

# LM2735Y 5-Pin SOT23 Demo Board

National Semiconductor  
Application Note 1665  
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## Introduction

The demo board included in this shipment converts 3V to 5.5V input to 12V output for up to 500mA load current using the LM2735Y 520kHz DC-DC switching converter. This is a 2-layer board using the bottom layer as a ground plane.

A bill of materials below describes the parts used on this demo board. A schematic and layout have also been included below along with measured performance characteristics. The above

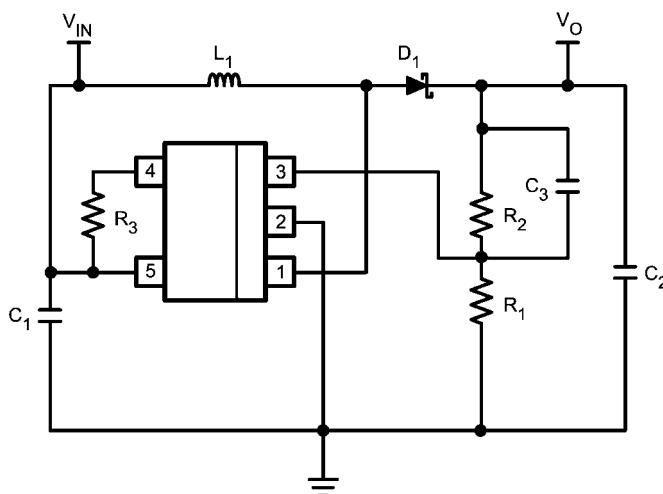
restrictions for the input voltage are valid only for the demo board as shipped with the demo board schematic below.

## Operating Conditions

$V_{IN} = 3V \text{ to } 5.5V$

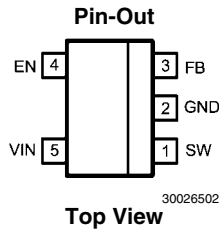
$V_O = 12V$

$I_O = 500mA$



LM2735Y 5-Pin SOT Schematic

30026501

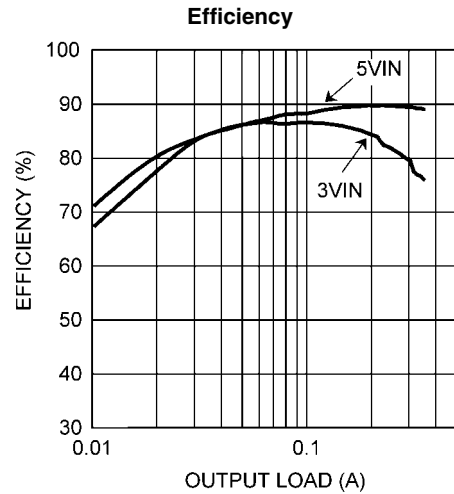


**Pin Descriptions for 5-Pin SOT23**

Pin	Name	Function
1	SW	Output switch. Connect to the inductor, output diode.
2	GND	Signal and power ground pin. Place the bottom resistor of the feedback network as close as possible to this pin.
3	FB	Feedback pin. Connect FB to external resistor divider to set output voltage.
4	EN	Shutdown control input. Logic high enables operation. Do not allow this pin to float or be greater than VIN + 0.3V.
5	VIN	Supply voltage for power stage, and Input supply voltage.

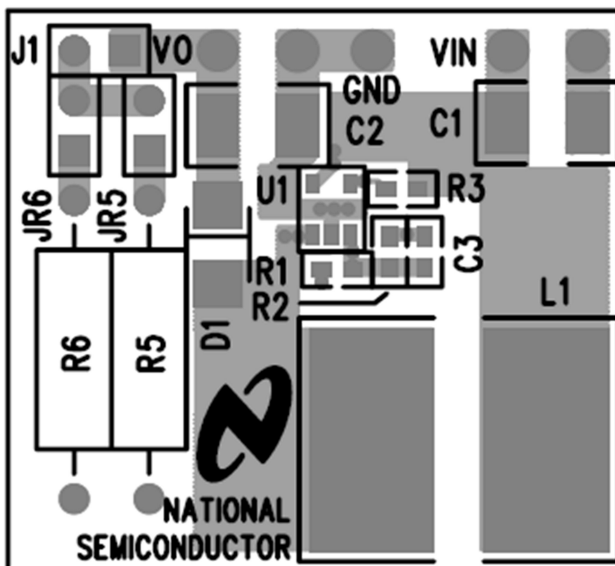
**Bill of Materials**

Part ID	Part Value	Manufacturer	Part Number
U1	2.1A Boost Regulator	NSC	LM2735YMF
C1, Input Cap	22μF, 6.3V, X5R	TDK	C2012X5R0J226M
C2 Output Cap	10μF, 25V, X5R	TDK	C3216X5R1E106M
C3 Comp Cap	330pF	TDK	C1608X5R1H331K
D1, Catch Diode	0.4V <sub>f</sub> Schottky 1A, 20V <sub>R</sub>	ST	STPS120M
L1	22μH 2.3A	Coilcraft	DO3316P-223
R1	10.2kΩ, 1%	Vishay	CRCW06031022F
R2	86.6kΩ, 1%	Vishay	CRCW06038662F
R3	100kΩ, 1%	Vishay	CRCW06031003F



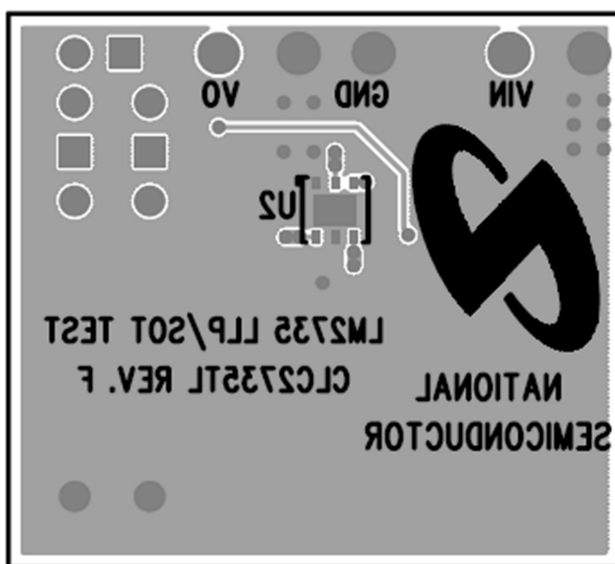
**LM2735Y  $\eta$  vs Load Current, V<sub>O</sub> = 12V**

## PCB Layout



30026504

Top Layer



30026505

Bottom Layer

## Notes

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