Application Report
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Differences Between the UCC3813 and UCC3800 PWM Families

Aung Thet Tu *Power Supply Control Products*

ABSTRACT

This application report discusses the parametric differences between the UCC3813 and UCC3800 PWM families of integrated circuits available from Texas Instruments.

Contents

1 Comparing ICs

The UCC3813 family is a lower-cost version of the UCC3800 family of industry standard PWM controllers. Both families come from the identical base device with the UCC3813 family having relaxed limits on certain specifications. With wider limits, higher overall product yields are achievable making the UCC3813 family more attractive for high-volume, cost-sensitive applications.

The UCC3813 family corresponds to the UCC3800 family per the following table.

Table 1. Part Family Comparison

$T_A = T_J = 0°C$ to $70°C$			$T_A = T_J = –40°C$ to $85°C$		
UCC3800	=	UCC3813–0	UCC2800	=	UCC2813–0
UCC3801	=	UCC3813–1	UCC2801	=	UCC2813–1
UCC3802	=	UCC3813–2	UCC2802	=	UCC2813–2
UCC3803	=	UCC3813–3	UCC2803	=	UCC2813–3
UCC3804	=	UCC3813–4	UCC2804	=	UCC2813–4
UCC3805	=	UCC3813–5	UCC2805	=	UCC2813–5

1.1 General Differences

- The UCC3813 family is **NOT** available in the extended temperature range below –40°C and above 85°C.
- No special custom test or branding requirements (such as custom brand, additional tests and temperatures) are available with UCC3813 family.

1.2 Specific Differences

To help determine the design implications between the UCC3802 and UCC3813 families, Table 2 highlights the parametric specification differences.

Table 2. Electrical Characteristics

PARAMETER	TEST CONDITIONS	UCCx800 FAMILY			UCCx813 FAMILY			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Reference Section								
Load regulation (UCC38xx)			10	**25**		10	**30**	mV
Line regulation	T_J = 25°C			**1.9**			**n/s**	mV/V
	T_J = 0 to 70°C (UCC38xx)			**2.1**			**n/s**	mV/V
	T_J = –40 to 85°C (UCC28xx)			**2.5**			**n/s**	mV/V
Total variation	(–0,–1,–2,–4)	**4.88**	5.0	5.1	**4.84**	5.0	5.1	V
	(–3,–5)	**3.90**	4.0	4.08	**3.84**	4.0	4.08	V
Error Amplifier Section								
Input voltage	(–0,–1,–2,–4)	**2.44**	2.5	2.56	**2.42**	2.5	2.56	V
	(–3,–5)	**1.95**	2.0	2.05	**1.92**	2.0	2.05	V
Input bias current		**–1**		**+1**	**–2**		**+2**	uA
Current Sense Section								
Overcurrent threshold		**1.42**	1.55	**1.68**	**1.32**	1.55	**1.70**	V
Soft Start: COMP rise time			4	**10**		4	**n/s**	ms
Startup current			0.1	**0.2**		0.1	**0.23**	mA
Operating current			0.5	**1.0**		0.5	**1.2**	mA

NOTE: n/s = not specified

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