

## 3 A low drop positive voltage regulator adjustable and fixed

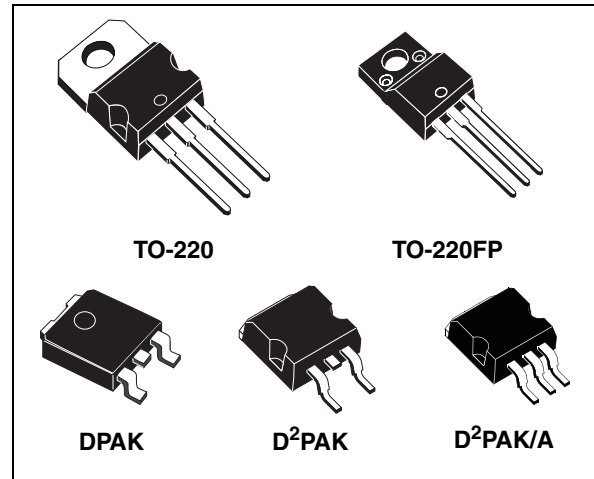
### Features

- Typical dropout 1.3 V (at 3 A)
- Three terminal adjustable or fixed output voltage 1.5 V, 1.8 V, 2.5 V, 3.3 V, 5 V, 12 V.
- Automotive grade product: adjustable  $V_{OUT}$  only in TO-220 full pack package
- Guaranteed output current up to 3 A
- Output tolerance  $\pm 1\%$  at 25°C and  $\pm 2\%$  in full temperature range
- Internal power and thermal limit
- Wide operating temperature range -40 °C to 125 °C
- Package available: TO-220, TO-220FP, DPAK, D<sup>2</sup>PAK, D<sup>2</sup>PAK/A
- Pinout compatibility with standard adjustable VREG

### Description

The LD1085xx is a low drop voltage regulator able to provide up to 3 A of output current. Dropout is guaranteed at a maximum of 1.2 V at the maximum output current, decreasing at lower loads. The LD1085xx is pin to pin compatible with the older 3-terminal adjustable regulators, but has better performances in term of drop and output tolerance.

A 2.85 V output version is suitable for SCSI-2 active termination. Unlike PNP regulators, where a part of the output current is wasted as quiescent current, the LD1085xx quiescent current flows



into the load, so increase efficiency. Only a 10  $\mu$ F minimum capacitor is need for stability.

The device is supplied in TO-220, TO-220FP, DPAK, D<sup>2</sup>PAK and D<sup>2</sup>PAK/A. On chip trimming allows the regulator to reach a very tight output voltage tolerance, within  $\pm 1\%$  at 25 °C.

The LD1085xx is available as automotive grade in TO-220FP package only, for the option of adjustable output voltage whose commercial part number is shown in the [Table 11: Order codes](#). This device is qualified according to the specification AEC-Q100 of the automotive market, in the temperature range -40 °C to 125 °C, and the statistical tests PAT, SYL, SBL are performed.

**Table 1. Device summary**

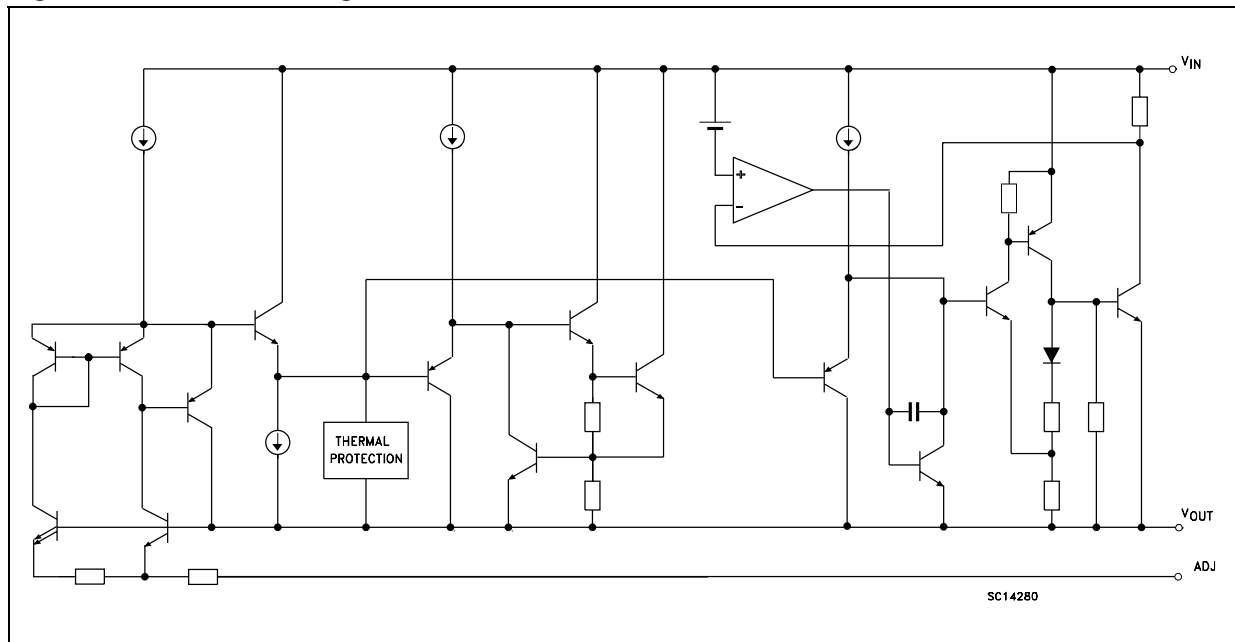
Part numbers	
LD1085XX	LD1085XX25
LD1085XX15	LD1085XX33
LD1085XX18	LD1085XX50

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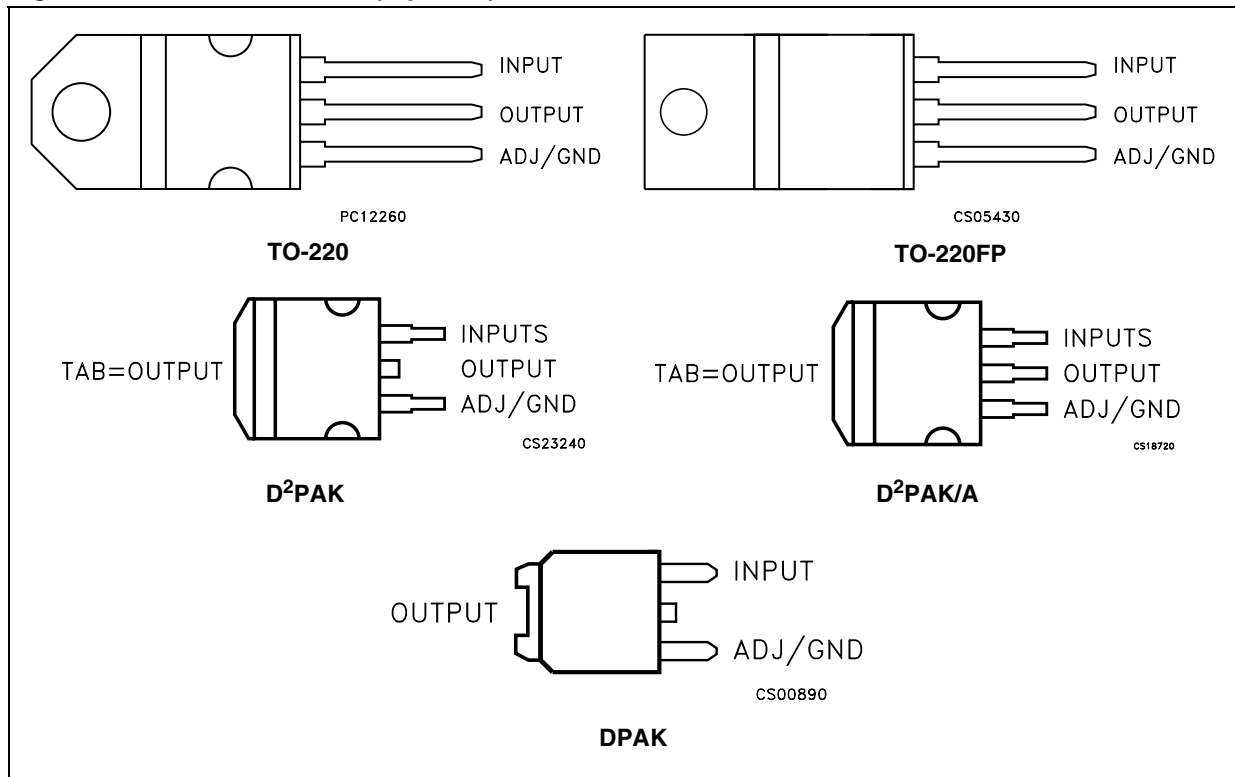
# 1 Diagram

Figure 1. Schematic diagram



## 2 Pin configuration

Figure 2. Pin connections (top view)



### 3 Maximum ratings

**Table 2. Absolute maximum ratings**

Symbol	Parameter	Value	Unit
$V_I$	DC input voltage	30	V
$I_O$	Output current	Internally limited	mA
$P_D$	Power dissipation	Internally limited	mW
$T_{STG}$	Storage temperature range	-55 to +150	°C
$T_{OP}$	Operating junction temperature range	-40 to +125	°C

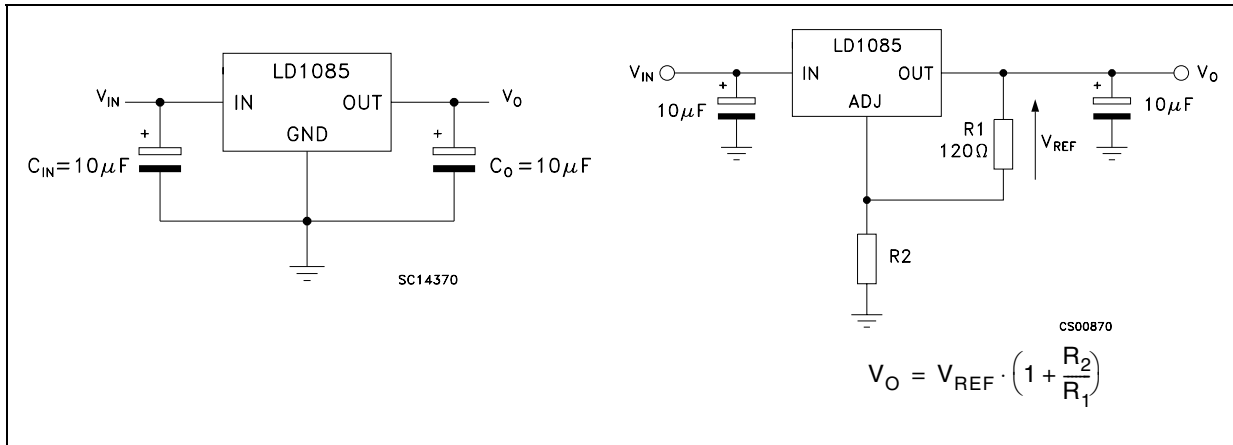
*Note: Absolute maximum ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied*

**Table 3. Thermal data**

Symbol	Parameter	TO-220	TO-220FP	DPAK	D <sup>2</sup> PAK D <sup>2</sup> PAK/A	Unit
$R_{thJC}$	Thermal resistance junction-case	3	5	8	3	°C/W
$R_{thJA}$	Thermal resistance junction-ambient	50	60	100	62.5	°C/W

# 4 Schematic application

Figure 3. Application circuit



## 5 Electrical characteristics

$V_I = 4.5\text{ V}$ ,  $C_I = C_O = 10\ \mu\text{F}$ ,  $T_A = -40\text{ to }125\text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 4. Electrical characteristics of LD1085#15**

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 0\text{ mA}$ , $T_J = 25^\circ\text{C}$	1.485	1.5	1.515	V
		$I_O = 0\text{ to }3\text{ A}$ , $V_I = 3.1\text{ to }30\text{ V}$	1.47	1.5	1.53	V
$\Delta V_O$	Line regulation	$I_O = 0\text{ mA}$ , $V_I = 3.1\text{ to }18\text{ V}$ , $T_J = 25^\circ\text{C}$		0.2	4	mV
		$I_O = 0\text{ mA}$ , $V_I = 3.1\text{ to }15\text{ V}$		0.4	4	mV
$\Delta V_O$	Load regulation	$I_O = 0\text{ to }3\text{ A}$ , $T_J = 25^\circ\text{C}$		2	10	mV
		$I_O = 0\text{ to }3\text{ A}$		4	20	mV
$V_d$	Dropout voltage	$I_O = 3\text{ A}$		1.3	1.5	V
$I_q$	Quiescent current	$V_I \leq 30\text{ V}$		5	10	mA
$I_{sc}$	Short circuit current	$V_I - V_O = 5\text{ V}$	3.2	4.5		A
		$V_I - V_O = 25\text{ V}$	0.2	0.5		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	$f = 120\text{ Hz}$ , $C_O = 25\ \mu\text{F}$ , $I_O = 3\text{ A}$ $V_I = 7.5 \pm 3\text{ V}$	60	72		dB
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10\text{ Hz to }10\text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.

$V_I = 4.8 \text{ V}$ ,  $C_I = C_O = 10 \mu\text{F}$ ,  $T_A = -40 \text{ to } 125 \text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 5. Electrical characteristics of LD1085#18**

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 0 \text{ mA}$ , $T_J = 25^\circ\text{C}$	1.782	1.8	1.818	V
		$I_O = 0 \text{ to } 3 \text{ A}$ , $V_I = 3.4 \text{ to } 30 \text{ V}$	1.764	1.8	1.836	V
$\Delta V_O$	Line regulation	$I_O = 0 \text{ mA}$ , $V_I = 3.4 \text{ to } 18 \text{ V}$ , $T_J = 25^\circ\text{C}$		0.2	4	mV
		$I_O = 0 \text{ mA}$ , $V_I = 3.4 \text{ to } 15 \text{ V}$		0.4	4	mV
$\Delta V_O$	Load regulation	$I_O = 0 \text{ to } 3 \text{ A}$ , $T_J = 25^\circ\text{C}$		2	10	mV
		$I_O = 0 \text{ to } 3 \text{ A}$		4	20	mV
$V_d$	Dropout voltage	$I_O = 3 \text{ A}$		1.3	1.5	V
$I_q$	Quiescent current	$V_I \leq 30 \text{ V}$		5	10	mA
$I_{sc}$	Short circuit current	$V_I - V_O = 5 \text{ V}$	3.2	4.5		A
		$V_I - V_O = 25 \text{ V}$	0.2	0.5		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30 ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	$f = 120 \text{ Hz}$ , $C_O = 25 \mu\text{F}$ , $I_O = 3 \text{ A}$ $V_I = 7.5 \pm 3 \text{ V}$	60	72		dB
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10 \text{ Hz to } 10 \text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000 Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.



$V_I = 5.5 \text{ V}$ ,  $C_I = C_O = 10 \mu\text{F}$ ,  $T_A = -40 \text{ to } 125 \text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 6. Electrical characteristics of LD1085#25**

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 0 \text{ mA}$ , $T_J = 25^\circ\text{C}$	2.475	2.5	2.525	V
		$I_O = 0 \text{ to } 3 \text{ A}$ , $V_I = 4.1 \text{ to } 30 \text{ V}$	2.45	2.5	2.55	V
$\Delta V_O$	Line regulation	$I_O = 0 \text{ mA}$ , $V_I = 4.1 \text{ to } 18 \text{ V}$ , $T_J = 25^\circ\text{C}$		0.2	4	mV
		$I_O = 0 \text{ mA}$ , $V_I = 4.1 \text{ to } 18 \text{ V}$		0.4	4	mV
$\Delta V_O$	Load regulation	$I_O = 0 \text{ to } 3 \text{ A}$ , $T_J = 25^\circ\text{C}$		2	10	mV
		$I_O = 0 \text{ to } 3 \text{ A}$		4	20	mV
$V_d$	Dropout voltage	$I_O = 3 \text{ A}$		1.3	1.5	V
$I_q$	Quiescent current	$V_I \leq 30 \text{ V}$		5	10	mA
$I_{sc}$	Short circuit current	$V_I - V_O = 5 \text{ V}$	3.2	4.5		A
		$V_I - V_O = 25 \text{ V}$	0.2	0.5		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	$f = 120 \text{ Hz}$ , $C_O = 25\mu\text{F}$ , $I_O = 3 \text{ A}$ $V_I = 7.5 \pm 3 \text{ V}$	60	72		dB
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10 \text{ Hz to } 10 \text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000 Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.

$V_I = 6.3 \text{ V}$ ,  $C_I = C_O = 10 \mu\text{F}$ ,  $T_A = -40 \text{ to } 125 \text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 7. Electrical characteristics of LD1085#33**

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 0 \text{ mA}$ , $T_J = 25^\circ\text{C}$	3.267	3.3	3.333	V
		$I_O = 0 \text{ to } 3 \text{ A}$ , $V_I = 4.9 \text{ to } 30 \text{ V}$	3.234	3.35	3.366	V
$\Delta V_O$	Line regulation	$I_O = 0 \text{ mA}$ , $V_I = 4.9 \text{ to } 18 \text{ V}$ , $T_J = 25^\circ\text{C}$		0.5	6	mV
		$I_O = 0 \text{ mA}$ , $V_I = 4.9 \text{ to } 18 \text{ V}$		1	6	mV
$\Delta V_O$	Load regulation	$I_O = 0 \text{ to } 3 \text{ A}$ , $T_J = 25^\circ\text{C}$		3	15	mV
		$I_O = 0 \text{ to } 3 \text{ A}$		7	20	mV
$V_d$	Dropout voltage	$I_O = 3 \text{ A}$		1.3	1.5	V
$I_q$	Quiescent current	$V_I \leq 30 \text{ V}$		5	10	mA
$I_{sc}$	Short circuit current	$V_I - V_O = 5 \text{ V}$	3.2	4.5		A
		$V_I - V_O = 25 \text{ V}$	0.2	0.5		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30 ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	$f = 120 \text{ Hz}$ , $C_O = 25 \mu\text{F}$ , $I_O = 3 \text{ A}$ $V_I = 8.3 \pm 3 \text{ V}$	60	72		dB
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10 \text{ Hz to } 10 \text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000 Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.

$V_I = 8\text{ V}$ ,  $C_I = C_O = 10\ \mu\text{F}$ ,  $T_A = -40\text{ to }125\text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 8. Electrical characteristics of LD1085#50**

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 0\text{ mA}$ , $T_J = 25^\circ\text{C}$	4.95	5	5.05	V
		$I_O = 0\text{ to }3\text{ A}$ , $V_I = 6.6\text{ to }30\text{ V}$	4.9	5	5.1	V
$\Delta V_O$	Line regulation	$I_O = 0\text{ mA}$ , $V_I = 6.6\text{ to }20\text{ V}$ , $T_J = 25^\circ\text{C}$		0.5	10	mV
		$I_O = 0\text{ mA}$ , $V_I = 6.6\text{ to }20\text{ V}$		1	10	mV
$\Delta V_O$	Load regulation	$I_O = 0\text{ to }3\text{ A}$ , $T_J = 25^\circ\text{C}$		5	10	mV
		$I_O = 0\text{ to }3\text{ A}$		10	35	mV
$V_d$	Dropout voltage	$I_O = 3\text{ A}$		1.3	1.5	V
$I_q$	Quiescent current	$V_I \leq 30\text{ V}$		5	10	mA
$I_{sc}$	Short circuit current	$V_I - V_O = 5\text{ V}$	3.2	4.5		A
		$V_I - V_O = 25\text{ V}$	0.2	0.5		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30 ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	$f = 120\text{ Hz}$ , $C_O = 25\ \mu\text{F}$ , $I_O = 3\text{ A}$ $V_I = 10 \pm 3\text{ V}$	60	72		dB
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10\text{ Hz to }10\text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000 Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.

$V_I = 4.25\text{ V}$ ,  $C_I = C_O = 10\ \mu\text{F}$ ,  $T_A = -40\text{ to }125\text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 9. Electrical characteristics of LD1085#**

Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 10\text{ mA}$ , $T_J = 25^\circ\text{C}$	1.237	1.25	1.263	V
		$I_O = 10\text{ mA to }3\text{ A}$ , $V_I = 2.85\text{ to }30\text{ V}$	1.225	1.25	1.275	V
$\Delta V_O$	Line regulation	$I_O = 10\text{ mA}$ , $V_I = 2.85\text{ to }16.5\text{ V}$ , $T_J = 25^\circ\text{C}$		0.015	0.2	%
		$I_O = 10\text{ mA}$ , $V_I = 2.85\text{ to }16.5\text{ V}$		0.035	0.2	%
$\Delta V_O$	Load regulation	$I_O = 10\text{ mA to }3\text{ A}$ , $T_J = 25^\circ\text{C}$		0.1	0.3	%
		$I_O = 0\text{ to }3\text{ A}$		0.2	0.4	%
$V_d$	Dropout voltage	$I_O = 3\text{ A}$		1.3	1.5	V
$I_{O(\text{min})}$	Minimum load current	$V_I = 30\text{ V}$		3	10	mA
$I_{\text{sc}}$	Short circuit current	$V_I - V_O = 5\text{ V}$	5.5	6.5		A
		$V_I - V_O = 25\text{ V}$	0.5	0.7		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30ms pulse		0.003	0.015	%/W
SVR	Supply voltage rejection	$f = 120\text{ Hz}$ , $C_O = 25\ \mu\text{F}$ , $C_{\text{ADJ}} = 25\ \mu\text{F}$ , $I_O = 3\text{ A}$ , $V_I = 6.25 \pm 3\text{ V}$	60	72		dB
$I_{\text{ADJ}}$	Adjust pin current	$V_I = 4.25\text{ V}$ , $I_O = 10\text{ mA}$		55	120	$\mu\text{A}$
$\Delta I_{\text{ADJ}}$	Adjust pin current change <sup>(1)</sup>	$I_O = 10\text{ mA to }3\text{ A}$ , $V_I = 2.85\text{ to }16.5\text{ V}$		0.2	5	$\mu\text{A}$
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10\text{ Hz to }10\text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000 Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.

$V_I = 4.25\text{ V}$ ,  $C_I = C_O = 10\ \mu\text{F}$ ,  $T_A = -40\text{ to }125\text{ }^\circ\text{C}$ , unless otherwise specified.

**Table 10. Electrical characteristics of LD1085PY (Automotive Grade)**

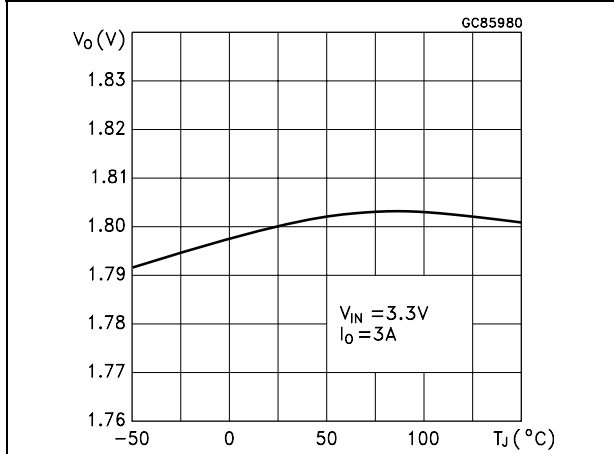
Symbol	Parameter	Test condition	Min.	Typ.	Max.	Unit
$V_O$	Output voltage <sup>(1)</sup>	$I_O = 10\text{ mA}$ , $T_A = 25^\circ\text{C}$	1.237	1.25	1.263	V
		$I_O = 10\text{ mA to }3\text{ A}$ , $V_I = 2.85\text{ to }30\text{ V}$	1.225	1.25	1.275	V
$\Delta V_O$	Line regulation	$I_O = 10\text{ mA}$ , $V_I = 2.85\text{ to }16.5\text{ V}$		0.035	0.2	%
$\Delta V_O$	Load regulation	$I_O = 0\text{ to }3\text{ A}$		0.2	0.4	%
$V_d$	Dropout voltage	$I_O = 3\text{ A}$		1.3	1.5	V
$I_{O(\text{min})}$	Minimum load current	$V_I = 30\text{ V}$		3	10	mA
$I_{\text{sc}}$	Short circuit current	$V_I - V_O = 5\text{ V}$ , $T_A = 25^\circ\text{C}$	5.5	6.5		A
		$V_I - V_O = 25\text{ V}$ , $T_A = 25^\circ\text{C}$	0.5	0.7		A
	Thermal regulation	$T_A = 25^\circ\text{C}$ , 30 ms pulse		0.003	0.015	%/W
SVR	Supply voltage rejection	$f = 120\text{ Hz}$ , $C_O = 25\ \mu\text{F}$ , $C_{\text{ADJ}} = 25\ \mu\text{F}$ , $I_O = 3\text{ A}$ , $V_I = 6.25 \pm 3\text{ V}$ , $T_A = 25^\circ\text{C}$	60	72		dB
$I_{\text{ADJ}}$	Adjust pin current	$V_I = 4.25\text{ V}$ , $I_O = 10\text{ mA}$		55	120	$\mu\text{A}$
$\Delta I_{\text{ADJ}}$	Adjust pin current change <sup>(1)</sup>	$I_O = 10\text{ mA to }3\text{ A}$ , $V_I = 2.85\text{ to }16.5\text{ V}$		0.2	5	$\mu\text{A}$
eN	RMS output noise voltage (% of $V_O$ )	$T_A = 25^\circ\text{C}$ , $f = 10\text{ Hz to }10\text{ kHz}$		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	$T_A = 125^\circ\text{C}$ , 1000 Hrs		0.5		%

1. See short-circuit current curve for available output current at fixed dropout.

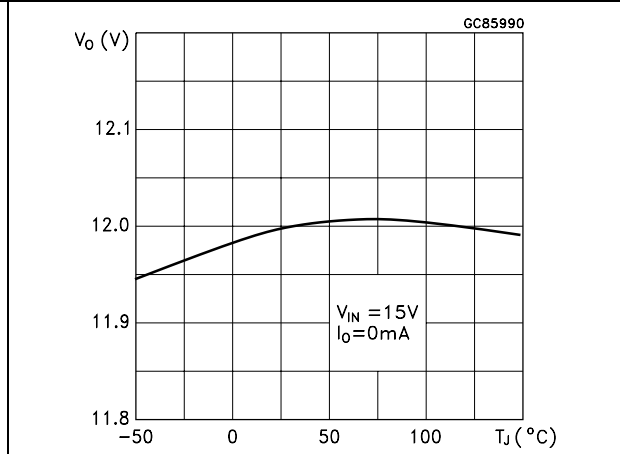
# 6 Typical application

Unless otherwise specified  $T_J = 25\text{ }^\circ\text{C}$ ,  $C_I = C_O = 10\text{ }\mu\text{F}$ .

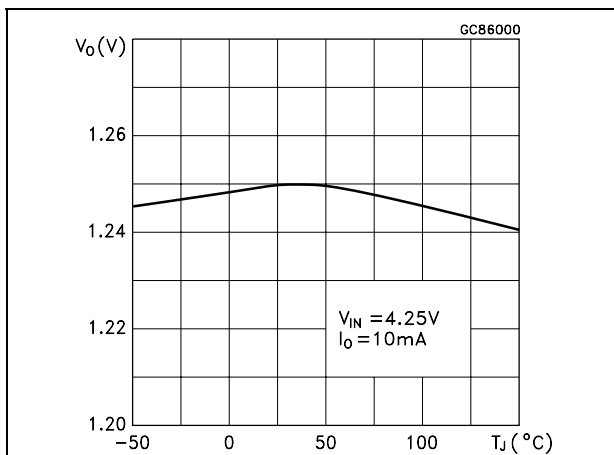
**Figure 4. Output voltage vs. temperature**



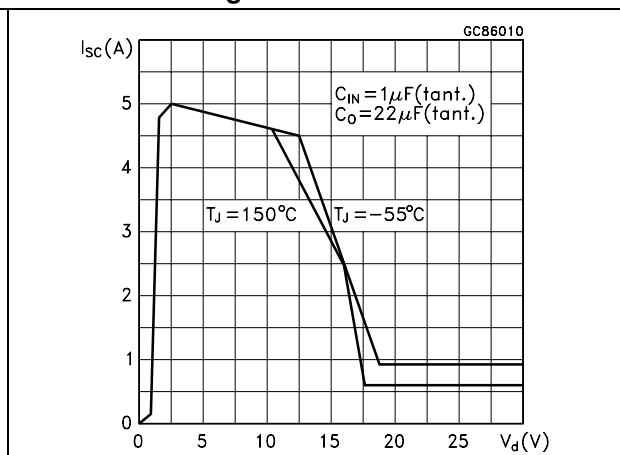
**Figure 5. Output voltage vs. temperature**



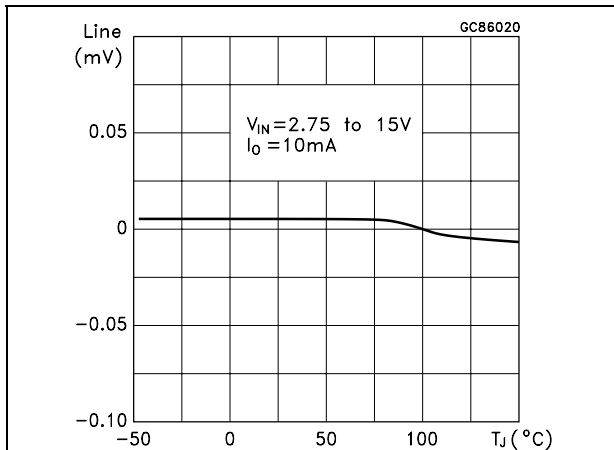
**Figure 6. Output voltage vs. temperature**



**Figure 7. Short circuit current vs. dropout voltage**



**Figure 8. Line regulation vs. temperature**



**Figure 9. Load regulation vs. temperature**

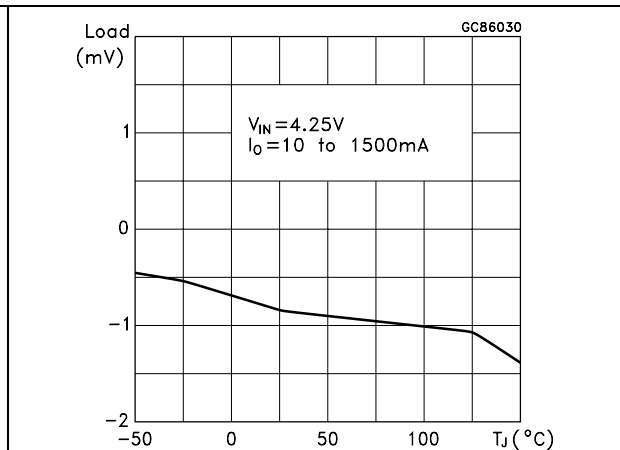


Figure 10. Dropout voltage vs. temperature

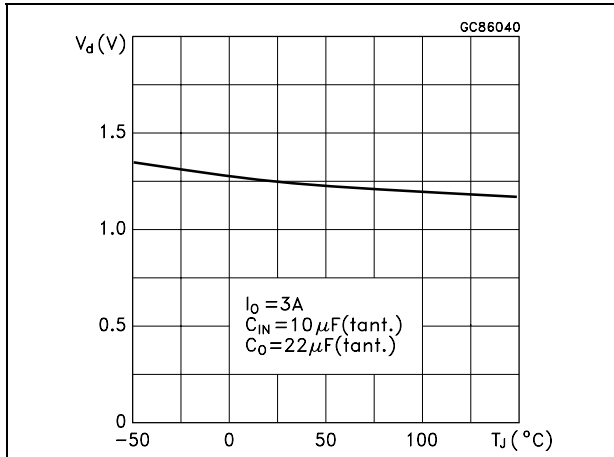


Figure 11. Dropout voltage vs. output current

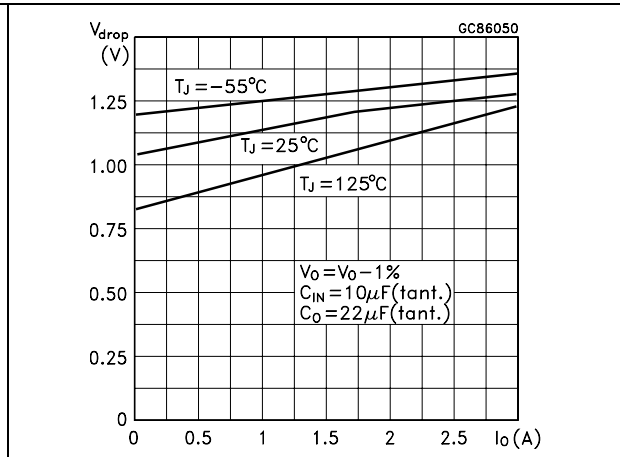


Figure 12. Adjust pin current vs. temperature

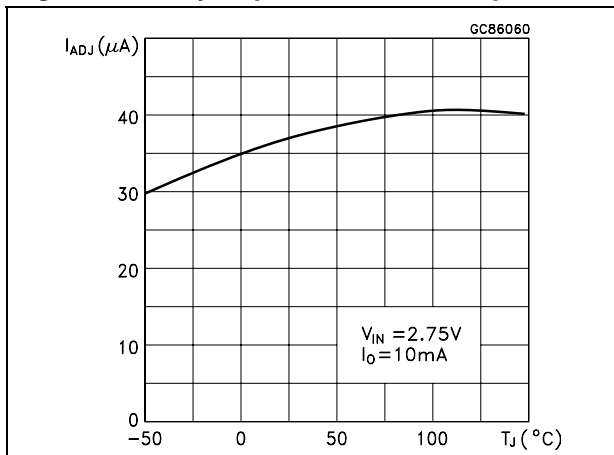


Figure 13. Quiescent current vs. temperature

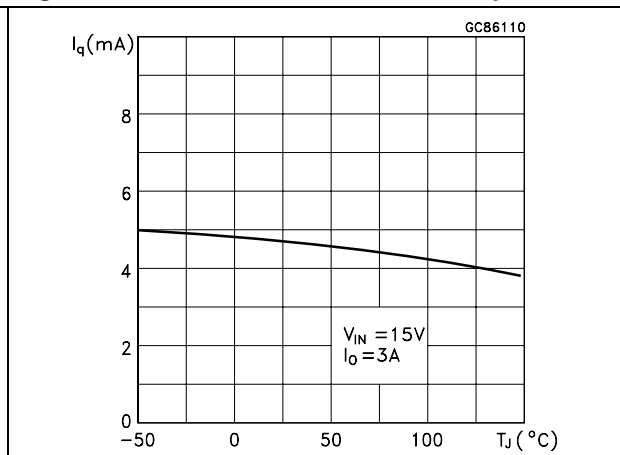


Figure 14. Line regulation vs. temperature

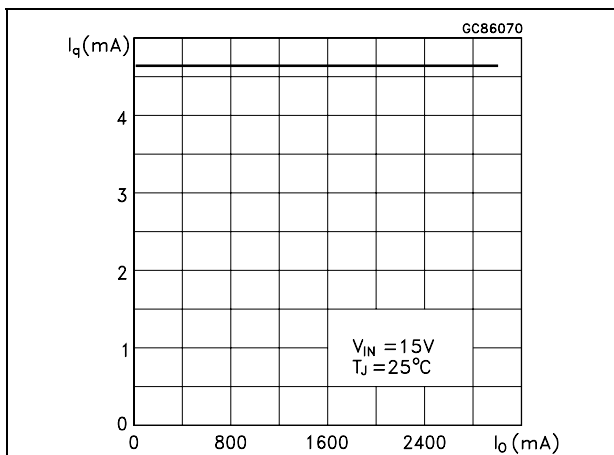


Figure 15. Supply voltage rejection vs. output current

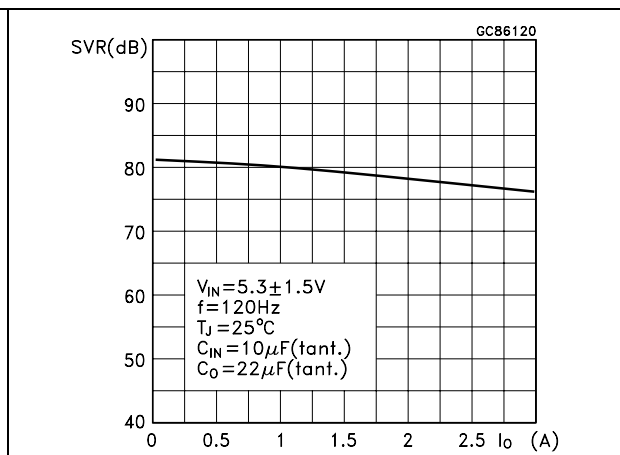


Figure 16. Supply voltage rejection vs. frequency

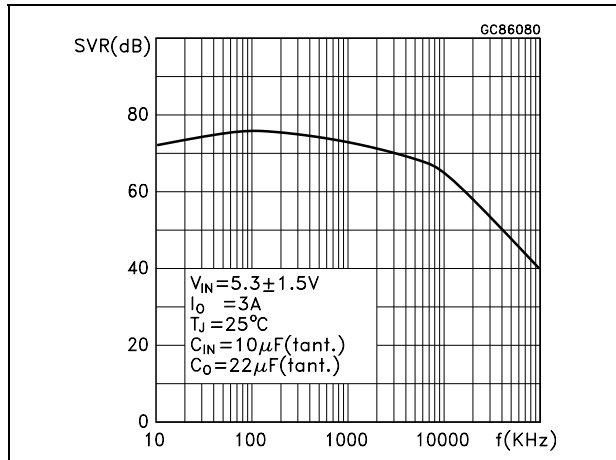


Figure 17. Supply voltage rejection vs. temperature

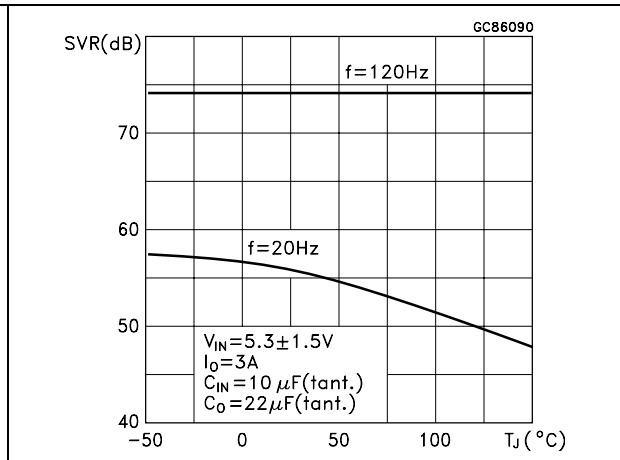


Figure 18. Minimum load current vs. temperature

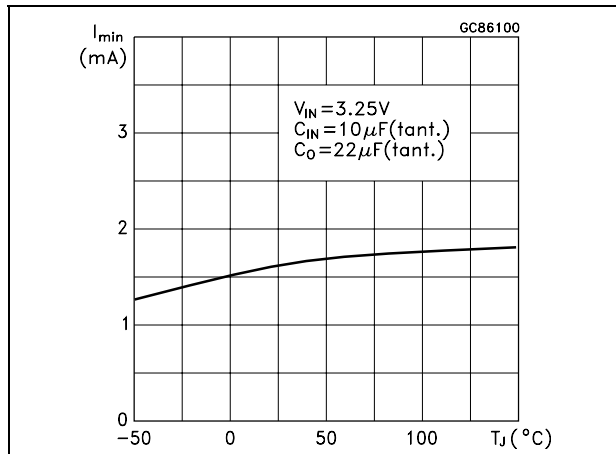


Figure 19. Stability, VO = 1.8 V

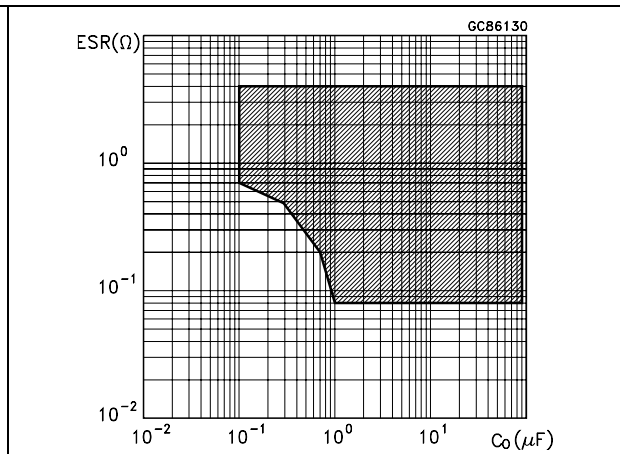


Figure 20. Stability, VO = 12 V

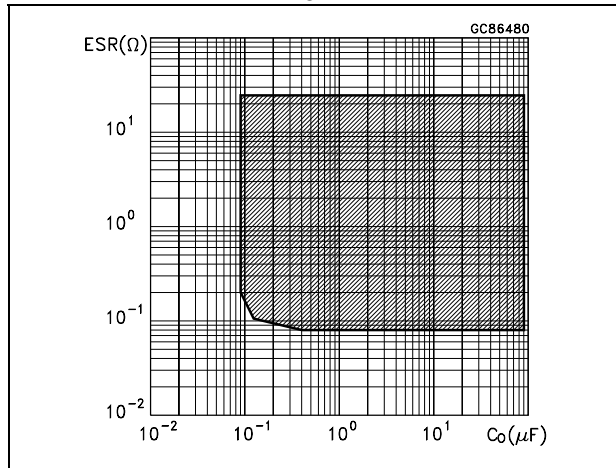


Figure 21. Line transient

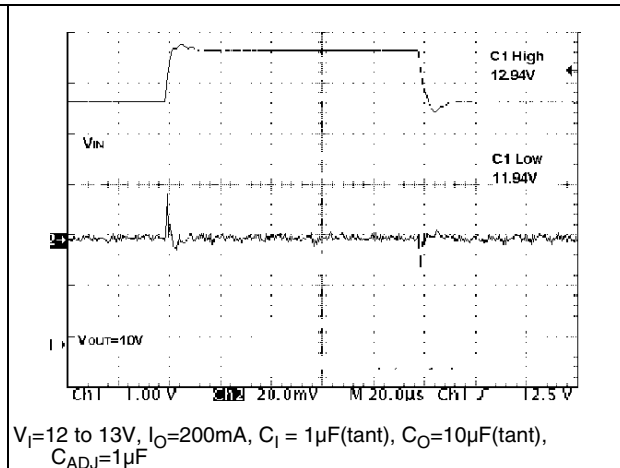




Figure 22. Line transient

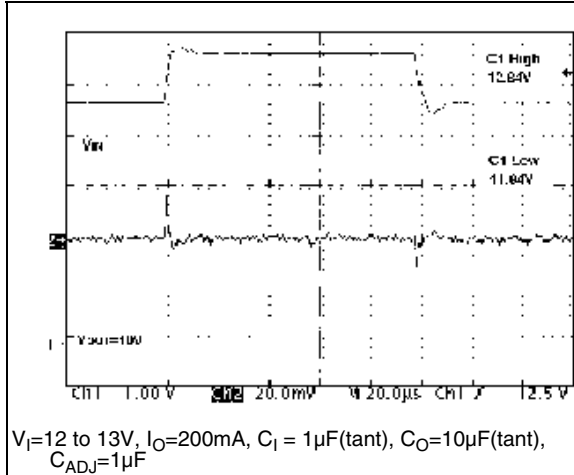


Figure 23. Load transient

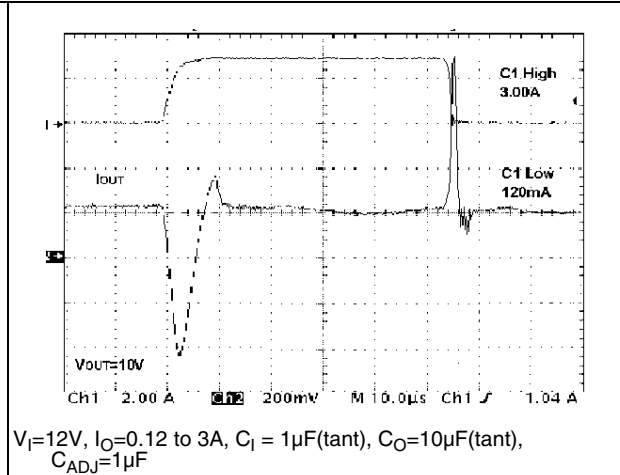
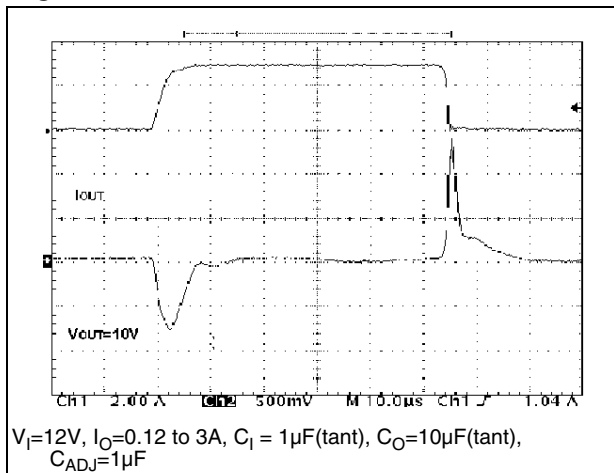


Figure 24. Load transient

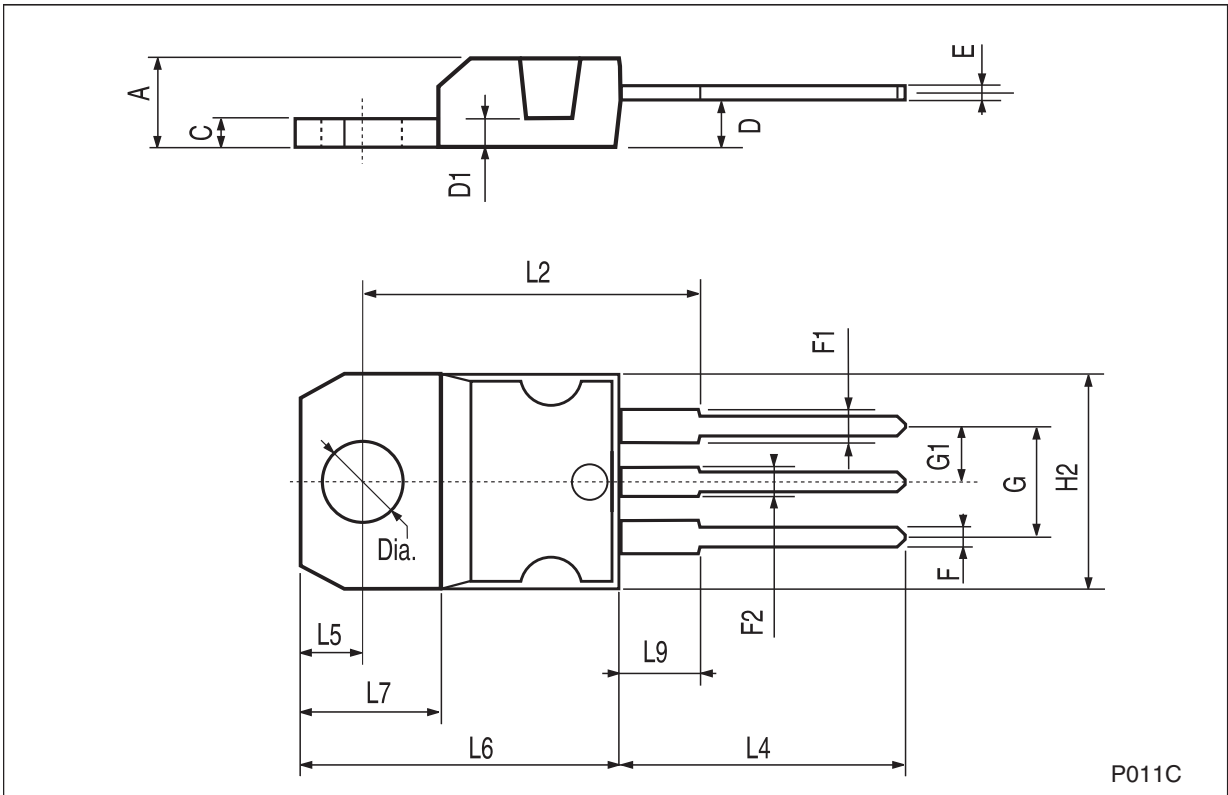


## 7 Package mechanical data

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

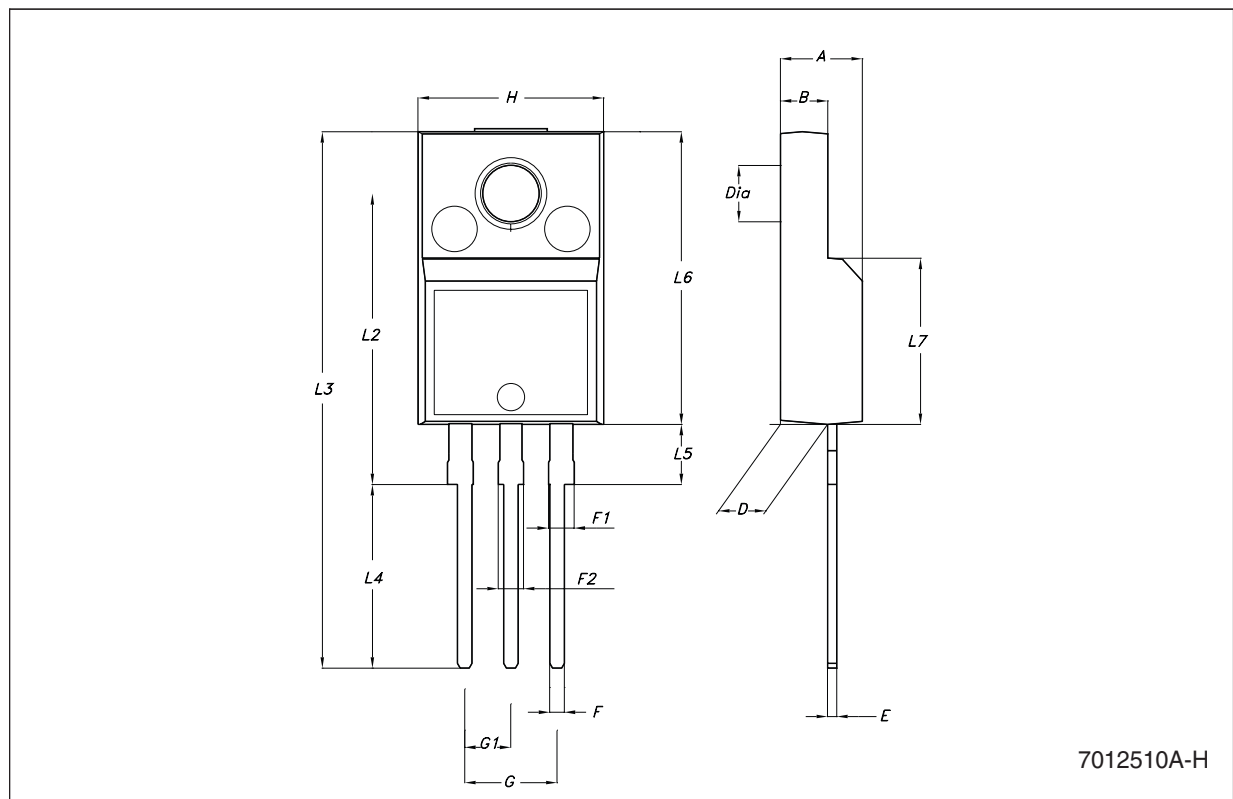
**TO-220 mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



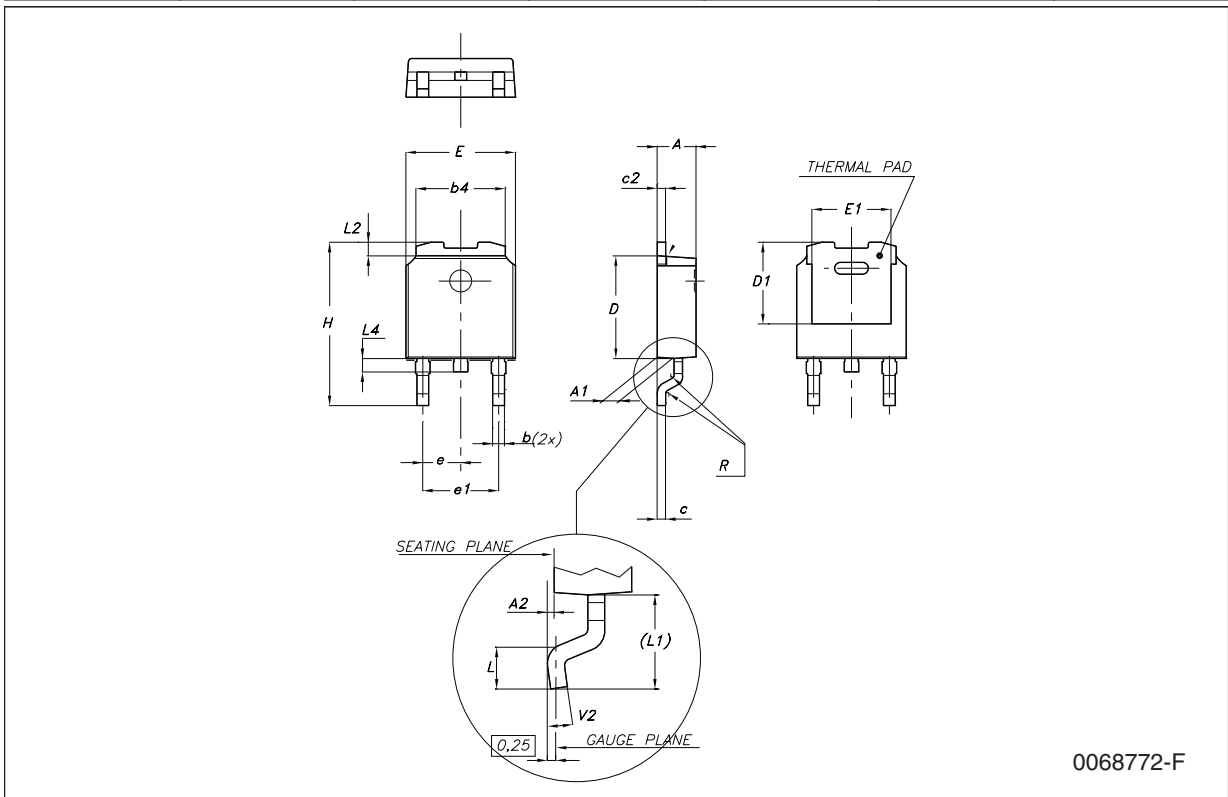
**TO-220FP mechanical data**

Dim.	mm.			inch.		
	Min.	Typ	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.45		0.70	0.017		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.50	0.045		0.059
F2	1.15		1.50	0.045		0.059
G	4.95		5.2	0.194		0.204
G1	2.4		2.7	0.094		0.106
H	10.0		10.40	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
L5	2.9		3.6	0.114		0.142
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
DIA.	3		3.2	0.118		0.126



**DPAK mechanical data**

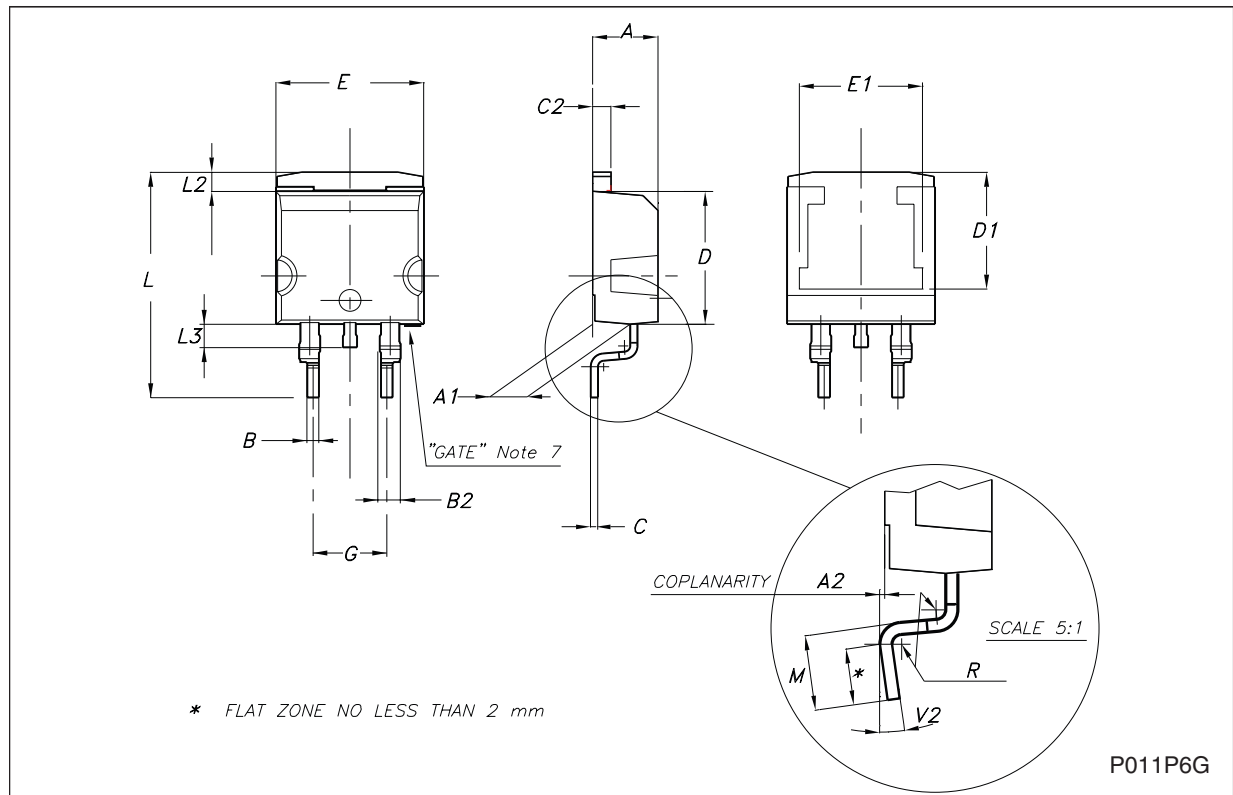
Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
b4	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
D1		5.1			0.200	
E	6.4		6.6	0.252		0.260
E1		4.7			0.185	
e		2.28			0.090	
e1	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L	1			0.039		
(L1)		2.8			0.110	
L2		0.8			0.031	
L4	0.6		1	0.023		0.039
R		0.2			0.008	
V2	0°		8°	0°		8°



0068772-F

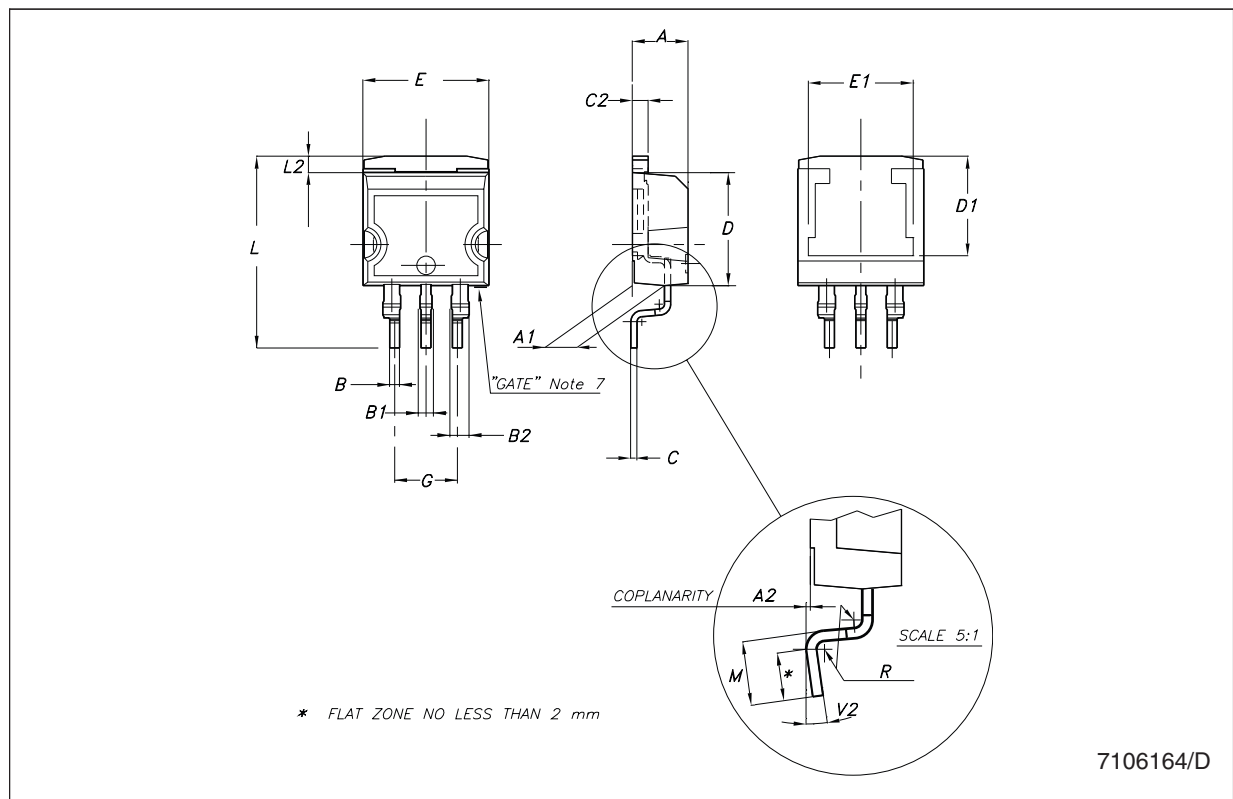
**D<sup>2</sup>PAK mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.4		4.6	0.173		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.7		0.93	0.027		0.036
B2	1.14		1.7	0.044		0.067
C	0.45		0.6	0.017		0.023
C2	1.23		1.36	0.048		0.053
D	8.95		9.35	0.352		0.368
D1		8			0.315	
E	10		10.4	0.393		0.409
E1		8.5			0.335	
G	4.88		5.28	0.192		0.208
L	15		15.85	0.590		0.624
L2	1.27		1.4	0.050		0.055
L3	1.4		1.75	0.055		0.068
M	2.4		3.2	0.094		0.126
R		0.4			0.016	
V2	0°		8°	0°		8°



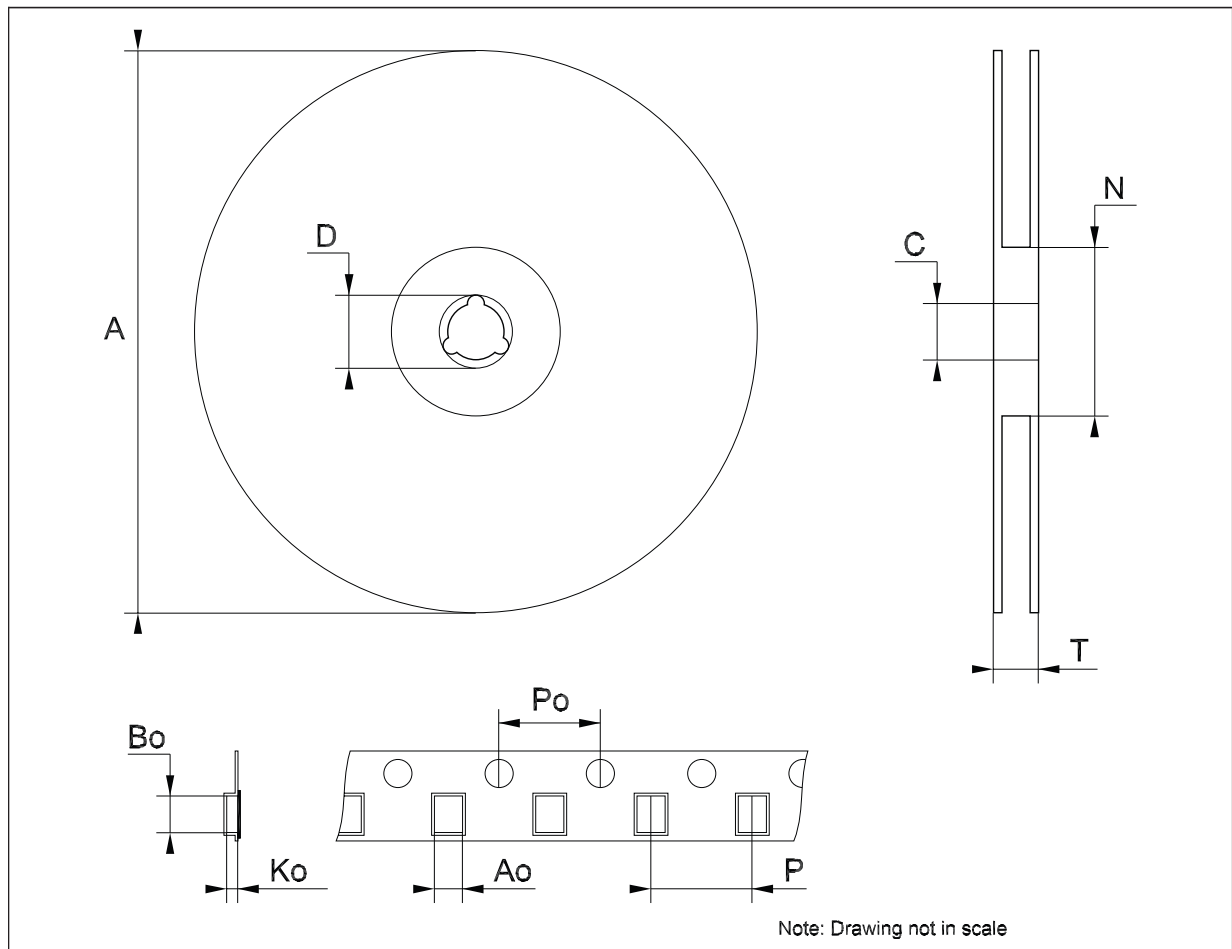
**D<sup>2</sup>PAK/A mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.7		0.93	0.028		0.037
B1	0.8		1.3	0.031		0.051
B2	1.14		1.7	0.045		0.067
C	0.45		0.60	0.018		0.024
C2	1.23		1.36	0.048		0.054
D	8.95		9.35	0.352		0.368
D1		8			0.315	
E	10		10.4	0.394		0.409
E1		8.5			0.335	
G	4.88		5.28	0.192		0.208
L	15		15.85	0.591		0.624
L2	1.27		1.4	0.050		0.055
M	2.4		3.2	0.094		0.126
R		0.4			0.016	
V2	0°		8°	0°		8°



**Tape & reel DPAK-PPAK mechanical data**

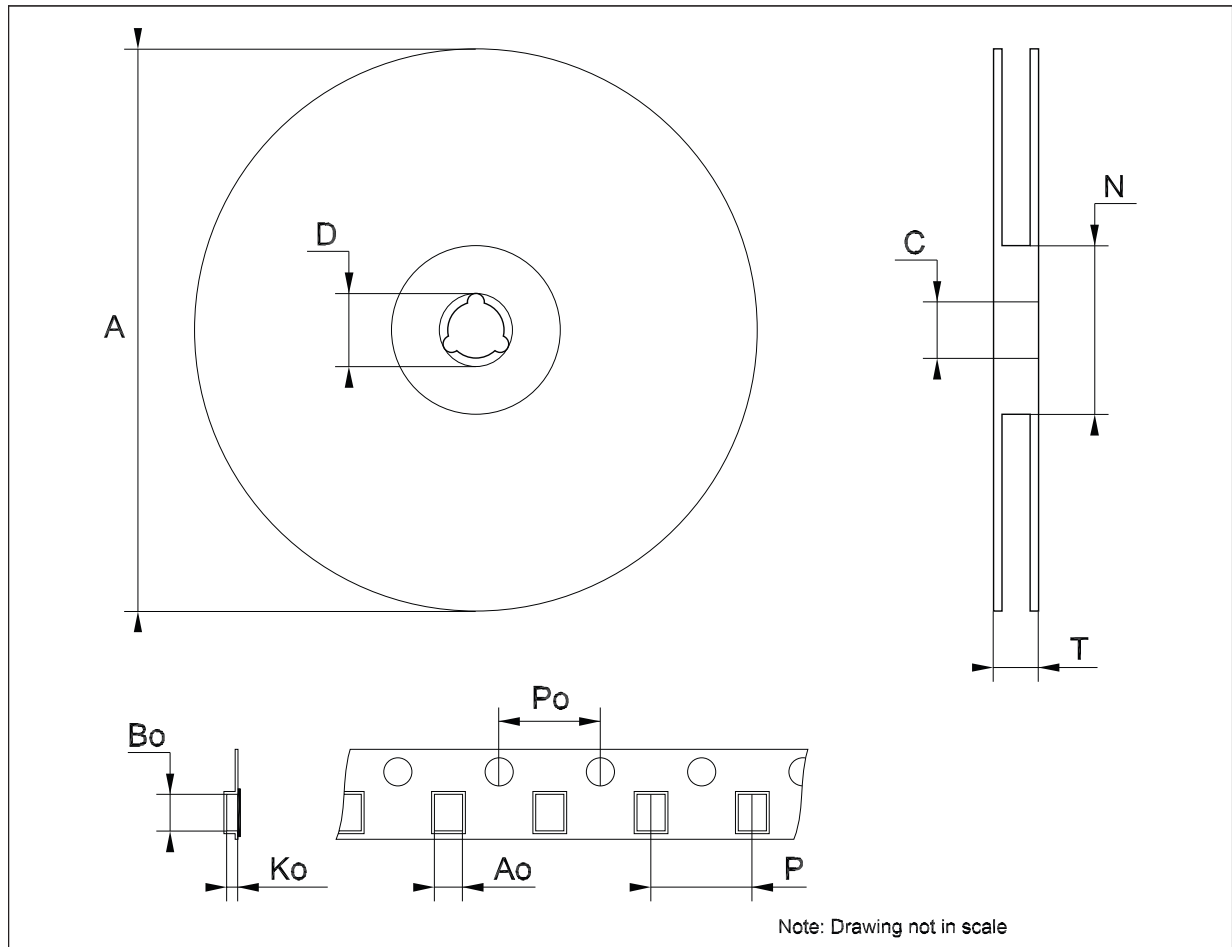
Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			330			12.992
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			22.4			0.882
Ao	6.80	6.90	7.00	0.268	0.272	0.276
Bo	10.40	10.50	10.60	0.409	0.413	0.417
Ko	2.55	2.65	2.75	0.100	0.104	0.105
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	7.9	8.0	8.1	0.311	0.315	0.319





**Tape & reel D<sup>2</sup>PAK-P<sup>2</sup>PAK-D<sup>2</sup>PAK/A-P<sup>2</sup>PAK/A mechanical data**

Dim.	mm.			inch.		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			180			7.086
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			14.4			0.567
Ao	10.50	10.6	10.70	0.413	0.417	0.421
Bo	15.70	15.80	15.90	0.618	0.622	0.626
Ko	4.80	4.90	5.00	0.189	0.193	0.197
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	11.9	12.0	12.1	0.468	0.472	0.476



## 8 Order codes

Table 11. Order codes

Packages					Output voltage
TO-220	TO-220FP	D <sup>2</sup> PAK	DKAK (T&R)	D <sup>2</sup> PAK/A (T&R)	
			LD1085DT15R		1.5 V
				LD1085D2M18R	1.8 V
				LD1085D2M25R	2.5 V
		LD1085D2T33R		LD1085D2M33R	3.3 V
LD1085V50					5.0 V
LD1085V	LD1085P	LD1085D2T-R		LD1085D2M-R	ADJ
	LD1085PY <sup>(1)</sup>				ADJ

1. Automotive Grade products.

## 9 Revision history

**Table 12. Document revision history**

Date	Revision	Changes
07-Oct-2004	12	Mistake order codes - Table 1.
08-Feb-2005	13	Mistake U.M. load regulation - V ==> mV.
01-Mar-2005	14	Version 1.2 V removed.
22-May-2006	15	Order codes has been updated and new template.
10-Nov-2006	16	Add package DPAK, typo on V <sub>O</sub> test value in tables 3, 4 and 11.
04-Apr-2007	17	Order codes updated.
07-Jun-2007	18	Order codes updated.
05-Dec-2007	19	Modified: <a href="#">Table 11</a> .
29-Jan-2008	20	Added new order codes for Automotive grade products see <a href="#">Table 11 on page 26</a> .
18-Feb-2008	21	Modified: <a href="#">Table 11 on page 26</a> .
09-Apr-2008	22	Modified: <a href="#">Table 11 on page 26</a> .
14-Jul-2008	23	Modified: <a href="#">Table 11 on page 26</a> .
22-Aug-2008	24	Modified: <a href="#">Table 3 on page 5</a> .
28-Jul-2009	25	Modified: <a href="#">Table 11 on page 26</a> .

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