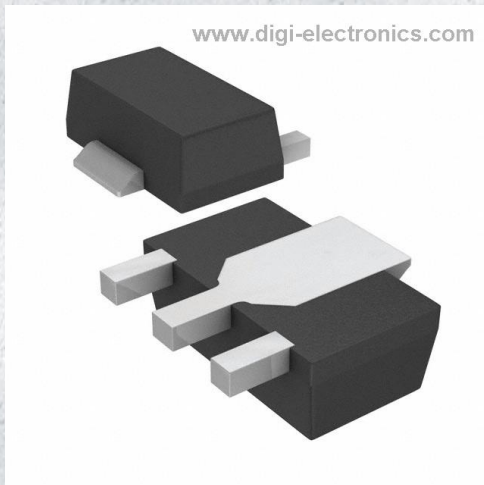


# LDK220U33R Datasheet



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	LDK220U33R-DG
Manufacturer	<a href="#">STMicroelectronics</a>
Manufacturer Product Number	LDK220U33R
Description	IC REG LINEAR 3.3V 200MA SOT89
Detailed Description	Linear Voltage Regulator IC Positive Fixed 1 Output 200mA SOT-89

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## Purchase and inquiry

Manufacturer Product Number:

LDK220U33R

Series:

-

Output Configuration:

Positive

Number of Regulators:

1

Voltage - Output (Min/Fixed):

3.3V

Voltage Dropout (Max):

0.35V @ 200mA

Current - Quiescent (Iq):

90  $\mu$ A

PSRR:

55dB ~ 50dB (120Hz ~ 10kHz)

Protection Features:

Over Current, Over Temperature

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-89

Manufacturer:

STMicroelectronics

Product Status:

Active

Output Type:

Fixed

Voltage - Input (Max):

13.2V

Voltage - Output (Max):

-

Current - Output:

200mA

Current - Supply (Max):

100  $\mu$ A

Control Features:

Enable

Operating Temperature:

-40°C ~ 125°C (TJ)

Package / Case:

TO-243AA

Base Product Number:

LDK220

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8542.39.0001

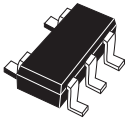
Moisture Sensitivity Level (MSL):

1 (Unlimited)

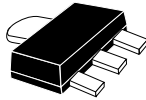
ECCN:

EAR99

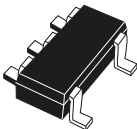
## 200 mA low quiescent current and low noise LDO



SOT23-5L



SOT89



SOT323-5L



DFN6-1.2x1.3

### Features

- Input voltage from 2.5 to 13.2 V
- Very low-dropout voltage (100 mV typ. @ 100 mA load)
- Low quiescent current (typ. 55  $\mu$ A, 1  $\mu$ A in off mode)
- Low noise
- Output voltage tolerance:  $\pm 2.0\%$  @ 25 °C
- 200 mA guaranteed output current
- 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
- Output discharge function
- Compatible with ceramic capacitor  $C_{OUT} = 1 \mu$ F
- Internal current and thermal limit
- Available in SOT23-5L, SOT323-5L, SOT-89 and DFN6-1.2x1.3 packages
- Temperature range: -40 °C to 125 °C

### Applications

- Battery-powered equipment
- TV
- Set-top box
- PC and laptop
- Industrial

Maturity status link

[LDK220](#)

### Description

The **LDK220** 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 13.2 V, with a typical dropout voltage of 100 mV.

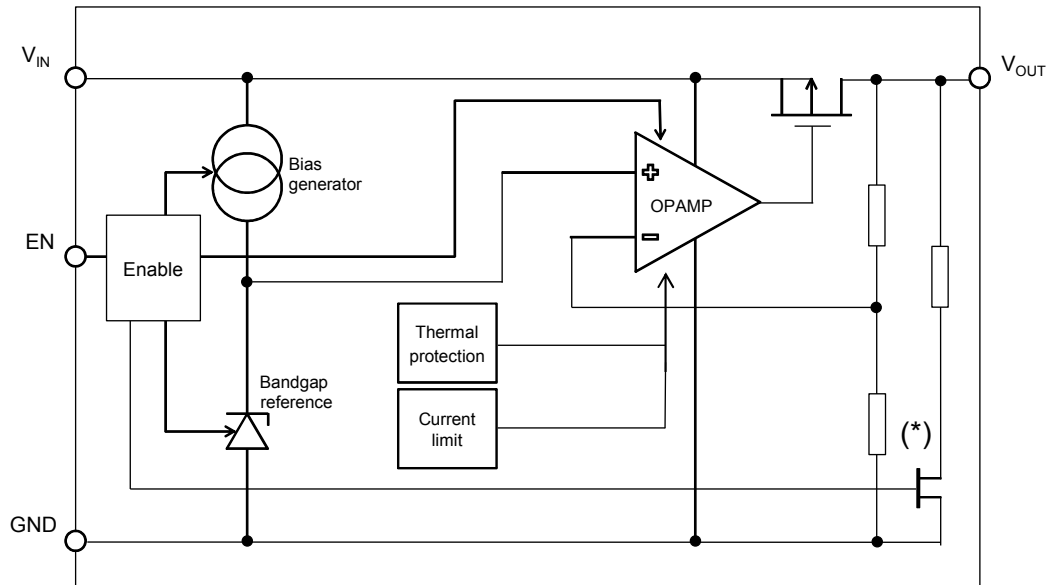
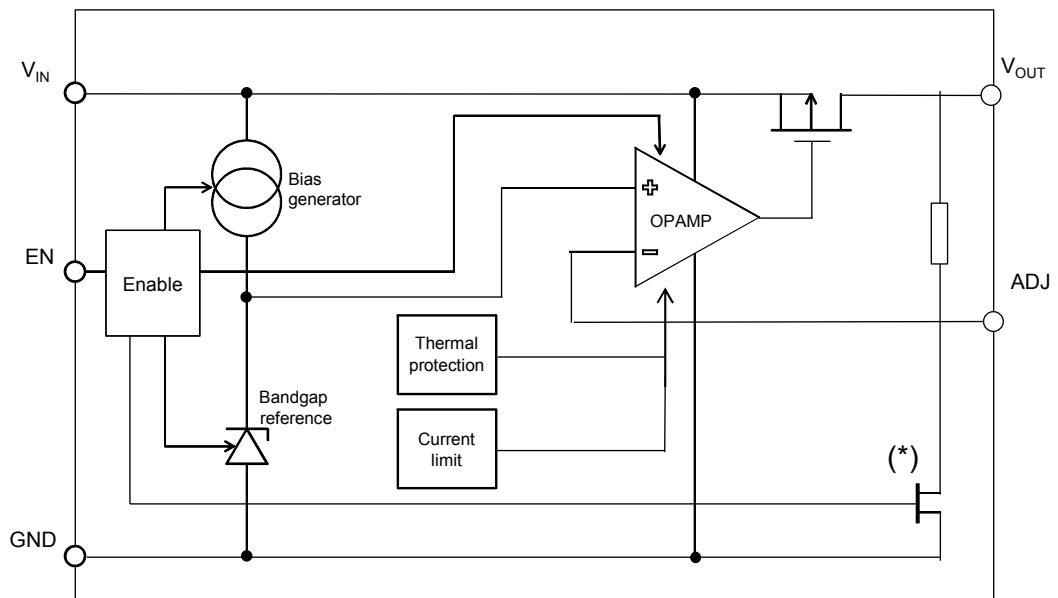
A ceramic capacitor stabilizes it on the output.

The very low drop voltage, low quiescent current and low noise make it suitable for battery-powered applications.

The enable logic control function puts the **LDK220** in shutdown mode allowing a total current consumption lower than 1  $\mu$ A.

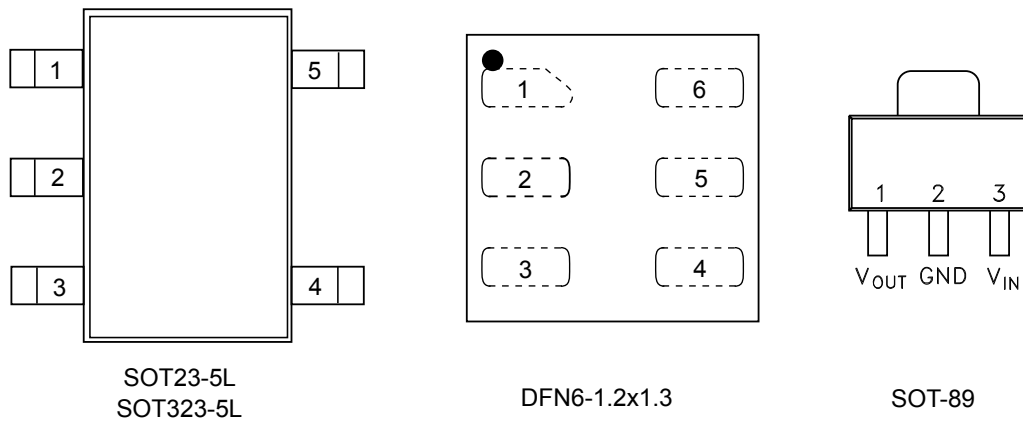
The device also includes a short-circuit constant current limiting and thermal protection.

# 1 Diagram

**Figure 1. Block diagram (fixed version)**

**Figure 2. Block diagram (adjustable version)**


(\*) The device embeds autodischarge function (active when Enable in low). To avoid damages to the discharge function, we discourage to apply any external voltage to  $V_{OUT}$  pin when Enable pin is low.

## 2 Pin configuration

**Figure 3. Pin connections (top view)**

**Table 1. Pin description (SOT23-5L, SOT323-5L)**

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. EN cannot be left floating.
4	ADJ/NC	Adjustable pin on ADJ version, not connected on fixed version
5	OUT	Output voltage of the LDO

**Table 2. Pin description (DFN6)**

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

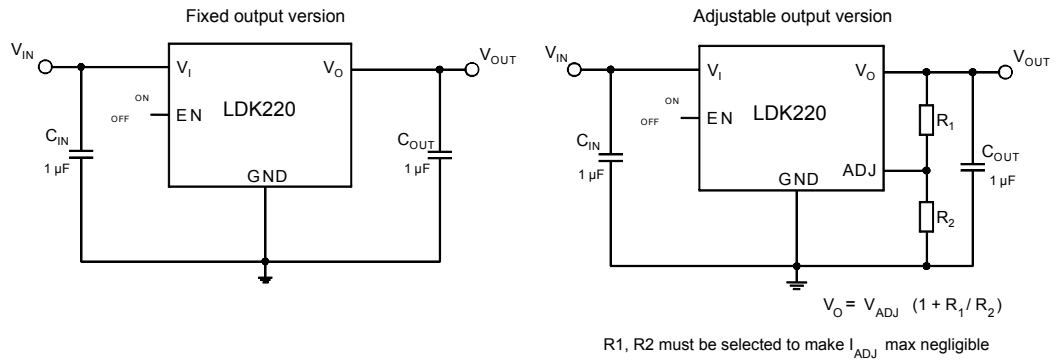
**Table 3. Pin description (SOT-89)**

Pin n° <sup>(1)</sup>	Symbol	Function
1	OUT	Output voltage of the LDO
2	GND	Common ground
3	IN	Input voltage of the LDO

1. Adjustable version and enable pin are not available on the SOT-89 package.

### 3 Typical application

Figure 4. Typical application circuits



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



## 4 Maximum ratings

**Table 4. Absolute maximum ratings**

Symbol	Parameter	Value	Unit
$V_{IN}$	DC input voltage	- 0.3 to 14	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	500	mW
$T_{STG}$	Storage temperature range	- 65 to 150	°C
$T_{OP}$	Operating junction temperature range	- 40 to 125	°C

1. Maximum power dissipation has to be calculated taking into account the package 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	SOT323-5L	SOT-89	DFN-6	Unit
$R_{thJA}$	Thermal resistance junction-ambient	160	246	110	237	°C/W
$R_{thJC}$	Thermal resistance junction-case	68	134	15	104	°C/W

**Note:** JESD 51, 4 LAYERS 2S2P.



## 5 Electrical characteristics

**Table 6.** LDK220 electrical characteristics for fixed output version.  $T_J = 25\text{ }^\circ\text{C}$ ,  $V_{IN} = V_{OUT(NOM)} + 1\text{ V}$ ,  $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$ ,  $I_{OUT} = 1\text{ mA}$ ,  $V_{EN} = V_{IN}$ , unless otherwise specified.

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{IN}$	Operating input voltage		2.5		13.2	V
$V_{OUT}$	$V_{OUT}$ accuracy	$I_{OUT} = 1\text{ mA}$ , $T_J = 25\text{ }^\circ\text{C}$	-2		2	%
		$I_{OUT} = 1\text{ mA}$ , $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$	-3		3	%
$\Delta V_{OUT}$	Static line regulation	$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 13.2\text{ V}$ , $I_{OUT} = 1\text{ mA}$		0.001	0.05	%/V
$\Delta V_{OUT}$	Static load regulation	$I_{OUT} = 1\text{ mA}$ to 200 mA		0.001	0.003	%/mA
$V_{DROP}$	Dropout voltage <sup>(1)</sup>	$I_{OUT} = 100\text{ mA}$ , $V_{OUT} = 3.3\text{ V}$		100		mV
		$I_{OUT} = 200\text{ mA}$ , $V_{OUT} = 3.3\text{ V}$ $40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$		200	350	
$e_N$	Output noise voltage	10 Hz to 100 kHz, $I_{OUT} = 10\text{ mA}$		20		$\mu\text{V}_{RMS}/\text{V}$
SVR	Supply voltage rejection	$V_{IN} = V_{OUTNOM} + 0.5\text{ V} \pm V_{RIPPLE}$ $V_{RIPPLE} = 0.1\text{ V}$ frequency = 120 Hz to 1 kHz $I_{OUT} = 10\text{ mA}$		55		dB
		$V_{IN} = V_{OUTNOM} + 0.5\text{ V} \pm V_{RIPPLE}$ $I_{OUT} = 10\text{ mA}$ $V_{RIPPLE} = 0.1\text{ V}$ frequency = 10 kHz		50		
$I_Q$	Quiescent current	$V_{IN} = V_{OUT} + 1\text{ V}$ $I_{OUT} = 0\text{ mA}$ , $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$		55	90	$\mu\text{A}$
		$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 13.2\text{ V}$ <sup>(2)</sup> $I_{OUT} = 200\text{ mA}$ , $-40\text{ }^\circ\text{C} < T_J < 125\text{ }^\circ\text{C}$		60	100	
		$V_{IN}$ input current in off mode: $V_{EN} = \text{GND}$ , $T_J = 25\text{ }^\circ\text{C}$		0.1	1	
$I_{SC}$	Short-circuit current <sup>(2)</sup>	$R_L = 0$		400		mA
$V_{EN}$	Enable input logic low	$V_{IN} = 2.5\text{ V}$ to 13.2 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 13.2 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
$R_{DIS}$	Discharger resistor	$V_{EN} = 0$		18		$\Omega$
$T_{SHDN}$	Thermal shutdown			160		$^\circ\text{C}$
	Hysteresis			20		
$C_{OUT}$	Output capacitor	Capacitance (see Section 6 Typical characteristics)	1		22	$\mu\text{F}$

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

2. The maximum current has to be limited according to the maximum power dissipation.



**Table 7. LDK220 electrical characteristics for adjustable version.  $T_J = 25\text{ °C}$ ,  $V_{IN} = V_{OUT(NOM)} + 1\text{ V}$ ,  $C_{IN} = C_{OUT} = 1\text{ }\mu\text{F}$ ,  $I_{OUT} = 1\text{ mA}$ ,  $V_{EN} = V_{IN}$ , unless otherwise specified.**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
$V_{IN}$	Operating input voltage		2.5		13.2	V
$V_{ADJ}$	Adjustable voltage	$T_J = 25\text{ °C}$		1.185		V
	Adjustable voltage accuracy	$T_J = 25\text{ °C}$ $40\text{ °C} < T_J < 125\text{ °C}$	-2 -3		+2 +3	%
$\Delta V_{OUT}$	Static line regulation	$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 13.2\text{ V}$ $I_{OUT} = 1\text{ mA}$		0.001	0.05	%/V
$\Delta V_{OUT}$	Static load regulation	$I_{OUT} = 1\text{ mA}$ to 200 mA		0.0002	0.003	%/mA
$V_{DROP}$	Dropout voltage <sup>(1)</sup>	$I_{OUT} = 100\text{ mA}$ , $V_{OUT} = 3.3\text{ V}$		100		
		$I_{OUT} = 200\text{ mA}$ , $V_{OUT} = 3.3\text{ V}$ $40\text{ °C} < T_J < 125\text{ °C}$		200	350	mV
$e_N$	Output noise voltage	10 Hz to 100 kHz, $I_{OUT} = 10\text{ mA}$		100		$\mu\text{V}_{RMS}/\text{V}$
$I_{ADJ}$	Adjust pin current				1	$\mu\text{A}$
SVR	Supply voltage rejection	$V_{IN} = V_{OUTNOM} + 0.5\text{ V} \pm V_{RIPPLE}$ $V_{RIPPLE} = 0.1\text{ V}$ frequency = 120 Hz to 1 kHz, $I_{OUT} = 10\text{ mA}$		60		dB
		$V_{RIPPLE} = 0.1\text{ V}$ $V_{IN} = V_{OUTNOM} + 0.5\text{ V} \pm V_{RIPPLE}$ frequency = 10 kHz, $I_{OUT} = 10\text{ mA}$		45		
$I_Q$	Quiescent current	$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 13.2\text{ V}$ $I_{OUT} = 0\text{ mA}$ , $-40\text{ °C} < T_J < 125\text{ °C}$		55	90	$\mu\text{A}$
		$V_{OUT} + 1\text{ V} \leq V_{IN} \leq 13.2\text{ V}$ $I_{OUT} = 200\text{ mA}$ , $-40\text{ °C} < T_J < 125\text{ °C}$ <sup>(2)</sup>		60	100	
		$V_{IN}$ input current in off mode: $V_{EN} = \text{GND}$ , $T_J = 25\text{ °C}$		0.1	1	
$I_{SC}$	Short-circuit current <sup>(2)</sup>	$R_L = 0$		400		mA
$V_{EN}$	Enable input logic low	$V_{IN} = 2.5\text{ V}$ to 13.2 V $-40\text{ °C} < T_J < 125\text{ °C}$			0.4	V
	Enable input logic high	$V_{IN} = 2.5\text{ V}$ to 13.2 V $-40\text{ °C} < T_J < 125\text{ °C}$	1.2			
$I_{EN}$	Enable pin input current	$V_{EN} = V_{IN}$		0.1	100	nA
$T_{SHDN}$	Thermal shutdown			160		$\text{°C}$
	Hysteresis			20		
$C_{OUT}$	Output capacitor	Capacitance (see Section 6 Typical characteristics)	1		22	$\mu\text{F}$

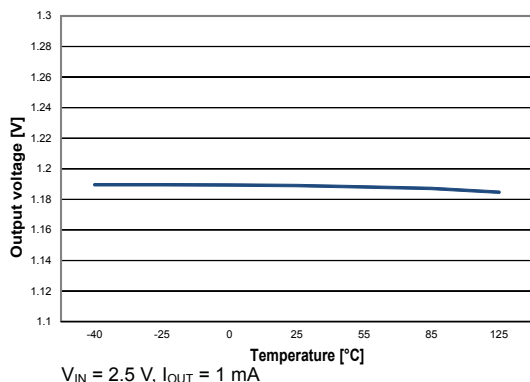
1. Dropout voltage is the input-to-output voltage difference at which the output voltage is 100 mV below its nominal value.
2. The maximum current has to be limited according to the maximum power dissipation.



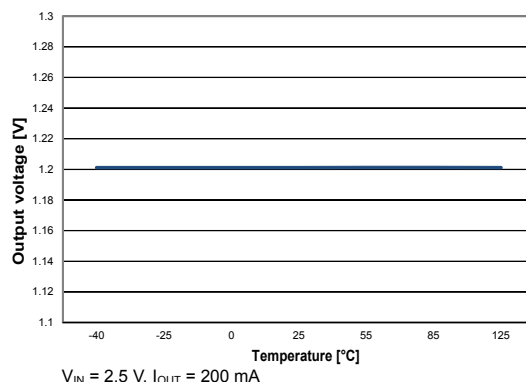
## 6 Typical performance characteristics

( $C_{IN} = C_{OUT} = 1 \mu F$ ,  $V_{EN}$  to  $V_{IN}$ )

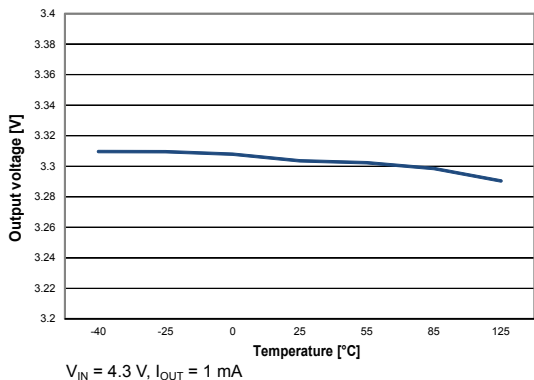
**Figure 5. Output voltage vs. temperature ( $V_{OUT} = V_{ADJ}$ ,  $I_{OUT} = 1 \text{ mA}$ )**



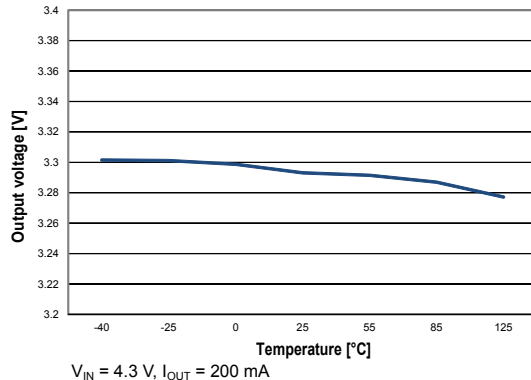
**Figure 6. Output voltage vs. temperature ( $V_{OUT} = V_{ADJ}$ ,  $I_{OUT} = 200 \text{ mA}$ )**



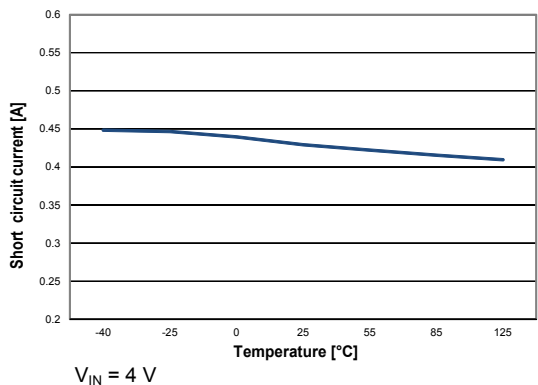
**Figure 7. Output voltage vs. temperature ( $V_{OUT} = 3.3 \text{ V}$ ,  $I_{OUT} = 1 \text{ mA}$ )**



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



**Figure 9. Short-circuit current vs. temperature**



**Figure 10. Line regulation vs. temperature ( $V_{OUT} = 3.3 \text{ V}$ )**

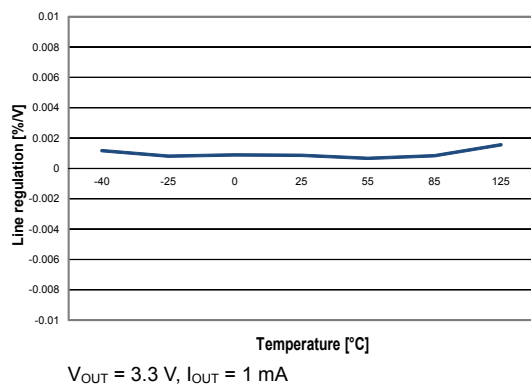




Figure 11. Line regulation vs. temperature ( $V_{OUT} = V_{ADJ}$ )

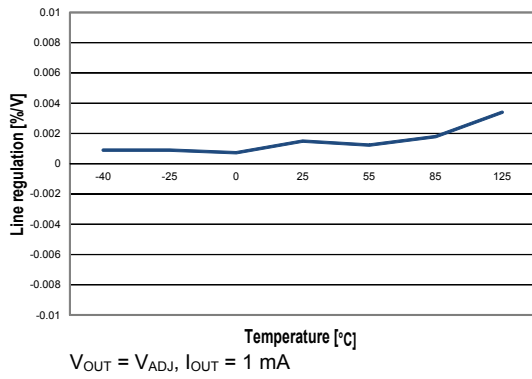


Figure 12. Load regulation vs. temperature ( $V_{OUT} = 3.3 \text{ V}$ )

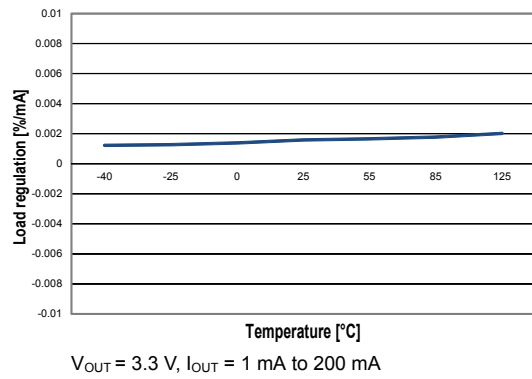


Figure 13. Load regulation vs. temperature ( $V_{OUT} = V_{ADJ}$ )

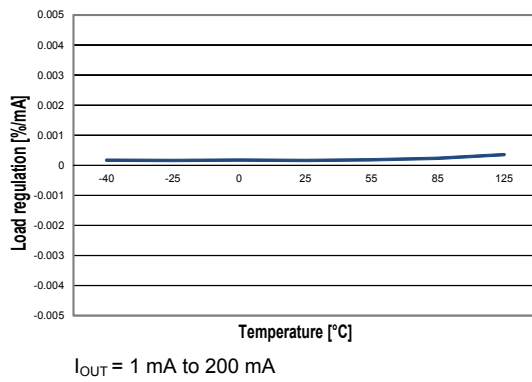


Figure 14. Enable thresholds vs. temperature

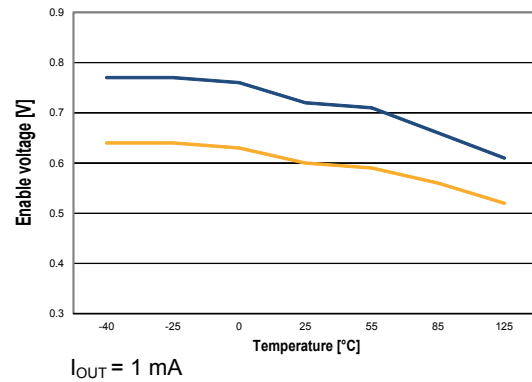


Figure 15. Dropout voltage vs. temperature

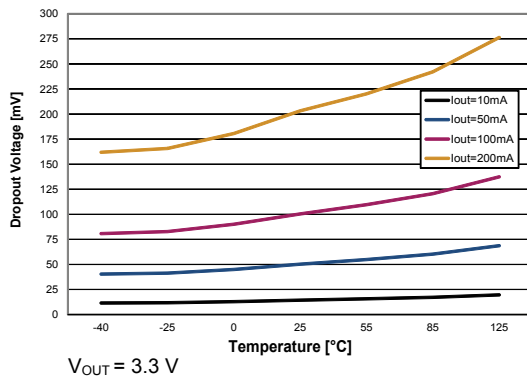
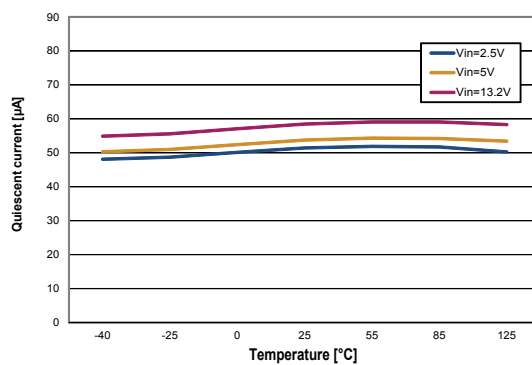
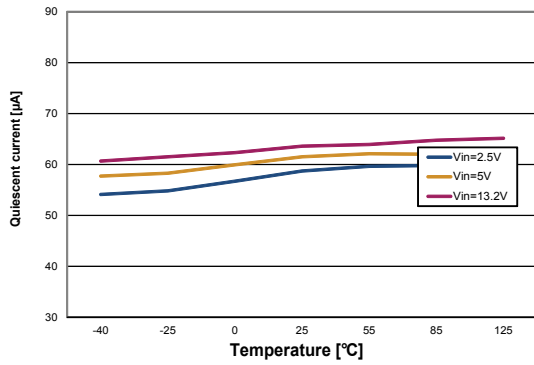


Figure 16. Quiescent current vs. temperature ( $I_{OUT} = 0 \text{ mA}$ )

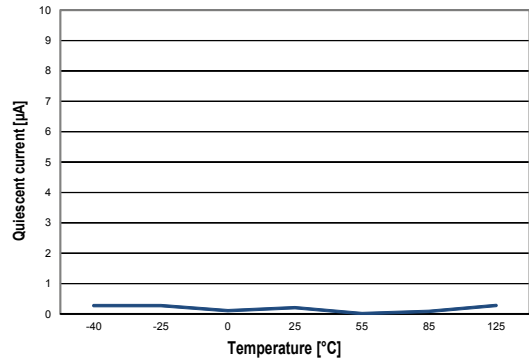




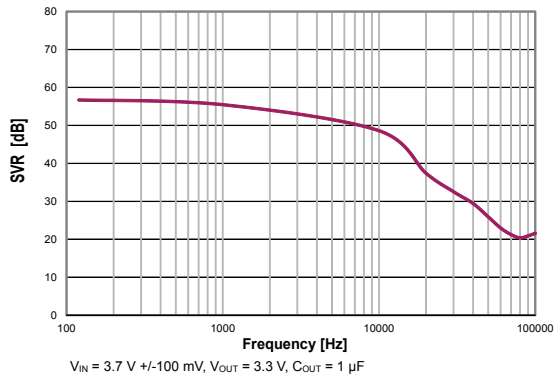
**Figure 17. Quiescent current vs. temperature ( $I_{OUT} = 200\text{ mA}$ )**



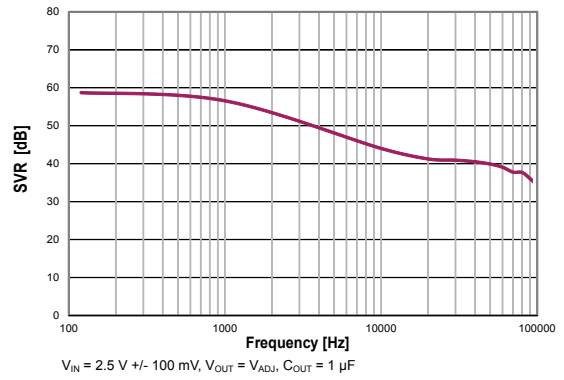
**Figure 18. Off-state current vs. temperature**



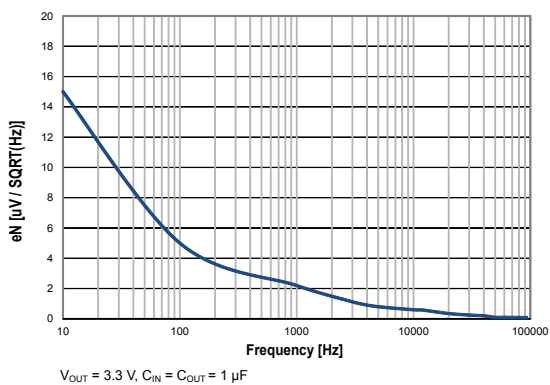
**Figure 19. SVR vs. frequency ( $V_{OUT} = 3.3\text{ V}$ )**



**Figure 20. SVR vs. frequency ( $V_{OUT} = V_{ADJ}$ )**



**Figure 21. Output noise spectral density**



**Figure 22. Stability vs. ( $C_{OUT}$ , ESR)**

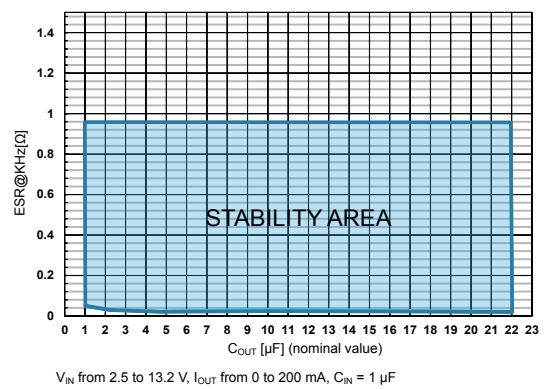
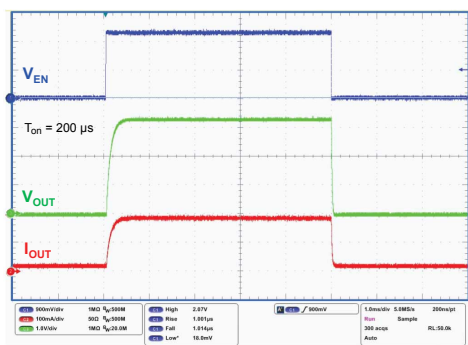




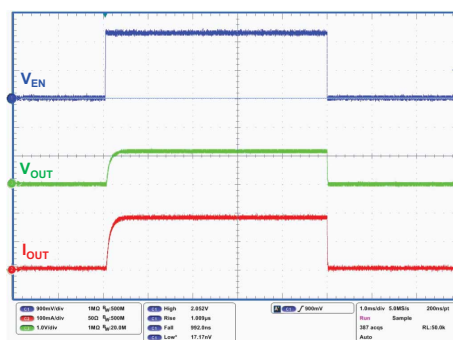
Figure 23. Startup with enable ( $V_{OUT} = 3.3\text{ V}$ )



$V_{IN} = 4.3\text{ V}$ ,  $V_{EN} = 0\text{ V}$  to  $2\text{ V}$ ,  $I_{OUT} = 0.2\text{ A}$ ,  $V_{OUT} = 3.3\text{ V}$ ,  $T_r = T_f = 1\text{ }\mu\text{s}$

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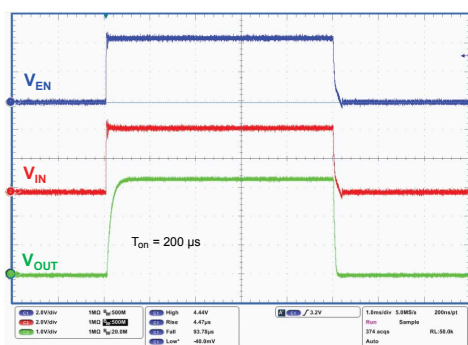
Figure 24. Startup with enable ( $V_{OUT} = V_{ADJ}$ )



$V_{IN} = 2.5\text{ V}$ ,  $V_{EN} = 0\text{ V}$  to  $V_{IN}$ ,  $I_{OUT} = 0.2\text{ A}$ ,  $V_{OUT} = V_{ADJ}$ ,  $T_r = T_f = 1\text{ }\mu\text{s}$

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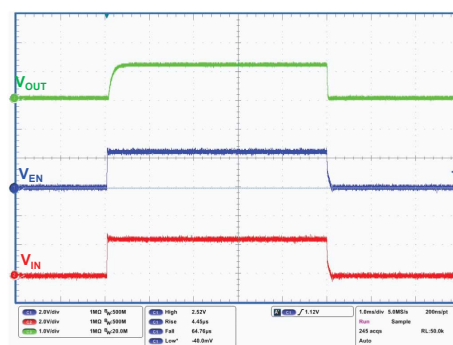
Figure 25. Turn-on time ( $V_{OUT} = 3.3\text{ V}$ )



$V_{IN} = V_{EN} = 0\text{ V}$  to  $4.3\text{ V}$ ,  $I_{OUT} = 0.2\text{ A}$ ,  $V_{OUT} = 3.3\text{ V}$ ,  $T_r = 5\text{ }\mu\text{s}$

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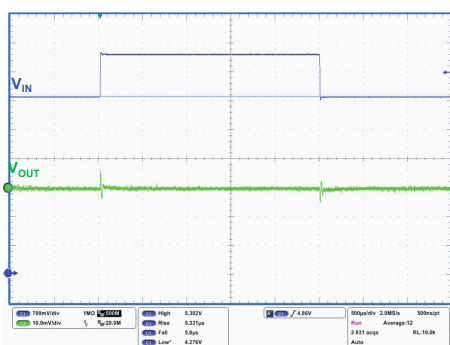
Figure 26. Turn-on time ( $V_{OUT} = V_{ADJ}$ )



$V_{IN} = V_{EN} = 0\text{ V}$  to  $2.5\text{ V}$ ,  $I_{OUT} = 0.2\text{ A}$ ,  $V_{OUT} = V_{ADJ}$ ,  $T_r = 5\text{ }\mu\text{s}$

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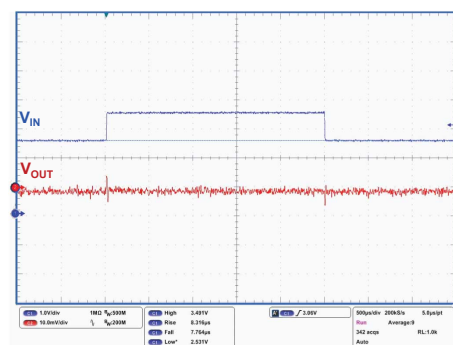
Figure 27. Line transient ( $V_{OUT} = 3.3\text{ V}$ )



$V_{IN} = V_{EN} = 4.3\text{ V}$  to  $5.3\text{ V}$ ,  $I_{OUT} = 1\text{ mA}$ ,  $V_{OUT} = 3.3\text{ V}$ ,  $T_r = T_f = 5\text{ }\mu\text{s}$

GIPD250120161430MT

Figure 28. Line transient ( $V_{OUT} = V_{ADJ}$ )

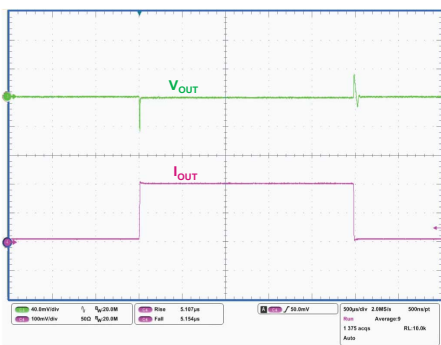


$V_{IN} = V_{EN} = 2.5\text{ V}$  to  $3.5\text{ V}$ ,  $I_{OUT} = 1\text{ mA}$ ,  $V_{OUT} = V_{ADJ}$ ,  $T_r = T_f = 5\text{ }\mu\text{s}$

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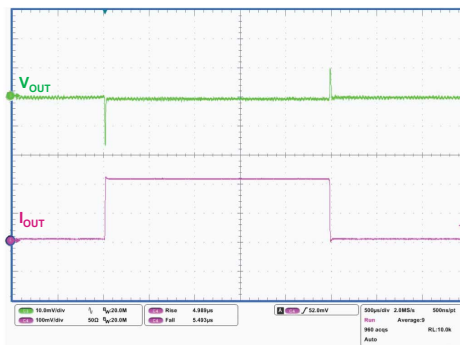
Figure 29. Load transient ( $V_{OUT} = 3.3\text{ V}$ )



$V_{IN} = V_{EN} = 4.3\text{ V}$ ,  $I_{OUT} = 1\text{ mA}$  to  $0.2\text{ A}$ ,  $V_{OUT} = 3.3\text{ V}$ ,  $T_r = T_f = 5\text{ }\mu\text{s}$

GIPD250120161432MT

Figure 30. Load transient ( $V_{OUT} = V_{ADJ}$ )



$V_{IN} = V_{EN} = 2.5\text{ V}$ ,  $I_{OUT} = 1\text{ mA}$  to  $0.2\text{ A}$ ,  $V_{OUT} = V_{ADJ}$ ,  $T_r = T_f = 5\text{ }\mu\text{s}$

GIPD250120161433MT



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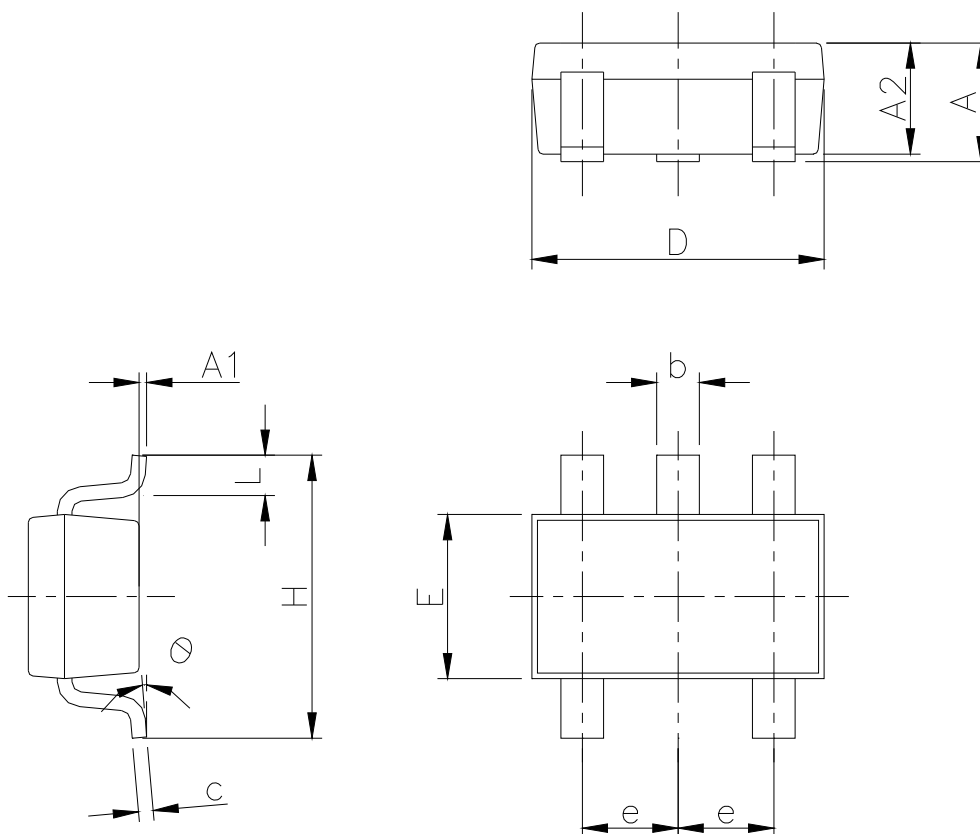
## 7 Package information

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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](http://www.st.com). ECOPACK is an ST trademark.

## 7.1 SOT23-5L package information

Figure 31. SOT23-5L package outline



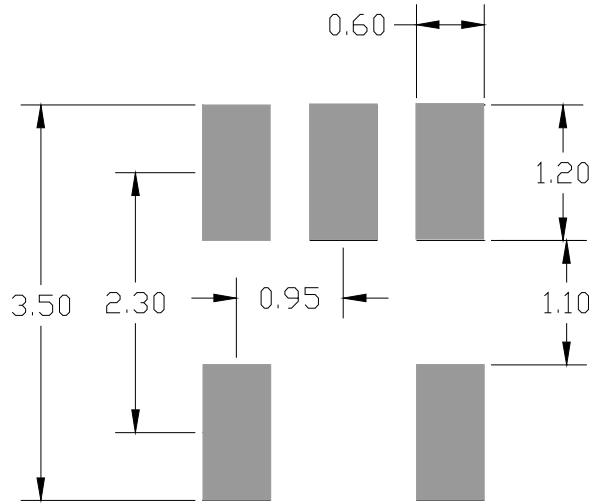
7049676\_k

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
$\theta$	0°		8°



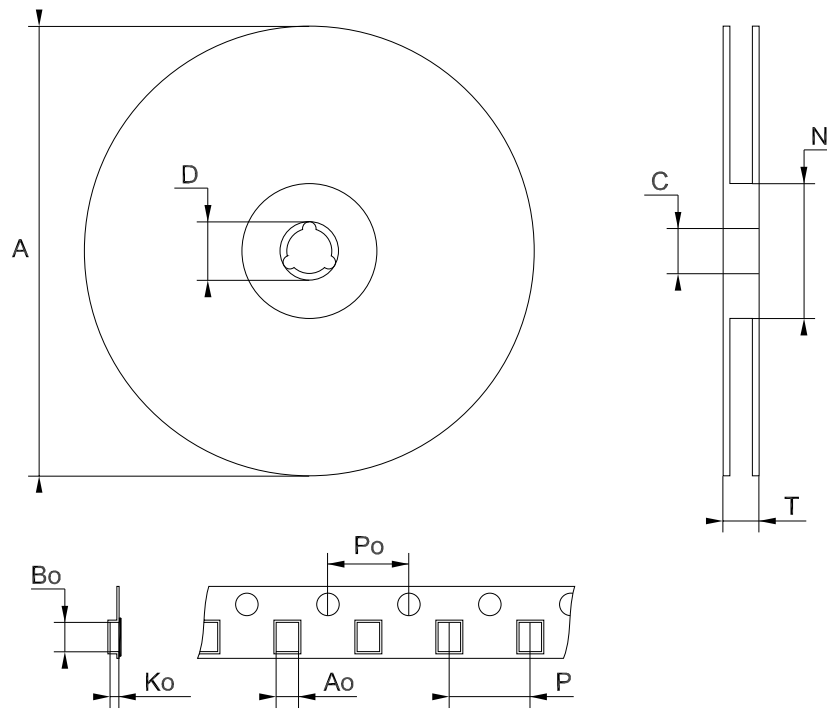
**Figure 32. SOT23-5L recommended footprint**



Note: Dimensions are in mm

**7.2 SOT23-5L packing information**

**Figure 33. SOT23-5L tape and reel outline**



Note: Drawing not in scale

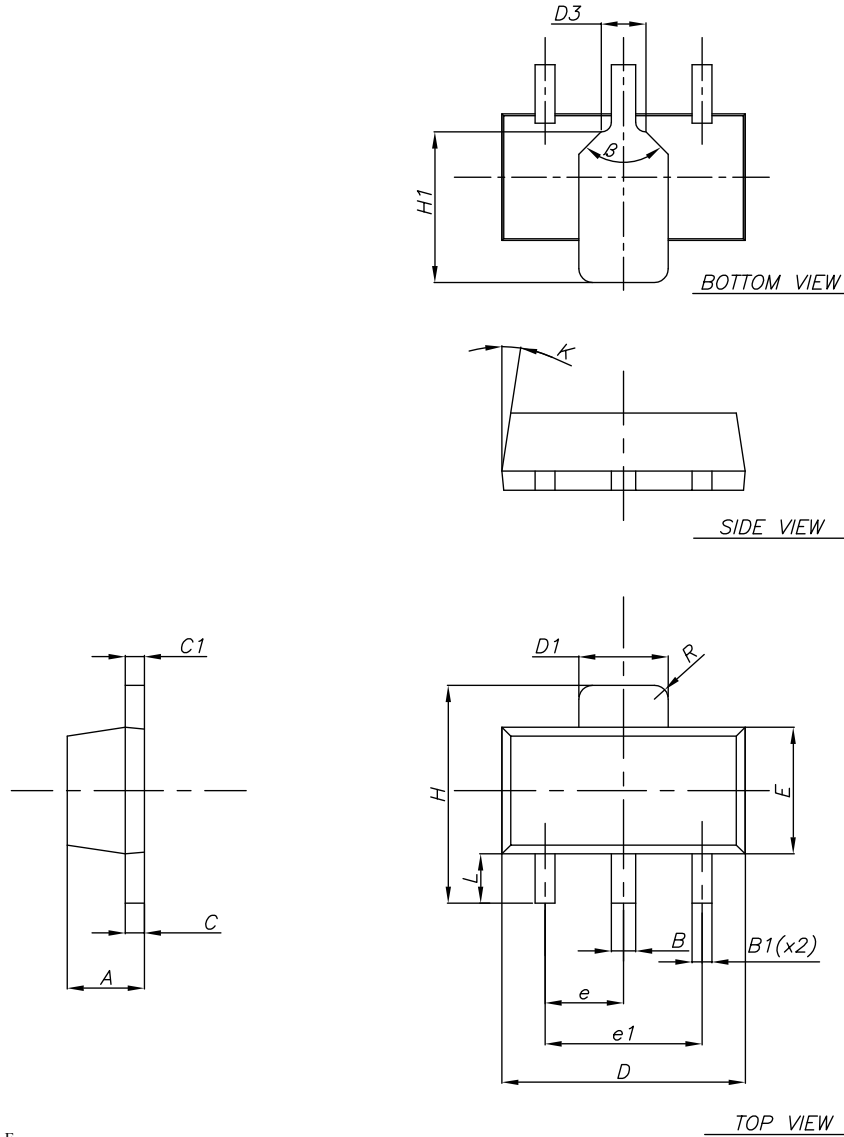

**Table 9. SOT23-5L tape and reel mechanical data**

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 34. SOT-89 package outline

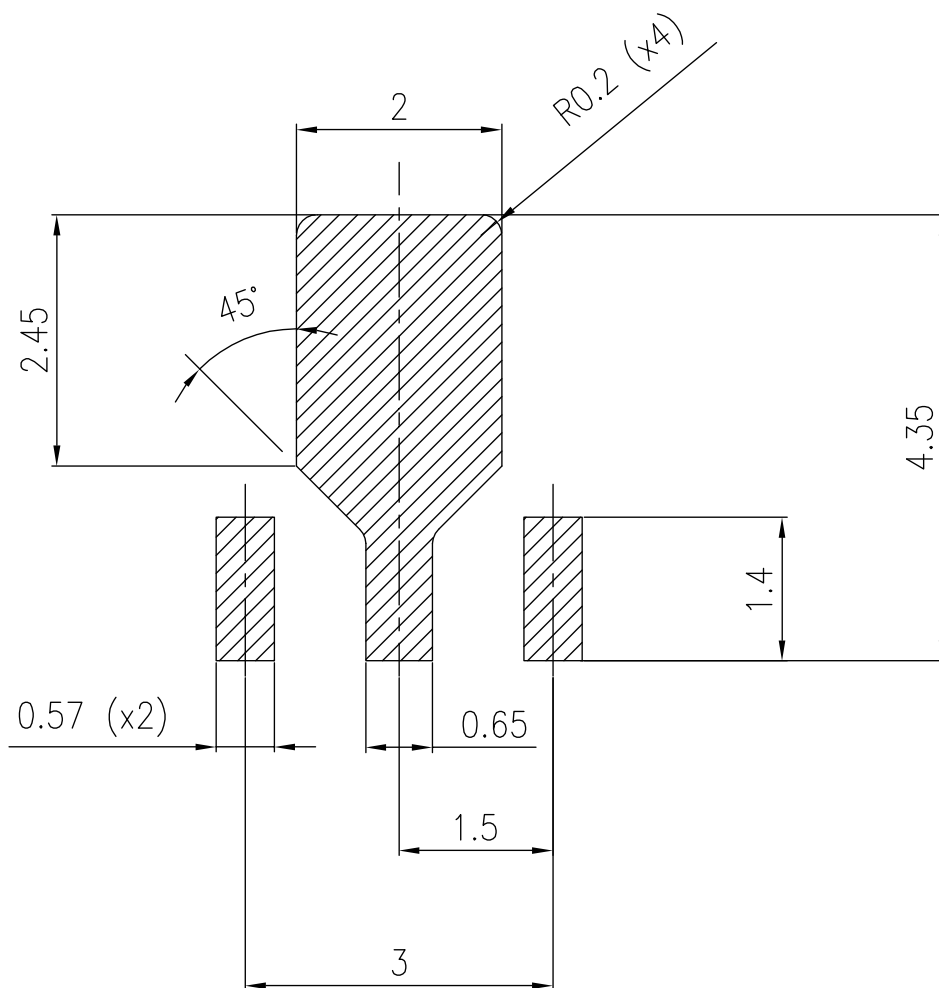


7098166\_REV\_F


**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		1.20
R		0.25	
β		90°	

Figure 35. SOT-89 recommended footprint

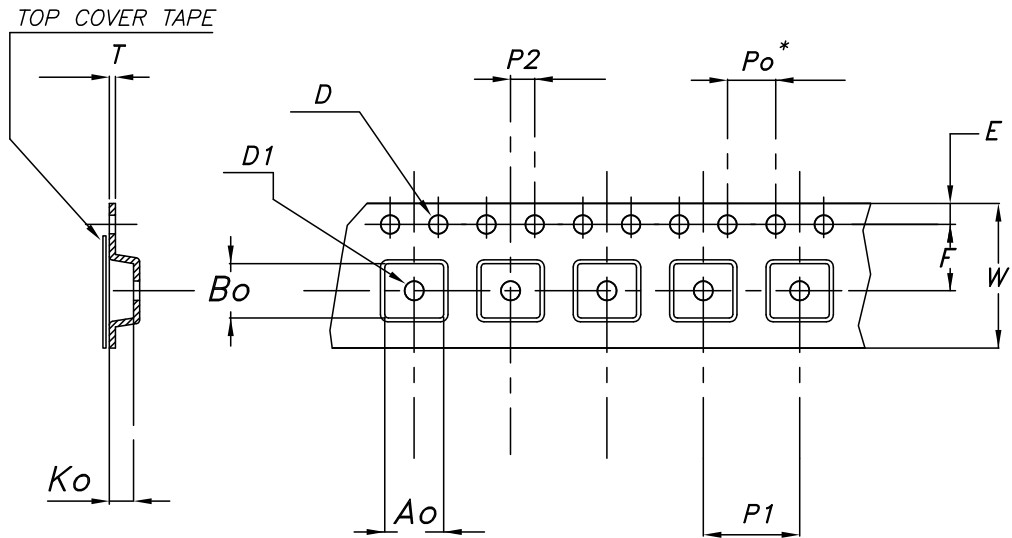


Footprint



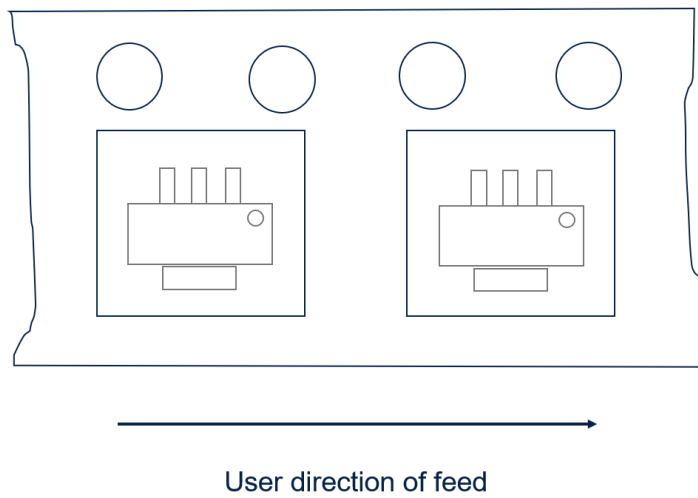
**7.4 SOT-89 packing information**

**Figure 36. SOT-89 carrier tape outline**



7111762\_5

**Figure 37. SOT-89 device orientation**

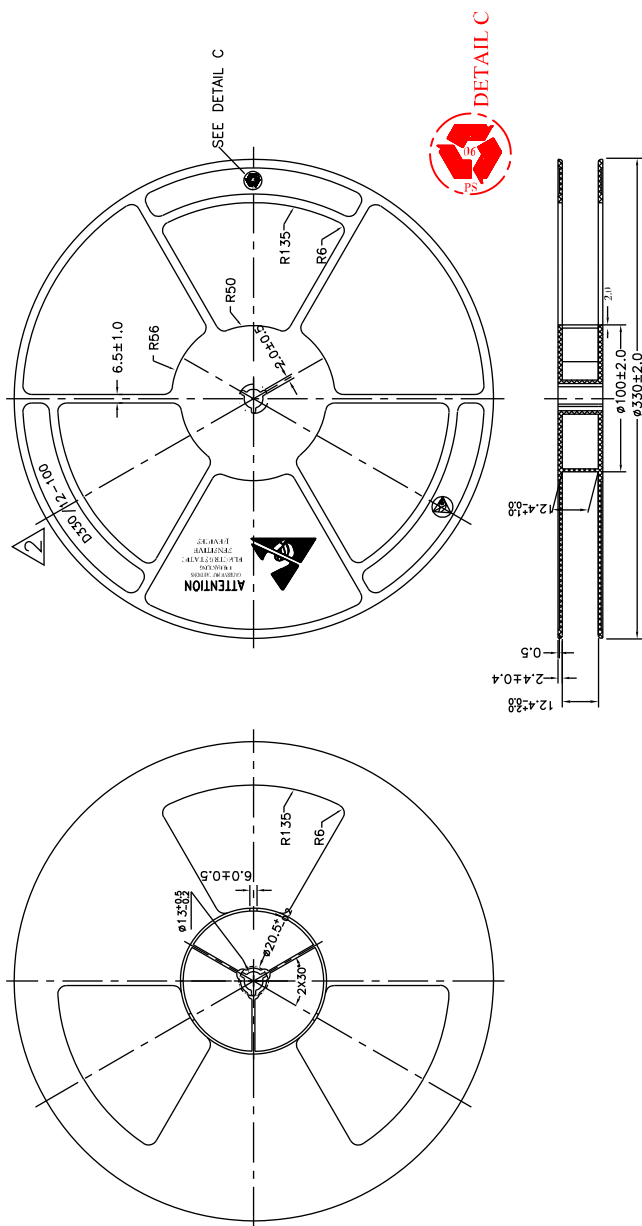



**Table 11. SOT-89 carrier tape mechanical data**

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



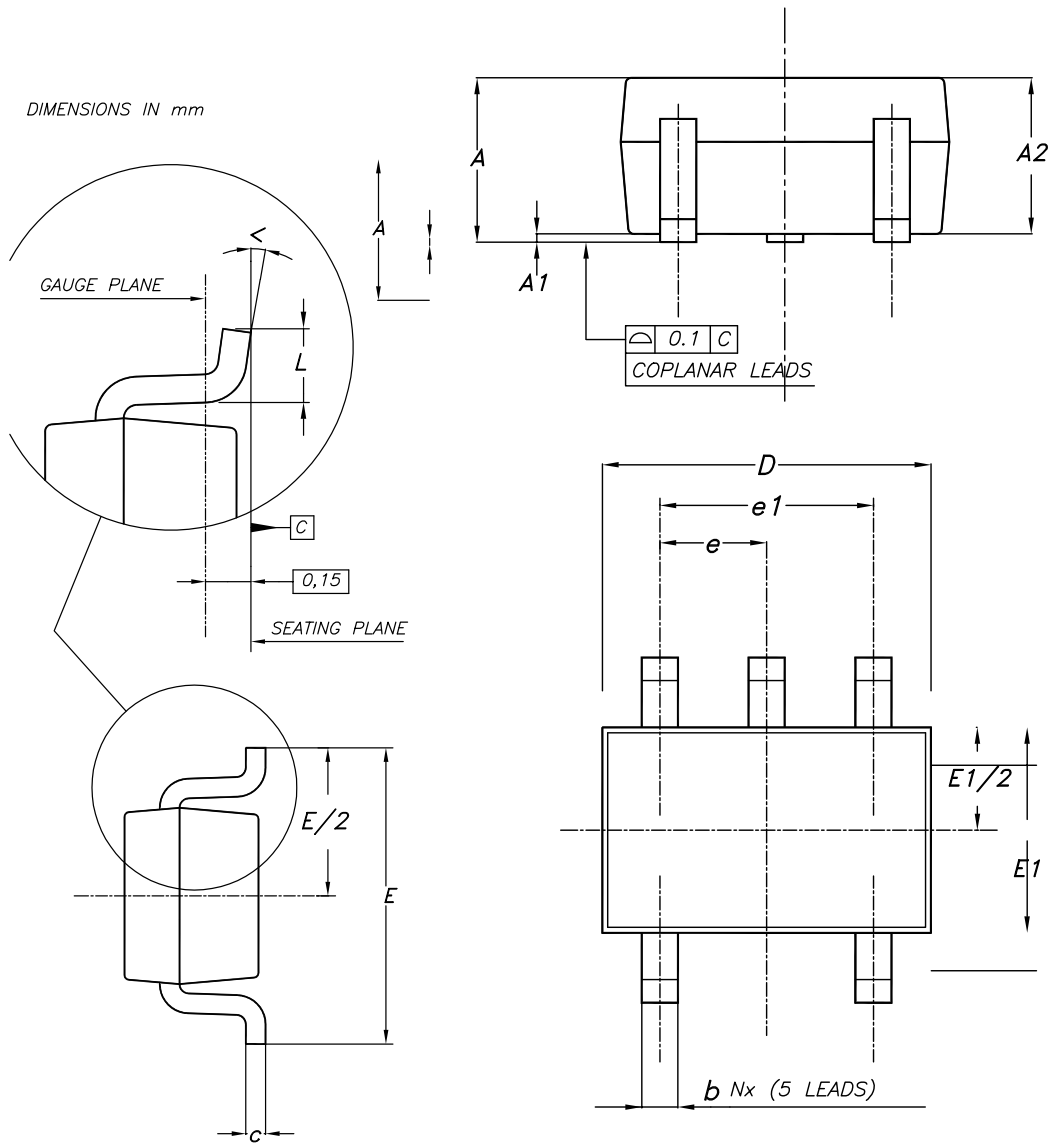
**Figure 38. SOT-89 reel drawing**





## 7.5 SOT323-5L package information

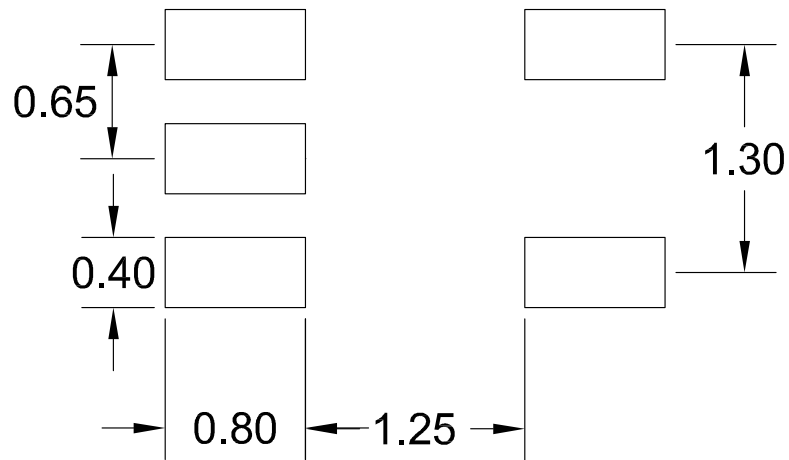
Figure 39. SOT323-5L package outline



7091413\_G

**Table 12. SOT323-5L package mechanical data**

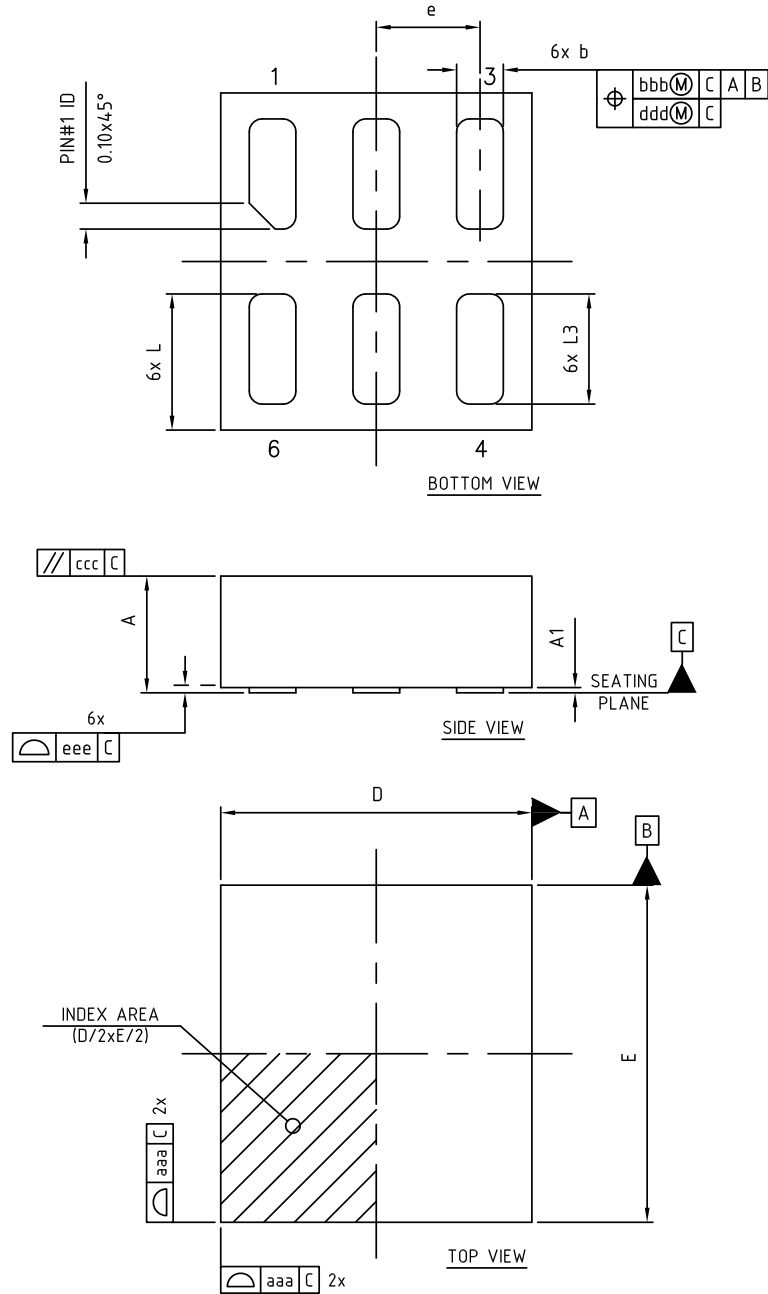
Dim.	mm		
	Min.	Typ.	Max.
A	0.80		1.10
A1	0		0.10
A2	0.80	0.90	1
b	0.15		0.30
c	0.10		0.22
D	1.80	2	2.20
E	1.80	2.10	2.40
E1	1.15	1.25	1.35
e		0.65	
e1		1.30	
L	0.26	0.36	0.46
<	0°		8°

**Figure 40. SOT323-5L recommended footprint**




7.6 DFN6 1.2x1.3 package information

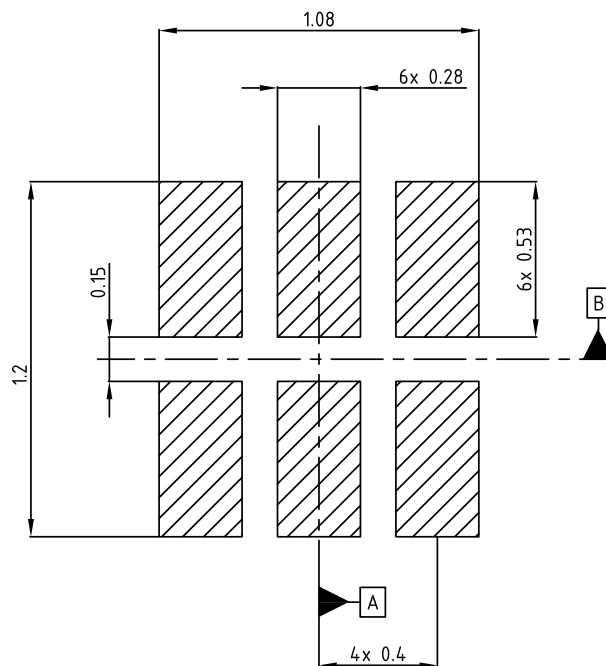
Figure 41. DFN6 package outline



8442779\_A

**Table 13. DFN6 package mechanical data**

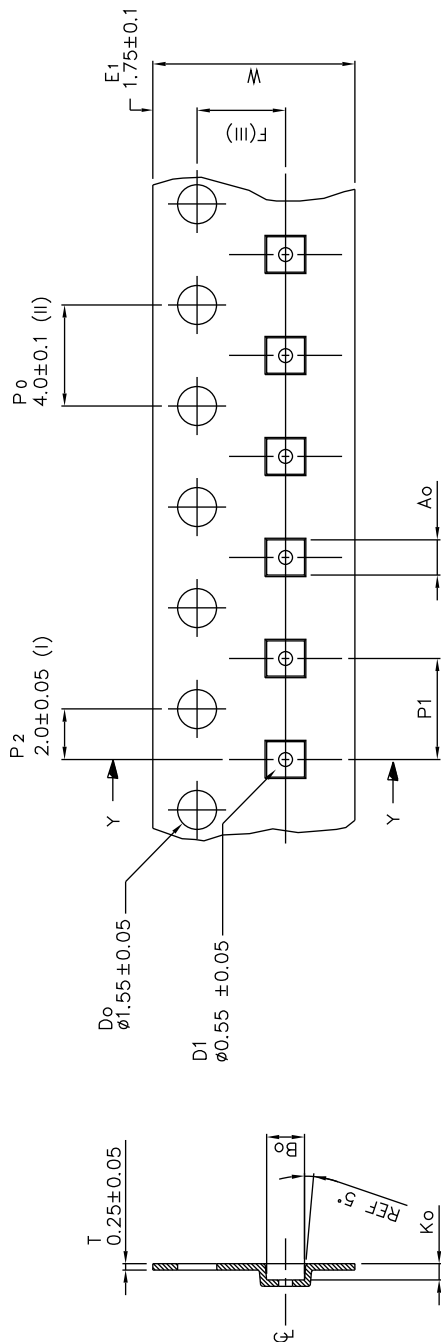
Dim.	mm		
	Min.	Typ.	Max.
A	0.41	0.45	0.50
A1	0.00	0.02	0.05
D	-	1.20	-
E	-	1.30	-
e	-	0.40	-
b	0.15	0.18	0.25
L	0.475	0.525	0.575
L3	0.375	0.425	0.475
aaa	-	0.05	-
bbb	-	0.10	-
ccc	-	0.05	-
ddd	-	0.05	-
eee	-	0.05	-

**Figure 42. DFN6 recommended footprint**




7.7 DFN6 packing information

Figure 43. DFN6 reel drawing outline



- (I) Measured from centreline of sprocket hole to centreline of pocket.
- (II) Cumulative tolerance of 10 sprocket holes is  $\pm 0.20$
- (III) Measured from centreline of sprocket hole to centreline of pocket.
- (IV) Other material available.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

SECTION Y-Y

Ao	1.40	+/-0.05
B0	1.50	+/-0.05
K0	0.65	+/-0.05
F	3.50	+/-0.05
P1	4.00	+/-0.10
W	8.00	+/-0.30



Figure 44. DFN6 carrier tape

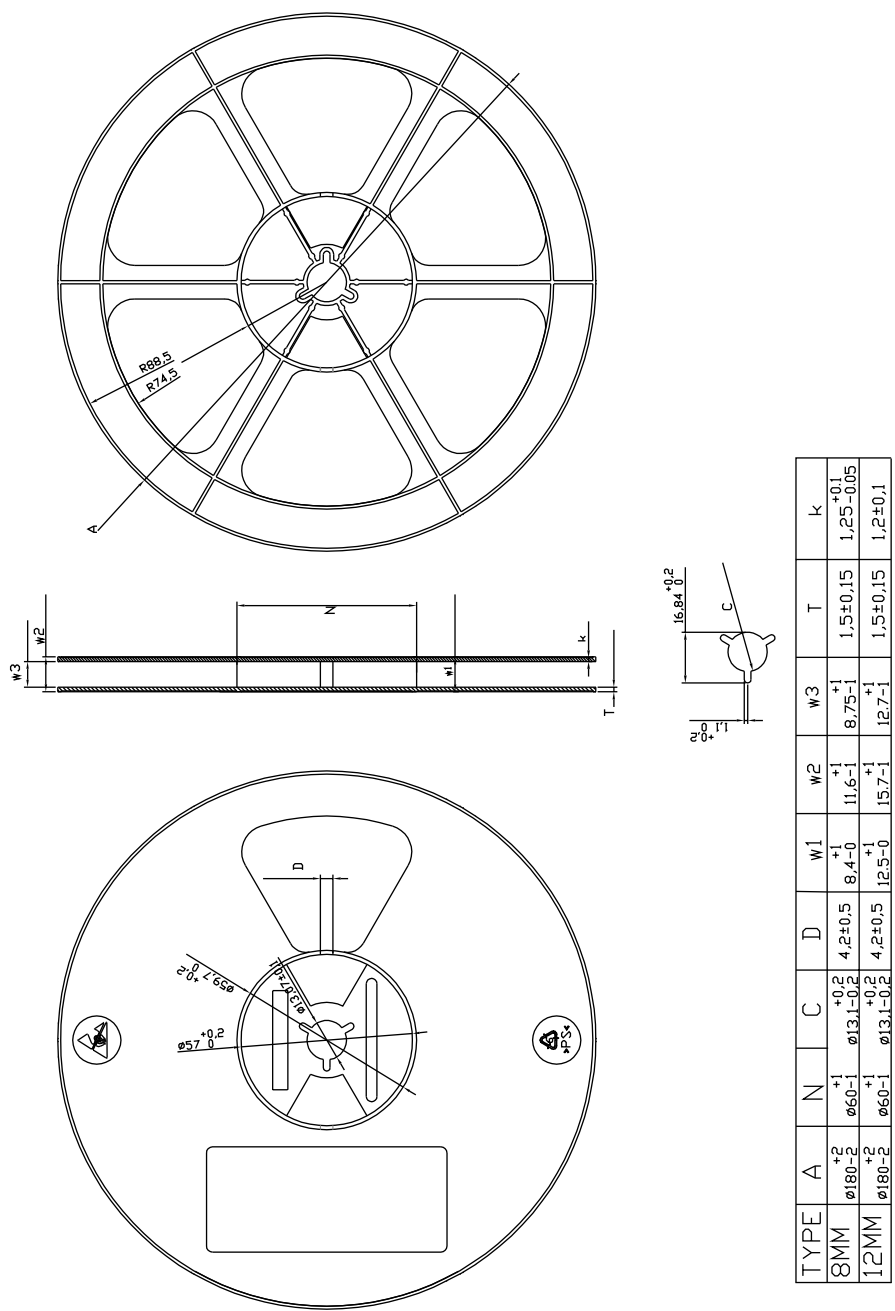
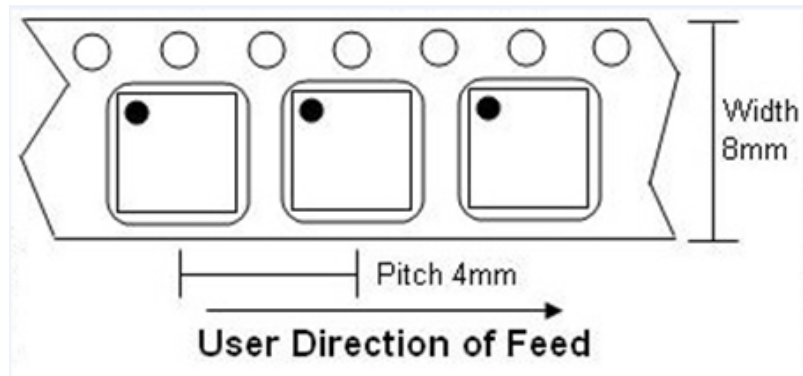


Figure 45. DFN6 device orientation in tape





## 8 Ordering information

**Table 14. Order codes**

SOT323-5L	SOT23-5L	SOT-89	DFN6	Output voltage (V)
LDK220C25R	LDK220M25R		LDK220PU25R	2.5
LDK220C27R	LDK220M27R		LDK220PU27R	2.7
LDK220C30R	LDK220M30R	LDK220U30R	LDK220PU30R	3
LDK220C32R	LDK220M32R		LDK220PU32R	3.2
LDK220C33R	LDK220M33R	LDK220U33R	LDK220PU33R	3.3
	LDK220M35R			3.5
LDK220C36R	LDK220M36R	LDK220U36R	LDK220PU36R	3.6
LDK220C40R	LDK220M40R		LDK220PU40R	4
LDK220C50R	LDK220M50R	LDK220U50R	LDK220PU50R	5
LDK220C-R	LDK220M-R		LDK220PU-R	ADJ



## Revision history

**Table 15. Document revision history**

Date	Revision	Changes
19-Mar-2014	1	Initial release.
24-Nov-2014	2	Updated the features in cover page, Table 6: LDK220 electrical characteristics for fixed output version, Table 7: LDK220 electrical characteristics for adjustable version, Table 8: SOT23-5L mechanical data, and Section 6: Typical characteristics. Minor text changes.
19-May-2015	3	Added SOT-89 package. Updated features in cover page. Updated Section 2: Pin configuration, Section 3: Typical application, Table 5: Thermal data, Section 7: Package information and Section 8: Ordering information. Minor text changes.
24-Oct-2016	4	Updated Table 7: "LDK220 electrical characteristics for adjustable version" and Section 7: "Package information". Minor text changes.
20-Dec-2019	5	Updated Section 1 Diagram.
12-Feb-2020	6	Added new part number LDK220M35R in Table 14. Order codes.
05-Nov-2021	7	Updated figure on the cover page, <a href="#">Figure 3</a> , <a href="#">Figure 4</a> , <a href="#">Figure 23</a> and <a href="#">Figure 25</a> . Added note in <a href="#">Table 5</a> , Rdis parameter in <a href="#">Table 6</a> and <a href="#">Section 7.7</a> DFN6 packing information.

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