查询THS6043供应商

捷多邦,专业PCB打样工厂,24小**町时多6042**,THS6043 200 mA REMOTE TERMINAL ADSL LINE DRIVERS

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- Ideal for Both Full Rate ADSL and G.Lite
- Compatible With Either 1:1 or 1:2 Transformer Ratios

Wide Output Swing

- 43 Vp-p Differential Output Voltage, R_I = 200 Ω , ±12 V Supply
- 19 Vp-p Differential Output Voltage, R_L = 50 Ω , 12 V Single Supply
- High Output Current
 200 mA (min)
 - Low Distortion, Single-Ended, G = 4
 - -77 dBc (250 kHz, 2 Vp-p, 25 Ω load)
 - –85 dBc (250 kHz, 2 Vp-p, 100 Ω load)

- Low Power Shutdown (THS6043) – 300 μA Total Standby Current
- High Speed
 - 80 MHz (-3 dB, G=1, 12 V Single Supply)
 - 800 V/µs Slew Rate (G = 4, 12 V Single Supply)
- Wide Supply Voltage Range ± 2.5 V to ± 15 V – Ideal for Single Supply 12-V Operation
- Thermal Shutdown and Short Circuit Protection
- Standard SOIC and Small TSSOP PowerPAD[™] Package
- Evaluation Module Available



description

The THS6042/3 is a high-speed line driver ideal for driving signals from the remote terminal to the central office in asymmetrical digital subscriber line (ADSL) applications. It can operate from a single 12-V supply voltage while drawing only 6.5 mA of supply current per channel. It offers low -77 dBc total harmonic distortion driving a 25 Ω load (2 Vp-p). The THS6042/3 offers a high 19-Vp-p differential output swing across a 50- Ω load from a single 12-V supply. The THS6043 features a low-power shutdown mode, consuming only 150 μ A quiescent current per channel. The THS6042/3 is packaged in a standard SOIC and a small TSSOP PowerPADTM package.

DEVICE	DRIVER	RECEIVER	5 V	±5 V	±15 V	DESCRIPTION
THS6002	•	•		•	•	500-mA differential line driver and receiver
THS6012	•			•	•	500-mA differential line driver
THS6022	•			•	•	250-mA differential line driver
THS6032	•			•	•	500-mA low-power ADSL central-office line driver
THS6042/3	•		•	•	•	200-mA remote terminal ADSL line driver
THS6052/3	•	-270	•	•	•	100-mA remote terminal ADSL line driver
THS6062	- 3	1.1		•	•	Low-noise ADSL receiver
THS6072	and and	N		•	•	Low-power ADSL receiver
THS7002	-	•		•	•	Low-noise programmable-gain ADSL receiver





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AVAILABLE OPTIONS								
	PA	CKAGED DEVICE		EVALUATION				
TA	SOIC-8 (D)	SOIC-14 (D)	TSSOP-14 (PWP)	MODULES				
0°C to 70°C	THS6042CD —	THS6043CD —	THS6042CPWP THS6043CPWP	THS6042EVM THS6043EVM				
-40°C to 85°C	THS6042ID —	THS6043ID —	THS6042IPWP THS6043IPWP					

block diagrams

The block diagrams are shown in Figures 1 through 3.



Figure 1. THS6042 – 8 Pin SOIC











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absolute maximum ratings over operating free-air temperature (unless otherwise noted)[†]

Supply voltage, V _{CC+} to V _{CC-}	
Output current (see Note 1)	
Differential input voltage	±4 V
Maximum junction temperature	150°C
Total power dissipation at (or below) 25°C free-air temperature	. See Dissipation Ratings Table
Operating free-air temperature, T _A : Commercial	0°C to 70°C
Industrial	40°C to 85°C
Storage temperature, T _{stg} : Commercial	
Industrial	
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds	300°C

† Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTE 1: The THS6042 and THS6043 may incorporate a PowerPAD[™] on the underside of the chip. This acts as a heatsink and must be connected to a thermally dissipating plane for proper power dissipation. Failure to do so may result in exceeding the maximum junction temperature which could permanently damage the device. See TI Technical Brief SLMA002 for more information about utilizing the PowerPAD[™] thermally enhanced package.

DISSIPATION RATING TABLE

AL^{θ}	T _A = 25°C POWER RATING
95°C/W‡	1.32 W
66.6°C/W‡	1.88 W
37.5°C/W	3.3 W
	θ JA 95°C/W‡ 66.6°C/W‡ 37.5°C/W

[‡] This data was taken using the JEDEC proposed high-K test PCB. For the JEDEC low-K test PCB, the Θ_{JA} is168°C/W for the D–8 package and 122.3°C/W for the D–14 package.

recommended operating conditions

		MIN	NOM MAX	UNIT
	Dual supply	±2.5	±15	V
Supply voltage, vCC+ to vCC-	Single supply	5	30] `
	C-suffix	0	70	
Operating nee-air temperature, rA	I-suffix	-40	85	

electrical characteristics over recommended operating free-air temperature range, T_A = 25°C, V_{CC+} = 12 V, V_{CC-} = GND , R_{FEEDBACK} = 750 k Ω , R_L = 25 Ω (unless otherwise noted)

dynamic performance

	PARAMETER	TEST CONDITIONS	MIN	ТҮР	MAX	UNIT	
BW	Small-signal bandwidth (-3 dB) G=1	V _{CC} = 12 V, 0 V		80			
		$V_{CC} = \pm 12 V$	125		MHz		
		$V_{CC} = \pm 15 V$		140			
		V _{CC} = 12 V, 0 V		800			
SR	Slew rate (see Note 2)	$V_{CC} = \pm 12 V$	1200		V/μs		
		$V_{CC} = \pm 15 V$	1	1500			

NOTE 2: Slew rate is defined from the 25% to the 75% output levels.



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electrical characteristics over recommended operating free-air temperature range, T_A = 25°C, V_{CC+} = 12 V, V_{CC-} = GND , R_{FEEDBACK} = 750 k Ω , R_L = 25 Ω (unless otherwise noted) (continued)

noise/distortion performance

	PARAMETER			TEST CONDITIONS			MAX	UNIT	
				R _L = 100 Ω,	V _{O(pp)} = 2 V	-85	5		
тно	Total harmonic distortion		$V_{CC} = \pm 12 \text{ V}, \text{ f} = 250 \text{ kHz}$		V _{O(pp)} = 16 V	-75	;	dDa	
	(single-ended config	(single-ended configuration)		R _L = 25 Ω,	V _{O(pp)} = 2 V	-77	,	ubc	
			V _{CC} = 12 V, 0 V, f = 250 kHz		V _{O(pp)} = 8 V	-76	;		
Vn	Input voltage noise		V _{CC} = 12 V, 0	V _{CC} = 12 V, 0 V, ±12 V, f		2.1		nV/√Hz	
		+Input				1.7	,	n A 4/11-	
'n	input current hoise	–Input		$VCC = 12 V, 0 V, \pm 1$	2 V	10.5	5	ра/унг	
	Croastalk		f = 250 kHz , G = 2,	$V_{CC} = \pm 12 \text{ V},$ R _L = 100 Ω	V _O = 2 Vp-p	-85	5	dPo	
XT	CIUSSIAIK	Crosstaik		V _{CC} = 12 V, 0 V R _L = 25 Ω	V _O = 2 Vp-p	-80)	UBC	

dc performance

	PARAMETER	TEST CONDIT	IONS	MIN	TYP	MAX	UNIT
	Input offect voltoge		$T_A = 25^{\circ}C$		2	15	
	input onset voltage		T _A = full range			20	m\/
Vos	Differential offset voltage	$V_{CC} = \pm 12 V, 12 V, 0 V$	$T_A = 25^{\circ}C$		2	15	mv
	Differential offset voltage		T _A = full range			20	
	Offset drift		T _A = full range			10	μV/°C
	Input bios ourroat		$T_A = 25^{\circ}C$		2	9	
	- Input bias current		T _A = full range			12	
			$T_A = 25^{\circ}C$		2	5	
чв	+ input bias current	$VCC = \pm 12 \text{ v}, 12 \text{ v}, 0 \text{ v}$	T _A = full range			6	μΑ
	Differential input bios current		$T_A = 25^{\circ}C$		1.5	8	
	Differential input bias current		T _A = full range			11	
Z _{OL}	Open loop transimpedance	R _L = 100 Ω	V _{CC} = ± 12 V, 12 V, 0V		1		MΩ

input characteristics

PARAMETER		TEST CONDIT	MIN	TYP	MAX	UNIT	
		$V_{CC} = \pm 12 V$	$V_{CC} = \pm 12 V$				
VICR	Input common-mode voltage range	V _{CC} = 12 V, 0 V		2 to 10			V
CMRR	Common-mode rejection ratio	$V_{CC} = \pm$ 12 V, 12 V, 0 V	T _A = full range	65			dB
в.	Input registance	+ Input			1.5		MΩ
	input resistance	– Input			15		Ω
Cl	Input capacitance				2		pF



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electrical characteristics over recommended operating free-air temperature range, T_A = 25°C, V_{CC+} = 12 V, V_{CC-} = GND , R_{FEEDBACK} = 750 k Ω , R_L = 25 Ω (unless otherwise noted) (continued)

output characteristics

PARAMETER			TEST C	TEST CONDITIONS		TYP	MAX	UNIT
				$V_{CC} = \pm 12 V$	±10	±10.5		
			$R_I = 25 \Omega$		1.5	1.2]
		Single ended		V _{CC} = 12 V, 0 V	to	to		
Vo	Output voltage swing				10.5	10.8		V
•0	Calpar voltage swing		R _L = 100 Ω	$V_{CC} = \pm 12 V$	±10.5	±10.8		
				V _{CC} = 12 V, 0 V	1.4	1.1		
					to	to		
					10.6	10.9		
	Output ourropt	-	RL = 25 Ω,	$V_{CC} = \pm 12 V$	200	250		~^^
0	Output current	utput current		V _{CC} = 12 V, 0 V	200	250		ША
ISC	Short-circuit current		$R_L = 0 \Omega$	$V_{CC} = 12 \text{ V}, 0 \text{ V}$		400		mA
	Output resistance		Open loop			15		Ω

power supply

PARAMETER			TEST CONDITIONS		MIN	TYP	MAX	UNIT
Vee	Operating range	Dual supply					±16.5	V
VCC	Operating range	Single supply			4		33	v
				$T_A = 25^{\circ}C$		7	8	
ICC			$VCC = \pm 12$ V	T _A = full range			10	
	Quiescent current (each driver)	Quiescent current (each driver)		T _A = 25°C		6.5	7.5	ma
			$v_{CC} = 12 v, 0 v$	T _A = full range			9.5	
				$T_A = 25^{\circ}C$		-68		
	Dower eventy rejection ratio		$v_{CC} = \pm 12 v$	T _A = full range		-65		٩D
PORK	Power supply rejection ratio			T _A = 25°C		-69		uв
			$v_{CC} = 12 v, 0 v$	T _A = full range		-66		

shutdown characteristics (THS6043 only)

	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
VIL(SHDN)	Shutdown pin voltage for power up	V _{CC} = 12 V, 0 V, GND = 6 V (GND Pin as Reference)			0.8	V
VIH(SHDN)	Shutdown pin voltage for power down	V _{CC} = 12 V, 0 V, GND = 6 V (GND Pin as Reference)	2			V
ICC(SHDN)	Total quiescent current when in shutdown state	V _{SHDN} = 8 V, V _{GND} = 6 V, V _{CC} = 12 V, 0 V		0.3	0.7	mA
^t DIS	Disable time (see Note 3)	V _{CC} = 12 V, 0 V		0.2		μs
^t EN	Enable time (see Note 3)	V _{CC} = 12 V, 0 V		0.2		μs
IIL(SHDN)	Shutdown pin input bias current	V _{SHDN} = 6 V, V _{GND} = 6 V, V _{CC} = 12 V, 0 V		70		μA

NOTE 3: Disable/enable time is defined as the time from when the shutdown signal is applied to the SHDN pin to when the supply current has reached half of its final value.



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Figure 4. THS6042 ADSL Application With 1:1 Transformer Ratio



PRODUCT PREVIEW

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APPLICATION INFORMATION

Figure 5. THS6042 ADSL Application With 1:2 Transformer Ratio





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MECHANICAL DATA

D (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE



NOTES: A. All linear dimensions are in inches (millimeters).

B. This drawing is subject to change without notice.

C. Body dimensions do not include mold flash or protrusion, not to exceed 0.006 (0,15).

D. Falls within JEDEC MS-012



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MECHANICAL INFORMATION

PWP (R-PDSO-G**) 20-PIN SHOWN

PowerPAD[™] PLASTIC SMALL-OUTLINE PACKAGE



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 protrusions.
- D. The package thermal performance may be enhanced by bonding the thermal pad to an external thermal plane. This pad is electrically and thermally connected to the backside of the die and possibly selected leads.
- E. Falls within JEDEC MO-153

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