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2-GHz, LOW DISTORTION, CURRENT FEEDBACK AMPLIFIER

THS3202

Get samples, datasheets, app reports and EVMs at:
www.ti.com/sc/device/th3202

The THS3202 is a low-distortion, high slew rate op amp ideally suited for applications driving loads sensitive to distortion at high frequencies. It provides well-regulated AC performance characteristics with a power supply range of 6.6 to 15 V. The device's low differential gain/phase error makes it ideal for video line driver applications, test and measurement systems and RF and IF amplifier stages.

Key Features:

- Unity-gain bandwidth: 2 GHz
- High slew rate: 9000 V/ μ s
- IMD₃ at 120 MHz: -89 dBc (ref measurement circuit)
- OIP₃ at 120 MHz: 43 dBm (ref measurement circuit)
- NF = 17.5 dB (ref measurement circuit)
- High output current: ± 115 mA into 20 Ω R_L
- Power supply voltage range: 6.6 V to 15 V
- Packaging: 8-lead SO, 8-lead MSOP

3–9-GHz GBW, ULTRA-LOW NOISE, VOLTAGE FEEDBACK OP AMPS

OPA846/OPA847

Get samples and datasheets at:
www.ti.com/sc/device/partnumber

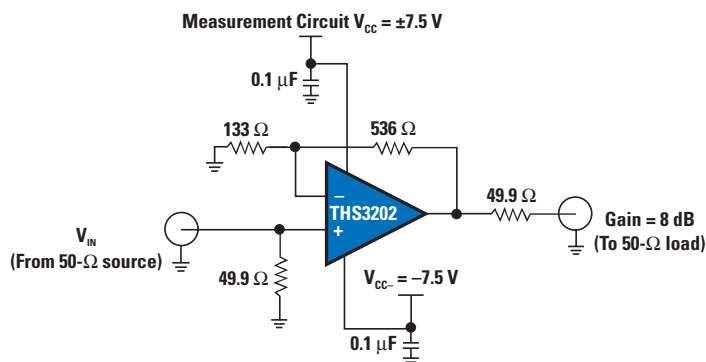
Replace partnumber in URL with opa846 or opa847

The OPA847 combines very-high-gain bandwidth and large signal performance with an ultra-low input noise voltage (0.85 nV/ $\sqrt{\text{Hz}}$), while using only 18 mA of supply current. As a voltage gain stage, the OPA847 is optimized for a flat frequency response at a gain of +20 V/V and is stable down to gain as low as +12 V/V. New external compensation techniques allow the OPA847 to be used at any inverting gain with excellent frequency response control. Using this technique in a differential ADC interface application, as shown, can deliver one of the highest dynamic range interfaces available.

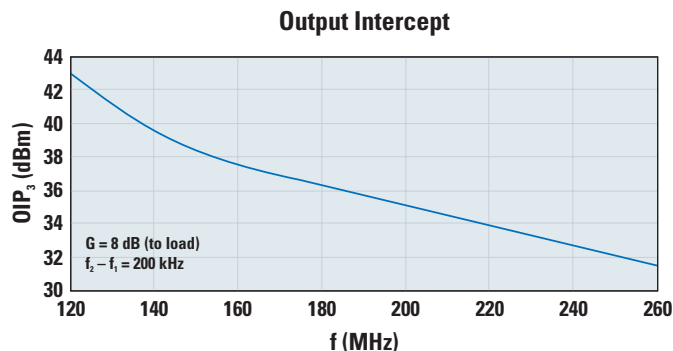
Device	Minimum Operating Gain (V/V)	GBW (MHz)	Input Noise Voltage nV/ $\sqrt{\text{Hz}}$	Offset Voltage Drift (0 to 70°C) max (mV/°C)	Offset Current Drift (0 to 70°C) max (nA/°C)	Price Starts at 1K
OPA842	1	200	2.60	4	2	\$1.45
OPA843	3	800	2.00	4	2	\$1.49
OPA846	7	1750	1.20	1.5	2	\$1.59
OPA847 [†]	14	3800	0.85	1.5	2	\$1.89
OPA656*	1	230	7.00	12	0.9	\$3.19
OPA657*	7	1600	4.80	12	0.9	\$3.59

*JFET input trimmed offset drift low grade specifications shown. High grade available with <6 $\mu\text{V}/^\circ\text{C}$ max. drift.

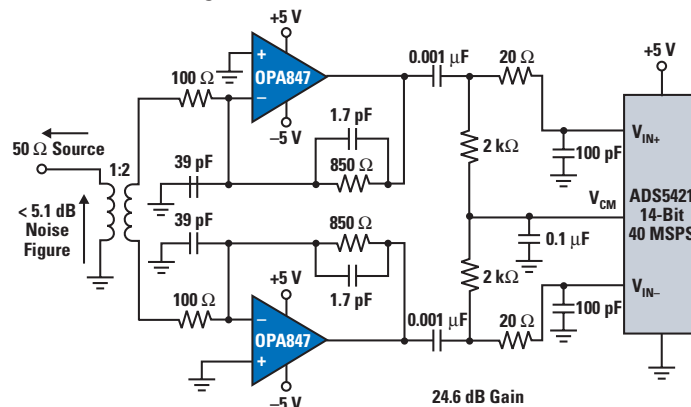
THS3202 Block Diagram



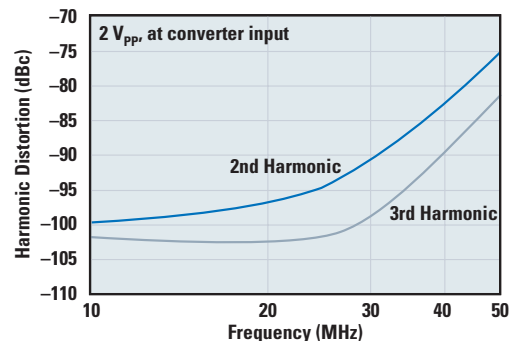
THS3202 Performance Characteristics



OPA847 Block Diagram



Differential OPA847 Driver Distortion



Applications:

- High dynamic range ADC preamps
- Wideband, high gain amplifiers

HIGH-SPEED AMPLIFIERS

Part Number				Architecture						Supply Voltage				A _{CL}	BW	Slew Rate	Settling Time to 0.1% / 0.01% ns (typ)		THD 1 MHz	Differential Gain/Phase		V _N	V _{OS}	I _b	I _{s/amp}	I _{OUT}		
				Min	MHz	%/°	V/√Hz	mV (max)	μA (max)					mA (typ)														mA (typ)
Single	Dual	Triple	Quad	VFB	CFB	Diff I/O	FET	PGA	C-Stable	Shutdown	3 V	5 V	± 5 V	± 15 V	V/V	MHz	V/μs		dBc (typ)		%/°	V/√Hz	mV (max)	μA (max)	mA (typ)	mA (typ)		Price ¹
Voltage-Feedback Op Amps																												
THS4001				•							•	•	•	1	270	400	40	–	-72	0.04	0.15	12.5	8	5	7.8	100		2.19
THS4011	THS4012			•							•	•	•	1	290	310	37	90	-80	0.01	0.01	7.5	6	6	7.8	110		2.29/3.81
THS4021	THS4022			•							•	•	•	10	350	470	40	145	-72	0.02	0.08	1.5	2	6	7.8	100		1.67/2.79
THS4031	THS4032			•							•	•	•	2	100	100	60	90	-90	0.015	0.025	1.6	2	6	8.5	90		2.23/3.68
THS4041	THS4042			•				•			•	•	•	1	165	400	120	250	-89	0.01	0.01	14	10	6	8	100		1.25/2.49
THS4051	THS4052			•							•	•	•	1	70	240	60	130	-89	0.01	0.01	14	10	6	8.5	100		1.20/1.55
THS4061	THS4062			•							•	•	•	1	180	400	40	140	-72	0.02	0.02	14.5	8	6	7.8	115		1.52/1.92
THS4081	THS4082			•							•	•	•	1	175	230	43	233	-79	0.01	0.05	10	7	6	3.4	85		1.79/2.78
THS4271				•							*	*	*	1	1400	970	25	38	<-120	0.007	0.004	2.8	10	18	22	90		2.69
THS4275				•					*		*	*	*	1	1400	970	25	38	<-120	0.007	0.004	2.8	10	18	22	90		2.69
THS4601				•		•					•	•	•	1	440	100	135	170	-77			5.4	4	100 pA	10	80		9.95
OPA355	OPA2355	OPA3355		•		•			•	•	•	•	•	1	450	300	30	120	-81	0.02	0.05	5.8	9	50 pA	8.3	60	1.20/1.99/2.82	
OPA356	OPA2356			•		•				•	•	•	•	1	450	300	30	120	-81	0.02	0.05	5.8	9	50 pA	8.3	60		1.10/1.90
OPA627				•		•					•	•	•	1	16	55	450	550	–	–	–	4.5	0.1	5 pA	7	45		8.28
OPA637				•		•					•	•	•	2	80	135	300	450	–	–	–	4.5	0.1	5 pA	7	45		8.28
OPA642				•							•	•	•	1	450	380	11.5	13	-95	0.007	0.008	2.3	1	45	22	60		3.75
	OPA2652			•							•	•	•	1	700	335	–	–	-77	0.05	0.03	8	7	15	11	140		1.19
OPA655				•		•					•	•	•	1	400	290	8	17	-92	0.006	0.009	6	2	125 pA	25	60		9.13
OPA656				•		•					•	•	•	1	500	290	10	–	-85	0.02	0.05	7	1.8	20 pA	14	70		5.85
OPA657				•		•					•	•	•	7	350	700	10	–	-78	–	–	4.8	1.8	20 pA	14	70		7.29
OPA686	OPA2686			•							•	•	•	7	250	600	16	18	-83	0.02	0.02	1.3	1	17	12.4	80		2.89
OPA687														12	600	900	15	17	-85	–	–	0.95	1	33	18.5	80		3.49
OPA688				•							•	•	•	1	530	1000	–	7	–	0.02	0.01	6.3	6	12	15.8	100		2.65
OPA689				•							•	•	•	4	280	1600	–	7	-64	0.02	0.01	4.6	5	12	15.8	100		2.95
OPA690	OPA2690	OPA3690		•					•		•	•	•	1	500	1700	8	–	-83	0.06	0.01	4.5	4	8	5.5	190	1.50/2.32/3.19	
	OPA2822			•							•	•	•	1	400	170	32	–	-95	0.02	0.03	2	1.2	12	4.8	150		2.17
THS4303											•	•	•	5	2500	1000	5		-92	–	–	2.4	0.5	6	34	100		–
THS4304											•	•	•	1	2500	1000	5		-92	–	–	2.4	0.5	6	18	100		–
OPA842											•	•	•	1	350	400	15 ns		–	0.003	0.006	2.6	0.3	20	20.2	±100		1.35
OPA843											•	•	•	3	500	1000	7.5 ns	–	–	0.001	0.012	2	0.3	20	20.2	±100		1.39
OPA846											•	•	•	7	500	625	10 ns	–		0.02	0.02	1.2	0.15	10	12.6	±80		1.59
OPA847											•	•	•	12	600	950	10 ns	–		–	–	0.85	0.1	19	18.1	100/-75		1.49
THS9000										•	•	•	•	5.8	500	–	–	–	–	–	–	0.6	–	–	100	–		–
THS9001										•	•	•	•	5.8	500	–	–	–	–	–	–	0.6	–	–	100	–		–
OPA698											•	•	•	1	450	1100	8 ns			0.012	0.008	5.6	2	3	15.5	±120		1.79
OPA699											•	•	•	6	285	1500	7 ns					4.1	0.5	8	15.5	±100		1.85
Current-Feedback Op Amps																												
THS3001				•							•	•	•	1	420	6500	40	–	-96	0.01	0.02	1.6	3	10	7.5	120		3.37
THS3061	THS3062			•							•	•	•	1	300	7000	30	125	–	0.02	0.01	2.6	0.7	2	8.3	145		2.95/4.25
	THS3112			•							•	•	•	1	110	1550	63	–	-78	0.01	0.011	2.2	8	23	4.9	270		3.03
	THS3115			•				•			•	•	•	1	110	1550	63	–	-78	0.01	0.011	2.2	8	23	4.9	270		3.03
	THS3122			•							•	•	•	1	160	1550	64	–	-80	0.01	0.011	2.2	6	23	8.4	440		3.75
	THS3125			•					•		•	•	•	1	160	1550	64	–	-80	0.01	0.011	2.2	6	23	8.4	440		3.75
OPA658	OPA2658			•							•	•	•	1	900	1700	11.5	15	-82	0.025	0.02	2.7	4.5	18	4.5	80	1.95/3.12/4.99	
OPA684	OPA2684	OPA3684/ OPA4684		•							•	•	•	1	170	780	–	–	-82	0.04	0.02	3.7	1.5	5	3.4	160		1.3/1.97

¹Suggested resale price in U.S. dollars in quantities of 1,000.

Preview devices are listed in blue.

New devices are listed in red.

Continued on next page

HIGH-SPEED AMPLIFIERS (CONTINUED)

Part Number				Architecture					Supply Voltage				A _{CL}		Slew Rate	Settling Time to 0.1% / 0.01% ns (typ)		THD 1 MHz dBc (typ)	Differential Gain/Phase %/°		V _N V/√Hz	V _{OS} mV (max)	I _b μA (max)	I _{s/amp} mA (typ)	I _{OUT} mA (typ)			
				Min	BW																							
Single	Dual	Triple	Quad	VFB	CFB	Diff I/O	FET	PGA	C-Stable Shutdown	3 V	5 V	± 5 V	± 15 V	V/V	MHz	V/μs												Price ¹
Current-Feedback Op Amps (Continued)																												
THS3201/	THS3202					•					•	•		1	1800	5100	19	118	-65	0.004	0.006	1.65	4	85	15	115		1.87/2.89
OPA685					•				•		•	•		1	1200	4200	3	4	-80	0.1	0.01	1.7	3.5	90	12.9	90		1.89
OPA691	OPA2691	OPA3691			•				•		•	•		1	400	2100	10	—	-81	0.001	0.01	2.5	2.5	35	5.1	190	1.45/2.32/3.15	
OPA693											•	•		2	800	2400	3		-85	0.02	0.01	1.6	0.7	10	13	120		1.35
OPA695											•	•		1	1200	2400	3		-85	0.02	0.01	1.6	0.7	10	13	120		—
THS3201												•		1	1800	6200	20		-85	0.006	0.03	1.65	0.7	13	14	115		1.59
Fixed-Gain Amplifiers																												
THS4302									•	•	•			5	2400	5500	1.5	6	<-120			2.8	4.25	10	37	180		1.97
BUF634											•	•	•	1	180	2000	200	—	—	0.4	0.1	4	100	20	15	250		2.84
OPA633												•	•	1	260	2500	50	—	—	0.1	0.1		15	35	21	100		5.15
OPA692		OPA3692							•		•	•		1	225	2000	8	—	—	0.07	0.02	1.7	0.5	5	5.1	190	1.35/2.98	
THS9000											•	•		6	900													1.00
THS9001											•	•		6	900													1.00
Variable-Gain Amplifiers																												
THS7530						•		•		•				230	>1750	—	—	-63			1.27		44	35	20		3.65	

¹Suggested resale price in U.S. dollars in quantities of 1,000.

Preview devices are listed in blue.

New devices are listed in red.

D/A CONVERTERS

Device Name	Resolution (Bits)	Supply (V)	Update Rate (MSPS)	Settling Time (ns)	Number of DACs	Power Typ (mW)	DNL Max (±LSB)	INL Max (±LSB)	Pin/Package	Price ¹
DAC904	14	3.0 to 5.0	165	30	1	170	1.75	2.5	28 SOP 28 TSSOP	6.25
THS5671A	14	3.0 to 5.0	125	35	1	175	3.5	7	28 SOP 28 TSSOP	8.00
DAC902	12	3.0 to 5.0	165	30	1	170	1.75	2.5	28 SOP 28 TSSOP	6.25
THS5661A	12	3.0 to 5.0	125	35	1	175	2.0	4	28 SOP 28 TSSOP	6.25
DAC900	10	3.0 to 5.0	165	30	1	170	0.5	1	28 SOP 28 TSSOP	4.25
THS5651A	10	3.0 to 5.0	125	35	1	175	0.5	1	28 SOP 28 TSSOP	4.25
DAC2904	14	3.3 to 5.0	125	30	2	310			48TQFP	20.19
DAC2902	12	3.3 to 5.0	125	30	2	310	2.5	3	48 TQFP	15.41
DAC2900	10	3.3 to 5.0	125	30	2	310	1	1	48 TQFP	9.19
DAC5675	14	3	400	5	1	820	2	4	48 HTQFP	29.75
DAC5686	14	1.8/3.3	500	12	2	400	TBD	TBD	100 HTQFP	42.00
DAC2932	12	2.7 to 3.3	40	25	2	29	0.5	2	48 TQFP	7.95
DAC5674	12	1.8/3.3	400	20	1	420	2	3.5	48 HTQFP	21.00

¹Suggested resale price in U.S. dollars in quantities of 1,000.

Preview devices are listed in blue.

A/D CONVERTERS

Device Name	Resolution (Bits)	Sample Rate (MSPS)	Supply (V)	Analog Inputs	Power Typ (mW)	Analog Input BW (MHz)	DNL Max (±LSB)	INL Max (±LSB)	SNR (dB)	Pin/Package	Price ¹
ADS5410	12	80		1	360	1000	1	2	67	48 TQFP	23.00
ADS5422	14	62	5	1	1200	300	1		72	64 TQFP 64 LQFP	29.00
ADS809	12	80	5	1	880	1000	1.7	6	65	48 TQFP	23.75
AFE8201*	12	80	2.7 to 3.3	1	450	1000	1	2	67	48 TQFP	25.00

¹Suggested resale price in U.S. dollars in quantities of 1,000.

*AFE8201 integrates programmable DDC, PG4 and Control DAC. Directly interfaces to TI TMS320C5000™ and TMS320C6000™ DSP platforms with McBSP port.

DIGITAL DOWNCONVERTERS/UPCONVERTERS (DDC/DUC)

Device	Max Clock Rate	Conversion Type	Narrowband Channels ²	Wideband Channels ³	Automatic Gain Control	Input Resolution	Output Resolution	SFDR	Power (max) / Channel	Special Features	Price ¹
GC5016	150	Up and/or down	4	4	✓	16	16	115	250	RSSI meters, programmable filters, real or complex data formats	65.00
GC4016	100	Down	4	2		16	24	115	115	Resampler, serial, or parallel output formats	48.00
GC4116	105	Up	4	2	NA	16	22	115	150	Resampler, IS-95/CDMA phase equalization	48.00
GC1012B	100	Down	—	1		12	16	75	850	Fixed decimate by 2, 4, 8, 16, 32, or 64	—

¹Suggested resale price in U.S. dollars in quantities of 1,000.²DAMPS, GSM, IS-95, CDMA2001X³UMTS, DOCSIS, QAM

MSP430 ULTRA-LOW-POWER MICROCONTROLLERS

Device ¹	Program (kB)	SRAM	I/O	WDT	Timer A	Timer B	USART	I ² C	SVS	BOR	MPY	Comp A	ADC	DAC	Pins/Package	Price ²
Flash-Based F1xx Family ³ (V _{CC} 1.8 to 3.6 V)																
MSP430F1101A	1	128	14	✓	✓							✓	Slope		20 DGV, DW, PW, 24 RGE	0.99
MSP430C1101	1	128	14	✓	✓							✓	Slope		20 DW, PW, 24 RGE	0.60
MSP430F1111A	2	128	14	✓	✓							✓	Slope		20 DGV, DW, PW, 24 RGE	1.34
MSP430C1111	2	128	14	✓	✓							✓	Slope		20 DW, PW, 24 RGE	1.10
MSP430F1121A	4	256	14	✓	✓							✓	Slope		20 DGV, DW, PW, 24 RGE	1.66
MSP430C1121	4	256	14	✓	✓							✓	Slope		20 DW, PW, 24 RGE	1.34
MSP430F1122	4	256	14	✓	✓					✓			5-ch ADC10		20 DW, PW, 32 RHB	1.99
MSP430F1132	8	256	14	✓	✓					✓			5-ch ADC10		20 DW, PW, 32 RHB	2.23
MSP430F112	4	256	22	✓	✓		1					✓	Slope		28 DW, PW, 32 RHB	2.11
MSP430F123	8	256	22	✓	✓		1					✓	Slope		28 DW, PW, 32 RHB	2.26
MSP430F1222	4	256	22	✓	✓		1			✓			8-ch ADC10		28 DW, PW, 32 RHB	2.36
MSP430F1232	8	256	22	✓	✓		1			✓			8-ch ADC10		28 DW, PW, 32 RHB	2.49
MSP430F133	8	256	48	✓	✓	✓	1					✓	8-ch ADC12		64 PM, RTD, PAG	2.98
MSP430F135	16	512	48	✓	✓	✓	1					✓	8-ch ADC12		64 PM, RTD, PAG	3.59
MSP430C1331	8	256	48	✓	✓	✓	1					✓	Slope		64 PM, RTD	1.97
MSP430C1351	16	512	48	✓	✓	✓	1					✓	Slope		64 PM, RTD	2.27
MSP430F147	32	1024	48	✓	✓	✓	2				✓	✓	8-ch ADC12		64 PM, RTD, PAG	5.01
MSP430F1471	32	1024	48	✓	✓	✓	2				✓	✓	Slope		64 PM, RTD, PAG	4.60
MSP430F148	48	2048	48	✓	✓	✓	2				✓	✓	8-ch ADC12		64 PM, RTD, PAG	5.71
MSP430F1481	48	2048	48	✓	✓	✓	2				✓	✓	Slope		64 PM, RTD	5.30
MSP430F149	60	2048	48	✓	✓	✓	2				✓	✓	8-ch ADC12		64 PM, RTD, PAG	6.03
MSP430F1491	60	2048	48	✓	✓	✓	2				✓	✓	Slope		64 PM, RTD	5.60
MSP430F155 ⁴	16	512	48	✓	✓	✓	1	✓	✓	✓		✓	8-ch ADC12	2-ch DAC12	64 PM	4.95
MSP430F156 ⁴	24	1024	48	✓	✓	✓	1	✓	✓	✓		✓	8-ch ADC12	2-ch DAC12	64 PM	5.65
MSP430F157 ⁴	32	1024	48	✓	✓	✓	1	✓	✓	✓		✓	8-ch ADC12	2-ch DAC12	64 PM	5.85
MSP430F167 ⁴	32	1024	48	✓	✓	✓	2	✓	✓	✓	✓	✓	8-ch ADC12	2-ch DAC12	64 PM	6.73
MSP430F168 ⁴	48	2048	48	✓	✓	✓	2	✓	✓	✓	✓	✓	8-ch ADC12	2-ch DAC12	64 PM	7.45
MSP430F169 ⁴	60	2048	48	✓	✓	✓	2	✓	✓	✓	✓	✓	8-ch ADC12	2-ch DAC12	64 PM	7.95
MSP430F1610 ⁴	32	5120	48	✓	✓	✓	2	✓	✓	✓	✓	✓	8-ch ADC12	2-ch DAC12	64 PM	8.45
MSP430F1611 ⁴	48	10240	48	✓	✓	✓	2	✓	✓	✓	✓	✓	8-ch ADC12	2-ch DAC12	64 PM	8.95

¹C = ROM, F = Flash²Suggested resale unit price in U.S. dollars in quantities of 1,000.³All devices support industrial temperature range.⁴Planned release 1Q 2004.

SERIAL GIGABIT SOLUTIONS

Device	Function	Data Rate	Serial I/F	Parallel I/F	Power	Special Features	Price ¹
TLK1501	Single-ch. 16:1 SerDes	0.6–1.5 Gbps	1 CML ch.	16 LVTTTL lines	200 mW	Built-in testability	Web
TLK2501	Single-ch. 16:1 SerDes	1.6–2.5 Gbps	1 CML ch.	16 LVTTTL lines	300 mW	Built-in testability	Web
TLK2701	Single-ch. 16:1 SerDes	1.6–2.5 Gbps	1 CML ch.	16 LVTTTL lines	300 mW	Built-in testability and K character control	Web
TLK2711	Single-ch. 16:1 SerDes	1.6–2.5 Gbps	VML	16 LVTTTL lines	350 mW	MicroStar Jr.™ BGA packaging	Web
TLK3101	Single-ch. 16:1 SerDes	2.5–3.125 Gbps	1 VML ch.	16 LVTTTL lines	350 mW	Built-in testability	Web
TLK1201	Single-ch. 10:1 gigabit Ethernet xcvr	0.6–1.3 Gbps	1 LVPECL ch.	10 LVTTTL lines	200 mW	Industrial temperature	Web
TLK2201	Single-ch.	1.0–1.6 Gbps	1 LVPECL ch.	10 LVTTTL lines	200 mW	JTAG; 5-bit DDR mode	Web
TLK2201I	Single-ch. 10:1 gigabit Ethernet xcvr	1.2–1.6 Gbps	1 LVPECL ch.	10 LVTTTL lines	200 mW	JTAG; 5-bit DDR mode, industrial temp. qualified	Web
TLK2201JR	Single-ch. 10:1 gigabit Ethernet xcvr	1.0–1.6 Gbps	1 LVPECL ch.	10 LVTTTL lines	200 mW	MicroStar Jr. 5 × 5 Land Grid Array (LGA)	Web
TLK2208	Eight-ch. of 10:1 or 8:1 gigabit Ethernet xcvr	1.0–1.3 Gbps	8 CML ch.	4/5-bit/ch (nibble DDR mode), 8/10- bit/ch (multiplex ch. mode)	1 W	JTAG, MDIO supported	Web
TLK4015	Four ch. of 16:1 xcvr	0.8–1.56 Gbps	4 CML ch.	16 LVTTTL/ channel	1 W	Four-channel version of TLK1501	Web
SN65LVDS93/94	Four-ch. 28:4 TX/RX chipset	140–455 Mbps/ch.	4 LVDS	28 × LVTTTL	250 mW/ chip	Supports up to 1.82-Gbps throughput	Web
SN65LVDS95/96	Four-ch. 21:3 TX/RX chipset	140–455 Mbps/ch.	4 LVDS	28 × LVTTTL	250 mW/ chip	Supports up to 1.3-Gbps throughput	Web
SN65LV1021/ SN65LV1212	Single-ch. 10:1 TX/RX chipset	100–400 Mbps	1 LVDS	10 × LVTTTL	<400 mW/ total	Low-power solution	Web
SN65LV1023/ SN65LV1224	Single-ch. 10:1 TX/RX chipset	300–660 Mbps	1 LVDS	10 × LVTTTL	<400 mW/ total	Low-power solution	Web
SLK2501/ SLK2511	Single-ch. 4:1 multirate SONET xcvr with CDR	OC-3/12/24/48	1 LVPECL	4 × 622 LVDS	900 mW	Auto-rate detection, local and remote loop back	Web
SLK2701/ SLK2721	Single-ch. 4:1 multirate SONET xcvr with CDR	OC-3/12/24/48	PECL	4 × LVDS	900 mW	FEC rate is compatible, SLK2721 is optimized for jitter tolerance	Web

¹Please check www.ti.com for current pricing on these products.

LVDS LINE DRIVERS AND RECEIVERS

Device	Max Drvr/Rcvr t_{pd} (ns)	Max Speed (Mbps)	Max Supply Current (mA)	HBM ESD Protection (kV)	# Inputs	# Outputs	Output Skew (ps) ²	Pulse Skew (ps) ²	Package Options	Comments	Price ¹
SN65LVDS1	3.1	630	8	15	1 LVTTTL	1 LVDS	—	300 typ	5-pin SOT-23, 8-pin SOIC	Single driver	0.66
SN65LVDS2	3.6	400	7	15	1 LVDS	1 LVTTTL	—	600 max	5-pin SOT-23, 8-pin SOIC	Single receiver	0.66
SN65LVDS22	6	400	20	12	2 LVDS	2 LVDS	—	200 typ	16-pin SOIC 16-pin TSSOP	2:2 MUX (crosspoint)	3.01
SN65LVDS31	2.5	400	35	8	4 LVTTTL	4 LVDS	300 max	300 max	16-pin SOIC 16-pin TSSOP	Quad driver	1.85
SN65LVDS32 ³	3	400	18	8	4 LVDS	4 LVTTTL	300 max	400 max	16-pin SOIC 16-pin TSSOP	Quad receiver	1.85
SN65LVDS33 ³	6	400	23	15	4 LVDS	4 LVTTTL	150 typ	200 typ	16-pin SOIC, 16-pin TSSOP	Quad receiver	2.22
SN65LVDS047	2.8	400	26	8	4 LVTTTL	4 LVDS	300 max	300 max	16-pin SOIC, 16-pin TSSOP	Quad driver	1.83
SN65LVDS048A	3.7	400	15	10	4 LVDS	4 LVTTTL	500 max	450 max	16-pin SOIC, 16-pin TSSOP	Quad receiver	1.83
SN65LVDS386 ³	4	300	70	4	16 LVDS	16 LVTTTL	400 max	600 max	64-pin TSSOP	16-ch. receiver	5.55
SN65LVDS387	2.9	630	95	15	16 LVTTTL	16 LVDS	150 max	500 max	64-pin TSSOP	16-ch. receiver	5.55
SN75LVDS388A ³	4	300	40	4	8 LVDS	8 LVTTTL	400 max	600 max	38-pin TSSOP	Octal receiver	3.25
SN65LVDS389	2.9	300	70	4	8 LVTTTL	8 LVDS	150 max	500 max	38-pin TSSOP	Octal driver	3.25

¹Suggested resale price in U.S. dollars in quantities of 1,000.² $R_L = 100 \Omega$, $C_L = 10 \text{ pF}$ with max. spec.³Integrated termination option.

LVDS/LVPECL/CML REPEATERS/TRANSLATORS AND CROSSPOINTS

Device	Max Drvr/Rcvr t_{pd} (ns)	Max Speed (Mbps)	Max Supply Current (mA)	HBM ESD Protection (kV)	# Inputs	# Outputs	Output Skew (ps)	Pulse Skew (ps)	Packaging	Comments	Price ¹
SN65LVDS100	0.9	2000	90	5	1 LVDS/CML/LVPECL	1 LVDS	—	50	8-pin SOIC, VSSOP	Translator/Repeater	2.52
SN65LVDS101	0.9	2000	90	5	1 LVDS/CML/LVPECL	1 LVPECL	—	50	8-pin SOIC, VSSOP	Translator/Repeater	2.52
SN65CML100	0.8	1500	30	5	1 LVDS/CML/LVPECL	1 CML	—	50	8-pin SOIC, VSSOP	Translator/Repeater	2.52
SN65LVDS122	0.9	1500	100	4	2 LVDS/CML/LVPECL	2 LVDS	40	50	16-pin SOIC, TSSOP	2×2 Crosspoint	4.75
SN65LVCP22	0.8	1000	85	8	2 LVDS/CML/LVPECL	2 LVDS	20	20	16-pin SOIC, TSSOP	2×2 Crosspoint	3.89
SN65LVCP23	1	2000	65	5	2 LVDS/CML/LVPECL	2 LVPECL	20	20	16-pin SOIC, TSSOP	2×2 Crosspoint	4.95
SN65LVDS125	1	1500	100	8	4 LVDS/CML/LVPECL	4 LVDS	50	50	38-pin TSSOP	4×4 Crosspoint	8.70

¹Suggested resale price in U.S. dollars in quantities of 1,000.

GTLP TRANSCEIVERS

Device	Description	Status	Price ¹
SN74GTLP1394	2-bit LVTTTL-to-GTLP adjustable-edge-rate bus Xcvt w/ split LVTTTL port, feedback path, and selectable polarity	Active	2.73
SN74GTLP1395	Two 1-bit LVTTTL/GTLP adjustable-edge-rate bus Xcvrs w/ split LVTTTL port, feedback path, and selectable polarity	Active	1.75
SN74GTLP2033	8-bit LVTTTL-GTLP adjustable-edge-rate registered transceiver with split LVTTTL port and feedback path	Active	3.85
SN74GTLP2034	8-bit LVTTTL-GTLP adjustable-edge-rate registered transceiver with split LVTTTL port and feedback path	Active	3.85
SN74GTLP21395	Two 1-bit LVTTTL/GTLP adjustable-edge-rate bus Xcvrs with split LVTTTL port, feedback path, and selectable polarity	Active	1.75
SN74GTLP22033	8-bit LVTTTL-GTLP adjustable-edge-rate registered transceiver with split LVTTTL port and feedback path	Active	3.85
SN74GTLP22034	8-Bit LVTTTL-GTLP adjustable-edge-rate registered transceiver with split LVTTTL port and feedback path	Active	3.85
SN74GTLP817	GTLP-to-LVTTTL 1-to-6 fanout driver	Active	2.45
SN74GTLP1612	18-bit LVTTTL-to-GTLP adjustable-edge-rate universal bus transceiver	Active	5.95
SN74GTLP1616	17-bit LVTTTL-to-GTLP adjustable-edge-rate universal bus transceiver with buffered clock outputs	Active	5.95
SN74GTLP1645	16-bit LVTTTL-to-GTLP adjustable-edge-rate bus transceiver	Active	2.45
SN74GTLP1655	16-bit LVTTTL-to-GTLP adjustable-edge-rate universal bus transceiver	Active	5.95
SN74GTLP16612	18-bit LVTTTL-to-GTLP universal bus transceiver	Active	4.62
SN74GTLP16912	18-bit LVTTTL-to-GTLP universal bus transceiver	Active	4.90
SN74GTLP16916	17-bit LVTTTL-to-GTLP universal bus transceiver with buffered clock outputs	Active	4.90
SN74GTLP16945	16-bit LVTTTL-to-GTLP bus transceiver	Active	2.10
SN74GTLP306	8-bit LVTTTL-to-GTLP bus transceiver	Active	3.08
SN74GTLP3245	32-bit LVTTTL-to-GTLP adjustable-edge-rate bus transceiver	Active	3.71
SN74GTLP32912	36-bit LVTTTL-to-GTLP universal bus transceiver	Preview	Call
SN74GTLP32916	34-bit LVTTTL-to-GTLP universal bus transceiver with buffered clock outputs	Active	7.00
SN74GTLP32945	32-bit LVTTTL-to-GTLP bus transceiver	Active	3.15

¹Suggested resale price in U.S. dollars in quantities of 1,000.

M-LVDS TRANSCEIVERS

Device Name	Description	No. of Tx	No. of Rx	Input Signal	Output Signal	RX Type 1 or 2	Part-to-Part Skew Max (ps)	Signal-ing Rate (Mbps)	Tx t _{pd} Typ (ns)	Rx t _{pd} Typ (ns)	I _{cc} Max (mA)	ESD HBM (kV)	Supply Voltage (V)	Pin/Package	Price ¹
SN65MLVD200	Half-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	2500	100	2.3	4.6	26	3	3.3	8-pin SOP	1.84
SN65MLVD201	Half-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	1000	200	1.5	4.0	24	3	3.3	8-pin SOP	2.10
SN65MLVD202	Full-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	2500	100	2.3	4.6	26	3	3.3	14-pin SOP	1.84
SN65MLVD203	Full-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	1000	200	1.5	4.0	24	3	3.3	14-pin SOP	2.10
SN65MLVD204	Half-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	2500	100	2.3	4.6	26	3	3.3	8-pin SOP	1.84
SN65MLVD205	Full-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	2500	100	2.3	4.6	26	3	3.3	14-pin SOP	1.84
SN65MLVD206	Half-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	2	1000	200	1.5	4.0	24	3	3.3	8-pin SOP	2.10
SN65MLVD207	Full-duplex M-LVDS xcvt	1	1	LVTTTL, M-LVDS	LVTTTL, M-LVDS	2	1000	200	1.5	4.0	24	3	3.3	14-pin SOP	2.10
SN65MLVD080	Half-duplex M-LVDS xcvt	8	8	LVTTTL, M-LVDS	LVTTTL, M-LVDS	1	600	250	1.5	4	180	8	3.3	64-pin TSSOP	4.50
SN65MLVD082	Half-duplex M-LVDS xcvt	8	8	LVTTTL, M-LVDS	LVTTTL, M-LVDS	2	600	250	1.5	4	180	8	3.3	64-pin TSSOP	4.50

¹Suggested resale unit price in U.S. dollars in quantities of 1,000. Please check www.ti.com for current pricing on these products.

CLOCK DISTRIBUTION CIRCUITS

Device	Description	Package Options	I/O Levels (Input/Output)	Frequency (MHz)	V _{CC} (V)	Output Skew t _{sk(o)} max (ns)	Price ¹
Buffer-Based Clock Distribution							
CDCVF111	1:9 diff LVPECL	28-pin PLCC	LVPECL/LVPECL	0–650	3.3	0.05	Web
CDC318A	1:18 clock driver with I ² C control interface	48-pin SSOP	LVTTL/LVTTL, TTL	0–100	3.3	0.25	Web
CDC341	1:8 w/ fast t _{pd} fanout	20-pin SOIC	TTL/TTL	0–80	5	0.6	Web
CDC351/2351	1:10 w/ fast t _{pd} fanout, 3-state outputs	24-pin SOIC/SSOP	LVTTL/LVTTL	0–100	3.3	0.5	Web
CDC391	1:6 clock driver with selectable polarity and 3-state outputs	16-pin SOIC	TTL/TTL	0–100	5	0.5	Web
CDCLVD110	1:10 programmable low-voltage LVDS clock driver	32/TQFP	LVDS/LVDS	900	2.5	30 ps typ	
CDCLVP110	1:10 low-voltage LVPECL HSTL with selectable input clock driver	32/LQFP	LVPECL or HSTL/LVPECL	3.5 GHz	2.5/3.3	30 ps	
CDCV304	1:4 fanout for PCI-X and general apps.	8-pin TSSOP	LVTTL/CMOS	0–140	3.3	0.17	Web
CDCVF2310	1:10 clock driver w/ 2 banks for general-purpose applications	24-pin TSSOP	LVTTL/LVTTL	0–170 (V _{DD} =2.3–2.7 V) 0–200 (V _{DD} =3–3.6 V)	2.5/3.3	170 ps @ 2.5 V 100 ps @ 3.3 V	Web
CDCM1804	1:3 LVPECL clock buffer and addl. LVCMOS output and programmable divider	24/MLF	LVPECL/ LVPECL or LVCMOS	to 800 MHz for LVPECL to 200 MHz for LVCMOS	3.3	–	Web
SN65LVDS104	1:4 diff LVDS	16-pin SOIC/TSSOP	LVDS/LVDS	0–315	3.3	0.1	2.22
SN65LVDS105	1:5 diff LVDS	16-pin SOIC/TSSOP	LVDS/LVDS	0–315	3.3	0.1	2.22
SN65LVDS108	1:8 diff LVDS	38-pin TSSOP	LVDS/LVDS	0–311	3.3	0.3	4.55
SN65LVDS116	1:16 diff LVDS	64-pin TSSOP	LVDS/LVDS	0–311	3.3	0.3	5.97
PLL-Based Clock Distribution							
CDC516/2516 ²	1:16 PLL clock driver	48-pin TSSOP	LVTTL/LVTTL	25–125	3.3	0.2	Web
CDC536/2536 ²	1:6 PLL clock driver w/ (3) at 1/2× or 2× output, 3-state outputs	28-pin SSOP	LVTTL/LVTTL	25–100	3.3	0.5	Web
CDC582/2582 ²	1:12 LV diff PECL PLL clock driver w/ (9) at 1/2× or 2× output	52-pin TQFP	LVPECL/LVTTL	25–100	3.3	0.5	Web
CDC586/2586 ²	1:12 PLL clock driver w/ (9) at 1/2× or 2× output, 3-state outputs	52-pin TQFP	LVTTL/LVTTL	25–100	3.3	0.5	Web
CDC5801	Clock multiplier/divider w/ programmable delay and phase alignment	24/SSOP	LVTTL/ LVPECL or LVDS or LVTTL	150–500 / 12.5–62.5	3.3		
CDC7005	High-performance clock synthesizer	64/BGA	LVTTL/LVPECL	10–650	3.3	200 ps	
CDCF5801	Multiplier/divider with programmable delay and phase alignment	24/SSOP	LVCMOS/ LVPECL or LVDS or LVTTL	12.5 to 240 25 to 280	3.3	–	Web
CDCVF2505	1:5 PLL clock driver for general purpose, SSC	8-pin TSSOP/SOIC	LVTTL/LVTTL	24–200	3.3	0.15	Web
CDCVF2508	1:8 low-power PLL clock driver with two banks, SSC	16-pin TSSOP/SOIC	LVTTL/LVTTL	10–170	2.5/3.3	0.15	Web
CDCVF25084	1:8 low-power 4^x multiplier with two banks, SSC	16-pin TSSOP	LVTTL/LVTTL	10 to 180	3.3	150	Web
CDCVF2509	1:9 low-power PLL clock driver for PC 133 and beyond application, SSC	24-pin TSSOP	LVTTL/LVTTL	50–175	3.3	0.1	Web
CDCVF2510	1:10 low-power PLL clock driver for PC 133 and beyond application, SSC	24-pin TSSOP	LVTTL/LVTTL	50–175	3.3	0.1	Web
PLL-Based Clocks for Memory Applications							
CDCV850	1:10 PLL clock driver for DDR SDRAM application, SSC compatible with two-line serial interface	48-pin TSSOP	HCSSL, Universal (except ECL)/SSTL-II	60–140	2.5/3.3	0.075	Web
CDCV855	1:4 (plus feedback pair) PLL differential clock driver for DDR applications, SSC	28-pin TSSOP	SSTL-II/ SSTL-II, LVTTL	60–180	2.5	0.075	Web
CDCV857B	1:10 PLL differential clock driver for DDR applications, SSC	48-pin TSSOP	SSTL-II/SSTL-II	60–200	2.5	0.075	Web

¹Suggested resale price in U.S. dollars in quantities of 1,000. Please check www.ti.com for current pricing on these products.²With series output resistors.

Notes: For more information regarding test conditions used to obtain measurements, see datasheet.

Converted from V/ns datasheet value to ns value, based on 0.4- to 2-V voltage rise/fall.

Preview devices are listed in blue.

LOGIC

As wireless infrastructure designers look to increase data throughput, reduce power consumption, and shrink form factors, TI's logic portfolio is constantly advancing while, at the same time, the company is dedicated to providing legacy logic devices.

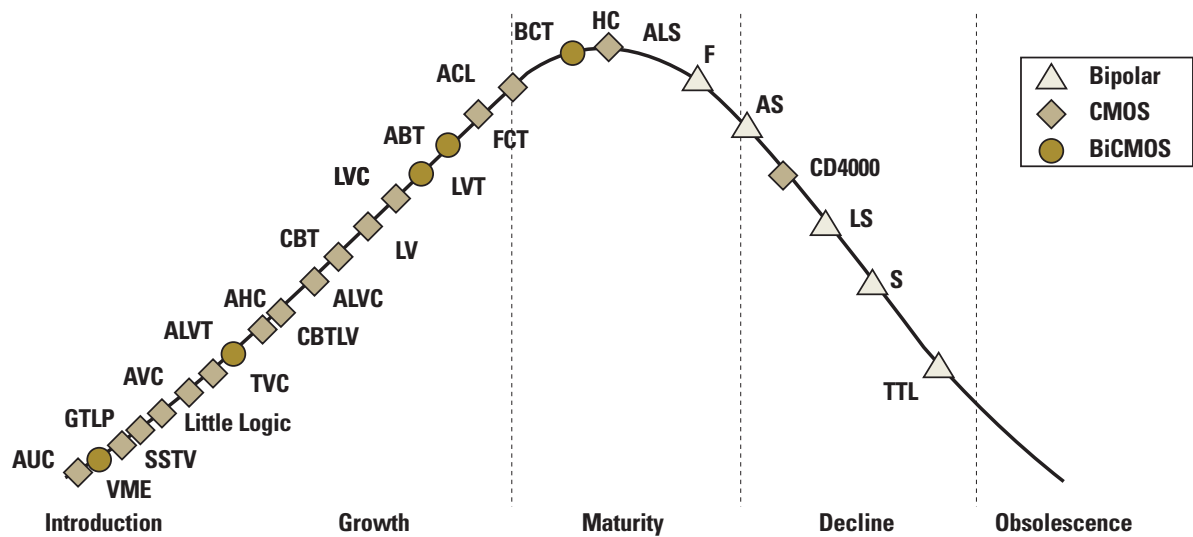
As the leading provider of logic, TI's latest technologies are targeted for the fast moving market of wireless infrastructure systems. Advanced CMOS families and functions, like the LVC and ALVC are optimized at 3.3-V V_{CC} . And the CBT and CBTLV families of bus switches offer designers a broad portfolio to meet diverse switching needs.

TO KNOW MORE ▶

For detailed information about logic for wireless infrastructure:

Buffer/driver	36
Bus switch	36
Product selection guides	37

Logic Product Life Cycle



16-BIT BUFFER/DRIVER WITH 3-STATE OUTPUTS

SN74ALVC16244A/SN74LVC16244A

Get samples and datasheets at:

www.ti.com/sc/device/partnumber

Replace partnumber in the URL with *sn74alvc16244a* or *sn74lvc16244a*

Ideal for base station and networking applications, both the LVC and ALVC families of logic technologies offer solutions for speed-critical 3.3-V system designs. The LVC family is a high-performance version with 0.8- μ CMOS process technology. With typical propagation delays of less than 2 ns, ALVC provides 24 mA of current drive and static power consumption.

Key Features:

- 3.6-ns max t_{pd} at 3.3 V (ALVC)
- 5.2-ns max t_{pd} at 3.3 V (LVC)
- I_{off} circuitry (LVC)
- Packaging: BGA

ALVC PARAMETRICS

Parameter Name	SN74ALVC16244A
Voltage nodes (V)	3.3, 2.7, 2.5, 1.8
V_{CC} range (V)	2.3 to 3.6
Input level	LVTTL
Output level	LVTTL
Output drive (mA)	-24/24
t_{pd} max (ns)	3.6
Static current	0.04

LOW-VOLTAGE QUADRUPLE-FET BUS SWITCH

SN74CBTLV3125

Get samples and datasheets at:

www.ti.com/sc/device/sn74cbtlv3125

The CBTLV family of bus switches operate at the low-voltage 3.3-V operating node. These high-speed bus-connect devices benefit designs with greater system speed and reduced power consumption. The SN74CBTLV3125 quadruple-FET bus switch features independent line switches. Each switch is disabled when the associated output-enable (OE) input is high.

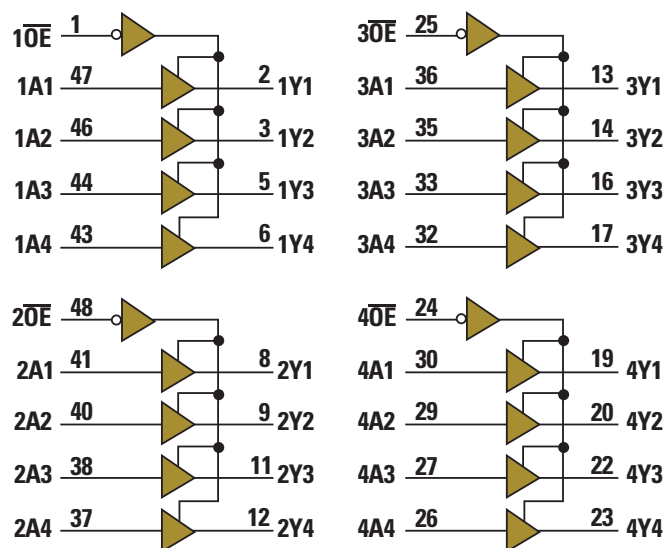
Key Features:

- Standard SN74CBTLV3125-type pinout
- 5- Ω switch connection between two ports
- Isolation under power-off conditions
- Latch-up performance exceeds 100 mA per JESD 78, Class II

Applications:

- Base stations
- Networking

SN75ALVC16244A Logic Diagram (Positive Logic)

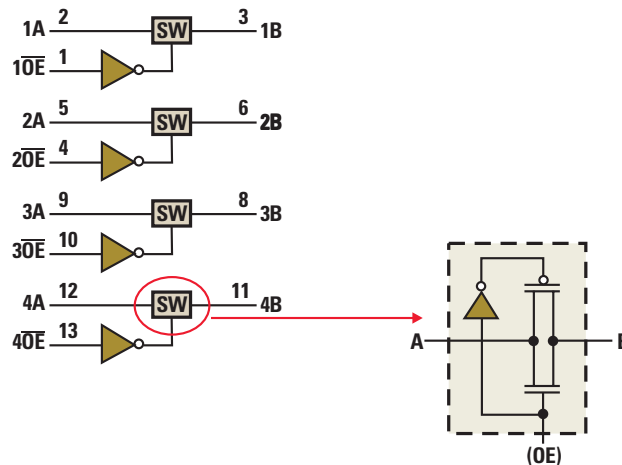


Pin numbers shown are for the DGG and DL packages.

Applications:

- Base stations
- Networking

SN74CBTLV3125 Block Diagram



CBTLV3125 PARAMETERS

Parameter Name	SN74CBTLV3125
Voltage nodes (V)	3.3, 2.5
V_{CC} range (V)	2.3 to 3.6
No. of bits	4
r_{on} max (ohms)	7
t_{pd} max (ns)	0.25

SN74CBTLV31x BUS SWITCHES

Orderable Device	Package	Pins	Temp (°C)	Status	Pack Quantity	Price ¹
SN74CBTLV3125D	D	14	-40 to 85	Active	50	0.81
SN74CBTLV3125DBQR	DBQ	16	-40 to 85	Active	2500	0.81
SN74CBTLV3125DGV	DGV	14	-40 to 85	Active	2000	0.81
SN74CBTLV3125DR	D	14	-40 to 85	Active	2500	0.81
SN74CBTLV3125NSR	NS	14	-40 to 85	Active	2000	0.88
SN74CBTLV3125PWR	PW	14	-40 to 85	Active	2000	0.81

¹Suggested resale price in U.S. dollars.

ALVC BUFFER/DRIVERS

Orderable Device	Package	Pins	Temp (°C)	Status	Pack Quantity	Price ¹
SN74ALVC16244ADGGR	DGG	48	-40 to 85	Active	2000	1.12
SN74ALVC16244ADL	DL	48	-40 to 85	Active	25	1.12
SN74ALVC16244ADLR	DL	48	-40 to 85	Active	1000	1.12
SN74ALVC16244AGQLR	GQL	56	-40 to 85	Active	1000	1.23

¹Suggested resale price in U.S. dollars.

LVC PRODUCTS

Orderable Device	Package	Pins	Temp (°C)	Status	Pack Quantity	Price ¹
SN74LVC16244ADGGR	DGG	48	-40 to 85	Active	2000	1.01
SN74LVC16244ADGVR	DGV	48	-40 to 85	Active	2000	1.01
SN74LVC16244ADL	DL	48	-40 to 85	Active	25	1.01
SN74LVC16244ADLR	DL	48	-40 to 85	Active	1000	1.01
SN74LVC16244AGQLR	GQL	56	-40 to 85	Active	1000	1.12

¹Suggested resale price in U.S. dollars.

DC/DC CONVERTERS (INTEGRATED SWITCH)

Device	I _{OUT} (mA)	Switch Current Limit (max) (mA)	V _{IN} (V)	V _{OUT} Adj (V)	V _{OUT} Fix (V)	Efficiency (%)	Switching Frequency (max) (kHz)	Quiescent Current (typ) (mA)	Shutdown Current (typ) (µA)	Features										Packaging					Price ²		
										Shutdown	LDO (mA)	Low Battery	Power Good	Power Sequencing	Dual Input Bus (3.3, 2.5 V)	Undervoltage Lockout	DDR Memory	DSDS ¹	Current Limit	Thermal Limit	SOT-23	MSOP	QFN	TSSOP		SOIC	EVM
Low Power Step Down (Buck) Converters — up to 1.2 A																											
TPS62200	300	670	2.5 to 6.0	0.7 to 6.0	—	97	1000	0.015	0.1	✓						✓			✓	✓	6					✓	1.29
TPS62201	300	670	2.5 to 6.0	—	1.5	97	1000	0.015	0.1	✓						✓			✓	✓	6					✓	1.29
TPS62202	300	670	2.5 to 6.0	—	1.8	97	1000	0.015	0.1	✓						✓			✓	✓	6						1.29
TPS62203	300	670	2.5 to 6.0	—	3.3	97	1000	0.015	0.1	✓						✓			✓	✓	6				✓		1.29
TPS62204	300	670	2.5 to 6.0	—	1.6	97	1000	0.015	0.1	✓						✓			✓	✓	6						1.29
TPS62205	300	670	2.5 to 6.0	—	2.5	97	1000	0.015	0.1	✓						✓			✓	✓	6						1.29
TPS62206	300	670	2.5 to 6.0	—	2.6	97	1000	0.015	0.1	✓						✓			✓	✓	6						1.29
TPS62000	600	1600	2.0 to 5.5	0.8 to 5.0	—	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10				✓	1.49
TPS62001	600	1600	2.0 to 5.5	—	0.9	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
TPS62002	600	1600	2.0 to 5.5	—	1.0	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
TPS62003	600	1600	2.0 to 5.5	—	1.2	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
TPS62004	600	1600	2.0 to 5.5	—	1.5	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
TPS62005	600	1600	2.0 to 5.5	—	1.8	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10				✓	1.49
TPS62006	600	1600	2.0 to 5.5	—	2.5	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
TPS62007	600	1600	2.0 to 5.5	—	3.3	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
TPS62008	600	1600	2.0 to 5.5	—	1.9	95	1000	0.05	0.1	✓		✓	✓			✓			✓			10					1.49
SWIFT™ Step Down (Buck) Converters — up to 9 A																											
TPS54310	3000	6500	3.0 to 6.0	0.9 to 4.5	—	90	700	6.2	1000	✓			✓						✓	✓				20	✓		3.45
TPS54311	3000	6500	3.0 to 6.0	—	0.9	90	700	6.2	1000	✓			✓						✓	✓				20			3.45
TPS54312	3000	6500	3.0 to 6.0	—	1.2	90	700	6.2	1000	✓			✓						✓	✓				20			3.45
TPS54313	3000	6500	3.0 to 6.0	—	1.5	90	700	6.2	1000	✓			✓						✓	✓				20			3.45
TPS54314	3000	6500	3.0 to 6.0	—	1.8	90	700	6.2	1000	✓			✓						✓	✓				20	✓		3.45
TPS54315	3000	6500	3.0 to 6.0	—	2.5	90	700	6.2	1000	✓			✓						✓	✓				20			3.45
TPS54316	3000	6500	3.0 to 6.0	—	3.3	90	700	6.2	1000	✓			✓						✓	✓				20			3.45
TPS54372	3000	6500	3.0 to 6.0	0.2 to 4.5	—	90	700	6.2	1000	✓						✓			✓	✓				20	✓		3.45
TPS54610	6000	10000	3.0 to 6.0	0.9 to 4.5	—	90	700	11	1000	✓			✓						✓	✓				28	✓		4.65
TPS54611	6000	10000	3.0 to 6.0	—	0.9	90	700	11	1000	✓			✓						✓	✓				28			4.65
TPS54612	6000	10000	3.0 to 6.0	—	1.2	90	700	11	1000	✓			✓						✓	✓				28			4.65
TPS54613	6000	10000	3.0 to 6.0	—	1.5	90	700	11	1000	✓			✓						✓	✓				28			4.65
TPS54614	6000	10000	3.0 to 6.0	—	1.8	90	700	11	1000	✓			✓						✓	✓				28	✓		4.65
TPS54615	6000	10000	3.0 to 6.0	—	2.5	90	700	11	1000	✓			✓						✓	✓				28			4.65
TPS54616	6000	10000	3.0 to 6.0	—	3.3	90	700	11	1000	✓			✓						✓	✓				28			4.65
TPS54672	6000	10000	3.0 to 6.0	0.2 to 4.5	—	90	700	11	1000	✓						✓			✓	✓				28	✓		4.65
TPS54673	6000	10000	3.0 to 6.0	0.9 to 4.5	—	90	700	11	1000	✓		✓					✓		✓	✓				28			4.65
TPS54680	6000	10000	3.0 to 6.0	0.9 to 4.5	—	90	700	11	1000	✓			✓	✓					✓	✓				28			4.65
TPS54810	8000	11000	4.0 to 6.0	0.9 to 4.5	—	85	700	11	1000	✓			✓						✓	✓				28	✓		4.90
TPS54872	8000	11000	4.0 to 6.0	0.2 to 4.5	—	85	700	11	1000	✓						✓			✓	✓				28	✓		4.90
TPS54873	8000	11000	4.0 to 6.0	0.9 to 4.5	—	85	700	11	1000	✓			✓					✓	✓	✓				28			4.90
TPS54880	8000	11000	4.0 to 6.0	0.9 to 4.5	—	85	700	11	1000	✓		✓	✓						✓	✓				28			4.90
TPS54910	9000	15000	3.0 to 4.0	0.9 to 2.5	—	90	700	11	1000	✓			✓						✓	✓				28	✓		5.20
TPS54972	9000	15000	3.0 to 4.0	0.2 to 2.5	—	90	700	11	1000	✓						✓			✓	✓				28	✓		5.20
TPS54973	9000	15000	3.0 to 4.0	0.9 to 2.5	—	90	700	11	1000	✓			✓				✓		✓	✓				28			5.20
TPS54974	9000	15000	2.2 to 4.0	0.2 to 2.5	—	90	700	11	1000	✓					✓				✓	✓				28	✓		5.20
TPS54980	9000	15000	3.0 to 4.0	0.9 to 2.5	—	90	700	11	1000	✓			✓	✓					✓	✓				28			5.20

¹Disabled sinking during start-up.²Suggested resale price in U.S. dollars in quantities of 1,000.

New devices are listed in red.

PLUG-IN POWER SOLUTIONS

Device ¹	Input Bus Voltage (V)	P _{OUT} or I _{OUT}	Isolated Outputs	V _O Range (V)	V _O Adjustable	Price ²
Non-Isolated Single Positive Output						
PTH03010/20/30/50/60	3.3	15 A, 22 A, 30 A, 6 A, 10 A	No	0.8 to 2.5	Yes	14.00, 18.13, 24.63, 9.10, 11.20
PTH05010/20/30/50/60	5	15 A, 22 A, 30 A, 6 A, 10 A	No	0.8 to 3.6	Yes	14.00, 18.13, 24.63, 9.10, 11.20
PTH12010/20/30/50/60	12	12 A, 18 A, 26 A, 6 A, 8 A	No	1.2 to 5.5	Yes	14.00, 18.13, 24.63, 9.10, 11.20

¹See power.ti.com for a complete product offering.²Suggested resale price in U.S. dollars in quantities of 1,000.

New devices are listed in red.

LOW DROPOUT REGULATORS (LDOs)

Device	I _O (mA)	V _{DO} @ I _O (mV)	I _q @ I _O (µA)	Output Options			Min V _{IN}	Max V _{IN}	Accuracy	Packages								DDPAK Features ¹	C ₀ ²	Comments	Price ³
				Negative Out	Voltage (V)	Adj.				(%)	SC70	SOT23	MSOP	S08	SOT23	PWP	TO263				
TPS797xx	10	105	1.2		1.8, 3, 3.3		1.8	5.5	4	✓								PG	0.47 µF C	MSP430; lowest I _q	0.32
TPS715xx	50	415	3.2		2.5, 3, 3.3, 5	✓	2.5	24	4	✓									0.47 µF C	Ultra-low I _q	0.32
TPS770xx	50	35	17		1.2, 1.5, 1.8, 2.5, 2.7, 2.8, 3, 3.3, 5	✓	2.7	10	3		✓							/EN	4.7 µF T	Low I _q	0.34
TPS722xx	50	50	80		1.5, 1.6, 1.8	✓	1.8	5.5	3		✓							EN	0.1 µF C	Low noise & low V _{IN}	0.39
TPS760xx	50	120	90		3, 3.2, 3.3, 3.8, 5.0		3.2	16	2		✓							EN	2.2 µF T	Bipolar, low cost	0.34
TPS769xx	100	70	18		1.2, 1.5, 1.8, 2.5, 2.7, 2.8, 3, 3.3, 5	✓	2.7	10	3		✓							/EN	4.7 µF T	Low cost	0.29
REG101	100	60	400		2.5, 2.8, 2.85, 3, 3.3, 5	✓	2.6	10	1.5		✓		✓					EN, BP	No Cap	Low noise	0.88
TPS791xx	100	38	185		1.8, 3.3, 4.7	✓	2.7	5.5	2		✓							/EN, BP	1 µF C	RF low noise, high PSRR	0.38
TPS792xx	100	38	185		2.5, 2.8, 3	✓	2.7	5.5	2		✓							EN, BP	1 µF C	RF low noise, high PSRR	0.38
TPS761xx	100	170	90		3, 3.2, 3.3, 3.8, 5		3.4	16	2		✓							EN	4.7 µF T	Bipolar, low cost	0.35
TPS763xx	150	180	85		1.6, 1.8, 2.5, 2.7, 2.8, 3, 3.3, 3.8, 5	✓	2.7	10	3		✓							EN	4.7 µF T	Low cost	0.29
TPS764xx	150	300	85		2.5, 2.7, 2.8, 3, 3.3		2.7	10	3		✓							EN, BP	4.7 µF T	TPS763xx + low noise	0.29
TPS771xx	150	75	90		1.5, 1.8, 2.7, 2.8, 3.3, 5	✓	2.7	10	2			✓						/EN, SVS	10 µF T	Low noise	0.56
TPS731xx	150	60	450		1.5, 1.8, 2.5, 3.0, 3.3, 5.0	✓	1.8	5.5	2		✓							EN, BP	No Cap	Reverse leakage protection	0.45
SN105125	150	1 V	150		1.2	—	3	5.25	2		✓							EN, PG	1 µF C	Low cost	0.29
TPS788xx	150	150	18		2.5, 3.3		2.7	10	3		✓							/EN	4.7 µF T	USB inrush control	0.36
TPS721xx	150	150	90		1.5, 1.6, 1.8	✓	1.8	5.5	3		✓							EN	0.1 µF C	Low noise & low V _{IN}	0.39
TL750/1Lxx	150	600	1 mA		5, 10, 12		6	26	4			✓						/EN	10 µF T	60-V load dump	0.45
TPS793xx	200	77	180		1.8, 2.5, 2.8, 2.85, 3, 3.3, 4.75	✓	2.7	5.5	2		✓							EN, BP	2.2 µF C	RF low noise, high PSRR	0.40
TPS794xx	250	145	172		1.8, 2.5, 2.8, 3, 3.3	4	2.7	5.5	3			✓		✓				EN, BP	2.2 µF C	RF low noise, high PSRR	0.62
TPS732xx	250	100	450		1.5, 1.8, 2.5, 3, 3.3, 5.0	✓	1.8	5.5	2		✓			✓				EN, BP	No Cap	Reverse leakage protection	0.65
TPS773xx	250	125	90		1.5, 1.6, 1.8, 2.7, 2.8, 3.3, 5	✓	2.7	10	2			✓						/EN, SVS	10 µF T	Low noise	0.65
TPS779xx	250	250	90		1.8, 2.5, 3	✓	2.7	10	2			✓						EN, SVS	10 µF T	Low noise	0.65
REG102	250	150	400		2.5, 2.8, 2.85, 3, 3.3, 5	✓	2.6	10	1.5		✓		✓	✓				EN, BP	No Cap	Capacitor free, DMOS	1.00
TPS736xx	400	160	450		1.5, 1.8, 2.5, 3.0, 3.3	✓	1.8	5.5	2		✓			✓				EN, BP	No Cap	Reverse leakage protection	0.80
REG113	400	250	400		2.5, 2.85, 3, 3.3, 5		2.6	10	1.5		✓	✓						EN, BP	No Cap	Capacitor free, DMOS	1.04
TPS795xx	500	105	265		1.6, 1.8, 2.5, 3, 3.3	✓	2.7	5.5	3				✓					EN, BP	1 µF C	RF low noise, high PSRR	0.95
TPS775xx	500	169	87		1.5, 1.6, 1.8, 2.5, 3.3	✓	2.7	10	2				✓		✓			/EN, SVS	10 µF T	Fast transient response	0.87
TPS776xx	500	169	87		1.5, 1.8, 2.5, 2.8, 3.3	✓	2.7	10	2				✓		✓			/EN, PG	10 µF T	Fast transient response	0.83
REG103	500	115	500		2.5, 2.7, 3, 3.3, 5	✓	2.6	15	2			✓	✓		✓			EN, PG	No Cap	Capacitor free, DMOS	2.00
TPS777xx	750	260	85		1.5, 1.8, 2.5, 3.3	✓	2.7	10	2			✓		✓				/EN, SVS	10 µF T	Fast transient response	0.96
TPS725xx	1000	170	75		1.5, 1.6, 1.8, 2.5	✓	1.8	6	2			✓	✓		✓			EN, SVS	No Cap	Low noise; SVS delay 50 ms	1.04
TPS726xx	1000	170	75		1.5, 1.6, 1.8, 2.5	—	1.8	6	2				✓		✓			EN, SVS	No Cap	Low noise; SVS delay 200 ms	1.04
TPS796xx	1000	200	310		1.8, 2.5, 2.8, 3, 3.3	✓	2.7	5.5	2				✓		✓			EN, BP	1 µF C	RF low noise, high PSRR	1.04
TPS767xx	1000	230	85		1.5, 1.8, 2.5, 2.7, 2.8, 3, 3.3, 5	✓	2.7	10	2				✓		✓			/EN, SVS	10 µF T	Fast transient response	1.04
TPS768xx	1000	230	80		1.5, 1.8, 2.5, 2.7, 2.8, 3, 3.3, 5	✓	2.7	10	2				✓		✓			/EN, PG	10 µF T	Fast transient response	1.00
UCCx81-x	1000	500	400		3.3, 5	✓	1.8	9	2.5				✓					EN	2.2 µF T	Reverse leakage protection	1.80
REG104	1000	230	600		2.5, 2.7, 3, 3.3, 5	✓	2.6	15	2					✓				EN	No Cap	Capacitor free, DMOS	2.22
TLV1112	1000	1200	5 mA		1.2	—	2.7	18	2.5					✓		✓	✓		10 µF T	Low cost regulator	0.35
TLV1117	1000	1200	5 mA		1.5, 1.8, 2.5, 2.85, 3.3, 5	✓	2.7	18	2.5					✓		✓	✓		10 µF T	Low cost regulator	0.32
TPS786xx	1500	390	310		1.8, 2.5, 2.8, 3, 3.3	✓	2.7	5.5	3					✓		✓		EN, BP	1 µF C	RF low noise, high PSRR	1.28
TPS751xx	1500	160	75		1.5, 1.8, 2.5, 3.3	✓	2.7	5.0	2						✓			/EN, PG	47 µF T	Fast transient response	1.52
TPS752xx	2000	210	75		1.5, 1.8, 2.5, 3.3	✓	2.7	5.0	2						✓			/EN, SVS	47 µF T	Fast transient response	1.71
TPS754xx	2000	210	75		1.5, 1.8, 2.5, 3.3	✓	2.7	5.0	2									/EN, PG	47 µF T	Fast transient response	1.65
UC382-x	3000	350	6 mA		1.5, 2.1, 2.5	✓	1.7	7.5	1							✓	✓		100 µF T	Fast LDO with reverse leak.	2.57
UCC383-x	3000	400	400		3.3, 5	✓	1.8	9	2.5							✓	✓	/EN	22 µF T	Reverse leakage protection	2.57
TPS758xx	3000	150	110		1.5, 1.8, 2.5, 3.3	✓	2.8	5.5	3							✓	✓	EN	47 µF T	Fast transient response	2.57
UC385-x	5000	350	8 mA		1.5, 2.1, 2.5	✓	1.7	7.5	1								✓		100 µF T	Fast LDO with reverse leak.	3.00
TPS756xx	5000	250	110		1.5, 1.8, 2.5, 3.3	✓	2.8	5.5	3								✓	EN	47 µF T	Fast transient response	2.83
TPS759xx	7500	400	110		1.5, 1.8, 2.5, 3.3	✓	2.8	5.5	3								✓	/EN, PG	47 µF T	Fast transient response	3.04

¹PG = PowerGood, EN = Active High Enable, /EN = Active Low Enable, SVS = Supply Voltage Supervisor³Suggested resale price in U.S. dollars in quantities of 1,000.²C = Ceramic, T = Tantalum, No Cap = Capacitor Free LDO

New devices are listed in red.

MOSFET DRIVER

Device	No. of Outputs	Output Configuration	Output Type	I _O Source/Sink (A)	Rise/Fall Time (ns)	V _{CC} Range (V)	Prop Delay (ns)	Input Threshold	Enable	Dead Time Control	Protection Features	Internal Regulator	Price ¹
UCC37323	2	Inverting	TrueDrive	4.0/4.0	25/25	4 to 15	35	TTL/CMOS	No	No	—	No	0.99

¹Suggested resale price in U.S. dollars in quantities of 1,000.

LOADSHARE CONTROLLERS

Device	V _{IN} (min)	V _{IN} (max)	Reference Accuracy (%)	Share Bus	Pin Count	Supply Current (mA)	Price ¹
UCC29002	4	15	—	Single Ended	8	2.5	0.89

¹Suggested resale price in U.S. dollars in quantities of 1,000.

DUAL-OUTPUT LDOs

Device	I _{O1} (mA)	I _{O2} (mA)	V _{D01} @ I _{O1} (mV)	V _{D02} @ I _{O2} (mV)	I _q @ I _O (μA)	Output Options		Accuracy (%)	PWP Package	Min V _O	Max V _O	Features						Max V _{IN}	C _O ¹	Description	Price ²
						Voltage (V)	Adj.					/EN	PG	SVS	Seq	Low Noise	Min V _{IN}				
TPS707xx	250	150	83	—	95	3.3/2.5, 3.3/1.8, 3.3/1.5, 3.3/1.2	✓	2	✓	1.2	5	✓	✓	✓	✓	✓	2.7	5.5	10 μF T	Dual-output LDO with sequencing	1.91
TPS708xx	250	150	83	—	95	3.3/2.5, 3.3/1.8, 3.3/1.5, 3.3/1.2	✓	2	✓	1.2	5	✓	✓	✓		✓	2.7	5.5	10 μF T	Dual-output LDO with independent enable	1.91
TPS701xx	500	250	170	—	95	3.3/2.5, 3.3/1.8, 3.3/1.5, 3.3/1.2	✓	2	✓	1.2	5	✓	✓	✓	✓	✓	2.7	5.5	10 μF T	Dual-output LDO with sequencing	2.17
TPS702xx	500	250	170	—	95	3.3/2.5, 3.3/1.8, 3.3/1.5, 3.3/1.2	✓	2	✓	1.2	5	✓	✓				2.7	5.5	10 μF T	Dual-output LDO with independent enable	2.17
TPS767D3xx	1000	1000	230	—	170	3.3/2.5 3.3/1.8	✓	2	✓	1.2	5	✓		✓			2.7	10	10 μF T	Dual-output FAST LDO with integrated SVS	2.17
TPPM0110	1500	300	1000	2500	1000	3.3/1.8		2		1.8	3.3						4.7	5.3	100 μF T	Outputs track within 2 V	1.62
TPPM0111	1500	300	1000	2800	1000	3.3/1.5		2		1.5	3.3						4.7	5.3	100 μF T	Outputs track within 2 V	1.60
TPS703xx	2000	1000	160	—	185	3.3/2.5, 3.3/1.8, 3.3/1.5, 3.3/1.2	✓	2	✓	1.2	5	✓	✓	✓	✓	✓	2.7	5.5	22 μF T	Dual-output LDO with sequencing	2.30
TPS704xx	2000	1000	160	—	185	3.3/2.5, 3.3/1.8, 3.3/1.5, 3.3/1.2	✓	2	✓	1.2	5	✓	✓	✓		✓	2.7	5.5	22 μF T	Dual-output LDO with independent enable	2.30

¹T = Tantalum²Suggested resale price in U.S. dollars in quantities of 1,000.

New devices are listed in red.

PLUG-IN POWER SOLUTIONS

Device ¹	Input Bus Voltage (V)	Description	P _{OUT} or I _{OUT}	Isolated Outputs	V _O Range (V)	V _O Adjustable	Price ²
Isolated Multiple Output							
PT4820	48	35-W 48-V Input Triple Low-Voltage Isolated DC/DC Converter	35 W	Yes	1.2 to 5.0	Yes	64.83
PT4850	48	75-W 48-V Input Triple Low-Voltage Isolated DC/DC Converter	75 W	Yes	1.2 to 3.3	Yes	96.64
Isolated Single Output							
PT4410	48	100-W 30-A 48-V Input Isolated Programmable DC/DC Converter	100 W	Yes	1.05 to 5.7	5-bit Programmable	70.20

¹See power.ti.com for a complete product offering.²Suggested resale price in U.S. dollars in quantities of 1,000.

HOT SWAP CONTROLLERS (EXTERNAL FET)

Device	Target Applications	Channels	V _{IN} (V)	Enable/ Shutdown	Power Good or UVLO Reporting	Ramp	Automatic Retry/Latch	Average Power Limiting	Price ¹
TPS2390	–48-V Telecom	1	–36 to –80	1H	UVLO	Current	Latch	No	1.15
TPS2391	–48-V Telecom	1	–36 to –80	1H	UVLO	Current	AutoRetry	No	1.15

¹Suggested resale price in U.S. dollars in quantities of 1,000.

DC/DC CONTROLLERS

Device	V _{IN} (V)	V _O (max) (V)	V _O (min) (V)	V _{ref} Tol (%)	Driver Current (A)	Output Current (A) ¹	Multiple Outputs	Adaptive Voltage Positioning	Protection ²	Comments	Price ³
Performance Processor Power Supply Controllers (Synchronous Rectification)											
TPS40000	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OCP, UVLO	300-kHz low input sync buck, source only	0.99
TPS40001	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OCP, UVLO	300-kHz low input sync buck, source/sink except SS	0.99
TPS40002	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OCP, UVLO	600-kHz low input sync buck, source only	0.99
TPS40003	2.25 to 5.5	4	0.7	1.5	1	15	No	No	OCP, UVLO	600-kHz low input sync buck, source/sink except SS	0.99
TPS40050	8 to 40	30	0.7	1	1	20	No	No	OCP, UVLO	Wide input range sync buck, source only	1.32
TPS40051	8 to 40	30	0.7	1	1	20	No	No	OCP, UVLO	Wide input range sync buck, source/sink	1.32
TPS40053	8 to 40	30	0.7	1	1	20	No	No	OCP, UVLO	Wide input range sync buck, source/sink except SS	1.32
TPS40060	10 to 55	40	0.7	1	1	10	No	No	OCP, UVLO	Wide input range sync buck, source only	1.32
TPS40061	10 to 55	40	0.7	1	1	10	No	No	OCP, UVLO	Wide input range sync buck, source/sink	1.32

¹Current levels of this magnitude and beyond can be supported.²OCP — over-current protection; UVLO — under-voltage lockout³Suggested resale price in U.S. dollars in quantities of 1,000.

New devices are listed in red.