

200 mA high accuracy and high PSRR voltage regulator



Features

- Input voltage from 2.5 to 18 V
- Very low-dropout voltage (100 mV typ. @ 100 mA load)
- Low quiescent current (typ. 60 μ A, 1 μ A in off mode)
- High PSRR: 88 dB @ 120 Hz
- Low noise
- Output voltage tolerance: $\pm 0.5\%$ @ 25 °C (LDK320A) or $\pm 2\%$ 25 °C
- Output current up to 200 mA
- Wide range of output voltages available on request: fixed from 1.2 V to 12 V with 100 mV step and adjustable
- Logic-controlled electronic shutdown
- Compatible with ceramic capacitor $C_{OUT} = 1 \mu$ F
- Current, SOA and thermal protections
- Available in SOT23-5L and SOT-89 packages
- Temperature range: -40 °C to 125 °C

Applications

- DSC
- TV
- BD, DVD
- PC
- Industrial

Maturity status link

[LDK320](#)

Description

The **LDK320** is a low drop voltage regulator, which provides a maximum output current of 200 mA from an input voltage in the range of 2.5 V to 18 V, with a typical dropout voltage of 100 mV.

It is stabilized with a ceramic capacitor on the output.

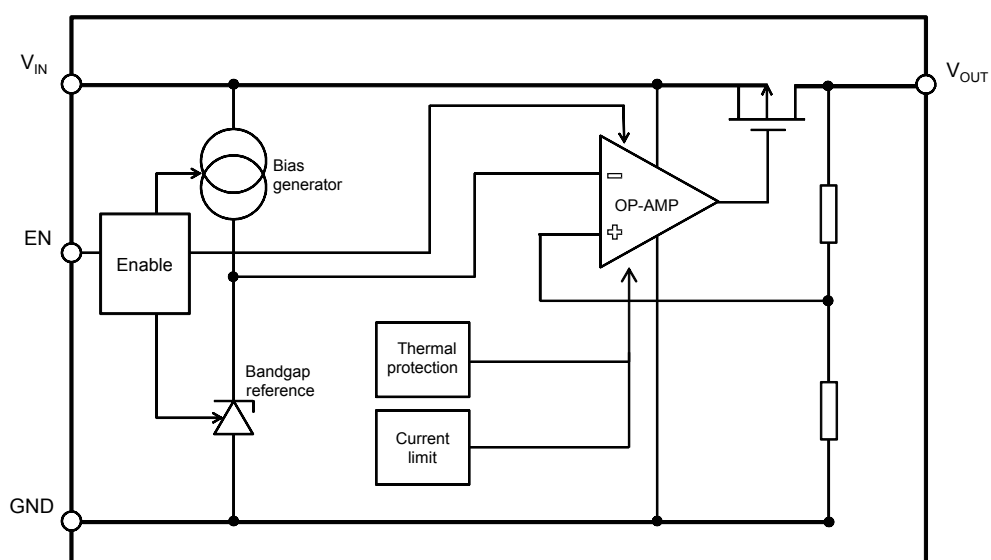
The very good dynamic characteristic, combined with low drop voltage and low quiescent current make it suitable for low power battery-powered applications.

The enable logic control function allows the **LDK320** to be in shutdown mode by consuming a total current lower than 1 μ A.

This device also includes a short-circuit current limiting, thermal and SOA protections.

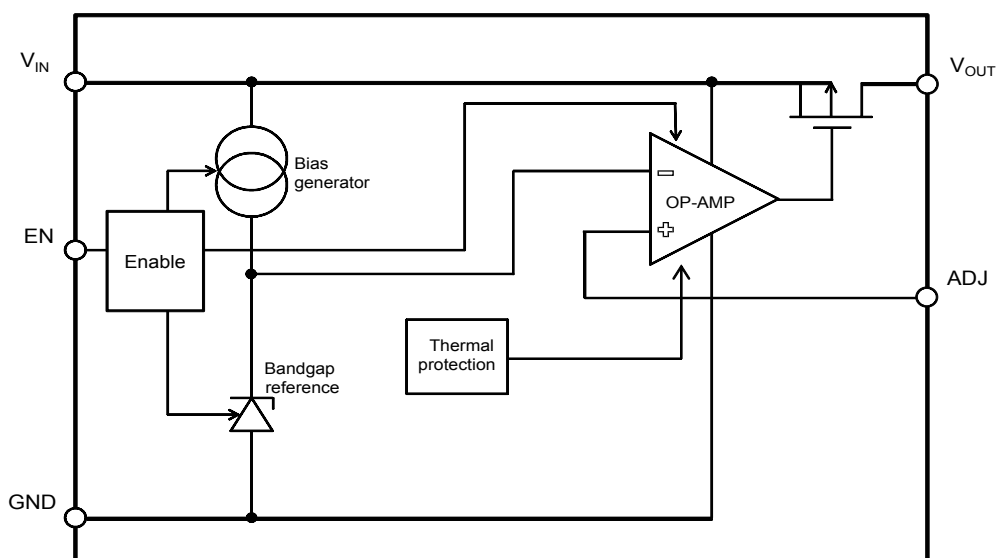
1 Diagram

Figure 1. Block diagram (fixed version)



GIPD030820151330MT

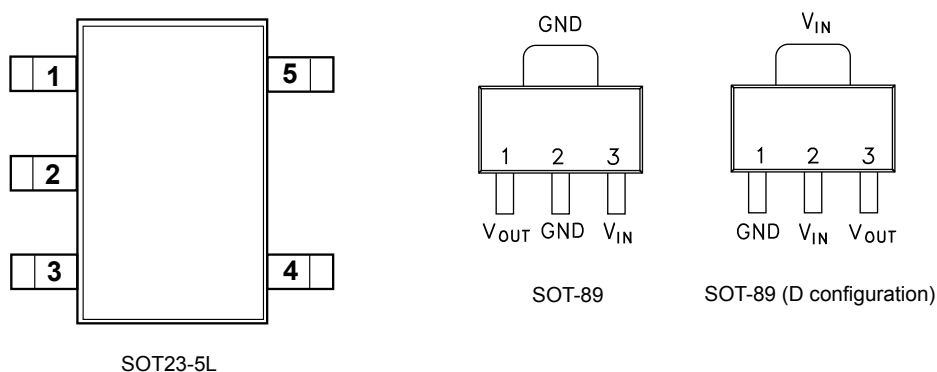
Figure 2. Block diagram (adjustable version)



GIPD030820151331MT

2 Pin configuration

Figure 3. Pin connection (top view)



GIPD030820151343MT

Table 1. Pin description (SOT23-5L)

Pin n°	Symbol	Function
1	IN	Input voltage of the LDO
2	GND	Common ground
3	EN	Enable pin logic input: low = shutdown, high = active
4	ADJ/NC	Adjustable pin on ADJ version, not connected on fixed version
5	OUT	Output voltage of the LDO

Table 2. Pin description (SOT-89)

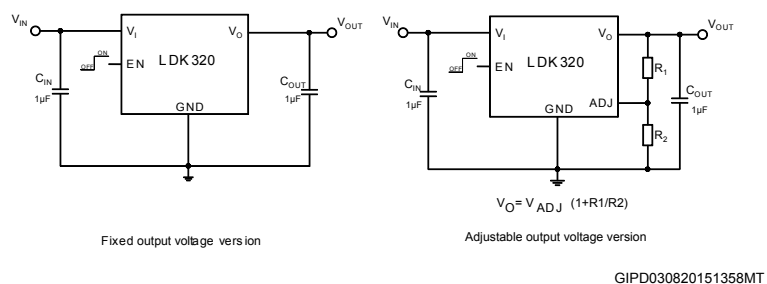
Pin n°	Symbol	Function
1	OUT	Output voltage of the LDO
2	GND	Common ground
3	IN	Input voltage of the LDO
TAB	GND	Common ground

Table 3. Pin description (SOT-89, D configuration)

Pin n°	Symbol	Function
1	GND	Common ground
2	IN	Input voltage of the LDO
3	OUT	Output voltage of the LDO
TAB	IN	Input voltage of the LDO

3 Typical application

Figure 4. Typical application circuits



Note: Adjustable version and enable pin are not available on SOT-89 package.

4 Maximum ratings

Table 4. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{IN}	DC input voltage	- 0.3 to 20	V
V_{OUT}	DC output voltage	- 0.3 to $V_I + 0.3$	V
V_{EN}	Enable input voltage	- 0.3 to $V_I + 0.3$	V
V_{ADJ}	ADJ pin voltage	- 0.3 to 2	V
I_{OUT}	Output current	Internally limited	mA
$P_D^{(1)}$	Power dissipation	Internally limited	mW
T_{STG}	Storage temperature range	- 65 to 150	°C
T_{OP}	Operating junction temperature range	- 40 to 125	°C

1. Maximum power dissipation must be calculated by taking into account the package and thermal performance.

Note: Absolute maximum ratings are those values beyond which damage to the device may occur. Functional operation under these conditions is not implied. All values are referred to GND.

Table 5. Thermal data

Symbol	Parameter	SOT23-5L	SOT-89	Unit
R_{thJA}	Thermal resistance junction-ambient	160	110	°C/W
R_{thJC}	Thermal resistance junction-case	68	15	°C/W

5 Electrical characteristics

$T_J = 25\text{ }^{\circ}\text{C}$, $V_{IN} = V_{OUT(NOM)} + 1\text{ V}$, $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$, $I_{OUT} = 1\text{ mA}$, $V_{EN} = V_{IN}$, unless otherwise specified.

Table 6. LDK320 electrical characteristics (fixed output version)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{IN}	Operating input voltage		2.5		18	V
V_{OUT}	V_{OUT} accuracy	$T_J = 25\text{ }^{\circ}\text{C}$	-2		2	%
		$-40\text{ }^{\circ}\text{C} < T_J < 125\text{ }^{\circ}\text{C}$	-3		3	%
	V_{OUT} accuracy, LDK320A	$T_J = 25\text{ }^{\circ}\text{C}$	-0.5		0.5	%
		$-40\text{ }^{\circ}\text{C} < T_J < 125\text{ }^{\circ}\text{C}$	-1.5		1.5	%
ΔV_{OUT}	Static line regulation	$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 18\text{ V}$		0.001	0.05	%/V
ΔV_{OUT}	Static load regulation	$I_{OUT} = 1\text{ mA to } 200\text{ mA}$, $V_{OUT} \leq 2\text{ V}$		10	15	mV
		$I_{OUT} = 1\text{ mA to } 200\text{ mA}$, $V_{OUT} > 2\text{ V}$		0.001	0.003	%/mA
V_{DROP}	Dropout voltage ⁽¹⁾	$I_{OUT} = 100\text{ mA}$, $V_{OUT} = 3.3\text{ V}$		100		
		$I_{OUT} = 200\text{ mA}$, $V_{OUT} = 3.3\text{ V}$ $40\text{ }^{\circ}\text{C} < T_J < 125\text{ }^{\circ}\text{C}$		200	350	mV
e_N	Output noise voltage	10 Hz to 100 kHz, $I_{OUT} = 10\text{ mA}$		63		$\mu\text{V}_{RMS}/\text{V}$
SVR	Supply voltage rejection	$f = 120\text{ Hz}$, $I_{OUT} = 10\text{ mA}$, $V_{OUT} = 3.3\text{ V}$		88		dB
		$f = 1\text{ kHz}$, $I_{OUT} = 10\text{ mA}$, $V_{OUT} = 3.3\text{ V}$		65		
		$f = 10\text{ kHz}$, $I_{OUT} = 10\text{ mA}$, $V_{OUT} = 3.3\text{ V}$		48		
I_Q	Quiescent current	$V_{OUT} + 1\text{ V}$, $V_{IN} 18\text{ V}$, $I_{OUT} = 0\text{ mA}$, $-40\text{ }^{\circ}\text{C} < T_J < 125\text{ }^{\circ}\text{C}$		60	90	μA
		$V_{IN} = V_{OUT} + 1\text{ V}$, $I_{OUT} = 200\text{ mA}$, $-40\text{ }^{\circ}\text{C} < T_J < 125\text{ }^{\circ}\text{C}$		70	100	
		V_{IN} input current in OFF mode: $V_{EN} = G_{ND}$, $T_J = 25\text{ }^{\circ}\text{C}$		0.2	1	
I_{SC}	Short-circuit current	$R_L = 0$		330		mA
		$R_L = 0$, $V_{IN} = 16\text{ V}$		200		

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{EN}	Enable input logic low	$V_{IN} = 2.5 \text{ V to } 18 \text{ V}$, $-40^\circ\text{C} < T_J < 125^\circ\text{C}$			0.4	V
	Enable input logic high	$V_{IN} = 2.5 \text{ V to } 18 \text{ V}$, $-40^\circ\text{C} < T_J < 125^\circ\text{C}$	1.2			
I_{EN}	Enable pin input current	$V_{EN} = V_{IN}$		0.1	100	nA
T_{SHDN}	Thermal shutdown			160		$^\circ\text{C}$
	Hysteresis			20		
C_{OUT}	Output capacitor	Capacitance (see Section 6 Typical characteristics)	1		22	μF

1. Dropout voltage is the input-to-output voltage difference at which the output voltage is 100 mV below its nominal value.

$T_J = 25^\circ\text{C}$, $V_{IN} = 2.5 \text{ V}$, $C_{IN} = C_{OUT} = 1 \mu\text{F}$, $I_{OUT} = 1 \text{ mA}$, $V_{EN} = V_{IN}$, unless otherwise specified.

Table 7. LDK320 electrical characteristics (ADJ version)

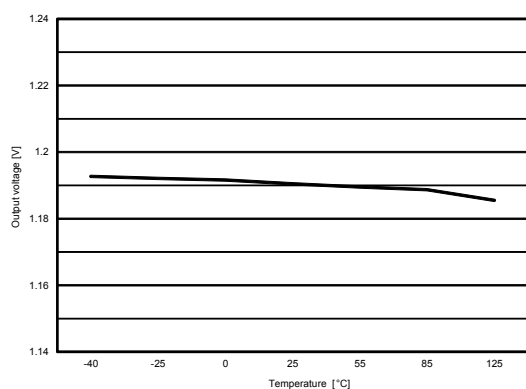
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_{IN}	Operating input voltage		2.5		18	V
V_{ADJ}	Adjustable voltage	$T_J = 25^\circ\text{C}$		1.185		V
	Adjustable voltage accuracy	$T_J = 25^\circ\text{C}$	-2		+2	%
		$40^\circ\text{C} < T_J < 125^\circ\text{C}$	-3		+3	
	Adjustable voltage, LDK320A	$T_J = 25^\circ\text{C}$		1.2		V
	Adjustable voltage accuracy, LDK320A	$T_J = 25^\circ\text{C}$	-0.5		+0.5	%
		$40^\circ\text{C} < T_J < 125^\circ\text{C}$	-1.5		+1.5	
ΔV_{OUT}	Static line regulation	$V_{OUT} + 1 \text{ V} \leq V_{IN} \leq 18 \text{ V}$		0.001	0.05	%/V
ΔV_{OUT}	Static load regulation	$I_{OUT} = 1 \text{ mA to } 200 \text{ mA}$		0.0002	0.003	%/mA
V_{DROP}	Dropout voltage ⁽¹⁾	$I_{OUT} = 100 \text{ mA}$, $V_{OUT} = 3.3 \text{ V}$		100		mV
		$I_{OUT} = 200 \text{ mA}$, $V_{OUT} = 3.3 \text{ V}$		200	350	
		$40^\circ\text{C} < T_J < 125^\circ\text{C}$				
e_N	Output noise voltage	10 Hz to 100 kHz $I_{OUT} = 10 \text{ mA}$		60		μV_{RMS}
I_{ADJ}	Adjust pin current				1	μA
SVR	Supply voltage rejection	$f = 120 \text{ Hz}$ $I_{OUT} = 10 \text{ mA}$, $V_{OUT} = V_{ADJ}$		83		dB
		$f = 1 \text{ kHz}$ $I_{OUT} = 10 \text{ mA}$, $V_{OUT} = V_{ADJ}$		73		
		$f = 10 \text{ kHz}$ $I_{OUT} = 10 \text{ mA}$, $V_{OUT} = V_{ADJ}$		58		

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_Q	Quiescent current	$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 18\text{ V}$, $I_{OUT} = 0\text{ mA}$, $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$		50	90	μA
		$V_{IN} = V_{OUT} + 1\text{ V}$, $I_{OUT} = 200\text{ mA}$, $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$		60	100	
		V_{IN} input current in OFF mode: $V_{EN} = \text{GND}$, $T_J = 25\text{ }^\circ\text{C}$		0.2	1	
I_{SC}	Short-circuit current	$R_L = 0$		330		mA
		$R_L = 0$, $V_{IN} = 16\text{ V}$		200		
V_{EN}	Enable input logic low	$V_{IN} = 2.5\text{ V to } 18\text{ V}$, $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$			0.4	V
	Enable input logic high	$V_{IN} = 2.5\text{ V to } 18\text{ V}$, $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$	1.2			
I_{EN}	Enable pin input current	$V_{EN} = V_{IN}$		0.1	100	nA
T_{SHDN}	Thermal shutdown			160		$^\circ\text{C}$
	Hysteresis			20		
C_{OUT}	Output capacitor	Capacitance (see Section 6 Typical characteristics)	1		22	μF

6 Typical characteristics

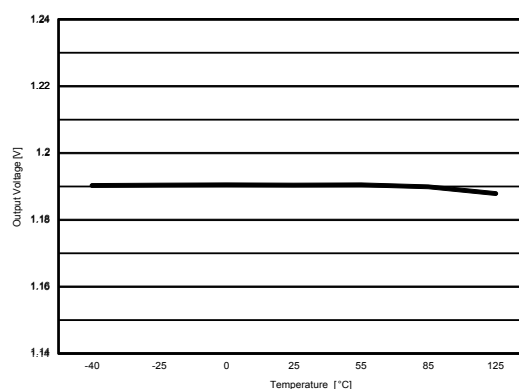
Unless otherwise specified: $T_J = 25\text{ }^{\circ}\text{C}$, $V_{IN} = V_{OUT(NOM)} + 1\text{ V}$, $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$.

Figure 5. Output voltage vs. temperature ($V_{IN} = 2.5\text{ V}$, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 1\text{ mA}$)



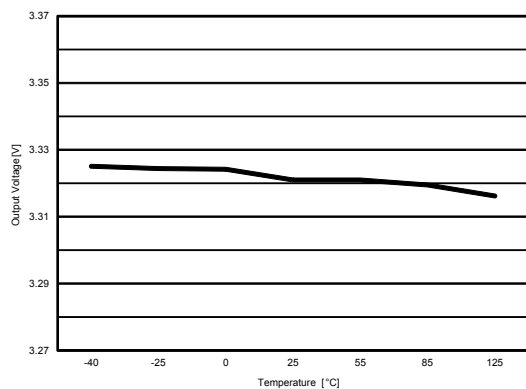
GIPD040820151207MT

Figure 6. Output voltage vs. temperature ($V_{IN} = 2.5\text{ V}$, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 200\text{ mA}$)



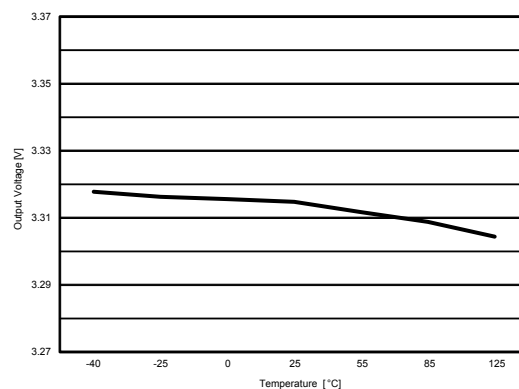
GIPD040820151208MT

Figure 7. Output voltage vs. temperature ($V_{IN} = 4.3\text{ V}$, $V_{OUT} = 3.3\text{ V}$, $I_{OUT} = 1\text{ mA}$)

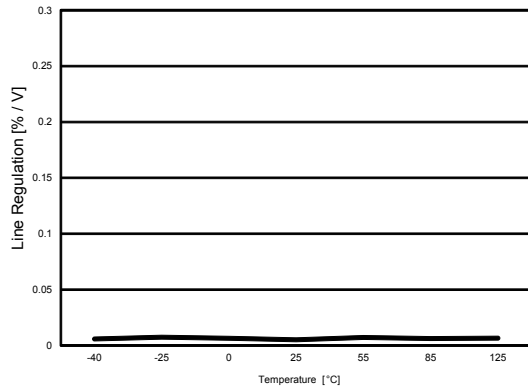


GIPD040820151209MT

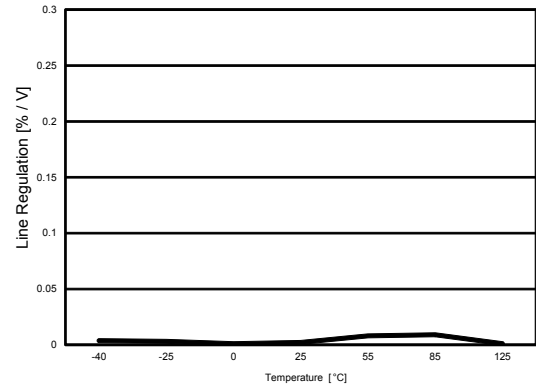
Figure 8. Output voltage vs. temperature ($V_{IN} = 4.3\text{ V}$, $V_{OUT} = 3.3\text{ V}$, $I_{OUT} = 200\text{ mA}$)



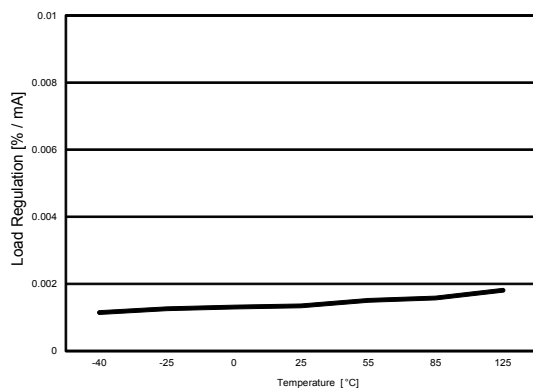
GIPD040820151210MT

Figure 9. Line regulation vs. temperature ($V_{IN} = 4.3$ to 18 V, $V_{OUT} = 3.3$ V, $I_{OUT} = 1$ mA)


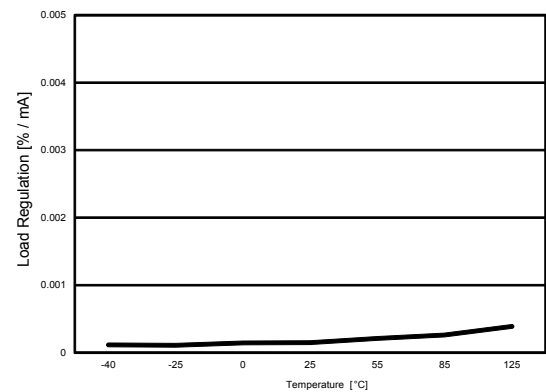
GIPD040820151211MT

Figure 10. Line regulation vs. temperature ($V_{IN} = 2.5$ to 18 V, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 1$ mA)


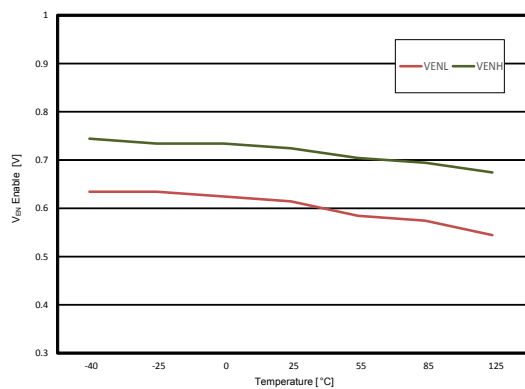
GIPD040820151212MT

Figure 11. Load regulation vs. temperature ($V_{IN} = 4.3$ V, $V_{OUT} = 3.3$ V, $I_{OUT} = 1$ to 200 mA)


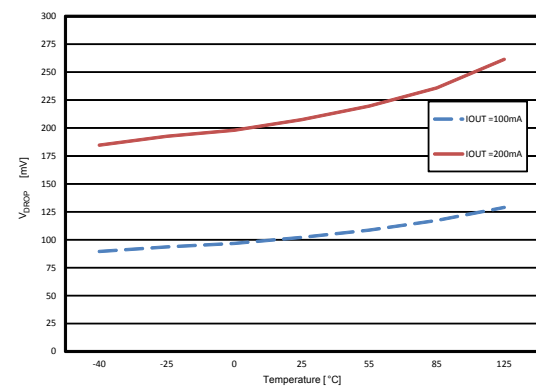
GIPD040820151213MT

Figure 12. Load regulation vs. temperature ($V_{IN} = 2.5$ V, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 1$ to 200 mA)


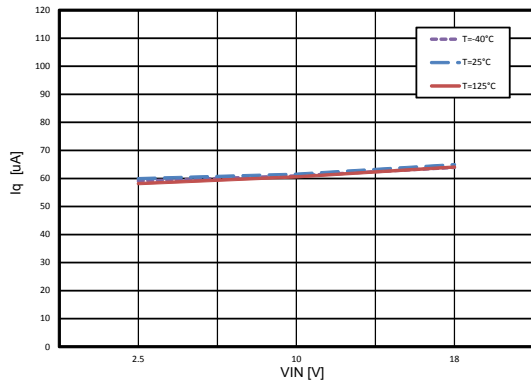
GIPD040820151214MT

Figure 13. Enable thresholds vs. temperature ($I_{OUT} = 1$ mA)


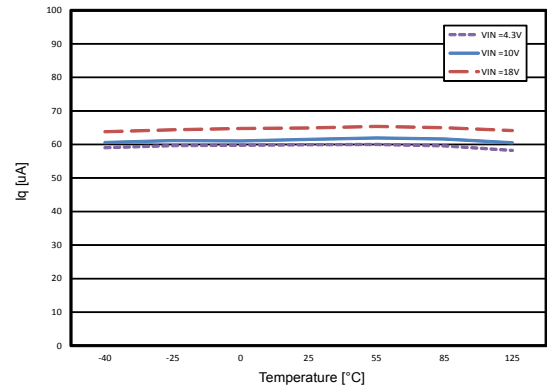
GIPD040820151215MT

Figure 14. Dropout voltage vs. temperature


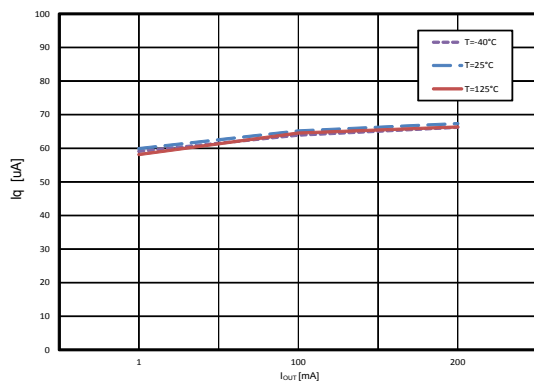
GIPD040820151216MT

Figure 15. Quiescent current vs. input voltage
 $(I_{OUT} = 1 \text{ mA})$


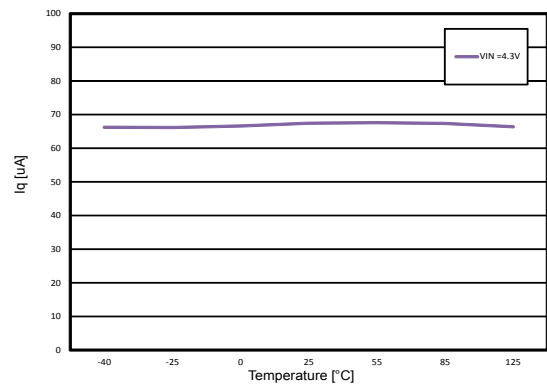
GIPD040820151217MT

Figure 16. Quiescent current vs. temperature
 $(I_{OUT} = 1 \text{ mA})$


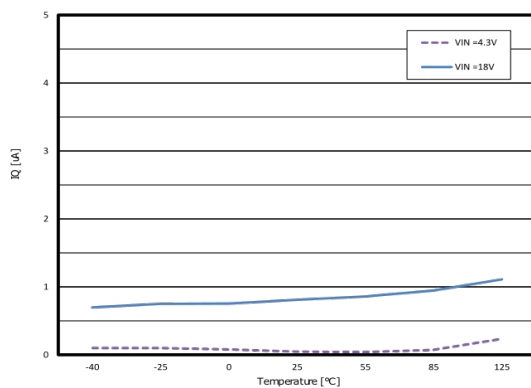
GIPD040820151218MT

Figure 17. Quiescent current vs. output current
 $(V_{IN} = 4.3 \text{ V})$


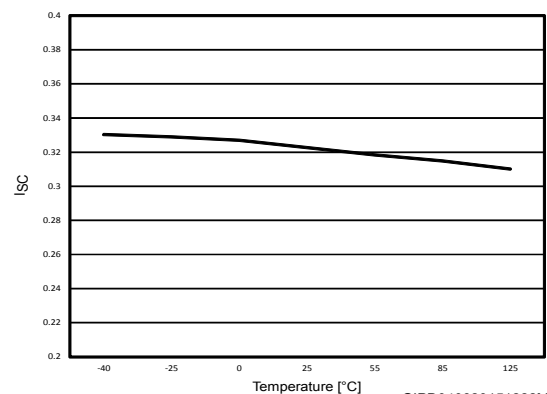
GIPD040820151219MT

Figure 18. Quiescent current vs. temperature
 $(I_{OUT} = 200 \text{ mA})$


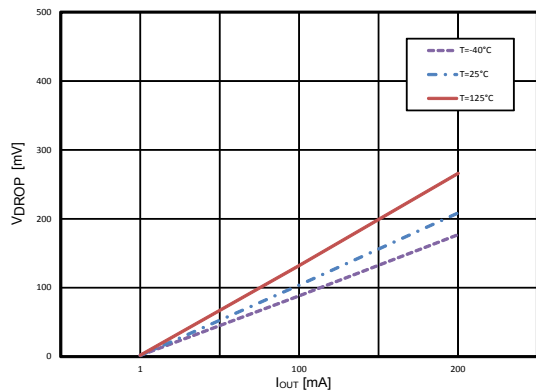
GIPD040820151220MT

Figure 19. Off-state current vs. temperature


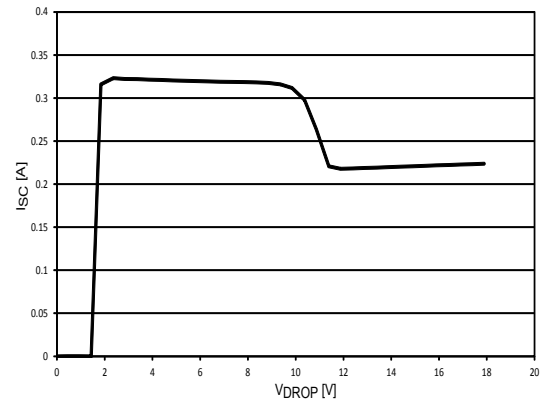
GIPD040820151221MT

Figure 20. Short-circuit current vs. temperature
 $(V_{IN} = 4.3 \text{ V})$


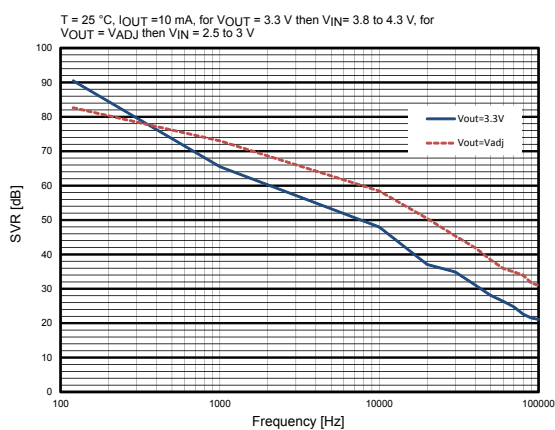
GIPD040820151222MT

Figure 21. Dropout voltage vs. I_{OUT}


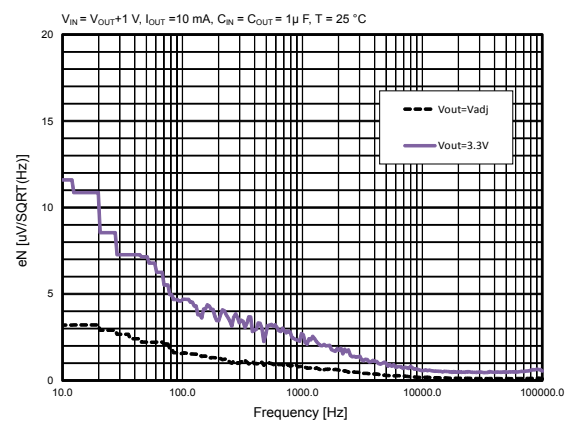
GIPD040820151223MT

Figure 22. Short-circuit current vs. drop voltage


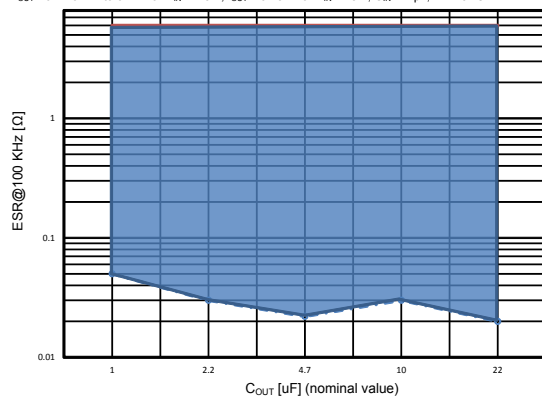
GIPD040820151224MT

Figure 23. SVR vs. frequency


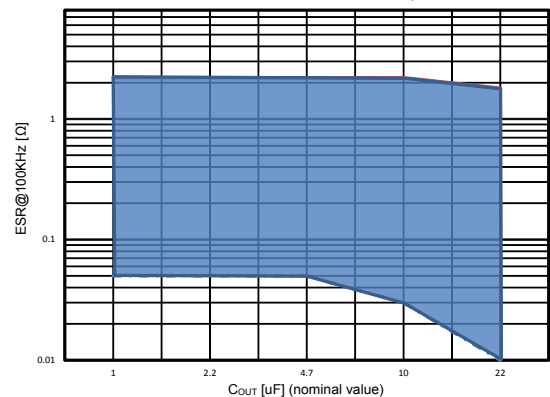
GIPD040820151225MT

Figure 24. Output noise spectral density


GIPD040820151226MT

Figure 25. Stability plan ($V_{OUT} = 3.3\text{ V}$)
 I_{OUT} from 10 mA to 0.2 A for $V_{IN} = 4.3\text{ V}$, $I_{OUT} = 0.18\text{ A}$ for $V_{IN} = 18\text{ V}$, $C_N = 1\text{ }\mu\text{F}$, $T = 25^\circ\text{C}$


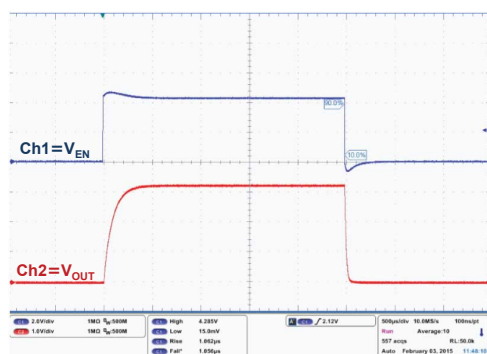
GIPD040820151227MT

Figure 26. Stability plan ($V_{OUT} = V_{ADJ}$)
 I_{OUT} from 10 mA to 0.2 A for $V_{IN} = 2.5\text{ V}$, $I_{OUT} = 0.18\text{ A}$ for $V_{IN} = 18\text{ V}$, $C_N = 1\text{ }\mu\text{F}$, $T = 25^\circ\text{C}$


GIPD040820151228MT

Figure 27. Startup with enable ($V_{OUT} = 3.3\text{ V}$)

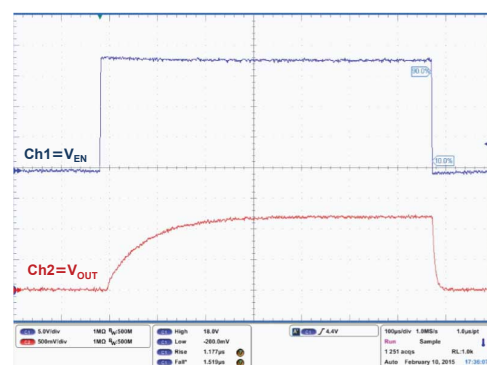
VIN = 4.3 V, VEN = from 0 to VIN, IOUT = 200 mA, CIN = COUT = 1 μ F trise = tfall = 1 μ s



GIPD040820151229MT

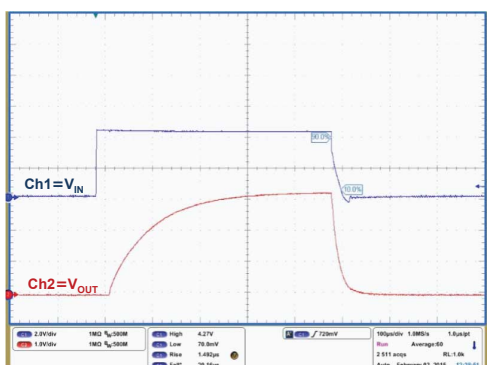
Figure 28. Startup with enable ($V_{OUT} = V_{ADJ}$)

$V_{IN} = 18\text{ V}$, $V_{EN} = \text{from } 0 \text{ to } V_{in}$, $I_{OUT} = 200\text{ mA}$, $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$ $t_{rise} = t_{fall} = 1\text{ }\mu\text{s}$



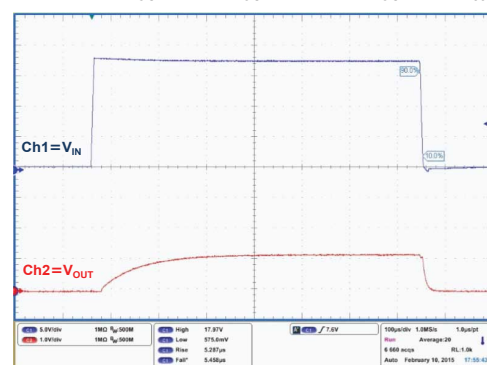
GIPD040820151230MT

Figure 29. Turn-on time ($V_{OUT} = 3.3\text{ V}$)

$$V_{IN} = V_{EN} = \text{from 0 to 4.3 V, } I_{OUT} = 200 \text{ mA, } C_{IN} = C_{OUT} = 1 \text{ }\mu\text{F, } T_{rise} = 1 \text{ }\mu\text{s}$$


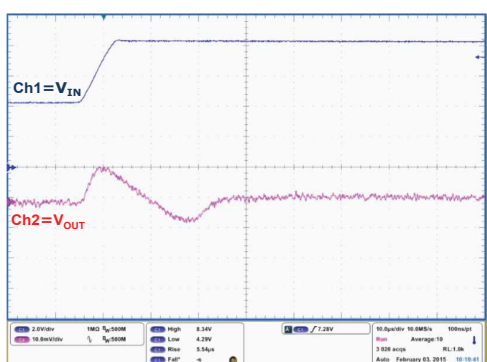
GIPD040820151231MT

Figure 30. Turn-on time ($V_{OUT} = V_{ADJ}$)

$$V_{IN} = V_{EN} = \text{from 0 to 18 V}, I_{OUT} = 200 \text{ mA}, V_{OUT} = V_{REF}, C_{IN} = C_{OUT} = 1 \mu\text{F}, T_{rise} = 5 \mu\text{s}$$


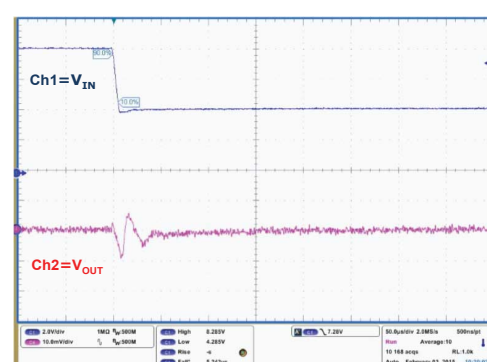
GIPD040820151232MT

Figure 31. Line transient ($V_{OUT} = 3.3\text{ V}$, rise)

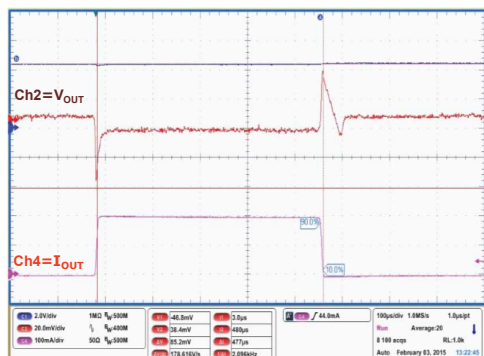
$$V_{IN} = V_{EN} = \text{from 4.3 to 8.3 V, } I_{OUT} = 10 \text{ mA, } C_{IN} = C_{OUT} = 1 \mu\text{F } T_{rise} = 5 \mu\text{s}$$


GIPD040820151233MT

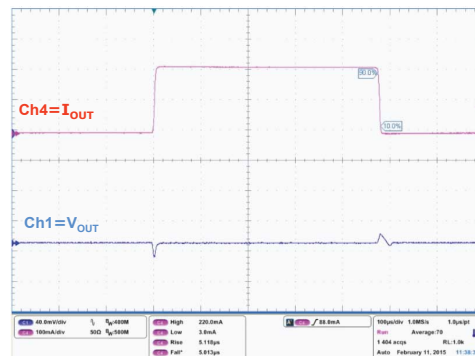
Figure 32. Line transient ($V_{OUT} = 3.3\text{ V}$, fall)

$$V_{IN} = V_{EN} = \text{from 4.3 to 8.3 V, } I_{OUT} = 10 \text{ mA, } C_{IN} = C_{OUT} = 1 \mu\text{F } T_{fall} = 5 \mu\text{s}$$


GIPD040820151234MT

Figure 33. Load transient ($V_{OUT} = 3.3\text{ V}$, rise)
 $V_{IN} = V_{EN} = 4.3\text{ V}$, I_{OUT} = from 1 to 200 mA, $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$ $T_{rise} = 5\text{ }\mu\text{s}$


GIPD040820151236MT

Figure 34. Load transient ($V_{OUT} = V_{ADJ}$, fall)
 $V_{IN} = V_{EN} = 2.5\text{ V}$, I_{OUT} = from 1 to 200 mA, $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$ $T_{rise} - T_{fall} = 5\text{ }\mu\text{s}$


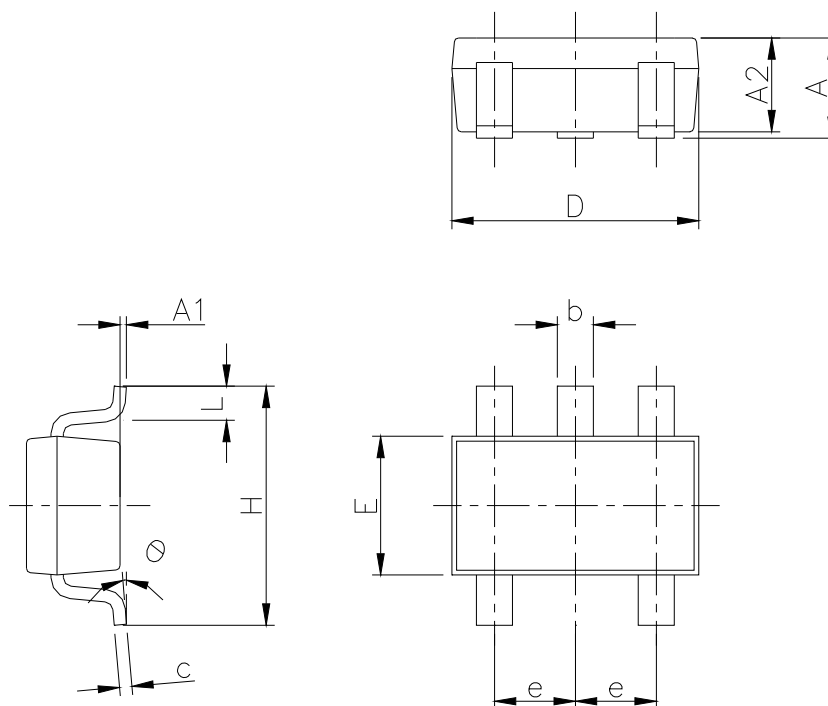
GIPD040820151237bMT

7 **Package information**

In order to meet environmental requirements, ST offers these devices in different grades of **ECOPACK®** packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com. ECOPACK® is an ST trademark.

7.1 SOT23-5L package information

Figure 35. SOT23-5L package outline

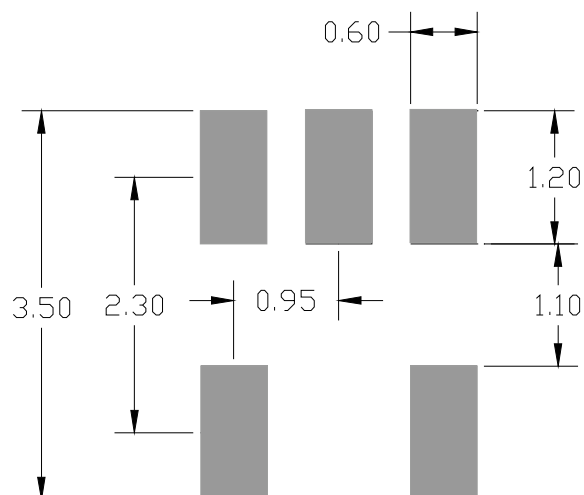


7049676_k

Table 8. SOT23-5L package mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	0.90		1.45
A1	0		0.15
A2	0.90		1.30
b	0.30		0.50
c	0.09		0.20
D		2.95	
E		1.60	
e		0.95	
H		2.80	
L	0.30		0.60
θ	0°		8°

Figure 36. SOT23-5L recommended footprint



Note: *Dimensions are in mm*

7.2 SOT23-5L packing information

Figure 37. SOT23-5L tape and reel outline

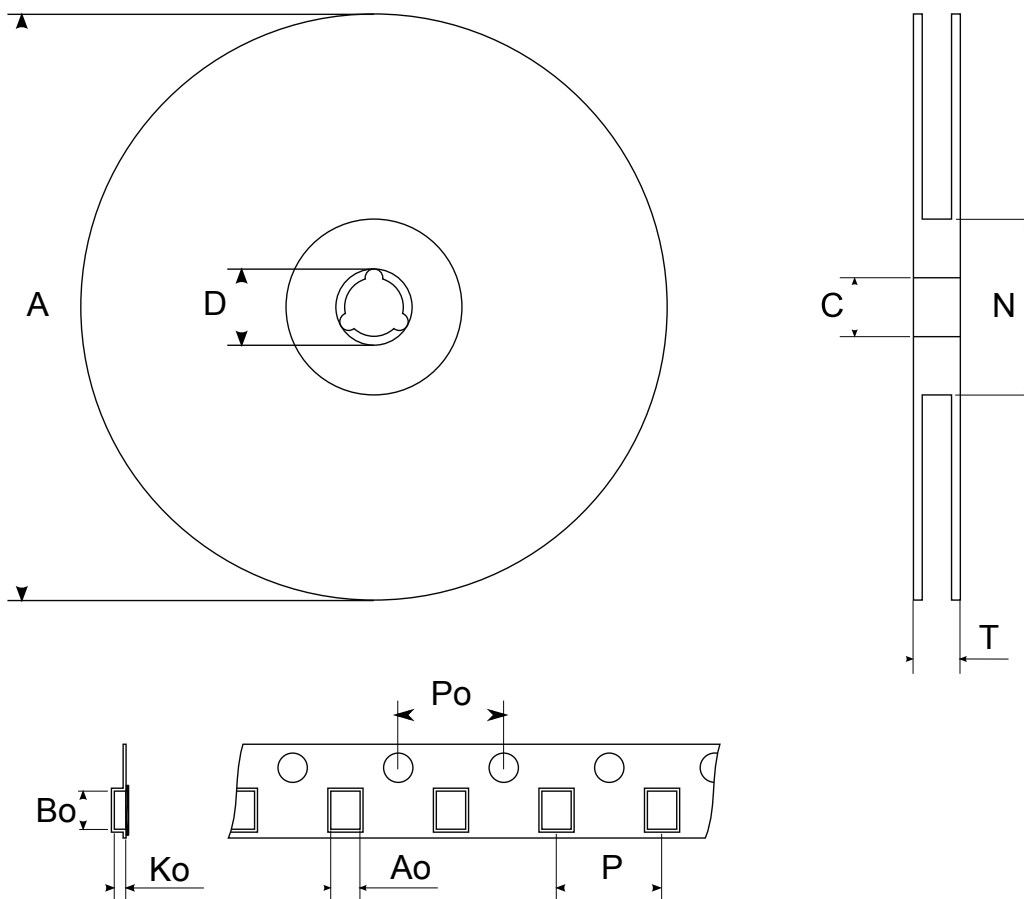
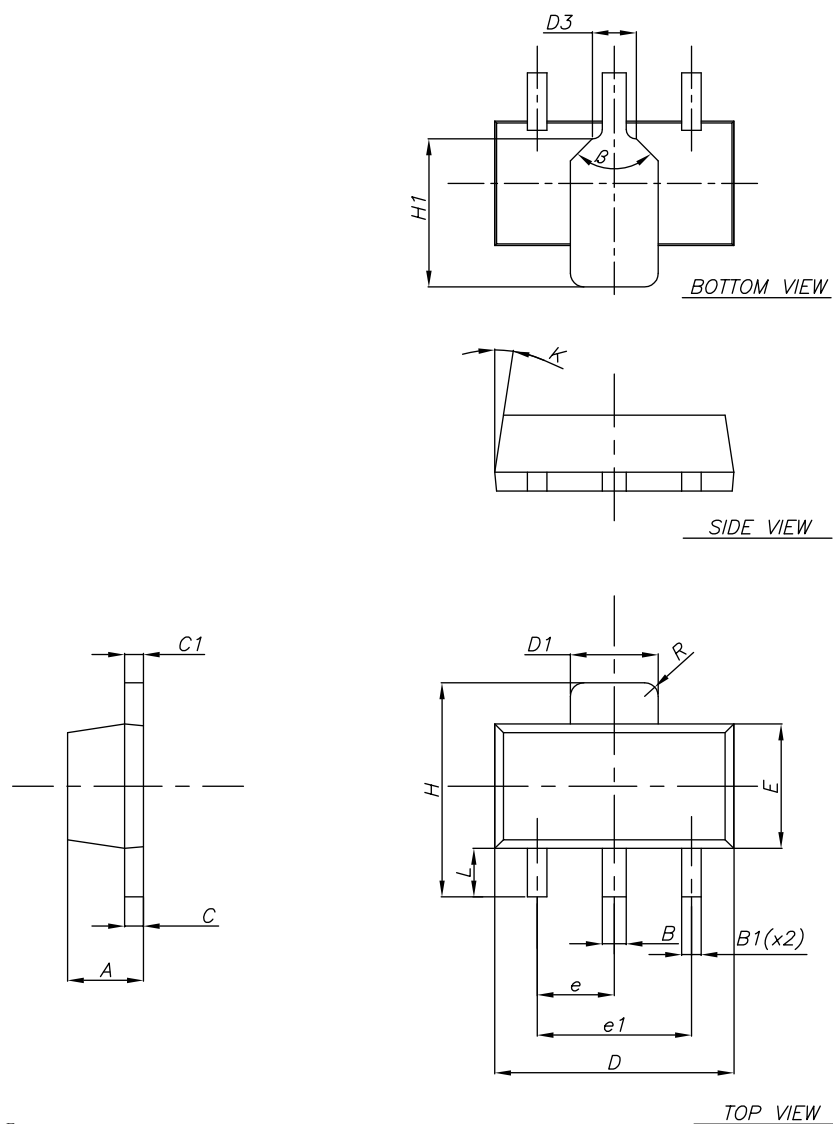


Table 9. SOT23-5L tape and reel mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A			180
C	12.8	13.0	13.2
D	20.2		
N	60		
T			14.4
Ao	3.13	3.23	3.33
Bo	3.07	3.17	3.27
Ko	1.27	1.37	1.47
Po	3.9	4.0	4.1
P	3.9	4.0	4.1

7.3 SOT-89 package information

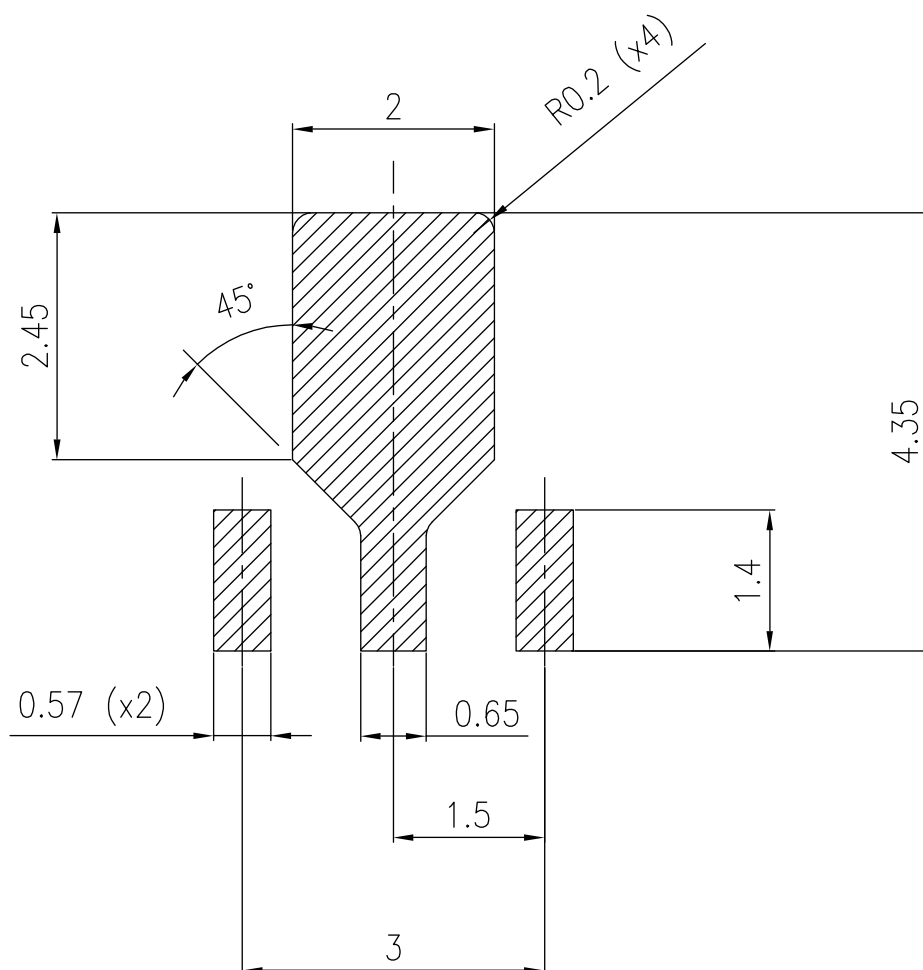
Figure 38. SOT-89 package outline



7098166_REV_F

Table 10. SOT-89 mechanical data

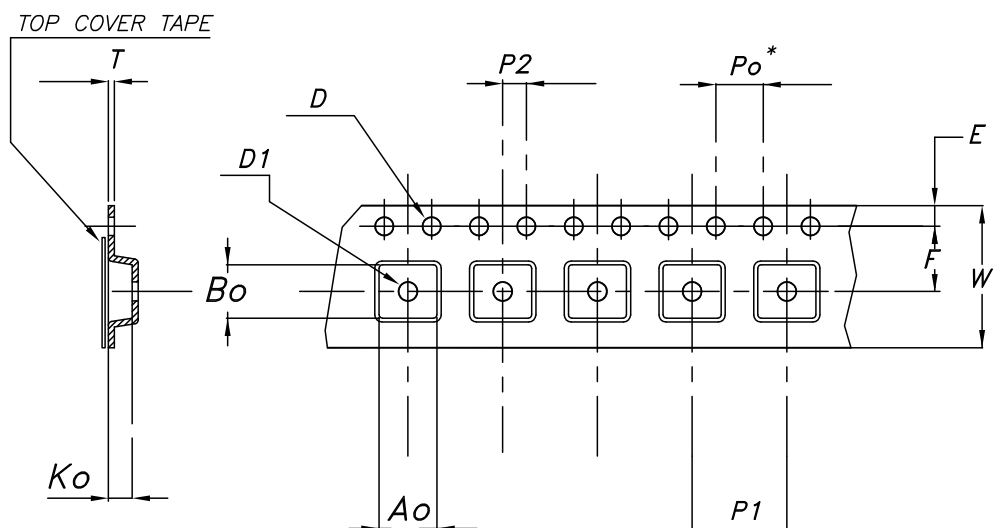
Dim.	mm		
	Min.	Typ.	Max.
A	1.40		1.60
B	0.44		0.56
B1	0.36		0.48
C	0.35		0.44
C1	0.35		0.44
D	4.40		4.60
D1	1.62		1.83
D3		0.90	
E	2.29		2.60
e	1.42		1.57
e1	2.92		3.07
H	3.94		4.25
H1	2.70		3.10
K	1°		8°
L	0.89		120
R		0.25	
β		90°	

Figure 39. SOT-89 recommended footprint


Footprint

7.4 SOT-89 packing information

Figure 40. SOT-89 carrier tape outline



7111762_5

Table 11. SOT-89 carrier tape mechanical data

Dim.	mm	
	Value	Tolerance
Ao	4.91	± 0.10
Bo	4.52	± 0.10
Ko	1.90	± 0.10
F	5.50	± 0.10
E	1.75	± 0.10
W	12	± 0.30
P2	2	± 0.10
Po	4	± 0.10
P1	8	± 0.10
T	0.30	± 0.10
D	Ø 1.55	± 0.05
D1	Ø 1.60	± 0.10

8 Ordering information

Table 12. Order code

SOT23-5L	SOT-89 (D configuration)	SOT-89	Accuracy (%)	Output voltage
LDK320AM-R			0.5	ADJ
LDK320M-R			2	
LDK320AM12R ⁽¹⁾			0.5	1.2
LDK320M12R ⁽¹⁾			2	
LDK320AM15R ⁽¹⁾			0.5	1.5
LDK320M15R ⁽¹⁾			2	
LDK320AM18R ⁽¹⁾			0.5	1.8
LDK320M18R ⁽¹⁾			2	
LDK320AM25R ⁽¹⁾			0.5	2.5
LDK320M25R ⁽¹⁾			2	
LDK320AM30R	LDK320ADU30R ⁽¹⁾		0.5	3
LDK320M30R			2	
LDK320AM33R	LDK320ADU33R		0.5	3.3
LDK320M33R			2	
LDK320AM36R ⁽¹⁾			0.5	3.6
LDK320M36R ⁽¹⁾			2	
LDK320AM50R	LDK320ADU50R	LDK320AU50R	0.5	5
LDK320M50R			2	
LDK320AM120R ⁽¹⁾	LDK320ADU120R ⁽¹⁾		0.5	12
LDK320M120R ⁽¹⁾			2	

1. Available on request.

Revision history

Table 13. Document revision history

Date	Revision	Changes
16-Nov-2015	1	First release.
01-Jun-2016	2	Document status promoted from preliminary data to production data. Updated title and features in cover page. Updated Section 8: "Ordering information". Minor text changes.
05-Jul-2017	3	Updated Section 8: "Ordering information". Minor text changes.
09-Oct-2018	4	Updated ΔV_{OUT} test condition in Table 6. LDK320 electrical characteristics (fixed output version) . Added new order code LDK320AU50R in Table 12. Order code .

Contents

1	Diagram	2
2	Pin configuration	3
3	Typical application.....	4
4	Maximum ratings	5
5	Electrical characteristics.....	6
6	Typical characteristics	9
7	Package information.....	15
7.1	SOT23-5L package information.....	16
7.2	SOT23-5L packing information	17
7.3	SOT-89 package information	18
7.4	SOT-89 packing information	21
8	Ordering information	23
	Revision history	24
	Contents	25
	List of tables	26
	List of figures.....	27

List of tables

Table 1.	Pin description (SOT23-5L)	3
Table 2.	Pin description (SOT-89)	3
Table 3.	Pin description (SOT-89, D configuration)	3
Table 4.	Absolute maximum ratings	5
Table 5.	Thermal data	5
Table 6.	LDK320 electrical characteristics (fixed output version)	6
Table 7.	LDK320 electrical characteristics (ADJ version)	7
Table 8.	SOT23-5L package mechanical data	16
Table 9.	SOT23-5L tape and reel mechanical data	18
Table 10.	SOT-89 mechanical data	20
Table 11.	SOT-89 carrier tape mechanical data	22
Table 12.	Order code	23
Table 13.	Document revision history	24

List of figures

Figure 1.	Block diagram (fixed version)	2
Figure 2.	Block diagram (adjustable version)	2
Figure 3.	Pin connection (top view)	3
Figure 4.	Typical application circuits	4
Figure 5.	Output voltage vs. temperature ($V_{IN} = 2.5\text{ V}$, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 1\text{ mA}$)	9
Figure 6.	Output voltage vs. temperature ($V_{IN} = 2.5\text{ V}$, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 200\text{ mA}$)	9
Figure 7.	Output voltage vs. temperature ($V_{IN} = 4.3\text{ V}$, $V_{OUT} = 3.3\text{ V}$, $I_{OUT} = 1\text{ mA}$)	9
Figure 8.	Output voltage vs. temperature ($V_{IN} = 4.3\text{ V}$, $V_{OUT} = 3.3\text{ V}$, $I_{OUT} = 200\text{ mA}$)	9
Figure 9.	Line regulation vs. temperature ($V_{IN} = 4.3\text{ to }18\text{ V}$, $V_{OUT} = 3.3\text{ V}$, $I_{OUT} = 1\text{ mA}$)	10
Figure 10.	Line regulation vs. temperature ($V_{IN} = 2.5\text{ to }18\text{ V}$, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 1\text{ mA}$)	10
Figure 11.	Load regulation vs. temperature ($V_{IN} = 4.3\text{ V}$, $V_{OUT} = 3.3\text{ V}$, $I_{OUT} = 1\text{ to }200\text{ mA}$)	10
Figure 12.	Load regulation vs. temperature ($V_{IN} = 2.5\text{ V}$, $V_{OUT} = V_{ADJ}$, $I_{OUT} = 1\text{ to }200\text{ mA}$)	10
Figure 13.	Enable thresholds vs. temperature ($I_{OUT} = 1\text{ mA}$)	10
Figure 14.	Dropout voltage vs. temperature	10
Figure 15.	Quiescent current vs. input voltage ($I_{OUT} = 1\text{ mA}$)	11
Figure 16.	Quiescent current vs. temperature ($I_{OUT} = 1\text{ mA}$)	11
Figure 17.	Quiescent current vs. output current ($V_{IN} = 4.3\text{ V}$)	11
Figure 18.	Quiescent current vs. temperature ($I_{OUT} = 200\text{ mA}$)	11
Figure 19.	Off-state current vs. temperature	11
Figure 20.	Short-circuit current vs. temperature ($V_{IN} = 4.3\text{ V}$)	11
Figure 21.	Dropout voltage vs. I_{OUT}	12
Figure 22.	Short-circuit current vs. drop voltage	12
Figure 23.	SVR vs. frequency	12
Figure 24.	Output noise spectral density	12
Figure 25.	Stability plan ($V_{OUT} = 3.3\text{ V}$)	12
Figure 26.	Stability plan ($V_{OUT} = V_{ADJ}$)	12
Figure 27.	Startup with enable ($V_{OUT} = 3.3\text{ V}$)	13
Figure 28.	Startup with enable ($V_{OUT} = V_{ADJ}$)	13
Figure 29.	Turn-on time ($V_{OUT} = 3.3\text{ V}$)	13
Figure 30.	Turn-on time ($V_{OUT} = V_{ADJ}$)	13
Figure 31.	Line transient ($V_{OUT} = 3.3\text{ V}$, rise)	13
Figure 32.	Line transient ($V_{OUT} = 3.3\text{ V}$, fall)	13
Figure 33.	Load transient ($V_{OUT} = 3.3\text{ V}$, rise)	14
Figure 34.	Load transient ($V_{OUT} = V_{ADJ}$, fall)	14
Figure 35.	SOT23-5L package outline	16
Figure 36.	SOT23-5L recommended footprint	17
Figure 37.	SOT23-5L tape and reel outline	18
Figure 38.	SOT-89 package outline	19
Figure 39.	SOT-89 recommended footprint	21
Figure 40.	SOT-89 carrier tape outline	22

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2018 STMicroelectronics – All rights reserved



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.