Contents of MSP430F47x3, MSP430F47x4 Code Examples (slac155.zip) - asm (CCS), .s43 (IAR), and .c (CCS & IAR)

Link to zip file: http://www.ti.com/lit/zip/slac155

Applicable Devices: MSP430F4783, MSP430F4793, MSP430F4784, MSP430F4794

Consult readme.txt included in the zip file for disclaimer and coding style guidelines

Contents:

.asm code examples – CCS	
File name	**Description**
msp430x47xx_clks_02.asm	FLL+, Output 32kHz XTAL + HF XTAL + Internal DCO
msp430x47xx_hfxt2.asm	FLL+, MCLK Configured to Operate from XT2 HF XTAL
msp430x47xx_fll_01.asm	FLL+, Runs Internal DCO at 2.5MHz
msp430x47xx_fll_02.asm	FLL+, Runs Internal DCO at 8MHz
msp430x47xx_OF_LFXT1_nmi.asm	LFXT1 Oscillator Fault Detection
msp430x47xx_OF_XT2.asm	XT2 Oscillator Fault Detection
msp430x47xx_bt_01.asm	Basic Timer, Toggle P5.1 Inside ISR, 32kHz ACLK
msp430x47xx_bt_02.asm	Basic Timer, Toggle P5.1 Inside ISR, DCO SMCLK
msp430x47xx_ta_01.asm	Timer_A, Toggle P5.1, CCR0 Cont. Mode ISR, DCO SMCLK
msp430x47xx_ta_02.asm	Timer_A, Toggle P5.1, CCR0 Up Mode ISR, DCO SMCLK
msp430x47xx_ta_03.asm	Timer_A, Toggle P5.1, Overflow ISR, DCO SMCLK
msp430x47xx_ta_04.asm	Timer_A, Toggle P5.1, Overflow ISR, 32kHz ACLK
msp430x47xx_ta_05.asm	Timer_A, Toggle P5.1, CCR0 Up Mode ISR, 32kHz ACLK
msp430x47xx_ta_16.asm	Timer_A, Timer_A, PWM TA1-2 Up Mode, DCO SMCLK
msp430x47xx_ta_17.asm	Timer_A, PWM TA1-2, Up Mode, 32kHz ACLK
msp430x47xx_tb_01.asm	Timer_B, Toggle P5.1, CCR0 Cont. Mode ISR, DCO SMCLK
msp430x47xx_tb_02.asm	Timer_B, Toggle P5.1, CCR0 Up Mode ISR, DCO SMCLK
msp430x47xx_tb_03.asm	Timer_B, Toggle P5.1, Overflow ISR, DCO SMCLK
msp430x47xx_tb_04.asm	Timer_B, Toggle P5.1, Overflow ISR, 32kHz ACLK
msp430x47xx_tb_05.asm	Timer_B, Toggle P5.1, CCR0 Up Mode ISR, 32kHz ACLK
msp430x47xx_tb_10.asm	Timer_B, PWM TB1-6, Up Mode, DCO SMCLK
msp430x47xx_tb_11.asm	Timer_B, PWM TB1-2 Up Mode, 32kHz ACLK
msp430x47xx_wdt_01.asm	WDT, Toggle P1.0, Interval Overflow ISR, DCO SMCLK
msp430x47xx_wdt_02.asm	WDT, Toggle P1.0, Interval Overflow ISR, 32kHz ACLK
msp430x47xx_wdt_04.asm	WDT+ Failsafe Clock, DCO SMCLK
msp430x47xx_wdt_05.asm	Reset on Invalid Address fetch, Toggle P1.0
msp430x47xx_wdt_06.asm	WDT+ Failsafe Clock, 32kHz ACLK
msp430x47xx_lpm3.asm	FLL+, LPM3 Using Basic Timer ISR, 32kHz ACLK
msp430x47xx_compA_01.asm	Comparator_A, Poll input CA0, result in P5.1
msp430x47xx_compA_02.asm	Comparator_A, Poll input CA0, CA exchange, result in P5.1
msp430x47xx_compA_04.asm	Comparator_A, Poll input CA0, result in P5.1
msp430x47xx_compA_05.asm	Comparator_A, Poll input CA0, interrupt triggered

msp430x47xx_sd16_01.asm	SD16, Continuous Conversion on a Group of Channels
msp430x47xx_sd16_02.asm	SD16, Single Conversion on a Group of Channels
msp430x47xx _sd16_03.asm	SD16, Continuous Conversion on a Single Channel
msp430x47xx_sd16_04.asm	SD16, Single Conversion on Single Channel Polling IFG
msp430x47xx_sd16_05.asm	SD16, Single Conversion on a Single Channel Using ISR
msp430x47xx_sd16_06.asm	SD16, Using the Integrated Temperature Sensor
msp430x47x4_sd16_01.asm	SD16, Continuous Conversion on a Group of 4 Channels
msp430x47x4_sd16_02.asm	SD16, Single Conversion on a Group of 4 Channels
msp430x47xx_lcd_04.asm	LCD, Display "6543210" on SBLCDA4
msp430x47xx_lcd_05.asm	LCD, Display "6543210" on SBLCDA4, with charge pump enabled
msp430x47xx_flashwrite_01.asm	Flash In-System Programming, Copy SegC to SegD
msp430x47xx_flashwrite_03.asm	Flash In-System Programming w/ EEI, Copy SegC to SegD
msp430x47xx_flashwrite_04.asm	Flash In-System Programming w/ EEI, Copy SegD to A/B/C
msp430x47xx_svs_01.asm	SVS, POR @ 2.5V Vcc
msp430x47xx_svs_03.asm	SVS, Toggle port 5.1 on Vcc < 2.8V
msp430x47xx_P1_01.asm	Software Poll P1.4, Set P5.1 if P1.4 = 1
msp430x47xx_P1_02.asm	Software Port Interrupt on P1.4 from LPM4
msp430x47xx_P1_05.asm	Write a byte to Port 1
msp430x47xx_P7_05.asm	Write a byte to Port 7
msp430x47xx_P8_05.asm	Write a byte to Port 8
msp430x47xx_PA_05.asm	Write a Word to Port A (Port7+Port8)
msp430x47xx_PB_05.asm	Write a Word to Port B (Port9+Port10)
msp430x47xx_MPY_01.asm	16x16 Unsigned Multiply
msp430x47xx_MPY_03.asm	16x16 Signed Multiply
msp430x47xx_MPY_09.asm	32x32 Unsigned Multiply
msp430x47xx_MPY_10.asm	32x32 Signed Multiply
msp430x47xx_MPY_11.asm	32x32 Signed Multiply Accumalate
msp430x47xx_MPY_12.asm	32x32 Unsigned Multiply Accumalate
msp430x47xx_MPY_13.asm	Saturation mode overflow test
msp430x47xx_MPY_14.asm	Saturation mode underflow test
msp430x47xx_MPY_15.asm	Fractional mode, Q15 multiplication
msp430x47xx_uscia0_duplex_9600.asm	USCI_A0, UART 9600 Full-Duplex Transceiver, 32K ACLK
msp430x47xx_uscia0_uart_9600.asm	USCI_A0, Ultra-Low Pwr UART 9600 Echo ISR, 32kHz ACLK
msp430x47xx_uscia0_uart_115k.asm	USCI_A0, 115200 UART Echo ISR, DCO SMCLK
msp430x47xx_uscia0_uart_115k_lpm.asm	USCI_A0, 115200 UART Echo ISR, DCO SMCLK, LPM3
msp430x47xx_uscia0_irda_01.asm	USCI_A0 IrDA External Loopback Test, 4MHz SMCLK
msp430x47xx_uscia0_spi_09.asm	USCI_A0, SPI 3-Wire Master Incremented Data
msp430x47xx_uscia0_spi_10.asm	USCI_A0, SPI 3-Wire Slave Data Echo
msp430x47xx_uscib0_i2c_02.asm	USCI_B0 I2C Master Interface to PCF8574, Read/Write
msp430x47xx_uscib0_i2c_03.asm	USCI_B0 I2C Master Interface to DAC8571, Write
msp430x47xx_uscib0_i2c_08.asm	USCI_B0 I2C Master TX multiple bytes to MSP430 Slave
msp430x47xx_uscib0_i2c_09.asm	USCI_B0 I2C Slave RX multiple bytes from MSP430 Master
msp430x47xx_uscib0_i2c_10.asm	USCI_B0 I2C Master RX multiple bytes from MSP430 Slave
msp430x47xx_uscib0_i2c_11.asm	USCI_B0 I2C Slave TX multiple bytes to MSP430 Master
msp430x47xx_uscib0_spi_01.asm	USCI_B0, SPI Interface to TLC549 8-Bit ADC

.s43 code examples – IAR	
File name	**Description**
msp430x47xx_clks_02.s43	FLL+, Output 32kHz XTAL + HF XTAL + Internal DCO
msp430x47xx_hfxt2.s43	FLL+, MCLK Configured to Operate from XT2 HF XTAL
msp430x47xx_fll_01.s43	FLL+, Runs Internal DCO at 2.5MHz
msp430x47xx_fll_02.s43	FLL+, Runs Internal DCO at 8MHz
msp430x47xx_OF_LFXT1_nmi.s43	LFXT1 Oscillator Fault Detection
msp430x47xx_OF_XT2.s43	XT2 Oscillator Fault Detection
msp430x47xx_bt_01.s43	Basic Timer, Toggle P5.1 Inside ISR, 32kHz ACLK
msp430x47xx_bt_02.s43	Basic Timer, Toggle P5.1 Inside ISR, DCO SMCLK
msp430x47xx_ta_01.s43	Timer_A, Toggle P5.1, CCR0 Cont. Mode ISR, DCO SMCLK
msp430x47xx_ta_02.s43	Timer_A, Toggle P5.1, CCR0 Up Mode ISR, DCO SMCLK
msp430x47xx_ta_03.s43	Timer_A, Toggle P5.1, Overflow ISR, DCO SMCLK
msp430x47xx_ta_04.s43	Timer_A, Toggle P5.1, Overflow ISR, 32kHz ACLK
msp430x47xx_ta_05.s43	Timer_A, Toggle P5.1, CCR0 Up Mode ISR, 32kHz ACLK
msp430x47xx_ta_16.s43	Timer_A, Timer_A, PWM TA1-2 Up Mode, DCO SMCLK
msp430x47xx_ta_17.s43	Timer_A, PWM TA1-2, Up Mode, 32kHz ACLK
msp430x47xx_tb_01.s43	Timer_B, Toggle P5.1, CCR0 Cont. Mode ISR, DCO SMCLK
msp430x47xx_tb_02.s43	Timer_B, Toggle P5.1, CCR0 Up Mode ISR, DCO SMCLK
msp430x47xx_tb_03.s43	Timer_B, Toggle P5.1, Overflow ISR, DCO SMCLK
msp430x47xx_tb_04.s43	Timer_B, Toggle P5.1, Overflow ISR, 32kHz ACLK
msp430x47xx_tb_05.s43	Timer_B, Toggle P5.1, CCR0 Up Mode ISR, 32kHz ACLK
msp430x47xx_tb_10.s43	Timer_B, PWM TB1-6, Up Mode, DCO SMCLK
msp430x47xx_tb_11.s43	Timer_B, PWM TB1-2 Up Mode, 32kHz ACLK
msp430x47xx_wdt_01.s43	WDT, Toggle P1.0, Interval Overflow ISR, DCO SMCLK
msp430x47xx_wdt_02.s43	WDT, Toggle P1.0, Interval Overflow ISR, 32kHz ACLK
msp430x47xx_wdt_04.s43	WDT+ Failsafe Clock, DCO SMCLK
msp430x47xx_wdt_05.s43	Reset on Invalid Address fetch, Toggle P1.0
msp430x47xx_wdt_06.s43	WDT+ Failsafe Clock, 32kHz ACLK
msp430x47xx_lpm3.s43	FLL+, LPM3 Using Basic Timer ISR, 32kHz ACLK
msp430x47xx_compA_01.s43	Comparator_A, Poll input CA0, result in P5.1
msp430x47xx_compA_02.s43	Comparator_A, Poll input CA0, CA exchange, result in P5.1
msp430x47xx_compA_04.s43	Comparator_A, Poll input CA0, result in P5.1
msp430x47xx_compA_05.s43	Comparator_A, Poll input CA0, interrupt triggered
msp430x47xx_sd16_01.s43	SD16, Continuous Conversion on a Group of Channels
msp430x47xx_sd16_02.s43	SD16, Single Conversion on a Group of Channels
msp430x47xx _sd16_03.s43	SD16, Continuous Conversion on a Single Channel
msp430x47xx_sd16_04.s43	SD16, Single Conversion on Single Channel Polling IFG
msp430x47xx_sd16_05.s43	SD16, Single Conversion on a Single Channel Using ISR
msp430x47xx_sd16_06.s43	SD16, Using the Integrated Temperature Sensor
msp430x47x4_sd16_01.s43	SD16, Continuous Conversion on a Group of 4 Channels
msp430x47x4_sd16_02.s43	SD16, Single Conversion on a Group of 4 Channels
msp430x47xx_lcd_04.s43	LCD, Display "6543210" on SBLCDA4
msp430x47xx_lcd_05.s43	LCD, Display "6543210" on SBLCDA4, with charge pump enabled

msp430x47xx_flashwrite_01.s43	Flash In-System Programming, Copy SegC to SegD
msp430x47xx_flashwrite_03.s43	Flash In-System Programming w/ EEI, Copy SegC to SegD
msp430x47xx_flashwrite_04.s43	Flash In-System Programming w/ EEI, Copy SegD to A/B/C
msp430x47xx_svs_01.s43	SVS, POR @ 2.5V Vcc
msp430x47xx_svs_03.s43	SVS, Toggle port 5.1 on Vcc < 2.8V
msp430x47xx_P1_01.s43	Software Poll P1.4, Set P5.1 if P1.4 = 1
msp430x47xx_P1_02.s43	Software Port Interrupt on P1.4 from LPM4
msp430x47xx_P1_05.s43	Write a byte to Port 1
msp430x47xx_P7_05.s43	Write a byte to Port 7
msp430x47xx_P8_05.s43	Write a byte to Port 8
msp430x47xx_PA_05.s43	Write a Word to Port A (Port7+Port8)
msp430x47xx_PB_05.s43	Write a Word to Port B (Port9+Port10)
msp430x47xx_MPY_01.s43	16x16 Unsigned Multiply
msp430x47xx_MPY_03.s43	16x16 Signed Multiply
msp430x47xx_MPY_09.s43	32x32 Unsigned Multiply
msp430x47xx_MPY_10.s43	32x32 Signed Multiply
msp430x47xx_MPY_11.s43	32x32 Signed Multiply Accumalate
msp430x47xx_MPY_12.s43	32x32 Unsigned Multiply Accumalate
msp430x47xx_MPY_13.s43	Saturation mode overflow test
msp430x47xx_MPY_14.s43	Saturation mode underflow test
msp430x47xx_MPY_15.s43	Fractional mode, Q15 multiplication
msp430x47xx_uscia0_duplex_9600.s43	USCI_A0, UART 9600 Full-Duplex Transceiver, 32K ACLK
msp430x47xx_uscia0_uart_9600.s43	USCI_A0, Ultra-Low Pwr UART 9600 Echo ISR, 32kHz ACLK
msp430x47xx_uscia0_uart_115k.s43	USCI_A0, 115200 UART Echo ISR, DCO SMCLK
msp430x47xx_uscia0_uart_115k_lpm.s43	USCI_A0, 115200 UART Echo ISR, DCO SMCLK, LPM3
msp430x47xx_uscia0_irda_01.s43	USCI_A0 IrDA External Loopback Test, 4MHz SMCLK
msp430x47xx_uscia0_spi_09.s43	USCI_A0, SPI 3-Wire Master Incremented Data
msp430x47xx_uscia0_spi_10.s43	USCI_A0, SPI 3-Wire Slave Data Echo
msp430x47xx_uscib0_i2c_02.s43	USCI_B0 I2C Master Interface to PCF8574, Read/Write
msp430x47xx_uscib0_i2c_03.s43	USCI_B0 I2C Master Interface to DAC8571, Write
msp430x47xx_uscib0_i2c_08.s43	USCI_B0 I2C Master TX multiple bytes to MSP430 Slave
msp430x47xx_uscib0_i2c_09.s43	USCI_B0 I2C Slave RX multiple bytes from MSP430 Master
msp430x47xx_uscib0_i2c_10.s43	USCI_B0 I2C Master RX multiple bytes from MSP430 Slave
msp430x47xx_uscib0_i2c_11.s43	USCI_B0 I2C Slave TX multiple bytes to MSP430 Master
msp430x47xx_uscib0_spi_01.s43	USCI_B0, SPI Interface to TLC549 8-Bit ADC

C code examples – IAR & CCS	
File name	**Description**
msp430x47xx_clks_02.c	FLL+, Output 32kHz XTAL + HF XTAL + Internal DCO
msp430x47xx_hfxt2.c	FLL+, MCLK Configured to Operate from XT2 HF XTAL
msp430x47xx_fll_01.c	FLL+, Runs Internal DCO at 2.5MHz
msp430x47xx_fll_02.c	FLL+, Runs Internal DCO at 8MHz
msp430x47xx_OF_LFXT1_nmi.c	LFXT1 Oscillator Fault Detection

msp430x47xx_OF_XT2.c	XT2 Oscillator Fault Detection
msp430x47xx_bt_01.c	Basic Timer, Toggle P5.1 Inside ISR, 32kHz ACLK
msp430x47xx_bt_02.c	Basic Timer, Toggle P5.1 Inside ISR, DCO SMCLK
msp430x47xx_ta_01.c	Timer_A, Toggle P5.1, CCR0 Cont. Mode ISR, DCO SMCLK
msp430x47xx_ta_02.c	Timer_A, Toggle P5.1, CCR0 Up Mode ISR, DCO SMCLK
msp430x47xx_ta_03.c	Timer_A, Toggle P5.1, Overflow ISR, DCO SMCLK
msp430x47xx_ta_04.c	Timer_A, Toggle P5.1, Overflow ISR, 32kHz ACLK
msp430x47xx_ta_05.c	Timer_A, Toggle P5.1, CCR0 Up Mode ISR, 32kHz ACLK
msp430x47xx_ta_16.c	Timer_A, Timer_A, PWM TA1-2 Up Mode, DCO SMCLK
msp430x47xx_ta_17.c	Timer_A, PWM TA1-2, Up Mode, 32kHz ACLK
msp430x47xx_tb_01.c	Timer_B, Toggle P5.1, CCR0 Cont. Mode ISR, DCO SMCLK
msp430x47xx_tb_02.c	Timer_B, Toggle P5.1, CCR0 Up Mode ISR, DCO SMCLK
msp430x47xx_tb_03.c	Timer_B, Toggle P5.1, Overflow ISR, DCO SMCLK
msp430x47xx_tb_04.c	Timer_B, Toggle P5.1, Overflow ISR, 32kHz ACLK
msp430x47xx_tb_05.c	Timer_B, Toggle P5.1, CCR0 Up Mode ISR, 32kHz ACLK
msp430x47xx_tb_10.c	Timer_B, PWM TB1-6, Up Mode, DCO SMCLK
msp430x47xx_tb_11.c	Timer_B, PWM TB1-2 Up Mode, 32kHz ACLK
msp430x47xx_wdt_01.c	WDT, Toggle P1.0, Interval Overflow ISR, DCO SMCLK
msp430x47xx_wdt_02.c	WDT, Toggle P1.0, Interval Overflow ISR, 32kHz ACLK
msp430x47xx_wdt_04.c	WDT+ Failsafe Clock, DCO SMCLK
msp430x47xx_wdt_05.c	Reset on Invalid Address fetch, Toggle P1.0
msp430x47xx_wdt_06.c	WDT+ Failsafe Clock, 32kHz ACLK
msp430x47xx_lpm3.c	FLL+, LPM3 Using Basic Timer ISR, 32kHz ACLK
msp430x47xx_compA_01.c	Comparator_A, Poll input CA0, result in P5.1
msp430x47xx_compA_02.c	Comparator_A, Poll input CA0, CA exchange, result in P5.1
msp430x47xx_compA_04.c	Comparator_A, Poll input CA0, result in P5.1
msp430x47xx_compA_05.c	Comparator_A, Poll input CA0, interrupt triggered
msp430x47xx_sd16_01.c	SD16, Continuous Conversion on a Group of Channels
msp430x47xx_sd16_02.c	SD16, Single Conversion on a Group of Channels
msp430x47xx _sd16_03.c	SD16, Continuous Conversion on a Single Channel
msp430x47xx_sd16_04.c	SD16, Single Conversion on Single Channel Polling IFG
msp430x47xx_sd16_05.c	SD16, Single Conversion on a Single Channel Using ISR
msp430x47xx_sd16_06.c	SD16, Using the Integrated Temperature Sensor
msp430x47x4_sd16_01.c	SD16, Continuous Conversion on a Group of 4 Channels
msp430x47x4_sd16_02.c	SD16, Single Conversion on a Group of 4 Channels
msp430x47xx_lcd_04.c	LCD, Display "6543210" on SBLCDA4
msp430x47xx_lcd_05.c	LCD, Display "6543210" on SBLCDA4, with charge pump enabled
msp430x47xx_flashwrite_01.c	Flash In-System Programming, Copy SegC to SegD
msp430x47xx_flashwrite_03.c	Flash In-System Programming w/ EEI, Copy SegC to SegD
msp430x47xx_flashwrite_04.c	Flash In-System Programming w/ EEI, Copy SegD to A/B/C
msp430x47xx_svs_01.c	SVS, POR @ 2.5V Vcc
msp430x47xx_svs_03.c	SVM, Toggle port 5.1 on Vcc < 2.8V
msp430x47xx_P1_01.c	Software Poll P1.4, Set P5.1 if P1.4 = 1
msp430x47xx_P1_02.c	Software Port Interrupt on P1.4 from LPM4
msp430x47xx_P1_05.c	Write a byte to Port 1

msp430x47xx_P7_05.c	Write a byte to Port 7
msp430x47xx_P8_05.c	Write a byte to Port 8
msp430x47xx_PA_05.c	Write a Word to Port A (Port7+Port8)
msp430x47xx_PB_05.c	Write a Word to Port B (Port9+Port10)
msp430x47xx_MPY_01.c	16x16 Unsigned Multiply
msp430x47xx_MPY_03.c	16x16 Signed Multiply
msp430x47xx_MPY_09.c	32x32 Unsigned Multiply
msp430x47xx_MPY_10.c	32x32 Signed Multiply
msp430x47xx_MPY_11.c	32x32 Signed Multiply Accumalate
msp430x47xx_MPY_12.c	32x32 Unsigned Multiply Accumalate
msp430x47xx_MPY_13.c	Saturation mode overflow test
msp430x47xx_MPY_14.c	Saturation mode underflow test
msp430x47xx_MPY_15.c	Fractional mode, Q15 multiplication
msp430x47xx_uscia0_duplex_9600.c	USCI_A0, UART 9600 Full-Duplex Transceiver, 32K ACLK
msp430x47xx_uscia0_uart_9600.c	USCI_A0, Ultra-Low Pwr UART 9600 Echo ISR, 32kHz ACLK
msp430x47xx_uscia0_uart_115k.c	USCI_A0, 115200 UART Echo ISR, DCO SMCLK
msp430x47xx_uscia0_uart_115k_lpm.c	USCI_A0, 115200 UART Echo ISR, DCO SMCLK, LPM3
msp430x47xx_uscia0_irda_01.c	USCI_A0 IrDA External Loopback Test, 4MHz SMCLK
msp430x47xx_uscia0_spi_09.c	USCI_A0, SPI 3-Wire Master Incremented Data
msp430x47xx_uscia0_spi_10.c	USCI_A0, SPI 3-Wire Slave Data Echo
msp430x47xx_uscib0_i2c_02.c	USCI_B0 I2C Master Interface to PCF8574, Read/Write
msp430x47xx_uscib0_i2c_03.c	USCI_B0 I2C Master Interface to DAC8571, Write
msp430x47xx_uscib0_i2c_08.c	USCI_B0 I2C Master TX multiple bytes to MSP430 Slave
msp430x47xx_uscib0_i2c_09.c	USCI_B0 I2C Slave RX multiple bytes from MSP430 Master
msp430x47xx_uscib0_i2c_10.c	USCI_B0 I2C Master RX multiple bytes from MSP430 Slave
msp430x47xx_uscib0_i2c_11.c	USCI_B0 I2C Slave TX multiple bytes to MSP430 Master
msp430x47xx_uscib0_spi_01.c	USCI_B0, SPI Interface to TLC549 8-Bit ADC

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		**Applications**	
Amplifiers	amplifier.ti.com	Audio	www.ti.com/audio
Data Converters	dataconverter.ti.com	Automotive	www.ti.com/automotive
DLP® Products	www.dlp.com	Broadband	www.ti.com/broadband
DSP	dsp.ti.com	Digital Control	www.ti.com/digitalcontrol
Clocks and Timers	www.ti.com/clocks	Medical	www.ti.com/medical
Interface	interface.ti.com	Military	www.ti.com/military
Logic	logic.ti.com	Optical Networking	www.ti.com/opticalnetwork
Power Mgmt	power.ti.com	Security	www.ti.com/security
Microcontrollers	microcontroller.ti.com	Telephony	www.ti.com/telephony
RFID	www.ti-rfid.com	Video & Imaging	www.ti.com/video
RF/IF and ZigBee® Solutions	www.ti.com/lprf	Wireless	www.ti.com/wireless

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265