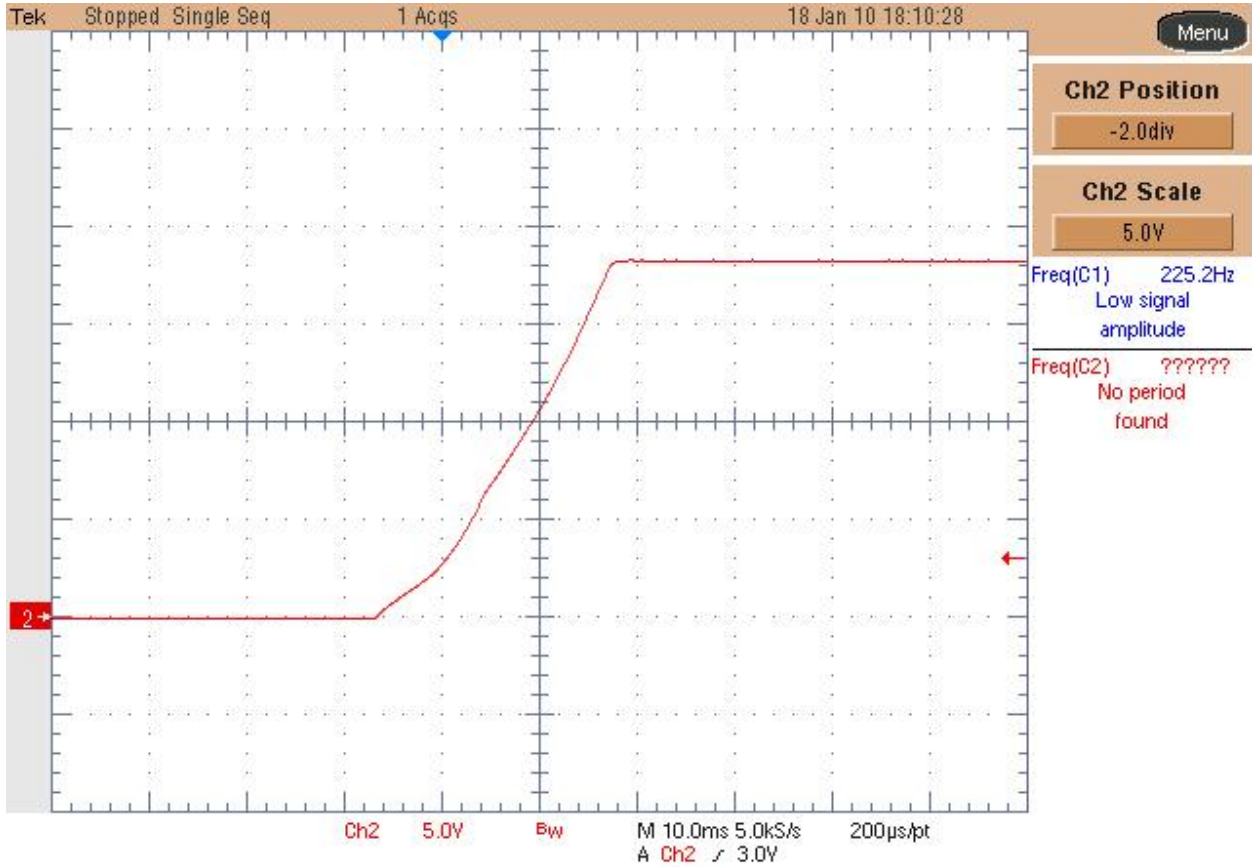


1 Startup

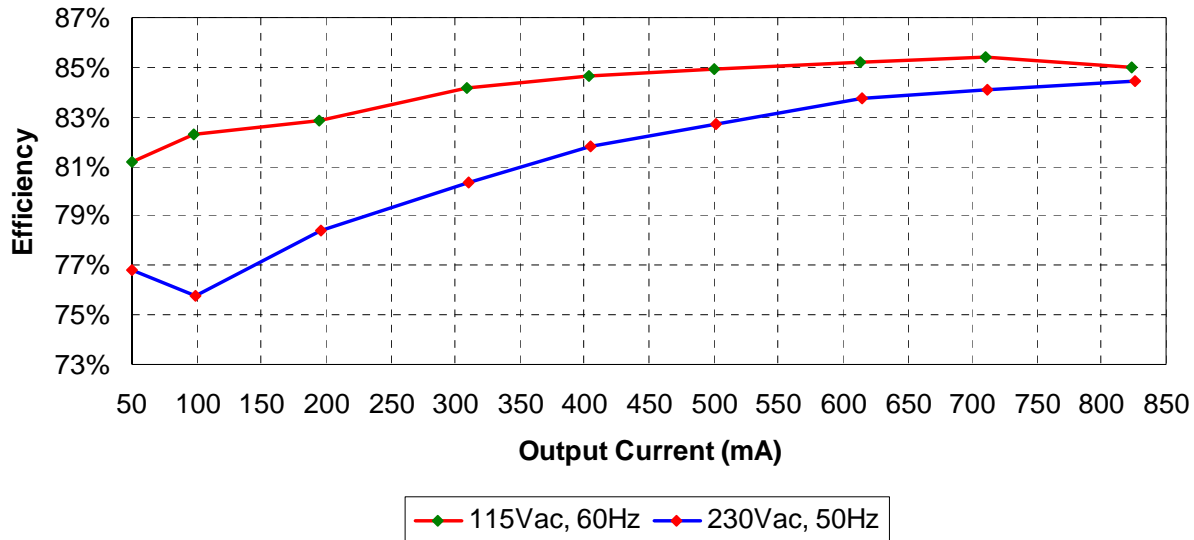
The output voltage at startup is shown in the image below. Input voltage was set to 320Vdc. The output was unloaded.

Channel 2 shows the output voltage (5 V/div, 10ms/div).



2 Efficiency

The efficiency data is shown in the tables and graph below. An AC source was set to 115Vrms, 60Hz and 230Vrms 50Hz. The input power was measured with a digital power meter Yokogawa WT210.

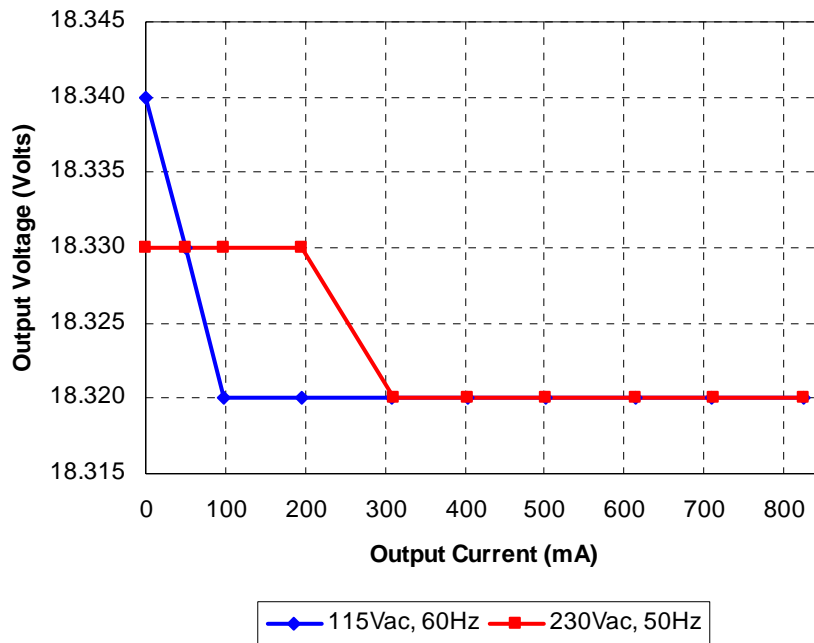


Iout (mA)	Vout (V)	Pout (W)	Vin (V)	Pin (W)	Ploss (W)	Eff
0.0	18.34	0.00	115	0.054	0.054	0.0%
50.3	18.33	0.92	115	1.14	0.214	81.2%
98.2	18.32	1.80	115	2.19	0.388	82.3%
194.7	18.32	3.57	115	4.31	0.739	82.8%
308.7	18.32	5.66	115	6.72	1.064	84.2%
403.2	18.32	7.39	115	8.73	1.340	84.6%
500.9	18.32	9.18	115	10.81	1.630	84.9%
613.7	18.32	11.24	115	13.20	1.952	85.2%
710.2	18.32	13.01	115	15.23	2.222	85.4%
823.7	18.32	15.09	115	17.75	2.662	85.0%

Iout (mA)	Vout (V)	Pout (W)	Vin (V)	Pin (W)	Ploss (W)	Eff
0.0	18.33	0.00	230	0.101	0.101	0.0%
50.2	18.33	0.92	230	1.20	0.278	76.8%
99.0	18.33	1.81	230	2.40	0.580	75.8%
196.2	18.33	3.60	230	4.59	0.989	78.4%
309.9	18.32	5.68	230	7.07	1.390	80.3%
404.4	18.32	7.41	230	9.06	1.651	81.8%
502.3	18.32	9.20	230	11.13	1.928	82.7%
615.1	18.32	11.27	230	13.46	2.191	83.7%
711.6	18.32	13.04	230	15.50	2.463	84.1%
825.6	18.32	15.12	230	17.92	2.795	84.4%

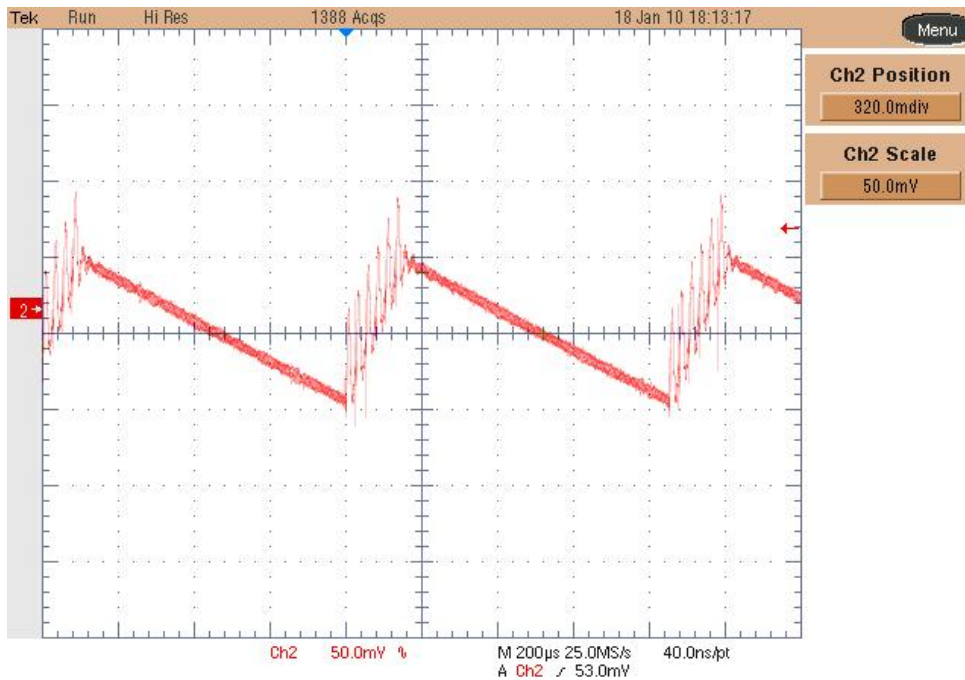
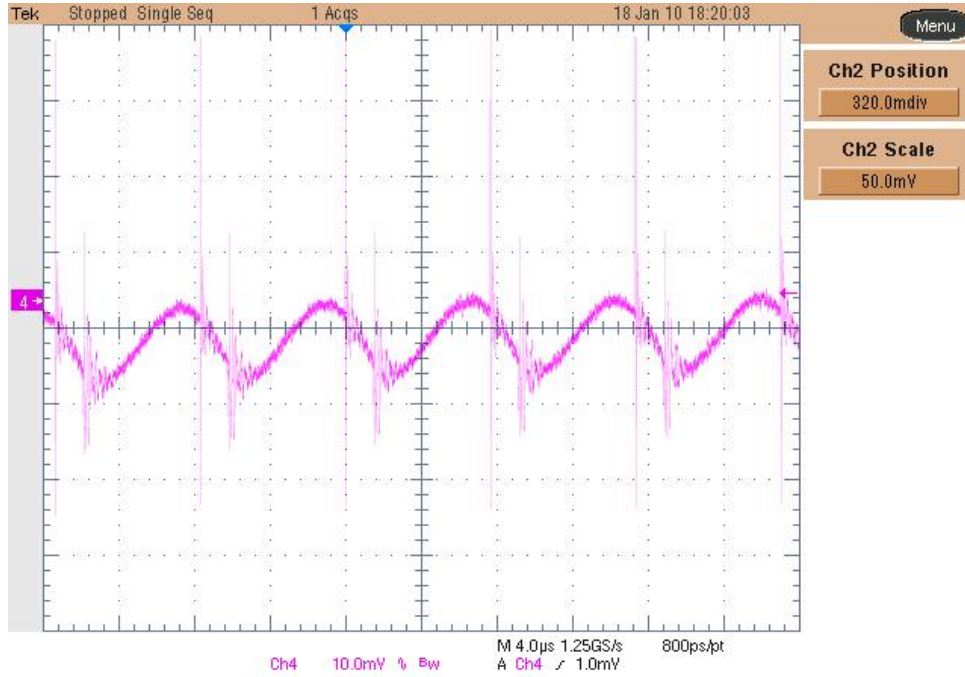
3 Output Voltage Regulation

The output voltage versus load current is plotted below.



4 Output Ripple Voltage

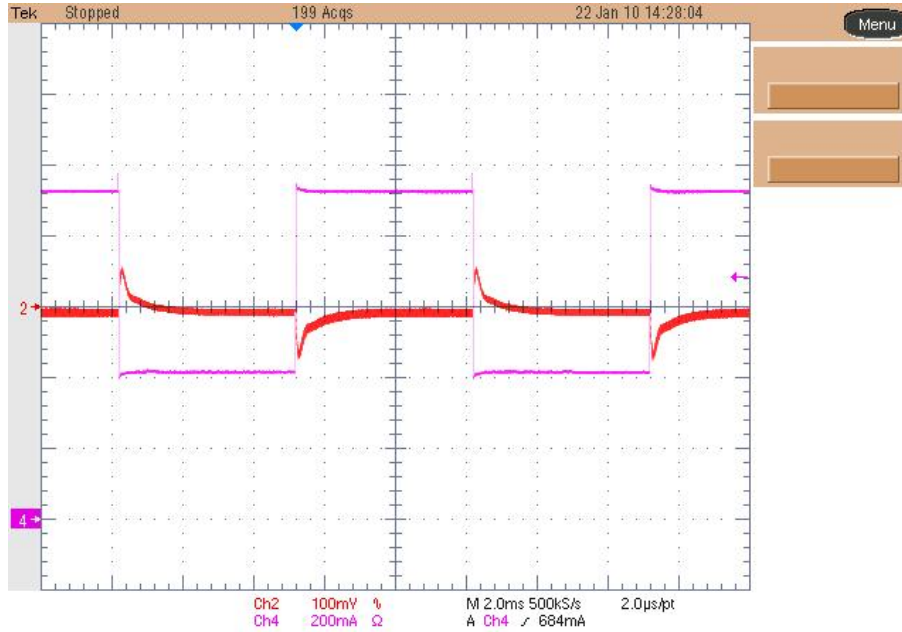
The output ripple voltage is shown in the plots below. The input was set to 320Vdc and the load was set to 0.83A (upper picture) and 60mA (lower picture).



5 Load Transient

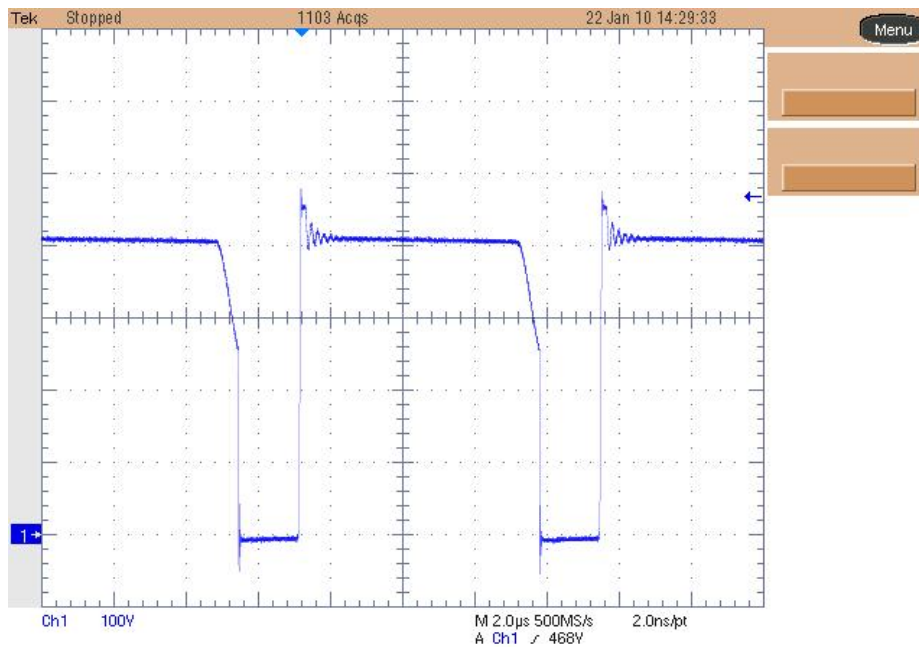
The image below shows the response to 0.4A to 0.9A load transient on the output voltage. The input voltage was set to 320Vac.

Channel 2: Vout (ac coupled) 100mV/div, Channel 4: Iout 200mA/div, 2ms/div.



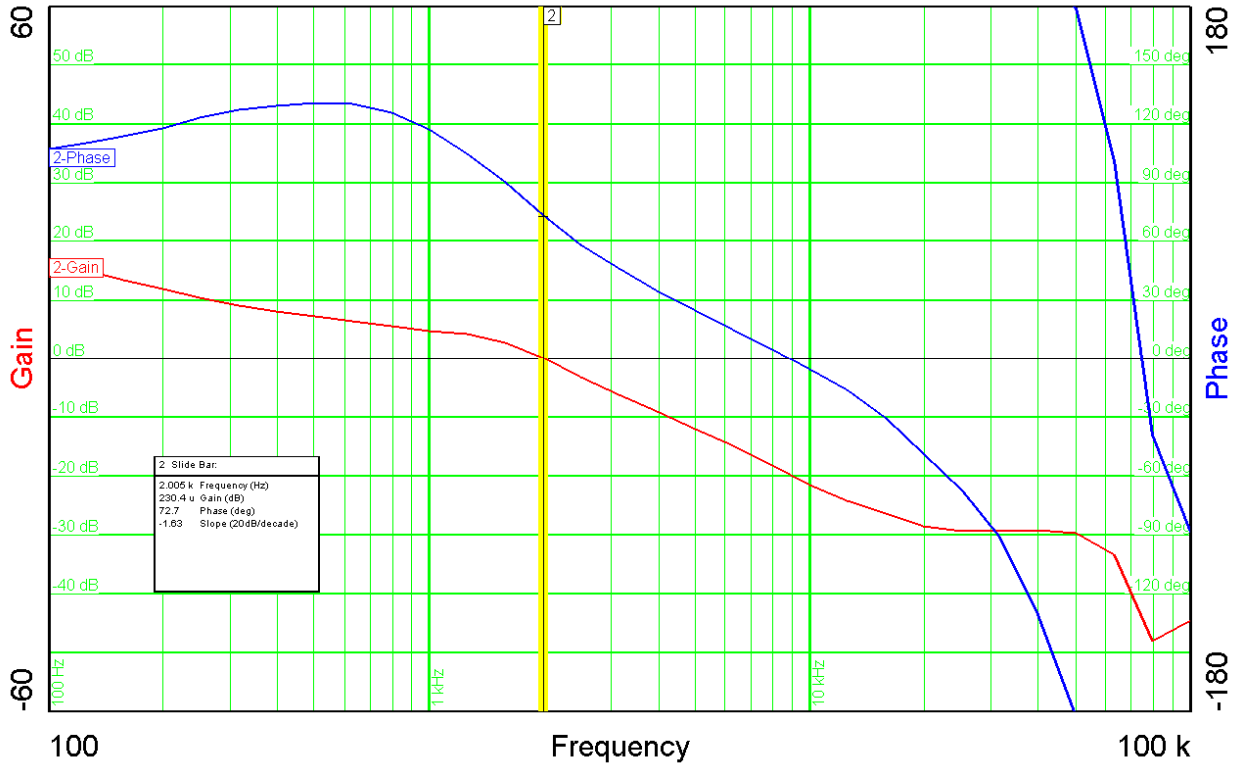
6 Switch-node

The image below shows the switch-node waveform. The input voltage was set to 320Vac during a full load condition. Channel 1: Vds, 100V/div, 2us/div.



7 Loop Response

The image below shows the loop response of the converter measured with a 320Vdc input, and full load. Phase margin is 72.7 deg. and crossover frequency is 2 KHz.



IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Mobile Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Transportation and Automotive	www.ti.com/automotive
Video and Imaging	www.ti.com/video

TI E2E Community Home Page

e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2011, Texas Instruments Incorporated