

96kHz 24bit 0.1% f N#NÁDC

2F

GC1808PWR ;(A 3 -Á?µ6½ C+n)ê(_4C<Æ:šAU8 6,,^DĚ/Ü8X D8E0•)64(W.Ž)*@š5+“- j+~D'8X C;^D÷;B
 DÕ5,) 8X C;^D÷-À=I5,) 8X D GC1808 D)÷DX C*‘0 /.4^D7*•?±AU8 ;^2>-Ò; D GC1808 D)÷+•+^/.
 ; D40Í)C+n.G/%6,,; D
 GC1808PWR - DÑ?~;) *Aä TSSOP14Í>#,)D)÷ -40° +^ +85° C D

(©&é

- z 24bit ũ- 0.1% f ADC
- z +5.0V Q +e\$À (VA)
- z +3.3 V ‡+e\$À (VDD)
- z ...1 +e »EÄ • Ö3Vp-p
- z Q W7-
 THD+N Ö-93dBÄ " » | Å
 SNR Ö99dBÄ " » | Å
 Ø 193 \$ Ö99dBÄ " » | Å
- z E÷G÷ g í % # ~
 E÷G÷ gNÁ)· Ö64
 FJ V4é# Ö±0.05 dB
 (w :Q FJ% # ~ Ö 0.91 Hz (48 kHz)
- z PCMN#NÁ Ö
 F9 k j ¼ p j Q ?
 ž | ? Ö 24-Bit I2S, 24-Bit)U€
- z Lö @ Q ~FJ Ç\$' % # ~
- z G÷ g)· Ö 8 kHz–96 kHz
- z 3+5 &JĪ Ö 256 fs Ě384 fs, 512 fs
- z 2i Ö Ö24bit
- z 1>õ ÖTSSOP14

Applications

- z æ Ý jL' ¼+e?ö
- z B N# x fAî 7
- z ; (%@ œ ~
- z TÖ {NpLe G 4*6 ~

μG v .

1. PIN7J ŷF

GC1808

PIN7J	Nª ĺ	PIN7J ŷF
VREF	1	ò63+e\$À ë6V 81Ñ7J
AGND	2	Q `
VCC	3	Q +e\$À
VDD	4	‡+e\$À
DGND	5	‡ `
SCKI	6	3+5 &JİEÃ • 256 fs, 384 fs or 512 fs
LRCK	7	N#NÁ žK1 ^ 7-
BCK	8	N#NÁ ž &Jİ
DOUT	9	‡N#NÁ žEÃ *
MD0	10	N#NÁ Ő Q ?F9 0
MD1	11	N#NÁ Ő Q ?F9 1
FMT	12	N#NÁ I ?F9
VINL	13	Q FJfEÃ •
VINR	14	Q #FJfEÃ •

2. W7- ¼ ò

±L€ OE ' &

(AGND, DGND = 0 V, p 9+e » ò63 `+e }

参 数		最小值	典型值	最大值	单位
+e\$À+e »	V _{CC}	-0.3	5	6.5	V
	V _{DD}	-0.3	3.3	4	V
`	AGND ã DGND			±0.1	V
‡EÃ •+e »	LRCK ÈBCK ÈDOU	-0.3		(V _{DD} + 0.3 V) < 4	V
	SCKL ÈMD0 ÈMD1 ÈFMT	-0.3		6.5	V
Q EÃ •	VINL, VINR, VREF	-0.3		(V _{CC} + 0.3 V) < 6.5	
OE \$ Y Ö Ö v + XA 4 x E-E-4x		-10	-	+70	°C
		-40	-	+85	
ESDÄHBM Å			±4000		V

Ø9€ OE ' &

		0 ?	»	0 W	... }
V _{CC}	Q +e\$À	4.5	5	5.5	V
V _{DD}	‡+e\$À	2.7	3.3	3.6	V
	Q % uEÃ •			3	V _{p-p}
V _{IH}	‡FKEÁEÃ •Q +e £	2		V _{DD}	V _{DC}
V _{IL}	‡FKEÁEÃ • ~+e £	0		0.8	V _{DC}

VIH	$Q_{E\ddot{A}} \cdot Q_{+e\text{ } \pounds}$		2		5.5	VDC
VIL	$Q_{E\ddot{A}} \cdot \sim_{+e\text{ } \pounds}$		0		0.8	VDC
	3+5 &J		2.048		49.152	MHz
	$\ddagger G \div g \&J$		8		96	kHz
	$\ddagger E\ddot{A} \cdot COE_{-+e\text{ } \acute{e}}$				20	pF

+e – ò

#(B ' & j $T_A = 25^\circ\text{C}$, $V_{CC} = 5\text{ V}$, $V_{DD} = 3.3\text{ V}$, $k_j Q ?$, $f_S = 48\text{ kHz}$, 3+5 &J = 512 f_S , 24-bit data,

	ò	#(B ' &	0 ?	" »	0 W	... }
	2i Ö			24		Bits
	ž ?					
	$N\#N\acute{A} \text{ } \acute{z} \text{ } \ddot{O} \text{ } ?$			I2S,)U€		
	$N\#N\acute{A} \text{ } \acute{z} \text{ } \}$			24		Bits
	$N\#N\acute{A} \text{ } \acute{z} \text{ } ?$			$O\text{ } \pounds \text{ } x \text{ } _0 Q \text{ } 9 \text{ } x \text{ } \}$ È¼F		
f_S	$G \div gN\acute{A} \cdot$		8	48	96	kHz
	$3+5 \&J\ddot{N}\acute{A} \cdot$	256 f_S	2.048	12.288	24.576	
		384 f_S	3.072	18.432	36.864	MHz
		512 f_S	4.096	24.576	49.152	
$E\ddot{A} \cdot FkE\acute{A}$						
VIH	$\ddagger FkE\acute{A}E\ddot{A} \cdot Q_{+e\text{ } \pounds}$		2		VDD	VDC
VIL	$\ddagger FkE\acute{A}E\ddot{A} \cdot \sim_{+e\text{ } \pounds}$		0		0.8	VDC
VIH	$Q_{FkE\acute{A}E\ddot{A}} \cdot Q_{+e\text{ } \pounds}$		2		5.5	VDC
VIL	$Q_{FkE\acute{A}E\ddot{A}} \cdot \sim_{+e\text{ } \pounds}$		0		0.8	VDC
IIH	$\ddagger Q_{+e\text{ } \pounds} E\ddot{A} \cdot +e\#q$	$V_{IN} = V_{DD}$			±10	µA
IIL	$\ddagger \sim_{+e\text{ } \pounds} E\ddot{A} \cdot +e\#q$	$V = 0\text{ V}$			±10	µA
IIH	$Q_{Q_{+e\text{ } \pounds} E\ddot{A}} \cdot +e\#q$	$V_{IN} = V_{DD}$		65	100	µA
IIL	$Q_{\ddagger \sim_{+e\text{ } \pounds} E\ddot{A}} \cdot +e\#q$	$V_{IN} = 0\text{ V}$			±10	µA
$E\ddot{A} \cdot FkE\acute{A}$						
VOH	$FkE\acute{A}E\ddot{A} \cdot Q_{+e\text{ } \pounds}$	$I_{OUT} = 4\text{ mA}$	2.8			VDC
VOL	$FkE\acute{A}E\ddot{A} \cdot \sim_{+e\text{ } \pounds}$	$I_{OUT} = 4\text{ mA}$			0.5	VDC
$-\$ \# q 2 i \ddot{O}$						
	$FJfL\$ \hat{I}, \acute{u} aG \}$			±1	±3	% of FSR

	Î,úB			±3	±6	% of FSR
Ø 1 W7-						
THD+N	kB@# a-O+ š	VIN = - 0.5 dB, f s = 48 kHz		- 93	- 87	dB
		VIN = - 0.5 dB, f s = 96 kHz		- 87		
		VIN = - 60 dB, f s = 48 kHz		- 37		
		VIN = - 60 dB, f s = 96 kHz		- 39		
	Ø 193 \$	f s = 48 kHz, A - weighted	95	99		dBVDC
		f s = 96 kHz, A - weighted		101		
S/N	š"	f s = 48 kHz, A - weighted	95	99		dB
		f s = 96 kHz, A - weighted		101		
	FJFfLÄ/ë Ö	f s = 48 kHz	93	97		dB
		f s = 96 kHz		91		
Q EÄ •						
	EÄ •+e »			0.6 VCC		Vp p
] ó+e » (VREF)			0.5 VCC		V
	EÄ •Lk Ç			60		N i
	Ç\$Cü% # NÁ).	- 3 dB		1.3		MHz
‡% # ~ (© W						
	FJ V				0.454 fS	Hz
	Lk V		0.583 fS			Hz
	FJ V4é#				±0.05	dB
	Lk V Á f		- 65			dB
	& &			17.4/f s		
	HPFNÁ). ý Ä	- 3 dB		0.019 f s / 1000		
İ6G						
ICC	Q +e\$Ä+e#q	f s = 48kHz, 96 kHz		8.6	11	mA
		1+e		1		- \$
IDD	‡+e\$Ä+e#q	f s = 48 kHz		5.9	8	mA
		f s = 96 kHz		10.2		mA
		1+e		150		µA

& ç ò

		0 ?	" »	0 W	... }
3+5 &JĪ & ķ					
tw(SCKH)	3+5 &JĪQ +e £ &L\$	8			ns
tw(SCKL)	3+5 &JĪ ~+e £ &L\$	8			ns
	3+5 Ī X •0 ^a "	40%		60%	
&JĪ Œ!' 1+e = } & ķ					
t(CKR)	SCKI Œ!' ` = } &L\$	4			µs
t(RST)	SCKI 0 ũ ` = }Gú n &L\$			1024 SCKI	µs
t(REL)	= }Gú n ` žEĀ * &L\$			8960 / fS	µs
N#NÁ ž Ő & ķ (p j Q ? : LRCK ¼ BCK Œ jEĀ •)					
t(BCKP)	BCK ~ O	1 / (64 fS)			ns
t(BCKH)	BCK Q +e £ í Ő	1.5 x t(SCKI)			ns
t(BCKL)	BCK ~+e £ í Ő	1.5 x t(SCKI)			ns
t(LRSU)	LRCK ` BCK : w"i *0ŭ &L\$	50			ns
t(LRHD)	LRCK ` BCK : w"i 1 &L\$	10			ns
t(LRCP)	LRCH ~ O	10			µs
t(CKDO)	BCK ;L}"i ` DOUT & &	-10		40	ns
t(LRDO)	LRCK Eé"i ` DOUT & &	-10		40	ns
tr	: w"i			20	ns
tf	;L}"i			20	ns
N#NÁ ž Ő & ķ (k j Q ? : LRCK ¼ BCK Œ jEĀ *)					
t(BCKP)	BCK ~ O	150	1 / (64 fS)	2000	ns
t(BCKH)	BCK Q +e £ í Ő	65		1200	ns
t(BCKL)	BCK ~+e £ í Ő	65		1200	ns
t(CKLR)	BCK ;L}"i ` LRCK 9 x	-10		20	ns
t(LRCP)	LRCK ~ O	10	1 / fS	125	ns
t(CKDO)	BCK ;L}"i ` DOUT & &	-10		20	ns
t(LRDO)	LRCK Eé"i ` DOUT & &	-10		20	ns
tr	: w &L\$			20	ns
tf	;L} &L\$			20	ns
N#NÁ &JĪ Ő & ķ (k j Q ? : BCK Œ jEĀ *)					
t(SCKBCK)	SCKI : w"i ` BCK Eé"i & &	5		30	ns

3+5 & آ & ج .

:+e & ج .

&Jĭ ō#{ 1+e ¼ = } & ħ .

N#NÁ ž Ō & ħ . Ä þ j Q ? Ō LRCK ¼BCK Š jEÄ • Ä

N#NÁ ž Ő & ĺ . Ä k j Q ? Ö LRCK ¼BCK Š jEÄ * Å

N#NÁ & JĪ Ő & ĺ . Ä k j Q ? Ö BCK Š jEÄ * Å

3. " » "4Ī .

Ä ' & _ TA = 25°C, V CC5 V, VDD=3.3 V, k j Q ? , f s = 48 kHz, 3+5 & JĪ = 512 f s, 24 -bit ž Å

4. B 4ö yF

GC1808PWR!nQ W7- Ä ~ @ \ Ä ...8ß(w0û f N#NÁ Q Eœ ' ~ È !G÷+X ...1 Q EÄ • ÈGüM'Lö @ ¶
 64=E÷G÷ g, ' • - › B3 f ~ Ä ‡ í % # ~ Ä ‡Q FJ% # ~ È _ 1 k j ¼ þ j Q ? È ð#{3+5 &Jİ
 • 1+e ¼ = }8ß(w Ä

4.1 .œ & x f

FJE÷ FG ‡ IC, ' GPIOÄ : ù+eLk Ä ; ù+eLk • x f E7J FMT, MD0¼MD1(æ 1 È þ6< x f8ß(w X
 l2S F)U€ ž Ő l ? {L\$ 7 ' }

4.23+5 &Jİ

GC1808PWRl 256 fs Ä384 fs ¼512 fs œ j3+5 &Jİ È ! j fs jN#NÁG÷ gNÁ) • Ä3+5 &JİEÄ • öN« _
 SCKl (pin 6) ÄGC1808PWRG Lö @ 0 Z3+5 &Jİ ð#{+eD È ³ 8 Ø O. 3+5 &Jİ Ä X þ j Q ? ý œ _
 X256 fs, 384 fs È F 512 fs Ä X k j Q ? ; ÈFJE÷ b>| x f1 MD1 (pin 11) ¼MD0 (pin 10) • x f3+
 5 &JİNÁ) • ÄµG +eD 8 Ø ð#{3+5 &Jİ È+O @ 128fs, 'NÁ) • ¼ 64fs, 'NÁ) • ÈŠ j ‡% # ~ ¼ delta -sigma
 B3 f ~ +X Ä ; > ~ _G÷ gNÁ) • ¼3+5 &JİNÁ) •) Ä £3+ Ö

4.3 ¼ ‡N#NÁ3+5 <!•

X þ j Q ? ; È LRCK (pin 7) N« ¼3+5 &Jİ SCK (pin 6) l <!• ÄGC1808PWRM0?±RCK¼SCKl{L\$, '(©
 È-(} £3+ È v M0?±RCK¼SCKJ' <!• Ä

4.4 :+e

GC1808PWR @0 Z µG +e\$Ä = }+eD Ä+e\$Ä(VDD)µE2.2V(" ») È M û F (=) J8 Ø +O Ä f VDD
 < 2.2 V(" ») È10243+5 &JİÄÑ > È VDD > 2.2 V(" ») ÈGC1808PWR¼ = }(æ 1 È ‡EÄ * jM& Ä X
 Gú n = }(æ 1 > È8960 /fs0 > ‡EÄ } 9 x Ä j —>| fade-in ý œ & ÈM0?±NÍ F &L\$8/fin F48/fs •
 9ç Ç-(Ä, ' ž Ä

4.5 b>|N#NÁ ž Ő

GC1808PWR±RCK (pin 7) ÄBCK (pin 8) ¼DOUT (pin 9)F ŐN#NÁ3+5 Ä

4.5.1 Ő Q ?

MD1 (pin 11) ¼MD0 (pin 10) F9 k Q ? ¼ p Q ? Ä ; >~ n/j ¶ Ö Q ?F9 Ä :+e {} È õN«Aî5ž
MD1¼MDÄ

X k j Q ? JÈGC1808PWRÈ ¶ GC1808 ¼ ‡N#NÁ 4*6 ~ F FG +eD , ' b>|N#NÁ žFJ , ' & ě Ä
X p j Q ? ; ÈGC1808PWĚ f•8 FG x f~, ' ž Ä

4.5.1.1k j Q ?

X k j Q ? È BCK¼LRCKE jEÄ * E7J È p GC1808 &JĪ+eD] x f!" T7J ÄBCKNÁ). j !ÿ W64 BCKÄ

4.5.1.2p j Q ?

X p j Q ? ; È BCK¼LRCKE jEÄ • E7J ÄGC1808PWĚ f 64-BCKŸ F48-BCKŸ, ' I? (õF2+X ³84 f s3+
5 &JĪ) ž È6< = _ 32-BCKW I ? Ä

4.5.2 ž I ?

4.6 1+e

GC1808PWR MCLIKĚ' &L\$ CµE43usÈ IF • 1+e Q ? È < & ‡% # ~ • <!• = } Ä!" = } ý Œ ¼ :

6. 1>õ j (
