

Linear and switching voltage regulators

Selection guide



September 2007

Linear voltage regulators

Part number composition (family code + suffix)

Std positive	Std negative	Low drop	Very low drop
LMC38P	LMC37P	L4941PS	L4940PVVS
LMC50P	L79VVTCP	LD1117PVVCS	LD1580PVVS
LMC23P	L79LVVTCPS	KD1083PVVS	LD29080PVVS
LMC17PS		LD1084PVVS	LD29150PVVS
LMC17MPS		LD1085PVVS	LD29300PVVS
LMC17LPS		LD1086PVVS	LD2979PVVS
LM723PS		LD1117APVVS	LD3985PVVS
L78SVVTC		LK112PVVS	LK115PVV
L78VVTCPS		LK112SPVVS	STC2PVVS
L78MVVTCPS		KD1084TPVVS	L4931TPVVS
L78LVVTCPS		LD1585TPVVS	L4987TPVVS
			LD2980TPVVS
			LD2981TPVVS
			LD2982TPVVS
			LD2985TPVVS
			LM2931TPVVS
			KFVVTPS
			LEVVTTPS
			LFVVTPS

P: package suffix
 VV: voltage suffix
 T: tolerance

C: temperature class
 S: shipment packaging (see table)

Packages suffixes

Package	Very low drop	Low drop	Standard positive & negative	
			L78/79 series	LM series
D ² PAK	D2T	D2T	D2T	D2T
D ² PAK/A	D2M	D2M		
DIP				N
DPAK	DT	DT	DT	DT
Flip-Chip5	J			
P ² PAK	P2T			
PENTAWATT	V5V			
PPAK	PT			
S0-8	D	D	D	D
SOT223		S		
SOT23-5L	M	M		
SOT-89	U		U	
SPAK-5L	K5			
SPAK-7L	K7			
T0-220	V	V	V	T*
T0-220FP	P	P	P	
T0-3			T	K
T0-92	Z		Z	Z
TSOT23-5L	G			

* SP for LM337

Shipment suffixes

Tube	No suffix
T & R	13TR, 013TR, TR, -TR, R, -R
Amopack	AP, -AP

www.BDTIC.com/ST

Standard positive linear voltage regulators

Family	I _o max [A]	Regulated Output Voltage [V]															Tol [%]	Packages										
		3.3	5	5.2	6	7.5	8	8.5	9	10	12	15	18	20	24	ADJ		D ² PAK	DIP-14	DPAK	IPAK	S0-14	S0-8	SOT-89	TO-220	TO-220FP	TO-3	TO-92
LMC38	5															1.2 to 32	4										■	
LMC50																	1.2 to 32	4										■
LMC23	3																4							■		■		
L78S00	2		■			■			■	■	■	■	■	■	■		4							■		■		
LMC17	1.5		■	■	■		■	■	■		■	■	■	■	■	1.2 to 32	4	■						■	■	■		
L7800				■	■	■		■	■		■	■	■	■	■		4	■		■				■	■	■		
LMC17M	1		■		■		■		■		■	■	■	■	■	1.2 to 37	4		■	■				■	■			
L7800A				■		■		■		■		■	■	■	■		2	■						■	■			
L78M00	0.5		■		■		■		■	■	■	■	■	■	■		4		■	■				■	■			
L78M00A				■		■		■		■	■	■	■	■	■		2			■	■			■				
LM723	0.15															1.2 to 37	3		■		■							
L78L00	0.1	■	■		■		■		■		■	■	■	■	■		8					■	■					■
L78L00A			■	■		■		■		■		■	■	■	■		4					■	■					■
LMC17L																1.2 to 37	4					■						■

Standard negative linear voltage regulators

Family	I _o max [A]	Regulated Output Voltage [V]														Tol [%]	Packages											
		3.3	5	5.2	6	7.5	8	8.5	9	10	12	15	18	20	24		ADJ	D ² PAK	DIP-14	DPAK	IPAK	S0-14	S0-8	SOT-89	TO-220	TO-220FP	TO-3	TO-92
LMC37	1.5															1.2 to 32	4								■		■	
L7900			■			■		■				■	■	■	■	■		4	■						■	■	■	
L79L00	0.1		■		■		■		■		■	■					8					■	■					■

C must be replaced by 1 or 2 or 3 (temperature class)

Very low drop linear voltage regulators

[illegible]

■ On request * Also available up on request in DFN 4x4 mm

www.BDTIC.com/ST

Low drop linear voltage regulators

Family	I _o max [A]	Regulated Output Voltage [V]																				V _d [V]	Tol [%]	Packages											
		1.2	1.3	1.5	1.6	1.7	1.8	2.1	2.5	2.7	2.8	2.85	3	3.2	3.3	3.6	3.8	4	5	6	8			9	12	ADJ	D ² PAK	D ² PAK / A	DPAK	SOT223	SOT23-5L	SO-8	TO-220	TO-220FP	
KD1083	7.5			■			■		■			■			■									1.25 to 8.5	1.4	2	■						■		
KD1084	5			■			■		■			■			■	■			■					1.25 to 15	1.3	2	■	■	■				■		
KD1084A				■			■		■			■			■	■			■					1.25 to 15	1.3	1	■	■	■				■		
LD1084				■			■		■			■			■	■			■			■	■	■	1.25 to 28	1.3	1	■	■					■	
LD1585				■			■		■			■			■				■			■	■	■	1.25 to 28	1.2	1	■	■					■	
LD1085C	3			■			■		■			■			■	■			■		■	■	■	1.25 to 28	1.3	2			■						
LD1085				■			■		■			■			■	■			■			■	■	■	1.25 to 28	1.3	1	■	■	■			■	■	
LD1086	1.5			■			■		■			■			■	■			■		■	■	■	1.25 to 28	1.3	1	■	■	■			■			
L4941	1																		■						0.25	4	■		■			■	■		
LD1117A	0.8						■		■			■			■				■					1.25 to 15	1.1	2			■	■		■	■		
LD1117xx		■					■		■			■	■		■				■					1.25 to 15	1.1	1			■	■		■	■		
LD1117xxC							■		■			■			■				■					1.25 to 15	1.1	2			■	■		■	■		
LK112S*	0.2			■	■	■	■		■		■		■	■	■	■	■	■	■	■	■				0.35	2					■				
LK112	0.15		■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■				0.29	2					■				

■ On request * All voltages from 1.3 V to 5 V with a 0.1 V step, are available upon request

Dual output linear voltage regulators

Family	Output 1												Output 2												Packages											
	I _o max [A]	Output Voltage [V]										V _d [V]	TOL [%]	I _o max [A]	Output Voltage [V]														V _d [V]	TOL [%]						
		1.22	1.5	1.8	2.5	2.8	2.85	2.9	3	3.1	3.3				1.22	1.5	1.8	2.5	2.8	2.85	2.9	3	3.3	4.8	ADJ											
ST2L05	1											1.1	2	1																						
LD3986 ^A	0.15											0.06	2.5 V	0.15																						

■ On request ^Δ For different V1-2 combination see datasheet

Application specific linear voltage regulators

Part number	Description	VIN [V]			VOUT [V]			Vd [mV]	Io max [A]	TOP [°C]		Short Circuit Protection	Thermal Shutdown	Disable pin	Package
		min	typ	max	min	typ	max			min	max				
LNBK10SP	LNB supply and control voltage regulator (parallel interface)			27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK11SP				27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK12SP				27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK13SP				27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK14SP				27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK15SP				27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK16SP				27		13 to 18			0.4	-40	125	■	■		PowerSO-10
LNBK20D2				27		13 to 18			0.4	-40	125	■	■		SO-20
LNBK20PD				27		13 to 18			0.4	-40	125	■	■		PowerSO-20
LNBP10SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP11SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP12SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP13SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP14SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP15SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP16SP				25		13 to 18			0.5	-40	125	■	■		PowerSO-10
LNBP20PD				25		13 to 18			0.5	-40	125	■	■		PowerSO-20
PB137ACV	Positive voltage regulator for battery charger			40		13.7			1.5	0	150	■	■		T0-220
STBC08	StandAlone linear Li-Ion battery charger	4.25		6.5		4.2			0.8	-40	85			■	MLPD6L
STCS1	Constant current LED driver			40		NA		580	1.5	-40	85		■	■	MLP, PSO-8
STC4054GR	Programmable lout linear Li-Ion battery charger	4.25		6.5		4.2			0.8	-40	85			■	TSOT23-5L

Step-up switching voltage regulators

Part number	Description	Topology	VIN [V]		VOUT [V]			Adjustable	Io max [A]	Iq [μA]	f max [kHz]	Efficiency [%]	Peak Current Limitation	Disable pin	Top [°C]		Package
			min	max	min	typ	max								min	max	
L6920D	0.5 A step up converter	Step-up	0.6	5.5	2		5.2	■		11	1 MHz		1 A	■			TSSOP8
L6920DB	0.4 A step up converter	Step-up	0.6	5.5	1.8		5.2	■		11	1 MHz		0.8 A	■			MSOP8
ST5R25M	Micropower VFM step-up DC/DC converter	Step-up	1.2	5.5		2.5			0.1		150	87			-25	85	SOT23-5L
ST5R28M		Step-up	1.2	5.5		2.8			0.1		150	87			-25	85	SOT23-5L
ST5R30M		Step-up	1.2	5.5		3			0.1		150	87			-25	85	SOT23-5L
ST5R30U		Step-up	1.2	5.5		3			0.1		150	87			-25	85	SOT-89
ST5R33M		Step-up	1.2	5.5		3.3			0.1		150	87			-25	85	SOT23-5L
ST5R50M		Step-up	1.2	5.5		5			0.1		150	87			-25	85	SOT23-5L
ST8R00WPUR	Synchronous DC/DC converter	Step-Up	4	6	6		12	■		10	1400		1	■	-25	125	DFN8

Step-down switching voltage regulators

Part number	Description	Topology	VIN [V]		VOUT [V]			Adjustable	Iq [μA]	f max [kHz]	Peak Current Limitation [A]	Disable pin	Top [°C]		Package
			min	max	min	typ	max						min	max	
L296	4 A switching regulator	Step-down	9	46	5.1		40	■	30000	up to 200	4.5	■			MW15
L4960	2.5 A switching regulator	Step-down	9	46	5.1		40	■	15000	up to 200	3				HW7
L4962	1.5 A switching regulator	Step-down	9	46	5.1		40	■	15000	up to 200	2	■			HW7, PDIP16
L4963	1.5 A switching regulator	Step-down	9	46	5.1		40	■	15000	free running	3.5				PDIP18, SO-20
L4970	10 A switching regulator	Step-down	12	50	5.1		50	■	13000	up to 500	13				MW15
L4971	1.5 A switching regulator	Step-down	8	55	3.3		50	■	2500	up to 300	2.5	■			DIP-8, SO-16W
L4972	2 A switching regulator	Step-down	12	50	5.1		40	■	13000	up to 200	2.8				PDIP20, SO-20
L4973	3.5 A switching regulator	Step-down	8	55	0.5		50	■	2700	up to 300	4.5	■			PDIP18, SO-20
L4974A	3.5 A switching regulator	Step-down	12	50	5.1		40	■	13000	up to 200	4.75				MW15
L4975A	5 A switching regulator	Step-down	12	50	5.1		40	■	13000	up to 500	6.5				MW15
L4976	1 A switching regulator	Step-down	8	55	0.5		50	■	2500	up to 300	2	■			DIP-8, SO-16W
L4977	7 A switching regulator	Step-down	12	50	5.1		40	■	13000	up to 500	9.5				MW15
L4978	2 A switching regulator	Step-down	8	55	3.3		50	■	2500	up to 300	3	■			DIP-8, SO-16W

Step-down switching voltage regulators cont'd.

Part number	Description	Topology	V _{IN} [V]		V _{OUT} [V]			Adjustable	I _q [μA]	f max [kHz]	Peak Current Limitation [A]	Disable pin	T _{OP} [°C]		Package
			min	max	min	typ	max						min	max	
L5970AD	1 A switching regulator	Step-down	4.4	36	0.5		35	■	2500	500. synch up to 700	1.87	■			S0-8
L5970D	1 A switching regulator	Step-down	4.4	36	0.5		35	■	2500	250. synch up to 700	1.87	■			S0-8
L5972D	1.3 A synchronous switching regulator	Step-down	4.4	36	1.23		35	■	2500	250. synch up to 700	2.5				S0-8
L5973AD	1.5 A switching regulator	Step-down	4	36	0.5		35	■	2500	500. synch up to 700	2.3	■			PowerSO-8
L5973D	2 A step down switching regulator	Step-down	4	36	0.5		35	■	2500	250. synch up to 700	3	■			PowerSO-8
L5980	700 mA step down switching regulator	Step-down	2.9	18	0.6		18	■	2400	250 up to 1 MHz	1	■			QFN8L 3x3 mm
L5981	1 A step down switching regulator	Step-down	2.9	18	0.6		18	■	2400	250 up to 1 MHz	1.5	■			QFN8L 3x3 mm
L5983	1.5 A step down switching regulator	Step-down	2.9	18	0.6		18	■	2400	250 up to 1 MHz	2.5	■			QFN8L 3x3 mm
L5985	2 A step down switching regulator	Step-down	2.9	18	0.6		18	■	2400	250 up to 1 MHz	2	■			QFN8L 3x3 mm
L6902	1 A switching regulator	Step-down	8	36	1.23		35	■	3000	250	2.5				S0-8
L6925D	up to 0.8 A high efficiency synchronous regulator	Step-down	2.7	5.5	0.6		5.5	■	25	600. synch up to 1400	1.2				MSOP8
L6926	up to 0.8 A high efficiency synchronous regulator	Step-down	2	5.5	0.6		5.5	■	25	600. synch up to 1400	1.2	■			MSOP8
L6926D	up to 0.8 A high efficiency synchronous regulator	Step-down	2	5.5	0.6		5.5	■	25	600. synch up to 1400	1.2	■			VFSON8
L6926Q	up to 0.8 A high efficiency synchronous regulator	Step-down	2	5.5	0.6		5.5	■	25	600. synch up to 1400	1.2	■			QFN8L 3x3 mm
L6928D	up to 0.8 A high efficiency synchronous regulator	Step-down	2	5.5	0.6		5.5	■	25	1400. synch up to 2000	1.2	■			MSOP8
L6928Q	up to 0.8 A high efficiency synchronous regulator	Step-down	2	5.5	0.6		5.5	■	25	1400. synch up to 2000	1.2	■			QFN8L 3x3 mm
ST1S03PUR	1.5 A DC-DC converter	Step-down	3	16		0.8 - 0.87 V _{IN}		■	2500	1500	2.3		0	125	DFN6 3x3 mm
ST1S03APUR	1.5 A DC-DC converter	Step-down	2.6	7		0.8 - 0.87 V _{IN}		■	1500	1500	2.3	■	-30	125	DFN6 3x3 mm
ST1S06APUR	1.5 A synchronous DC-DC converter	Step-down	2.6	7		0.8 - 0.87 V _{IN}		■	1500	1500	2.3		-30	125	DFN6 3x3 mm
ST1S06PUR	1.5 A synchronous DC-DC converter	Step-down	2.6	7		0.8 - 0.87 V _{IN}		■	1500	1500	2.3	■	-30	125	DFN6 3x3 mm
ST1S09PUR	2 A synchronous DC-DC converter	Step-down	4.5	5.5		1.2			1500	1500	2	*	-30	125	DFN6
ST1S09IPUR	2 A synchronous DC-DC converter	Step-down	2.7	5.5		1.2			1500	1500	2	■	-30	125	DFN6
ST1S10	3 A synchronous DC-DC converter	Step-down	2.5	18	0.8			■	6	1200	3	■	-25	125	MLP8, S0-8 exp. p.
ST2S06PQR	Dual synchronous rectification with reset or inhibit, 0.5 A, adjustable step-down switching regulator	Step-down	2.5	5.5	0.8			■	1500	1200	0.5	■	-30	125	QFN12L
ST750ACD	Adjustable DC-DC converter current mode PWM regulator	Step-down	4	11		1.25 - V _{IN}		■	800	200	2	■	0	70	S0-8
ST763ABD	3.3 V current mode PWM DC-DC converters	Step-down	3.3	11		3.3			600	200	2	■	-40	85	S0-8
ST763ACD	3.3 V current mode PWM DC-DC converters	Step-down	3.3	11		3.3			600	200	2	■	0	70	S0-8

* Power good

Application specific switching voltage regulators

Part number	Description	V _{IN} [V]		V _{out} typ [V]		f [kHz]	I _o max [A]	T _{OP} [°C]		Efficiency [%]	Disable pin	Package
		min	max	min	max			min	max			
LNBH21PD	LNB supply and control IC with step-up converter and I ² C interface. Semi low drop out control voltage regulators	8	15	13	18	220	0.45 to 0.75	-40	125	>90	I ² C	PowerSO-20
LNBH21PD	LNB supply and control IC with step-up converter and I ² C interface. Semi low drop out control voltage regulators	8	15	13	18	220	0.45 to 0.75	-40	125	>90	I ² C	PowerSO-20
LNBH221PD	Double Inb supply and control IC with step-up converter and I ² C interface. Semi low drop out control voltage regulators	8	15	13	18	220	0.5	-40	125	>90	I ² C	PowerSO-36
LNBH23PPR	LNB power supply and control IC w / step-up, I ² C and embedded NMOS	8	15	13	18	220	1	-25	125	93	I ² C	PowerSSO-24 exp. p.
LBNP21D2	LBNP supply and control IC with step-up converter and I ² C interface	8	15	13	18	220	0.4 to 0.5	-40	125	>90	I ² C	SO-20
LBNP21PD	LBNP supply and control IC with step-up converter and I ² C interface	8	15	13	18	220	0.4 to 0.5	-40	125	>90	I ² C	PowerSO-20
LNBS21PD	LBNP supply and control IC with step-up converter and I ² C interface	8	15	13	18	220	0.4 to 0.5	-40	125	>90	I ² C	PowerSO-20
ST619LB	DC-DC converter regulated 5 V charge pump	2	5.5		5	500	0.12	-40	85	85	■	SO-8, DIP-8
ST662AB	DC-DC converter from 5 V to 12 V. 0.03 A for flash memory programming supply		6	5	12	400	0.03	-40	85	72	■	SO-8, DIP-8
ST662AC	DC-DC converter from 5 V to 12 V. 0.03 A for flash memory programming supply		6	5	12	400	0.03	0	70	72	■	SO-8, DIP-8
STLD20D	White LED driver (from 2 to 4)	2.5	4.2	17.5	20	500	0.02	-40	85	95	■	SOT23-8L, QFN8L 3X3
STLD40DPMR	White LED driver (from 2 to 10)	3.0	5.5	36	42	500	0.02	-40	85	95		QFN8L 3X3 mm
STOD2540PMR	PMOLED display power supply	3.0	5.5	V _{I+0.5}	35	500	0.04	-40	85	95	■	QFN8L 3X3 mm
STCF01PMR	Step-up for camera flash LEDs	2.6	5.5	17	19	1500	0.1/0.3	-40	85	90	■	QFN10L 3X3 mm
STCF02PNR	Buck boost for camera flash LEDs	2.7	5.5	5.3		1800	0.6	-40	85	85	■	QFN20L 4X4 mm
STCF03	Buck-boost DC/DC, power LED driver w / I ² C	2.7	5.5	2.5	5.3	1800	0.8	-40	85	92	I ² C	QFN20, TFBGA25
STCF03ITBR	Buck-boost DC/DC, power LED driver w / I ² C, w internal NTC reference	2.7	5.5	2.5	5.3	1800	0.8	-40	85	92	I ² C	TFBGA25
STOD1412PMR	DC/DC converter for AMOLED display panel	2.7	4.5	Adj		1300	0.12	-40	85	85	■	QFN16

Inverting switching voltage regulators

Part number	Description	Topology	V _{IN} [V]		V _{OUT} typ [V]	Adjustable	I _q [μA]	f max [kHz]	Peak Current Limitation [A]	Disable pin	T _{OP} [°C]		Package
			min	max							min	max	
ST755CD	ADJ inverting negative output current mode PWM regulator	Inverter	4	11	-8.7 to -1.7	■	1200	160	2	■	-40	85	S0-8

Multifunction: step-up-down inverting switching voltage regulators

Part number	Description	Topology	V _{IN} [V]		V _{OUT} typ [V]*	Adjustable	I _q [μA]	f max [kHz]	Peak Current Limitation [A]	Disable pin	T _{OP} [°C]		Package
			min	max							min	max	
MC34063AB	DC-DC converter control circuits	Step-up-down		50	1.25 to 38	■	2.5	33	1.5		-40	85	S0-8, DIP-8
MC34063AC	DC-DC converter control circuits	Step-up-down		50	1.25 to 38	■	2.5	33	1.5		0	70	S0-8, DIP-8
MC34063EB	DC-DC converter control circuits	Step-up-down		50	1.25 to 38	■	1.5	33	1.5		-40	125	S0-8, DIP-8
MC34063EC	DC-DC converter control circuits	Step-up-down		50	1.25 to 38	■	1.5	33	1.5		0	70	S0-8, DIP-8

* Only non inverting version

Packages



SOT-223



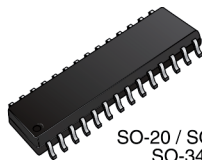
SO-8



SO-16



SO-16L



SO-20 / SO-28
SO-34



PowerSO-10



PowerSO-20



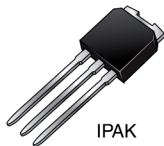
QFN16



DPAK



PPAK



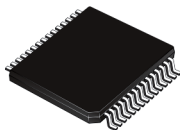
IPAK



PowerSSO-12



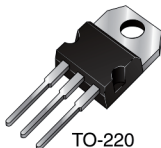
PowerSSO-24 / PowerSSO-36



MultiPowerSO-30



DIP-20



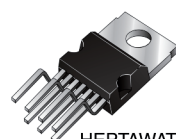
TO-220



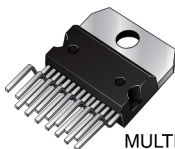
TO-220FPAB



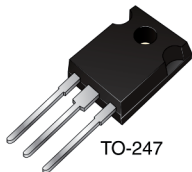
PENTAWATT



HEPTAWATT



MULTIWATT15



TO-247



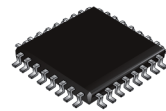
P²PAK



SOT-663



SOT323-4L



TQFP32 / TQFP44
TQFP48 / TQFP64 (10x10)
TQFP64 (14x14) / TQFP80
TQFP100

Packages not to scale

www.BDTIC.com/ST



© STMicroelectronics - September 2007 - Printed in Italy - All rights reserved

The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies.
All other names are the property of their respective owners.

For selected STMicroelectronics sales offices fax:

China +86 21 34054689; France +33 1 55489569; Germany +49 89 4605454; Italy +39 02 8250449; Japan +81 3 57838216;
Singapore +65 6481 5124; Sweden +46 8 58774411; Switzerland +41 22 9292900; United Kingdom and Eire +44 1628 890391;
USA +1 781 861 2678

Full product information at www.st.com

Order code: SGLINREG0907

www.BDTIC.com/ST



Recycled and chlorine-free paper