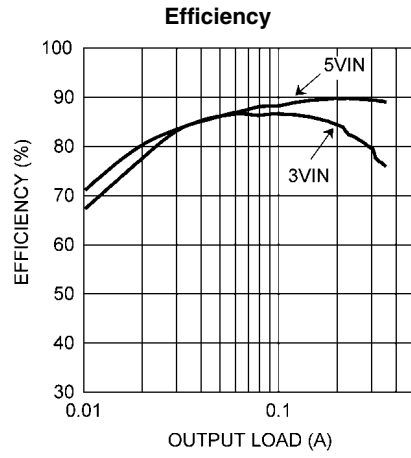


## Pin Description for 8-Pin eMSOP

Pin	Name	Function
1	NC	No Connect
2	PGND	Power ground pin. Place PGND and output capacitor GND close together.
3	VIN	Supply voltage for power stage, and Input supply voltage.
4	EN	Shutdown control input. Logic high enables operation. Do not allow this pin to float or be greater than $V_{IN} + 0.3V$ .
5	FB	Feedback pin. Connect FB to external resistor divider to set output voltage.
6	AGND	Signal ground pin. Place the bottom resistor of the feedback network as close as possible to pin 5
7	SW	Output switch. Connect to the inductor, output diode.
8	NC	No Connect
DAP	GND	Signal & Power ground. Connect to pin 2 & pin 6 on top layer. Place 4-6 via's from DAP to bottom layer GND plane.

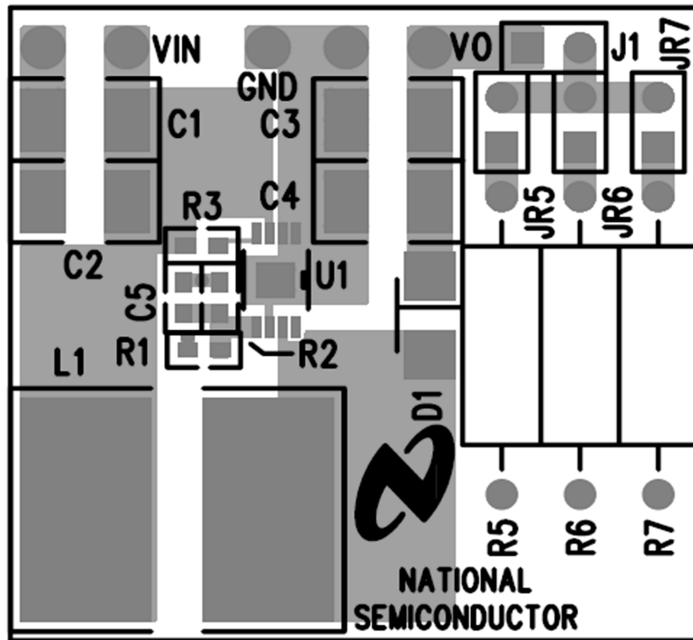
## Bill of Materials LM2735Y

Part ID	Part Value	Manufacturer	Part Number
U1	2.1A Boost Regulator	NSC	LM2735YMY
C1 Input Cap	22 $\mu$ F, 6.3V, X5R	TDK	C2012X5R0J226M
C2 Input Cap	No Load		
C3 Output Cap	10 $\mu$ F, 25V, X5R	TDK	C3216X5R1E106M
C4 Output Cap	No Load		
C5 Comp Cap	330pF	TDK	C1608X5R1H331K
D1, Catch Diode	0.4V <sub>f</sub> Schottky 1A, 20VR	ST	STPS120M
L1	22 $\mu$ H 2.3A	Coilcraft	DO3316P-223
R1	10.2k $\Omega$ , 1%	Vishay	CRCW06031022F
R2	86.6k $\Omega$ , 1%	Vishay	CRCW06038662F
R3	100k $\Omega$ , 1%	Vishay	CRCW06031003F

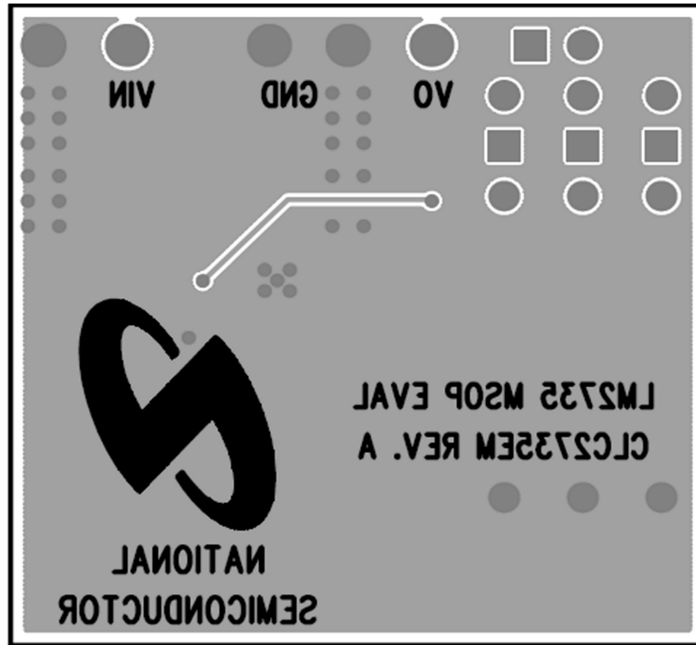


LM2735Y  $\eta$  vs Load Current,  $V_O = 12V$  30026803

### PCB Layout



Top Layer 30026804



Bottom Layer

30026805

THE CONTENTS OF THIS DOCUMENT ARE PROVIDED IN CONNECTION WITH NATIONAL SEMICONDUCTOR CORPORATION ("NATIONAL") PRODUCTS. NATIONAL MAKES NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS PUBLICATION AND RESERVES THE RIGHT TO MAKE CHANGES TO SPECIFICATIONS AND PRODUCT DESCRIPTIONS AT ANY TIME WITHOUT NOTICE. NO LICENSE, WHETHER EXPRESS, IMPLIED, ARISING BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT.

TESTING AND OTHER QUALITY CONTROLS ARE USED TO THE EXTENT NATIONAL DEEMS NECESSARY TO SUPPORT NATIONAL'S PRODUCT WARRANTY. EXCEPT WHERE MANDATED BY GOVERNMENT REQUIREMENTS, TESTING OF ALL PARAMETERS OF EACH PRODUCT IS NOT NECESSARILY PERFORMED. NATIONAL ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR BUYER PRODUCT DESIGN. BUYERS ARE RESPONSIBLE FOR THEIR PRODUCTS AND APPLICATIONS USING NATIONAL COMPONENTS. PRIOR TO USING OR DISTRIBUTING ANY PRODUCTS THAT INCLUDE NATIONAL COMPONENTS, BUYERS SHOULD PROVIDE ADEQUATE DESIGN, TESTING AND OPERATING SAFEGUARDS.

EXCEPT AS PROVIDED IN NATIONAL'S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, NATIONAL ASSUMES NO LIABILITY WHATSOEVER, AND NATIONAL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY RELATING TO THE SALE AND/OR USE OF NATIONAL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

**LIFE SUPPORT POLICY**

**NATIONAL'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE CHIEF EXECUTIVE OFFICER AND GENERAL COUNSEL OF NATIONAL SEMICONDUCTOR CORPORATION.** As used herein:

Life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

National Semiconductor and the National Semiconductor logo are registered trademarks of National Semiconductor Corporation. All other brand or product names may be trademarks or registered trademarks of their respective holders.

Copyright© 2007 National Semiconductor Corporation

For the most current product information visit us at [www.national.com](http://www.national.com)



**National Semiconductor Americas Customer Support Center**  
 Email: [new.feedback@nsc.com](mailto:new.feedback@nsc.com)  
 Tel: 1-800-272-9959

**National Semiconductor Europe Customer Support Center**  
 Fax: +49 (0) 180-530-85-86  
 Email: [europe.support@nsc.com](mailto:europe.support@nsc.com)  
 Deutsch Tel: +49 (0) 69 9508 6208  
 English Tel: +49 (0) 870 24 0 2171  
 Français Tel: +33 (0) 1 41 91 8790

**National Semiconductor Asia Pacific Customer Support Center**  
 Email: [ap.support@nsc.com](mailto:ap.support@nsc.com)

**National Semiconductor Japan Customer Support Center**  
 Fax: 81-3-5639-7507  
 Email: [jpn.feedback@nsc.com](mailto:jpn.feedback@nsc.com)  
 Tel: 81-3-5639-7560