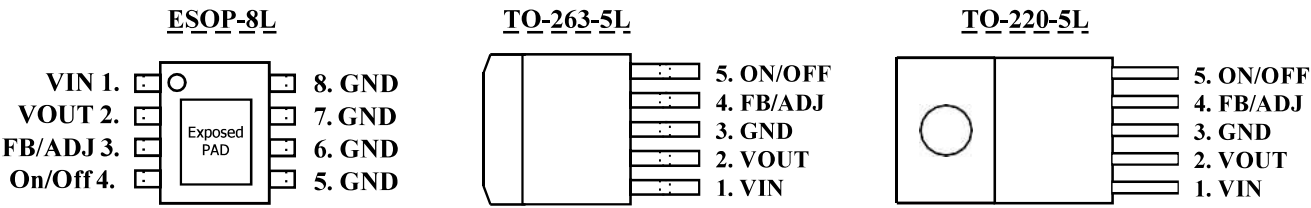
Device	Package
LM2596HS08-ADJ	ESOP-8L
LM2596HS08-*. *	
LM2596HT3-ADJ	TO-263-5L
LM2596H3-*. *	
LM2596HT2-ADJ	TO-220-5L
LM2596HT2-*. *	

*. * = Output Voltage = 3.3, 5.0, 12.0

Absolute Maximum Ratings (Note 1)

CHARACTERISTIC	SYMBOL	MIN.	MAX.	UNIT
Supply Voltage	V_{IN}	-	63.0	V
ON/OFF Pin Input Voltage	$V_{ON/OFF}$	-0.3	60 (or V_{IN})	V
FB pin voltage	V_{FB}	-0.3	25 (or V_{IN})	V
Output voltage to GND	V_{OUT}	-1		V
Storage Temperature Range	T_{STG}	-65	150	$^{\circ}$ C
Maximum Junction Temperature Range	$T_{J, MAX}$	-	150	$^{\circ}$ C

PIN CONFIGURATION



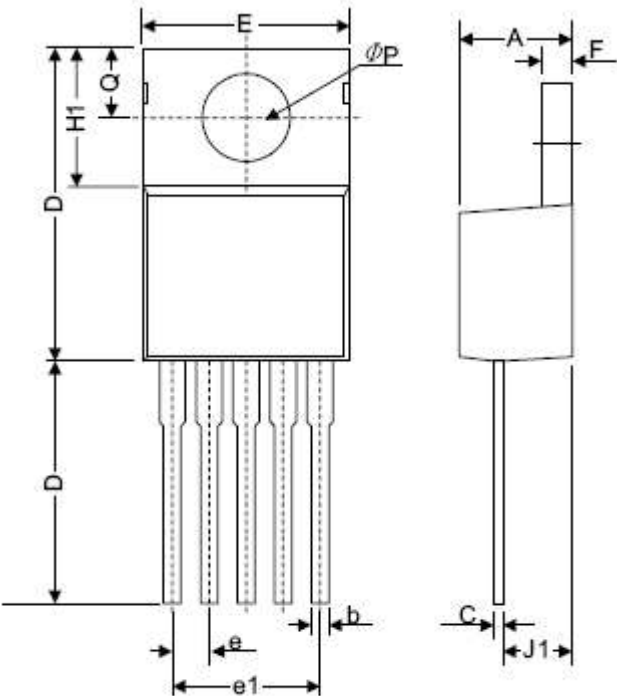
PIN DESCRIPTION

Pin No.	TO-263 / TO-220 5 LEAD		Pin No.	ESOP 8 LEAD	
	Name	Function		Name	Function
1	VIN	Input Supply	1	VIN	Input Supply
2	VOUT	Output Voltage	2	VOUT	Output Voltage
3	GND	Ground	3	FB / ADJ	Output Voltage Feedback or Output Adjust
4	FB / ADJ	Output Voltage Feedback or Output Adjust	4	ON / OFF	ON/OFF Shutdown
5	ON / OFF	ON/OFF Shutdown	5 / 6 / 7 / 8	GND	Ground

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

■ Package Information

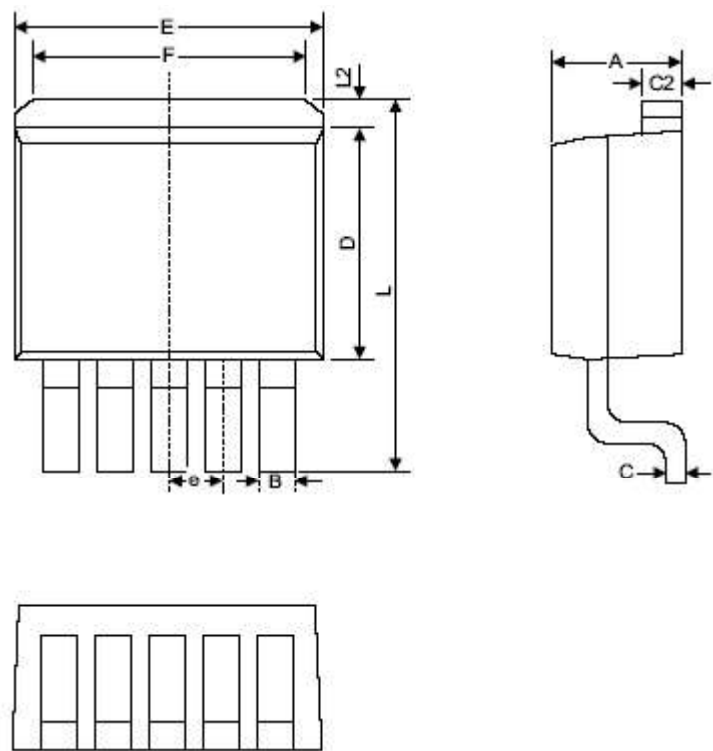
- Type: TO-220-5L



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

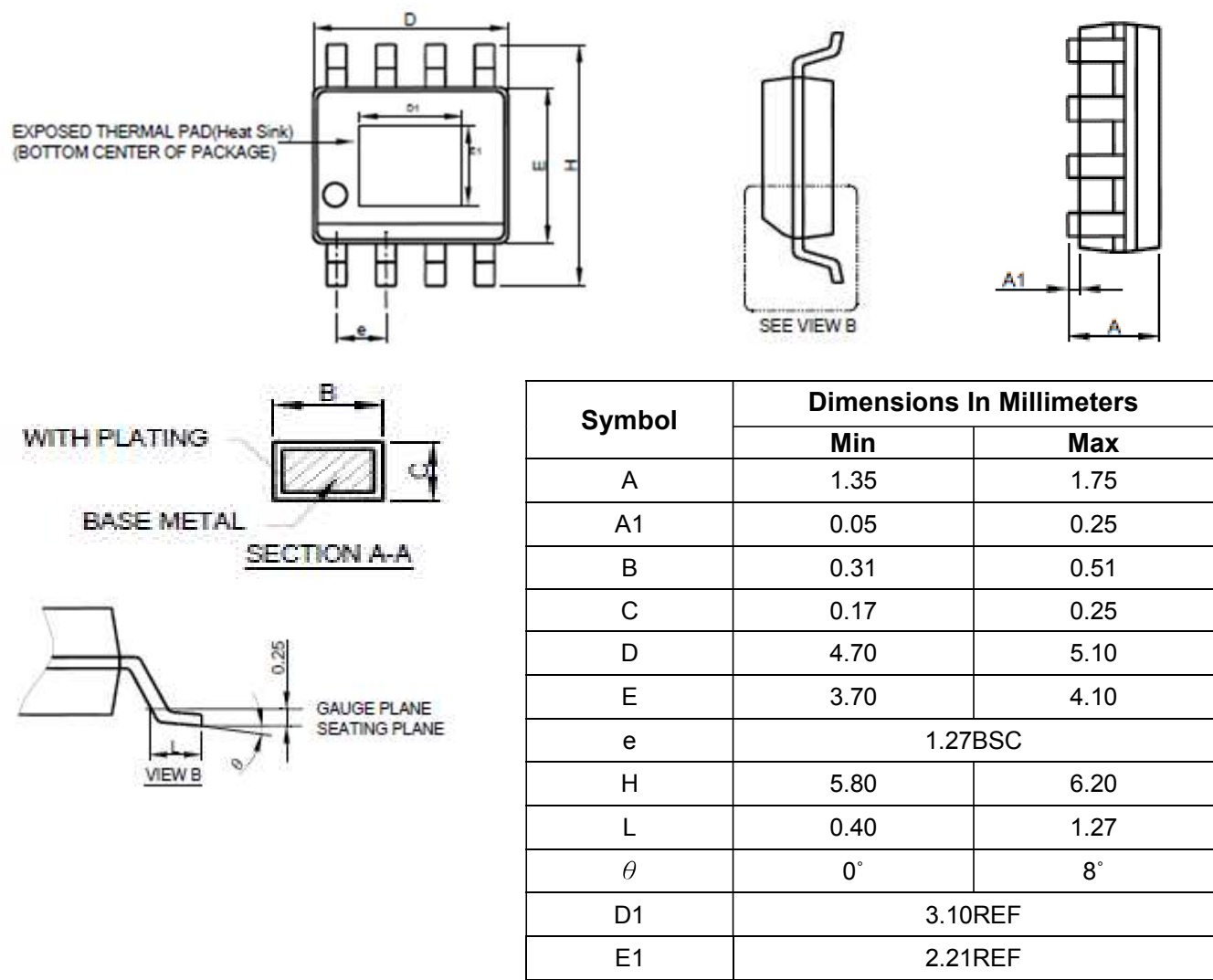
- Type: TO-263-5L



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



■ Ordering Information

VOUT	Package	Order No.	Description	Supplied As	Status
ADJ	ESOP-8L	LM2596HS08-ADJ	Iout: 3.0A, 150kHz, Adjustable	Reel	Active
	TO-263-5L	LM2596HT3-ADJ		Reel	
	TO-220-5L	LM2596HT2-ADJ		Tube	
3.3V	ESOP-8L	LM2596HS08-33	Iout: 3A, 150kHz, Fixed	Reel	Contact us
	TO-263-5L	LM2596HT3-33		Reel	Active
	TO-220-5L	LM2596HT2-33		Tube	Contact us
5.0V	ESOP-8L	LM2596HS08-50	Iout: 3A, 150kHz, Fixed	Reel	Active
	TO-263-5L	LM2596HT3-50		Reel	
	TO-220-5L	LM2596HT2-50		Tube	
12.0V	ESOP-8L	LM2596HS08-120	Iout: 3A, 150kHz, Fixed	Reel	Contact us
	TO-263-5L	LM2596HT3-120		Reel	Active
	TO-220-5L	LM2596HT2-120		Tube	

- LM2596H devices are Pb-free and RoHS compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.



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➤ Update by Jan.2017