

Low Power Economy BiCMOS Current Mode PWM

FEATURES

- 100 μ A Typical Starting Supply Current
- 500 μ A Typical Operating Supply Current
- Operation to 1MHz
- Internal Soft Start
- Internal Fault Soft Start
- Internal Leading-Edge Blanking of the Current Sense Signal
- 1 Amp Totem-Pole Output
- 70ns Typical Response from Current-Sense to Gate Drive Output
- 1.5% Tolerance Voltage Reference
- Same Pinout as UCC3802, UC3842, and UC3842A

DESCRIPTION

The UCC3813-0/-1/-2/-3/-4/-5 family of high-speed, low-power integrated circuits contain all of the control and drive components required for off-line and DC-to-DC fixed frequency current-mode switching power supplies with minimal parts count.

These devices have the same pin configuration as the UC3842/3/4/5 family, and also offer the added features of internal full-cycle soft start and internal leading-edge blanking of the current-sense input.

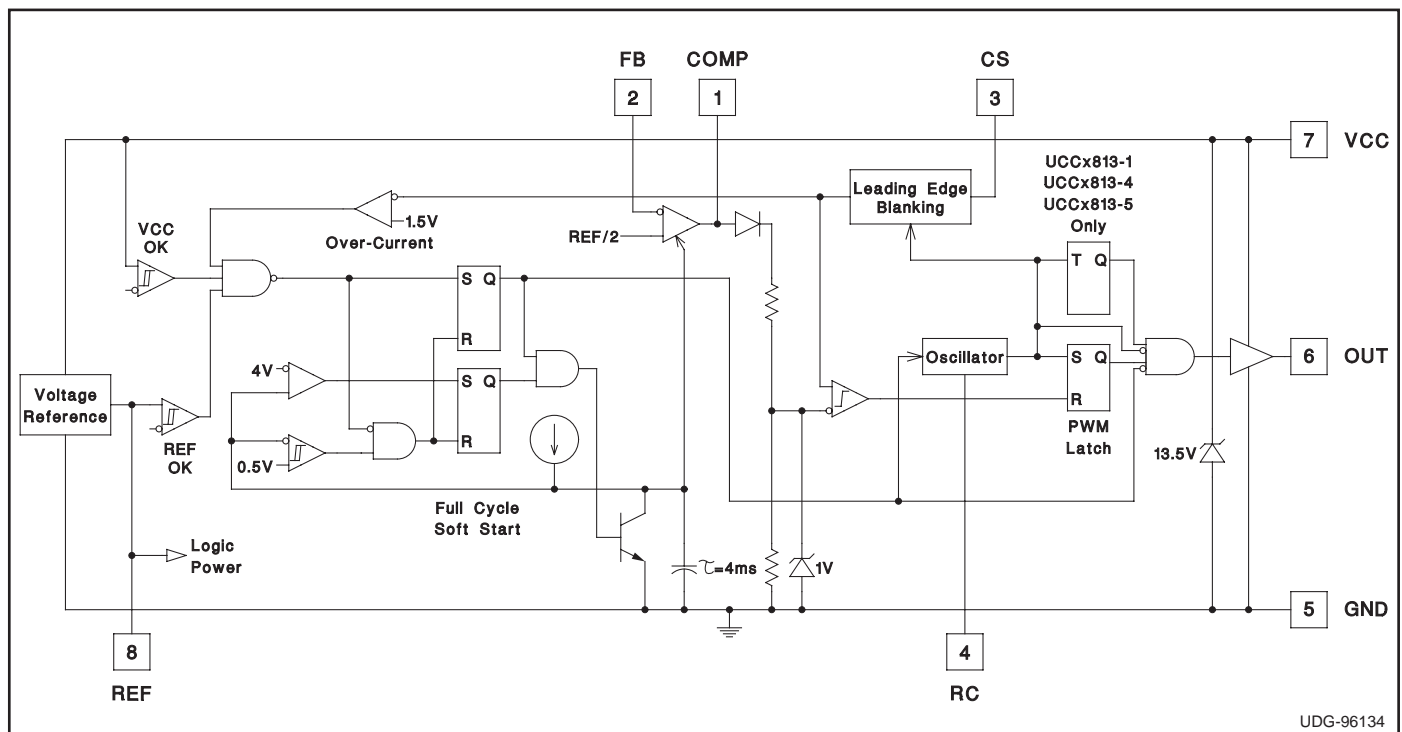
The UCC3813-0/-1/-2/-3/-4/-5 family offers a variety of package options, temperature range options, choice of maximum duty cycle, and choice of critical voltage levels. Lower reference parts such as the UCC3813-3 and UCC3813-5 fit best into battery operated systems, while the higher reference and the higher UVLO hysteresis of the UCC3813-2 and UCC3813-4 make these ideal choices for use in off-line power supplies.

The UCC2813-x series is specified for operation from -40°C to $+85^{\circ}\text{C}$ and the UCC3813-x series is specified for operation from 0°C to $+70^{\circ}\text{C}$.

ORDERING INFORMATION

Part Number	Maximum Duty Cycle	Reference Voltage	Turn-On Threshold	Turn-Off Threshold
UCCx813-0	100%	5V	7.2V	6.9V
UCCx813-1	50%	5V	9.4V	7.4V
UCCx813-2	100%	5V	12.5V	8.3V
UCCx813-3	100%	4V	4.1V	3.6V
UCCx813-4	50%	5V	12.5V	8.3V
UCCx813-5	50%	4V	4.1V	3.6V

BLOCK DIAGRAM



UDG-96134

ABSOLUTE MAXIMUM RATINGS (Note 1)

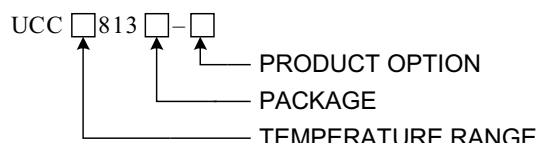
VCC Voltage (Note 2) 12.0V
VCC Current 30.0mA
OUT Current $\pm 1.0A$
OUT Energy (Capacitive Load) 20.0 μJ
Analog Inputs (FB, CS) $-0.3V$ to $6.3V$
Power Dissipation at $T_A < +25^\circ C$ (N Package) 1.0W
Power Dissipation at $T_A < +25^\circ C$ (D Package) 0.65W
Storage Temperature $-65^\circ C$ to $+150^\circ C$
Junction Temperature $-55^\circ C$ to $+150^\circ C$
Lead Temperature (Soldering, 10 Seconds) $+300^\circ C$

Note 1: All voltages are with respect to GND. All currents are positive into the specified terminal. Consult Unitrode Integrated Circuits databook for information regarding thermal specifications and limitations of packages.

Note 2: In normal operation VCC is powered through a current limiting resistor. Absolute maximum of 12V applies when VCC is driven from a low impedance source such that ICC does not exceed 30mA. The resistor should be sized so that the VCC voltage under operating conditions is below 12V but above the turn off threshold.

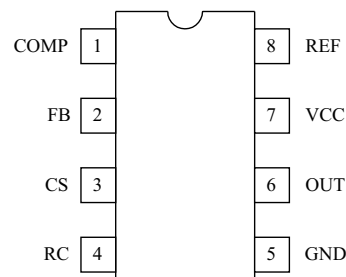
	TEMPERATURE RANGE	PACKAGES
UCC2813	$-40^\circ C$ TO $+85^\circ C$	N, D, PW
UCC3813	$0^\circ C$ TO $+70^\circ C$	N, D, PW

ORDERING INFORMATION

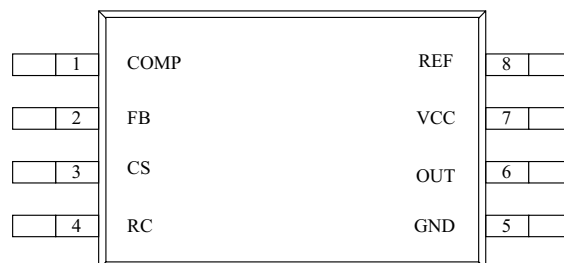


CONNECTION DIAGRAMS

DIL-8 or SOIC-8 (TOP VIEW) N or D PACKAGE



TSSOP-8 (TOP VIEW) PW PACKAGE



ELECTRICAL CHARACTERISTICS Unless otherwise stated, these specifications apply for $-40^\circ C \leq T_A \leq +85^\circ C$ for UCC2813-x; $0^\circ C \leq T_A \leq +70^\circ C$ for UCC3813-x; VCC = 10V (Note 3); RT = 100k from REF to RC; CT=330pF from RC to GND; 0.1 μF capacitor from VCC to GND; 0.1 μF capacitor from VREF to GND. $T_A = T_J$.

PARAMETER	TEST CONDITIONS	UCC2813-x UCC3813-x			UNITS
		MIN	TYP	MAX	
Reference Section					
Output Voltage	T _J = +25°C, I = 0.2mA, UCCx813-0/-1/-2/-4	4.925	5.00	5.075	V
	T _J = +25°C, I = 0.2mA, UCCx813-3/-5	3.94	4.00	4.06	V
Load Regulation	0.2mA < I < 5mA		10	30	mV
Total Variation	UCCx813 -0-1/-2/-4 (Note 7)	4.84	5.00	5.10	V
	UCCx813-5 (Note 7)	3.84	4.00	4.08	V
Output Noise Voltage	10Hz ≤ f ≤ 10kHz, T _J = +25°C (Note 9)		70		μV
Long Term Stability	T _A = +125°C, 1000 Hours (Note 9)		5		mV
Output Short Circuit		−5		−35	mA
Oscillator Section					
Oscillator Frequency	UCCx813-0/-1/-2/-4 (Note 4)	40	46	52	kHz
	UCCx813-3/-5 (Note 4)	26	31	36	kHz
Temperature Stability	(Note 9)		2.5		%
Amplitude Peak-to-Peak		2.25	2.40	2.55	V
Oscillator Peak Voltage			2.45		V

ELECTRICAL CHARACTERISTICS Unless otherwise stated, these specifications apply for $-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$ for UCC2813-x; $0^{\circ}\text{C} \leq T_A \leq +70^{\circ}\text{C}$ for UCC3813-x; $V_{CC} = 10\text{V}$ (Note 3); $R_T = 100\text{k}$ from REF to RC; $C_T = 330\text{pF}$ from RC to GND; $0.1\mu\text{F}$ capacitor from VCC to GND; $0.1\mu\text{F}$ capacitor from VREF to GND. $T_A = T_J$.

PARAMETER	TEST CONDITIONS	UCC2813-x UCC3813-x			UNITS
		MIN	TYP	MAX	
Error Amplifier Section					
Input Voltage	COMP = 2.5V; UCCx813-0/-1/-2/-4	2.42	2.50	2.56	V
	COMP = 2.0V; UCCx813-3/-5	1.92	2.0	2.05	V
Input Bias Current		−2		2	μA
Open Loop Voltage Gain		60	80		dB
COMP Sink Current	FB = 2.7V, COMP = 1.1V	0.4		2.5	mA
COMP Source Current	FB = 1.8V, COMP = REF − 1.2V	−0.2	−0.5	−0.8	mA
Gain Bandwidth Product	(Note 9)		2		MHz
PWM Section					
Maximum Duty Cycle	UCCx813-0/-2/-3	97	99	100	%
	UCCx813-1/-4/-5	48	49	50	%
Minimum Duty Cycle	COMP = 0V			0	%
Current Sense Section					
Gain	(Note 5)	1.10	1.65	1.80	V/V
Maximum Input Signal	COMP = 5V (Note 6)	0.9	1.0	1.1	V
Input Bias Current		−200		200	nA
CS Blank Time		50	100	150	ns
Over-Current Threshold		1.32	1.55	1.70	V
COMP to CS Offset	CS = 0V	0.45	0.90	1.35	V
Output Section					
OUT Low Level	I = 20mA, all parts		0.1	0.4	V
	I = 200mA, all parts		0.35	0.90	V
	I = 50mA, VCC = 5V, UCCx813-3/-5		0.15	0.40	V
	I = 20mA, VCC = 0V, all parts		0.7	1.2	V
OUT High V _{SAT} (V _{CC} -OUT)	I = −20mA, all parts		0.15	0.40	V
	I = −200mA, all parts		1.0	1.9	V
	I = −50mA, VCC = 5V, UCCx813-3/-5		0.4	0.9	V
Rise Time	C _L = 1nF		41	70	ns
Fall Time	C _L = 1nF		44	75	ns
Undervoltage Lockout Section					
Start Threshold (Note 8)	UCCx813-0	6.6	7.2	7.8	V
	UCCx813-1	8.6	9.4	10.2	V
	UCCx813-2/-4	11.5	12.5	13.5	V
	UCCx813-3/-5	3.7	4.1	4.5	V
Stop Threshold (Note 8)	UCC1813-0	6.3	6.9	7.5	V
	UCC1813-1	6.8	7.4	8.0	V
	UCCx813-2/-4	7.6	8.3	9.0	V
	UCCx813-3/-5	3.2	3.6	4.0	V
Start to Stop Hysteresis	UCCx813-0	0.12	0.3	0.48	V
	UCCx813-1	1.6	2	2.4	V
	UCCx813-2/-4	3.5	4.2	5.1	V
	UCCx813-3/-5	0.2	0.5	0.8	V

ELECTRICAL CHARACTERISTICS Unless otherwise stated, these specifications apply for $-40^{\circ}\text{C} \leq T_A \leq +85^{\circ}\text{C}$ for UCC2813-x; $0^{\circ}\text{C} \leq T_A \leq +70^{\circ}\text{C}$ for UCC3813-x; VCC = 10V (Note 3); RT = 100k from REF to RC; CT=330pF from RC to GND; 0.1μF capacitor from VCC to GND; 0.1μF capacitor from VREF to GND. $T_A = T_J$.

PARAMETER	TEST CONDITIONS	UCC2813-x UCC3813-x			UNITS
		MIN	TYP	MAX	
Soft Start Section					
COMP Rise Time	FB = 1.8V, Rise from 0.5V to REF–1V		4		ms
Overall Section					
Start-up Current	VCC < Start Threshold		0.1	0.23	mA
Operating Supply Current	FB = 0V, CS = 0V, RC = 0V		0.5	1.2	mA
VCC Internal Zener Voltage	ICC = 10mA (Note 8)	12	13.5	15	V
VCC Internal Zener Voltage Minus Start Threshold Voltage	UCCx813-2/-4	0.5	1.0		V

Note 3: Adjust VCC above the start threshold before setting at 10V.

Note 4: Oscillator frequency for the UCCx813-0, UCCx813-2 and UCCx813-3 is the output frequency.

Oscillator frequency for the UCCx813-1, UCCx813-4 and UCCx813-5 is twice the output frequency.

Note 5: Gain is defined by: $A = \frac{\Delta V_{COMP}}{\Delta V_{CS}}$ $0 \leq V_{CS} \leq 0.8V$.

Note 6: Parameter measured at trip point of latch with Pin 2 at 0V.

Note 7: Total Variation includes temperature stability and load regulation.

Note 8: Start Threshold, Stop Threshold and Zener Shunt Thresholds track one another.

Note 9: Ensured by design. Not 100% tested in production.

PIN DESCRIPTIONS

COMP: COMP is the output of the error amplifier and the input of the PWM comparator.

Unlike other devices, the error amplifier in the UCC3813 family is a true, low output-impedance, 2MHz operational amplifier. As such, the COMP terminal can both source and sink current. However, the error amplifier is internally current limited, so that you can command zero duty cycle by externally forcing COMP to GND.

The UCC3813 family features built-in full cycle Soft Start. Soft Start is implemented as a clamp on the maximum COMP voltage.

FB: FB is the inverting input of the error amplifier. For best stability, keep FB lead length as short as possible and FB stray capacitance as small as possible.

CS: CS is the input to the current sense comparators. The UCC3813 family has two different current sense comparators: the PWM comparator and an over-current comparator.

The UCC3813 family contains digital current sense filtering, which disconnects the CS terminal from the current

sense comparator during the 100ns interval immediately following the rising edge of the OUT pin. This digital filtering, also called leading-edge blanking, means that in most applications, no analog filtering (RC filter) is required on CS. Compared to an external RC filter technique, the leading-edge blanking provides a smaller effective CS to OUT propagation delay. Note, however, that the minimum non-zero On-Time of the OUT signal is directly affected by the leading-edge-blanking and the CS to OUT propagation delay.

The over-current comparator is only intended for fault sensing, and exceeding the over-current threshold will cause a soft start cycle.

RC: RC is the oscillator timing pin. For fixed frequency operation, set timing capacitor charging current by connecting a resistor from REF to RC. Set frequency by connecting a timing capacitor from RC to GND. For best performance, keep the timing capacitor lead to GND as short and direct as possible. If possible, use separate ground traces for the timing capacitor and all other functions.

APPLICATION INFORMATION (cont.)

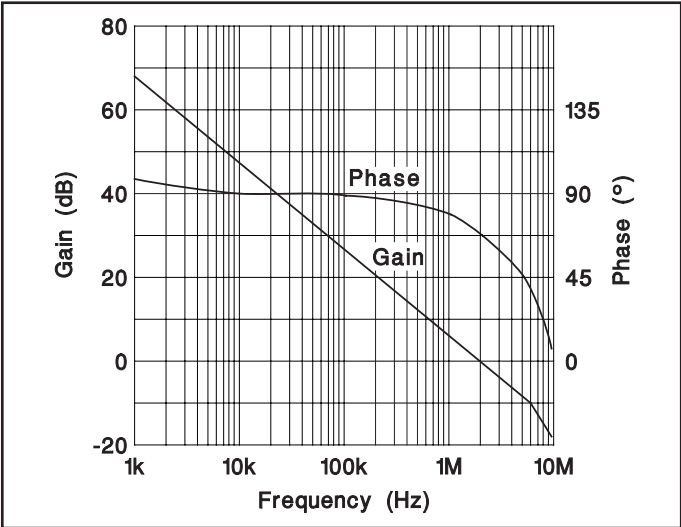


Figure 2. Error amplifier gain/phase response.

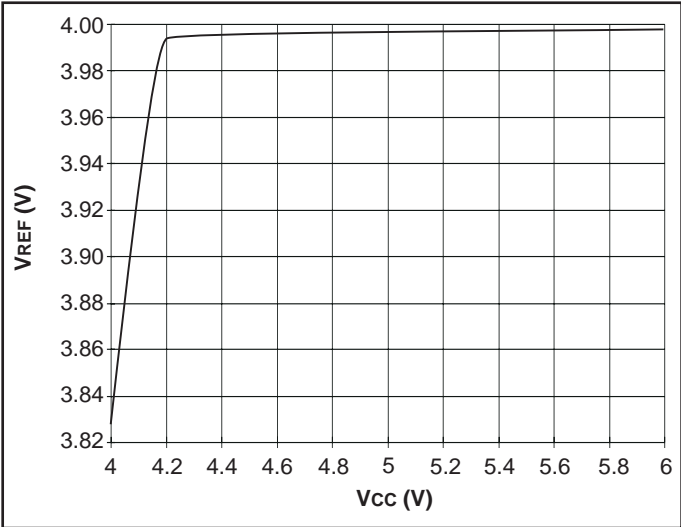


Figure 5. UCC3813-3/-5 V_{REF} vs. V_{CC} ; $I_{LOAD} = 0.5mA$.

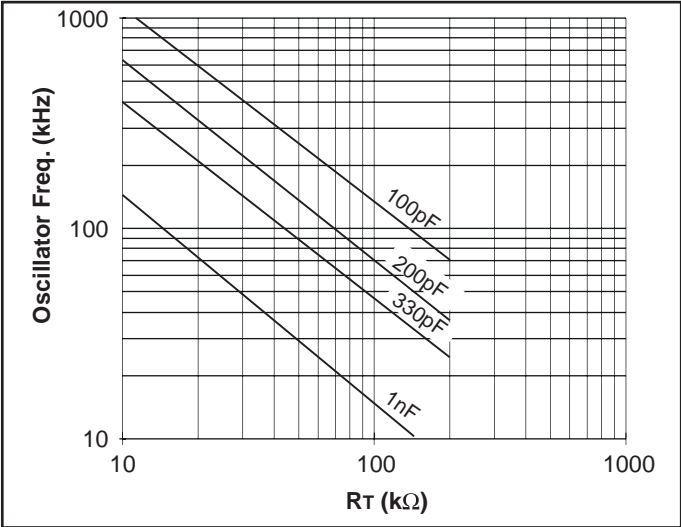


Figure 3. UCC3813-0/-1/-2/-4 oscillator frequency vs. R_T and C_T .

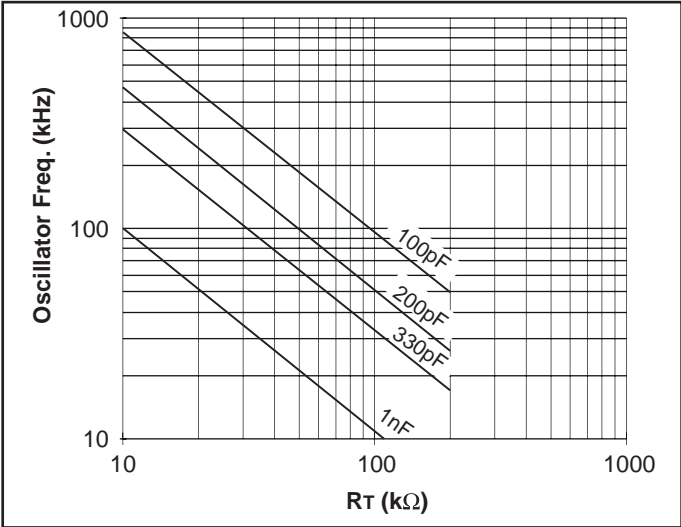


Figure 6. UCC3813-3/-5 oscillator frequency vs. R_T and C_T .

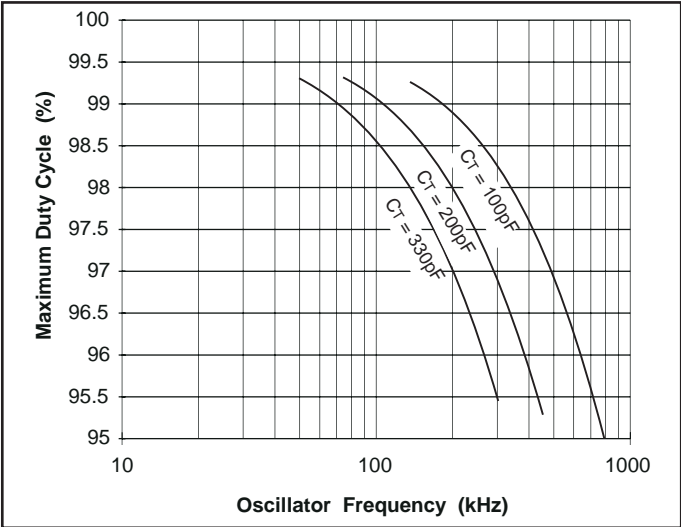


Figure 4. UCC3813-0/-2/-3 max. duty cycle vs. oscillator frequency.

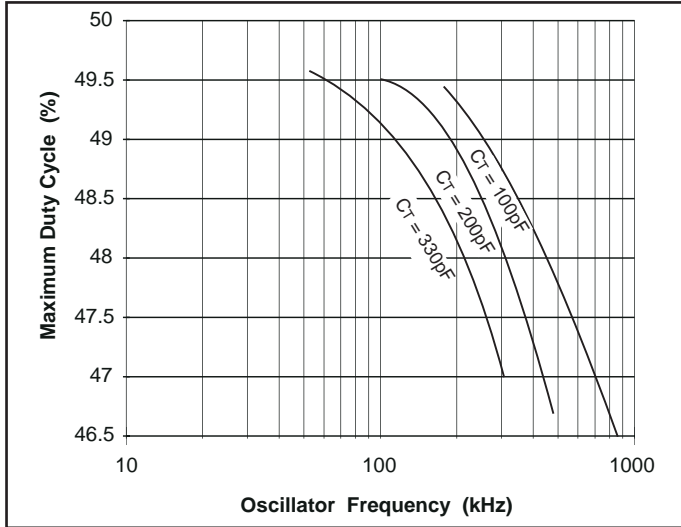


Figure 7. UCC3813-1/-4/-5 max. duty cycle vs. oscillator frequency.

APPLICATION INFORMATION (cont.)

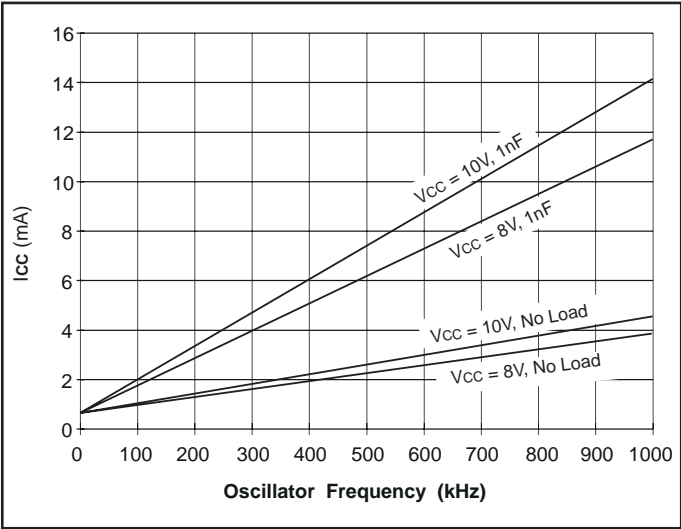


Figure 8. UCC3813-0 I_{CC} vs. oscillator frequency.

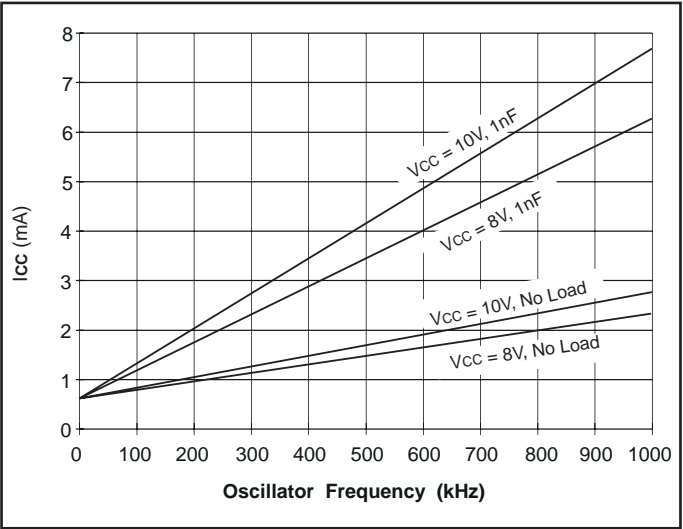


Figure 10. UCC3813-5 I_{CC} vs. oscillator frequency.

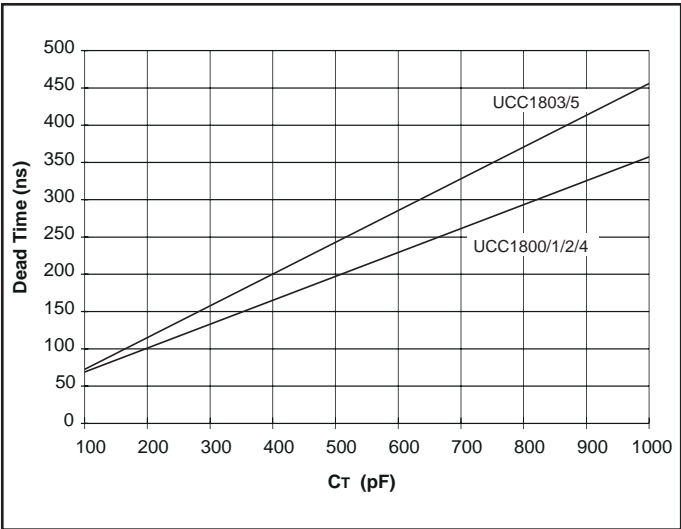


Figure 9. Dead time vs. C_T , $R_T = 100k$.

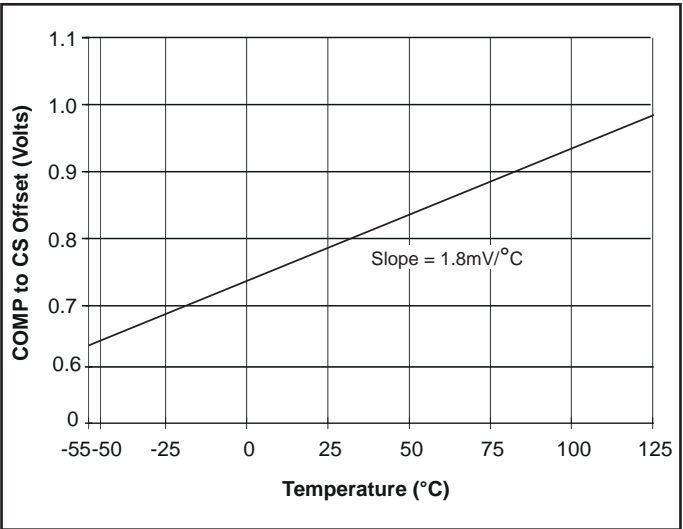


Figure 11. COMP to CS offset vs. temperature, $CS = 0V$.

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
UCC2813D-0	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-0G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-1	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-1G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-2	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-2G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-3	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-3G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-4G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-5	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813D-5G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813DTR-0	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-0G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-1	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-1G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813DTR-2	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-2G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813DTR-3	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-3G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-4G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813DTR-5	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813DTR-5G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC2813N-0	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
UCC2813N-1	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC2813N-2	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC2813N-3	ACTIVE		UTR			TBD	Call TI	Call TI
UCC2813N-4	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC2813N-4G4	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC2813N-5	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC2813PW-0	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-0G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-1	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-1G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-2	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-2G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-3	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-3G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-4G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-5	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PW-5G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-0	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-0G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-1	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-1G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-2	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-2G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-3	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-3G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
UCC2813PWTR-4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-4G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-5	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC2813PWTR-5G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813D-0	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-0G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-1	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-1G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-2	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-3	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-5	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813D-5G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-0	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-0G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813DTR-1	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-1G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813DTR-2	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-2G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-3	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-3G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813DTR-4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-4G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-5	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813DTR-5G4	ACTIVE	SOIC	D	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813N-0	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
UCC3813N-0G4	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813N-1	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813N-2	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813N-2G4	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813N-3	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813N-4	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813N-5	ACTIVE	PDIP	P	8		Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UCC3813PW-0	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-0G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
UCC3813PW-1	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-1G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-2	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-2G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-3	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-3G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-4G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-5	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PW-5G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-0	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-0G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-1	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-1G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-2	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-2G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-3	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
UCC3813PWTR-3G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-4G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-5	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UCC3813PWTR-5G4	ACTIVE	TSSOP	PW	8		Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBsolete: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

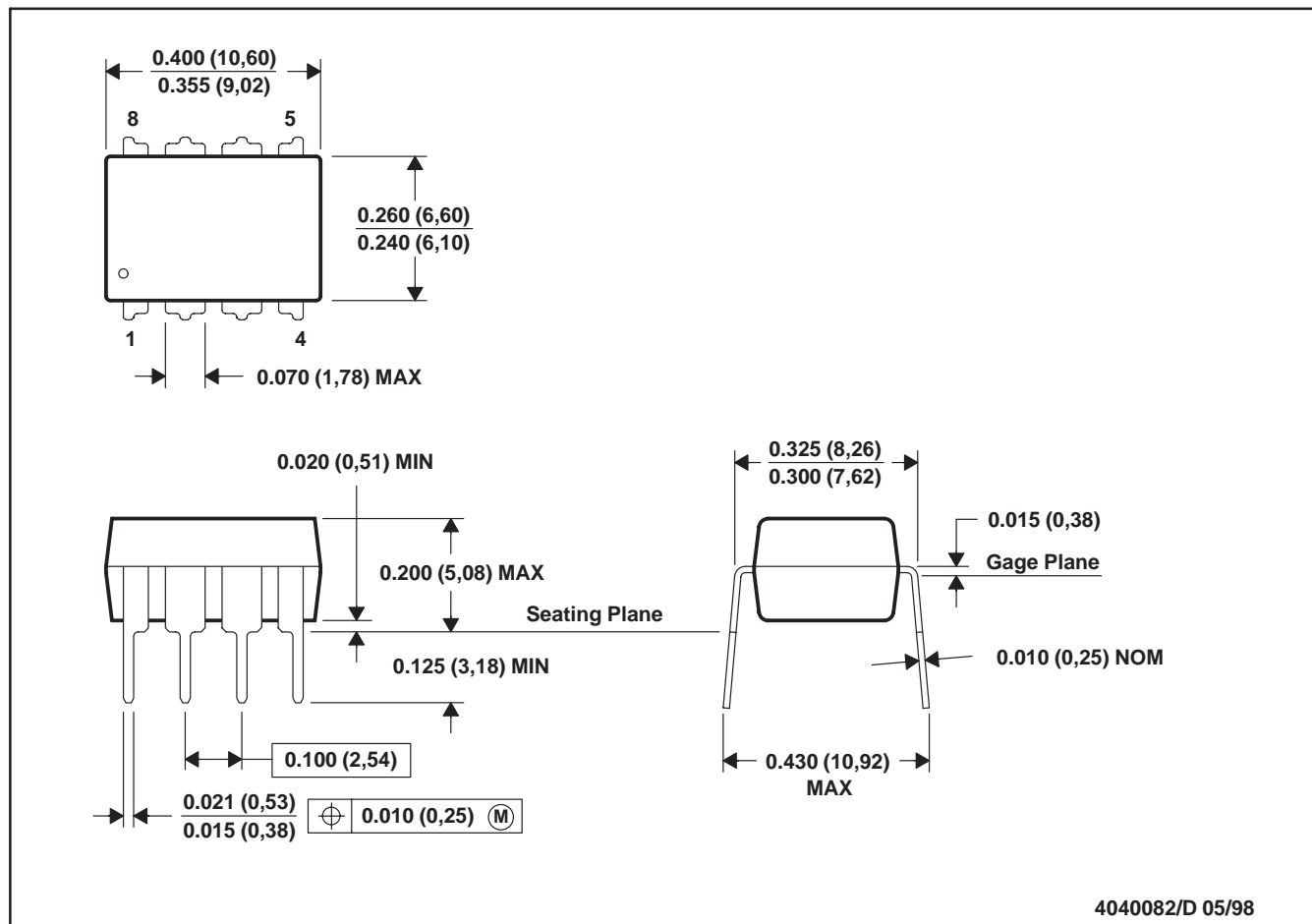
⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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P (R-PDIP-T8)

PLASTIC DUAL-IN-LINE

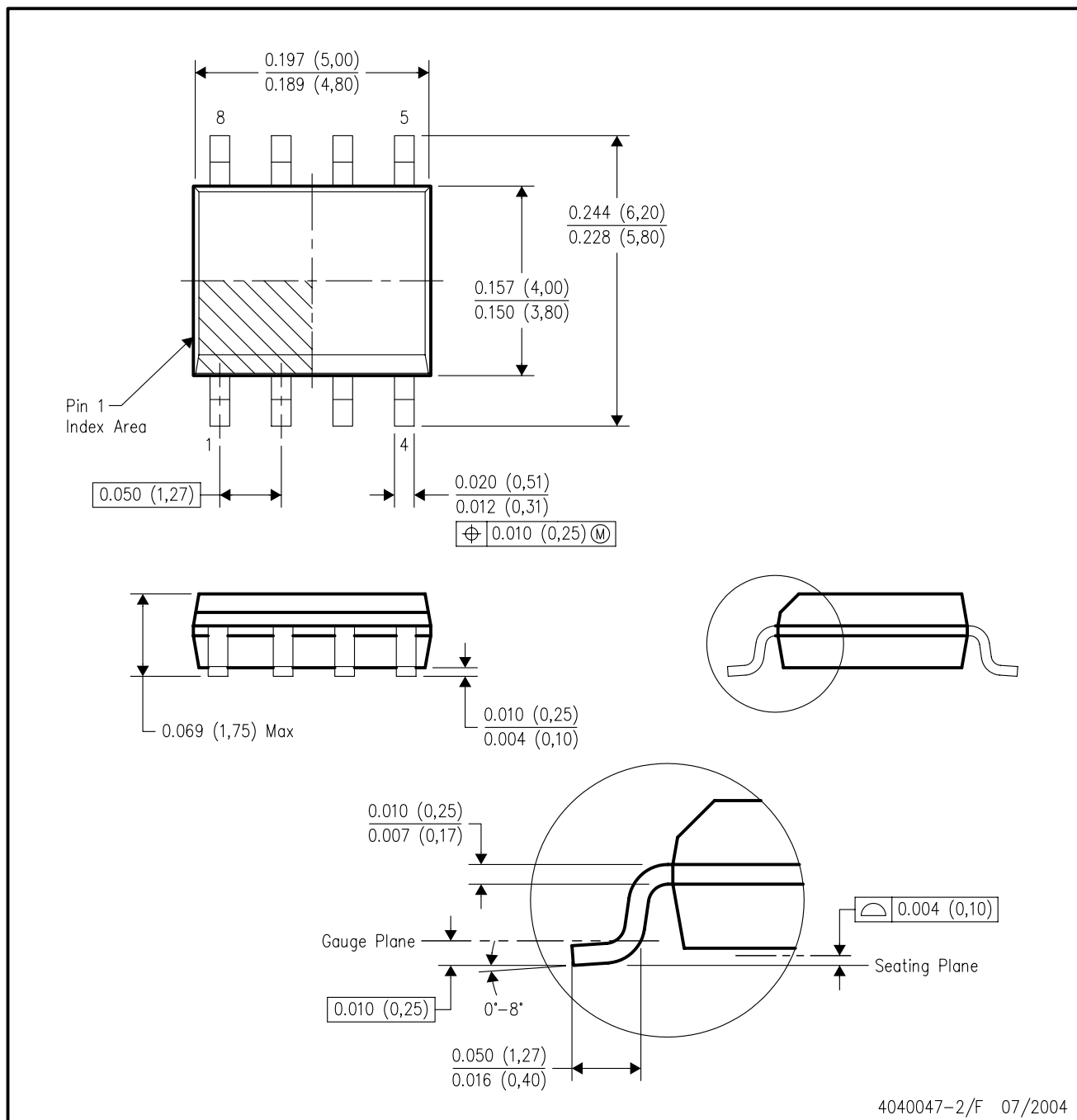


- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. Falls within JEDEC MS-001

For the latest package information, go to http://www.ti.com/sc/docs/package/pkg_info.htm

D (R-PDSO-G8)

PLASTIC SMALL-OUTLINE PACKAGE

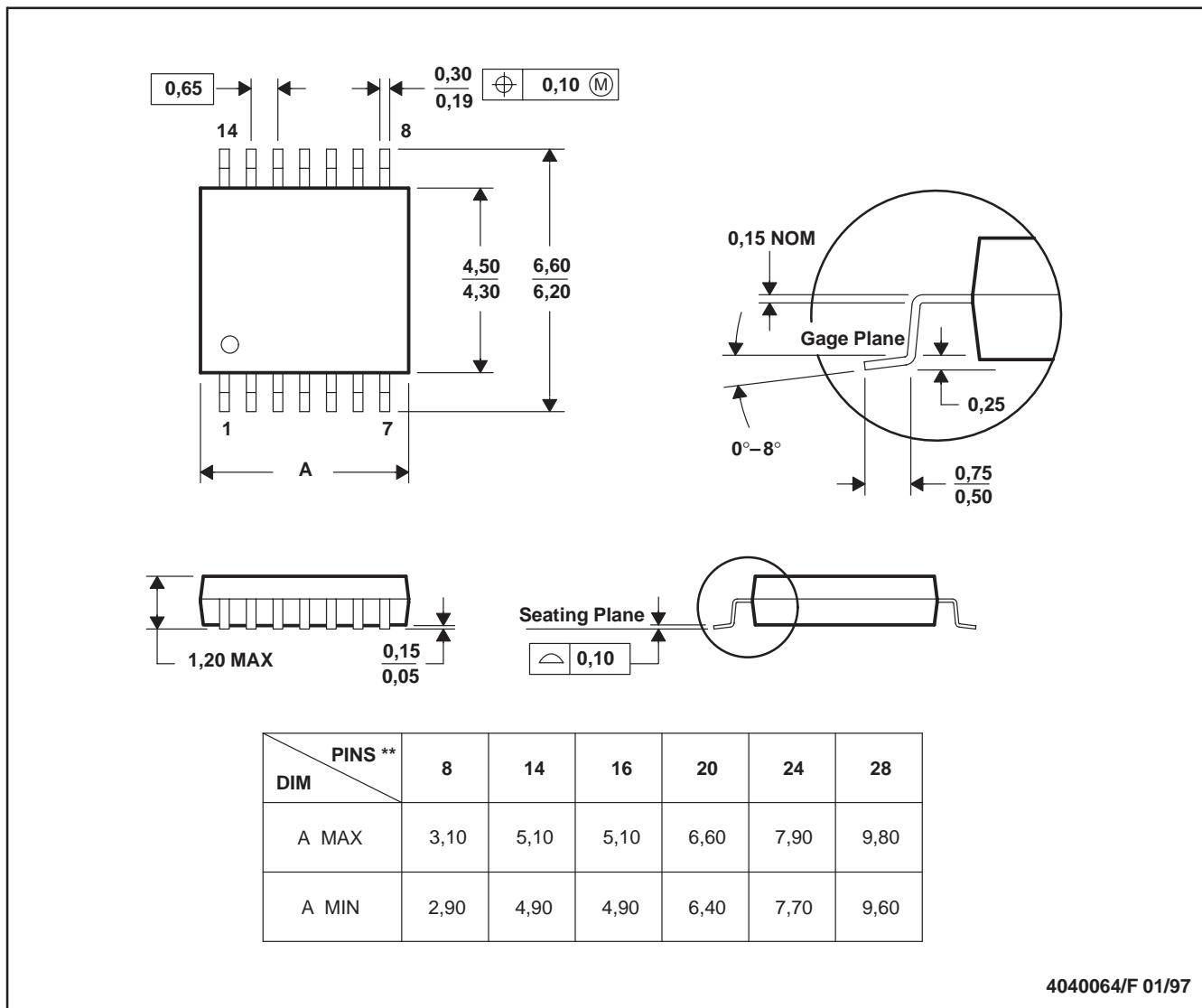


- NOTES:
- All linear dimensions are in inches (millimeters).
 - This drawing is subject to change without notice.
 - Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
 - Falls within JEDEC MS-012 variation AA.

PW (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE

14 PINS SHOWN



- NOTES: A. All linear dimensions are in millimeters.
 B. This drawing is subject to change without notice.
 C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
 D. Falls within JEDEC MO-153

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