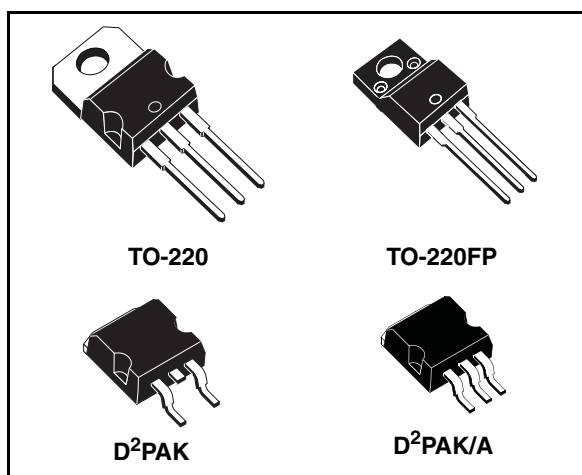


## 3A Low drop positive voltage regulator adjustable and fixed

### Feature summary

- Typical dropout 1.3V (at 3A)
- Three terminal adjustable or fixed output voltage 1.5V, 1.8V, 2.5V, 3.3V, 3.6V, 5V, 8V, 9V, 12V.
- Guaranteed output current up to 3A
- 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, D<sup>2</sup>PAK, D<sup>2</sup>PAK/A
- Pinout compatibility with standard adjustable VREG



better performances in term of drop and output tolerance.

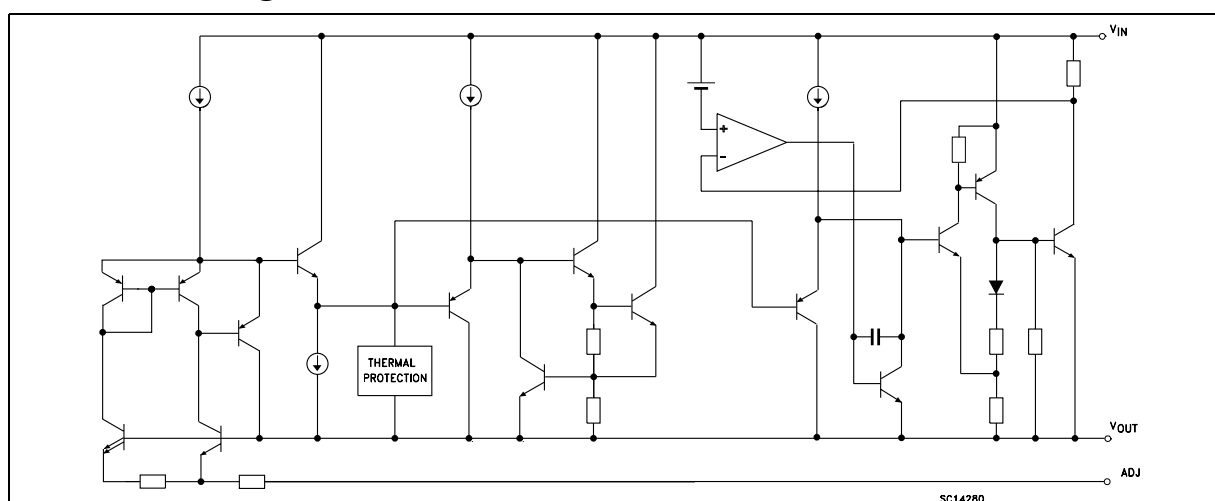
A 2.85V output version is suitable for SCSI-2 active termination. Unlike PNP regulators, where a part of the output current is wasted as quiescent current, the LD1085 quiescent current flows into the load, so increase efficiency. Only a 10 $\mu$ F minimum capacitor is need for stability.

The device is supplied in TO-220, TO-220FP, D2PAK and D2PAK/A. On chip trimming allows the regulator to reach a very tight output voltage tolerance, within  $\pm 1\%$  at 25°C.

### Description

The LD1085 is a LOW DROP Voltage Regulator able to provide up to 3A of Output Current. Dropout is guaranteed at a maximum of 1.2V at the maximum output current, decreasing at lower loads. The LD1085 is pin to pin compatible with the older 3-terminal adjustable regulators, but has

### Schematic diagram



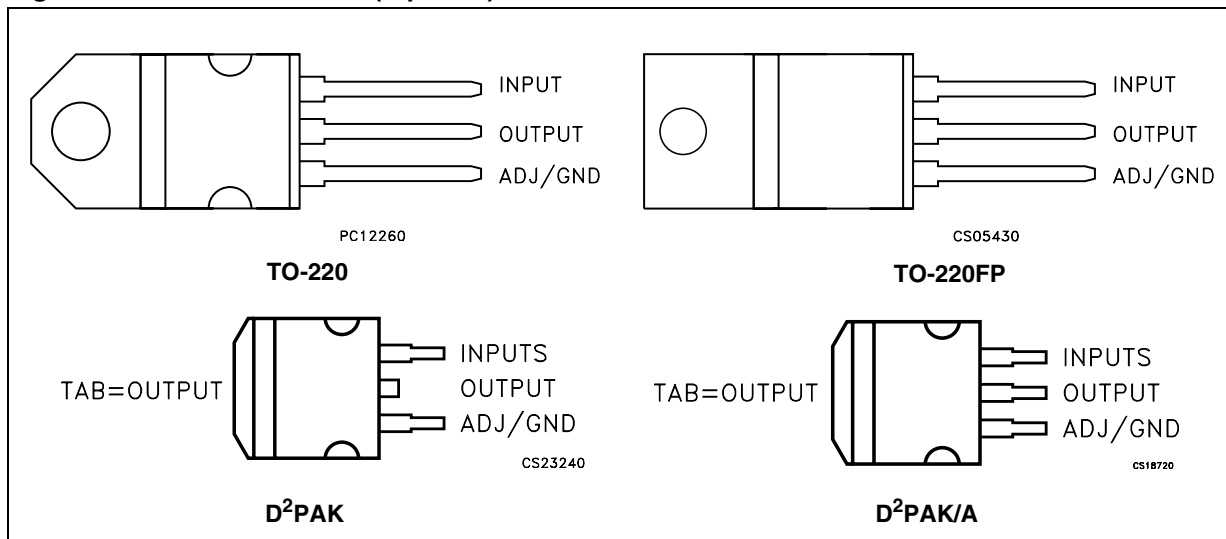
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# 1 Pin configuration

Figure 1. Pin connections (top view)



## 2 Maximum ratings

**Table 1. 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

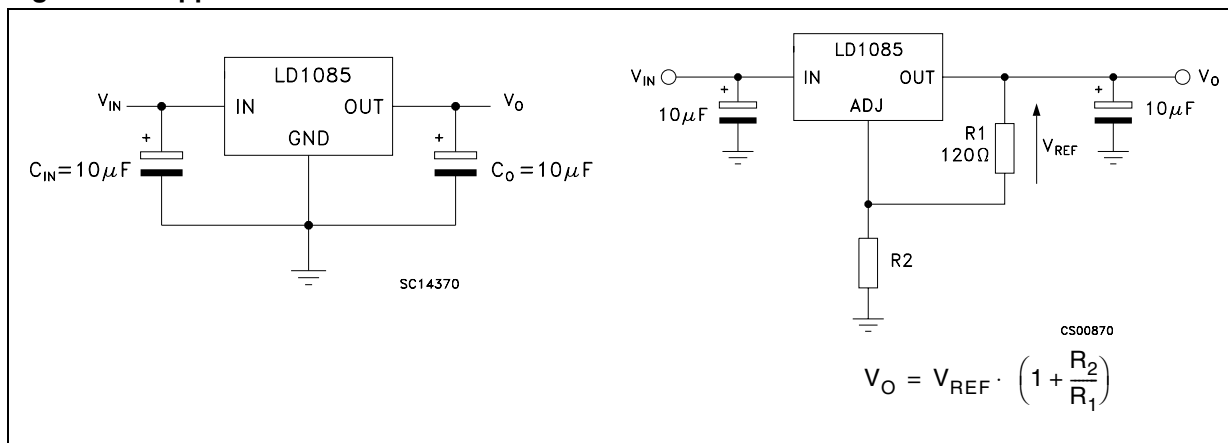
*Note: Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied*

**Table 2. Thermal Data**

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

### 3 Schematic application

Figure 2. Application circuit



## 4 Electrical characteristics

**Table 3. Electrical characteristics of LD1085#15**  
( $V_I=4.5V$ ,  $C_I = C_O = 10\mu F$ ,  $T_A = -40$  to  $125^\circ C$ , unless otherwise specified).

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

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

**Table 4. Electrical characteristics of LD1085#18**(V<sub>I</sub>=4.8V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	1.782	1.8	1.818	V
		I <sub>O</sub> = 0 to 1.5A, V <sub>I</sub> = 3.4 to 30V	1.764	1.8	1.836	V
ΔV <sub>O</sub>	Line Regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 3.4 to 18V T <sub>J</sub> = 25°C		0.2	4	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 3.4 to 15V		0.4	4	mV
ΔV <sub>O</sub>	Load Regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		2	10	mV
		I <sub>O</sub> = 0 to 3A		4	20	mV
V <sub>d</sub>	Dropout Voltage	I <sub>O</sub> = 3 A		1.3	1.5	V
I <sub>q</sub>	Quiescent Current	V <sub>I</sub> ≤30V		5	10	mA
I <sub>sc</sub>	Short Circuit Current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal Regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 3A V <sub>I</sub> = 7.5 ± 3V	60	72		dB
eN	RMS Output Noise Voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

**Table 5. Electrical characteristics of LD1085#25**(V<sub>I</sub>=5.5V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	2.475	2.5	2.525	V
		I <sub>O</sub> = 0 to 3A, V <sub>I</sub> = 4.1 to 30V	2.45	2.5	2.55	V
ΔV <sub>O</sub>	Line regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 4.1 to 18V, T <sub>J</sub> = 25°C		0.2	4	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 4.1 to 18V		0.4	4	mV
ΔV <sub>O</sub>	Load regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		2	10	mV
		I <sub>O</sub> = 0 to 3A		4	20	mV
V <sub>d</sub>	Dropout voltage	I <sub>O</sub> = 3A		1.3	1.5	V
I <sub>q</sub>	Quiescent current	V <sub>I</sub> ≤ 30V		5	10	mA
I <sub>sc</sub>	Short circuit current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 3A V <sub>I</sub> = 7.5 ± 3V	60	72		dB
eN	RMS Output noise voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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



**Table 6. Electrical characteristics of LD1085#33**(V<sub>I</sub>=6.3V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	3.267	3.3	3.333	V
		I <sub>O</sub> = 0 to 3A, V <sub>I</sub> = 4.9 to 30V	3.234	3.35	3.366	V
ΔV <sub>O</sub>	Line regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 4.9 to 18V, T <sub>J</sub> = 25°C		0.5	6	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 4.9 to 18V		1	6	mV
ΔV <sub>O</sub>	Load regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		3	15	mV
		I <sub>O</sub> = 0 to 3A		7	20	mV
V <sub>d</sub>	Dropout voltage	I <sub>O</sub> = 3A		1.3	1.5	V
I <sub>q</sub>	Quiescent current	V <sub>I</sub> ≤ 30V		5	10	mA
I <sub>sc</sub>	Short circuit current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 5A V <sub>I</sub> = 8.3 ± 3V	60	72		dB
eN	RMS Output noise voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

**Table 7. Electrical characteristics of LD1085#36**(V<sub>I</sub>=6.6V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	3.564	3.6	3.636	V
		I <sub>O</sub> = 0 to 3A, V <sub>I</sub> = 5.2 to 30V	3.528	3.6	3.672	V
ΔV <sub>O</sub>	Line regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 5.2 to 18V, T <sub>J</sub> = 25°C		0.5	10	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 5.2 to 18V		1	10	mV
ΔV <sub>O</sub>	Load regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		3	15	mV
		I <sub>O</sub> = 0 to 3A		7	20	mV
V <sub>d</sub>	Dropout voltage	I <sub>O</sub> = 3A		1.3	1.5	V
I <sub>q</sub>	Quiescent current	V <sub>I</sub> ≤ 30V		5	10	mA
I <sub>sc</sub>	Short circuit current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 3A V <sub>I</sub> = 8.6 ± 3V	60	72		dB
eN	RMS Output noise voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

**Table 8. Electrical characteristics of LD1085#50**(V<sub>I</sub>=8V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	4.95	5	5.05	V
		I <sub>O</sub> = 0 to 3A, V <sub>I</sub> = 6.6 to 30V	4.9	5	5.1	V
ΔV <sub>O</sub>	Line regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 6.6 to 20V, T <sub>J</sub> = 25°C		0.5	10	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 6.6 to 20V		1	10	mV
ΔV <sub>O</sub>	Load regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		5	10	mV
		I <sub>O</sub> = 0 to 3A		10	35	mV
V <sub>d</sub>	Dropout voltage	I <sub>O</sub> = 3A		1.3	1.5	V
I <sub>q</sub>	Quiescent current	V <sub>I</sub> ≤ 30V		5	10	mA
I <sub>sc</sub>	Short circuit current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 3A V <sub>I</sub> = 10 ± 3V	60	72		dB
eN	RMS Output noise voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

**Table 9. Electrical characteristics of LD1085#90**(V<sub>I</sub>=12V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	8.91	9	9.09	V
		I <sub>O</sub> = 0 to 3A, V <sub>I</sub> = 11 to 30V	8.82	9	9.18	V
ΔV <sub>O</sub>	Line regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 11 to 20V, T <sub>J</sub> = 25°C		1	20	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 11 to 20V		2	20	mV
ΔV <sub>O</sub>	Load regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		8	30	mV
		I <sub>O</sub> = 0 to 3A		12	60	mV
V <sub>d</sub>	Dropout voltage	I <sub>O</sub> = 3A		1.3	1.5	V
I <sub>q</sub>	Quiescent current	V <sub>I</sub> ≤ 30V		5	10	mA
I <sub>sc</sub>	Short circuit current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 3A V <sub>I</sub> = 14 ± 3V	54	70		dB
eN	RMS Output noise voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

**Table 10. Electrical characteristics of LD1085#12**(V<sub>I</sub>=15V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 0 mA, T <sub>J</sub> = 25°C	11.88	12	12.12	V
		I <sub>O</sub> = 0 to 3A, V <sub>I</sub> = 13.8 to 30V	11.76	12	12.24	V
ΔV <sub>O</sub>	Line regulation	I <sub>O</sub> = 0 mA, V <sub>I</sub> = 13.8 to 25V, T <sub>J</sub> = 25°C		1	25	mV
		I <sub>O</sub> = 0 mA, V <sub>I</sub> = 13.8 to 25V		2	25	mV
ΔV <sub>O</sub>	Load regulation	I <sub>O</sub> = 0 to 3A, T <sub>J</sub> = 25°C		12	36	mV
		I <sub>O</sub> = 0 to 3A		24	72	mV
V <sub>d</sub>	Dropout voltage	I <sub>O</sub> = 3A		1.3	1.5	V
I <sub>q</sub>	Quiescent current	V <sub>I</sub> ≤ 30V		5	10	mA
I <sub>sc</sub>	Short circuit current	V <sub>I</sub> - V <sub>O</sub> = 5V	3.2	4.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.2	0.5		A
	Thermal regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.008	0.04	%/W
SVR	Supply voltage rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, I <sub>O</sub> = 3A V <sub>I</sub> = 17 ± 3V	54	66		dB
eN	RMS Output noise voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature stability			0.5		%
S	Long term stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

**Table 11. Electrical characteristics of LD1085#**(V<sub>I</sub>=4.25V, C<sub>I</sub> = C<sub>O</sub> =10μF, T<sub>A</sub> = -40 to 125°C, unless otherwise specified).

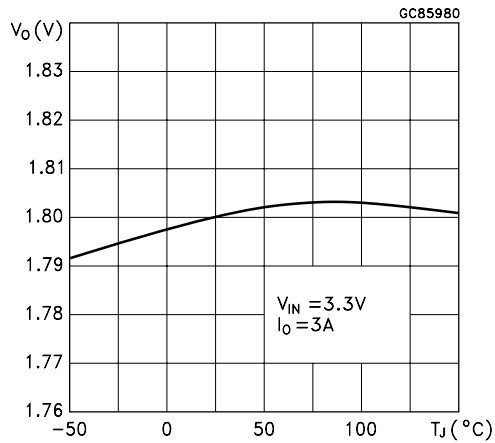
Symbol	Parameter	Test	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output voltage <sup>(1)</sup>	I <sub>O</sub> = 10mA T <sub>J</sub> = 25°C	1.237	1.25	1.263	V
		I <sub>O</sub> = 10mA to 5A, V <sub>I</sub> = 2.85 to 30V	1.225	1.25	1.275	V
ΔV <sub>O</sub>	Line Regulation	I <sub>O</sub> = 10mA, V <sub>I</sub> = 2.85 to 16.5V, T <sub>J</sub> = 25°C		0.015	0.2	%
		I <sub>O</sub> = 10mA, V <sub>I</sub> = 2.85 to 16.5V		0.035	0.2	%
ΔV <sub>O</sub>	Load Regulation	I <sub>O</sub> = 10mA to 5A, T <sub>J</sub> = 25°C		0.1	0.3	%
		I <sub>O</sub> = 0 to 5A		0.2	0.4	%
V <sub>d</sub>	Dropout Voltage	I <sub>O</sub> = 5A		1.3	1.5	V
I <sub>O(min)</sub>	Minimum Load Current	V <sub>I</sub> = 30V		3	10	mA
I <sub>sc</sub>	Short Circuit Current	V <sub>I</sub> - V <sub>O</sub> = 5V	5.5	6.5		A
		V <sub>I</sub> - V <sub>O</sub> = 25V	0.5	0.7		A
	Thermal Regulation	T <sub>A</sub> = 25°C, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C <sub>O</sub> = 25 μF, C <sub>ADJ</sub> = 25 μF, I <sub>O</sub> = 5A, V <sub>I</sub> = 6.25 ± 3V	60	72		dB
I <sub>ADJ</sub>	Adjust Pin Current	V <sub>I</sub> = 4.25V, I <sub>O</sub> = 10 mA		55	120	μA
ΔI <sub>ADJ</sub>	Adjust Pin Current Change <sup>(1)</sup>	I <sub>O</sub> = 10mA to 5A, V <sub>I</sub> = 2.85 to 16.5V		0.2	5	μA
eN	RMS Output Noise Voltage (% of V <sub>O</sub> )	T <sub>A</sub> = 25°C, f = 10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T <sub>A</sub> = 125°C, 1000Hrs		0.5		%

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

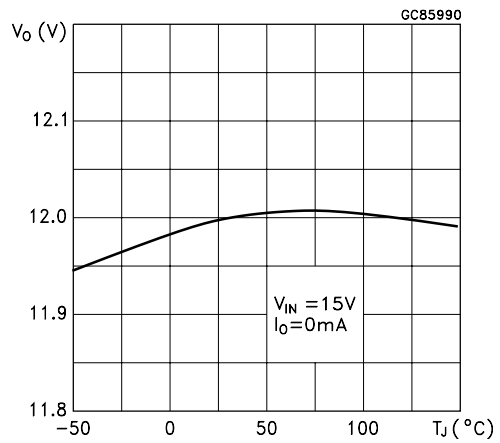
# 5 Typical application

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

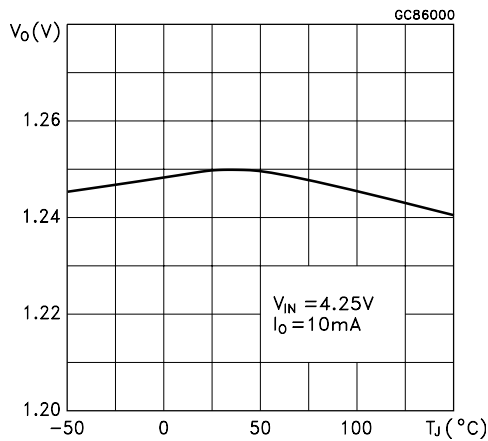
**Figure 3. Output voltage vs temperature**



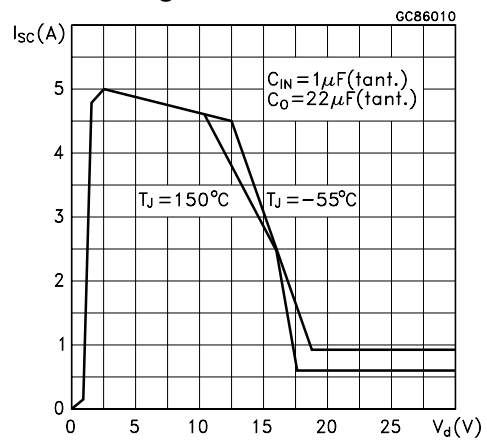
**Figure 4. Output voltage vs temperature**



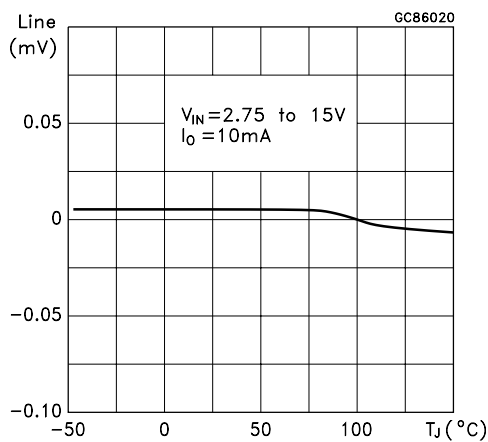
**Figure 5. Output voltage vs temperature**



**Figure 6. Short circuit current vs dropout voltage**



**Figure 7. Line regulation vs temperature**



**Figure 8. Load regulation vs temperature**

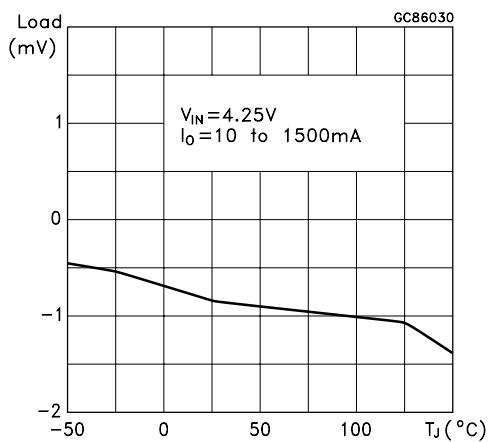


Figure 9. Dropout voltage vs temperature

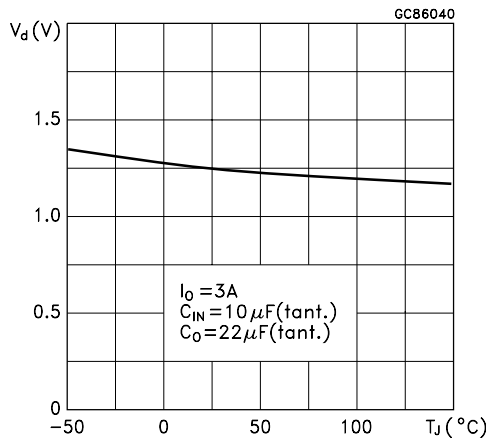


Figure 10. Dropout voltage vs output current

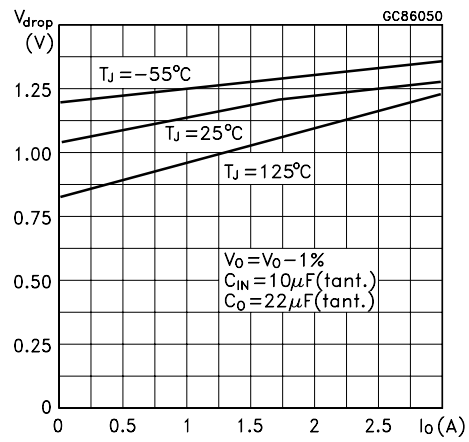


Figure 11. Adjust pin current vs temperature

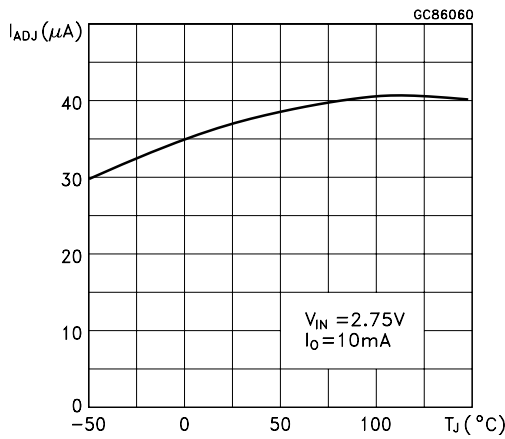


Figure 12. Quiescent current vs temperature

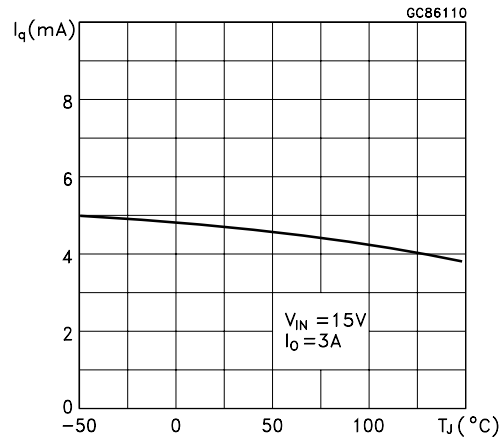


Figure 13. Dropout voltage vs output current

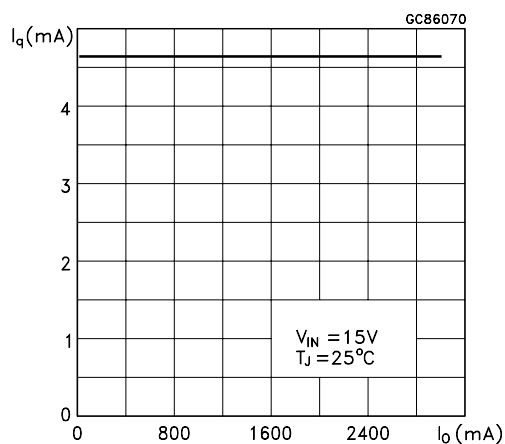
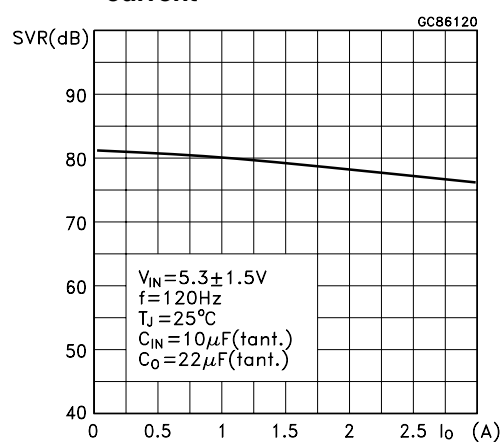
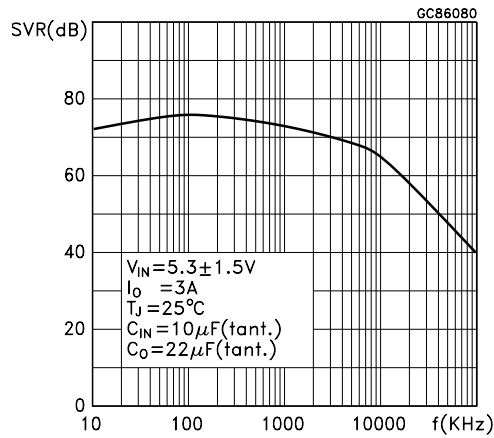


Figure 14. Supply voltage rejection vs output current

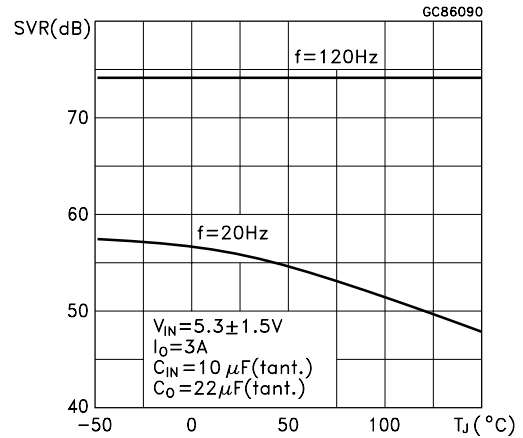




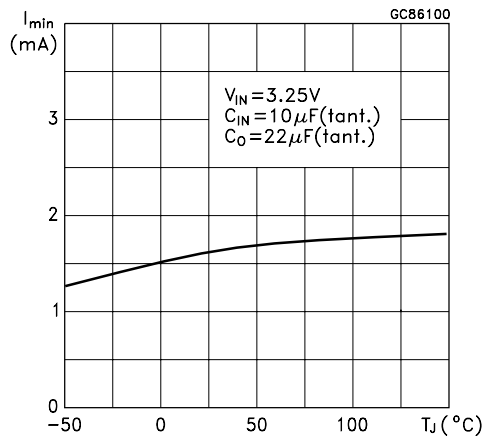
**Figure 15. Supply voltage rejection vs frequency**



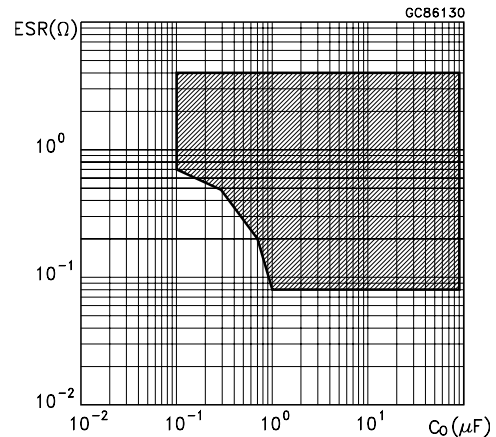
**Figure 16. Supply voltage rejection vs temperature**



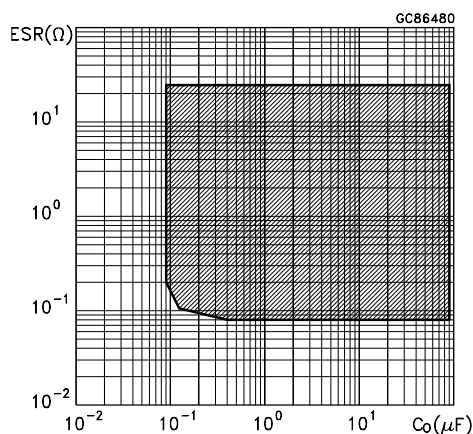
**Figure 17. Minimum load current vs temperature**



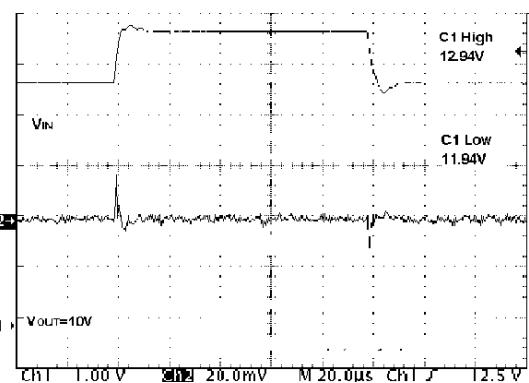
**Figure 18. Stability**



**Figure 19. Stability**

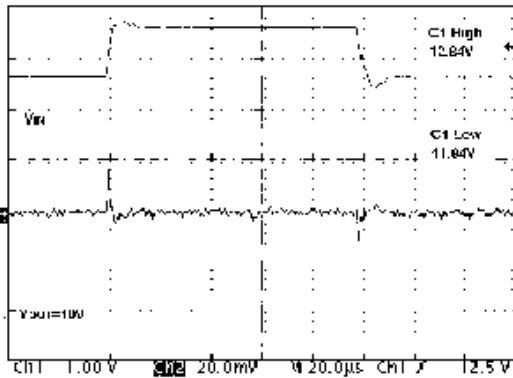


**Figure 20. Line transient**



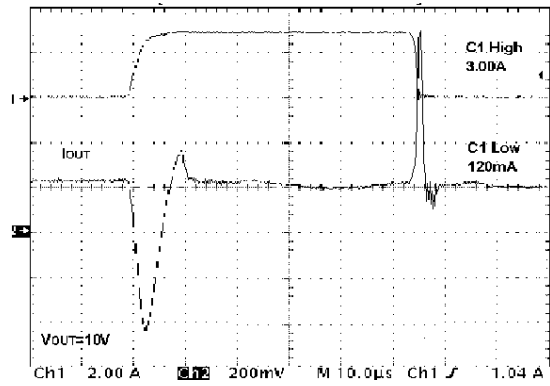
$V_I=12$  to  $13V$ ,  $I_O=200mA$ ,  $C_1=1\mu F$ (tant.),  $C_O=10\mu F$ (tant.),  $C_{ADJ}=1\mu F$

Figure 21. Line transient



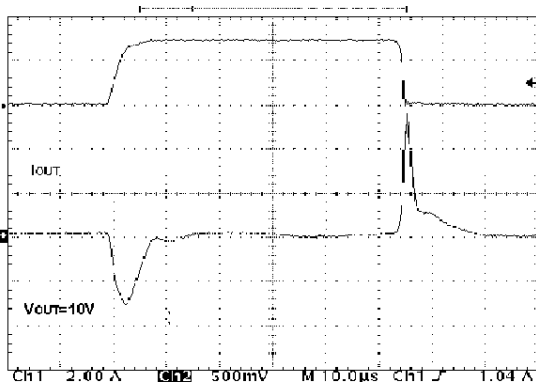
$V_I=12$  to  $13V$ ,  $I_O=200mA$ ,  $C_I = 1\mu F$ (tant),  $C_O=10\mu F$ (tant),  $C_{ADJ}=1\mu F$

Figure 22. Load transient



$V_I=12V$ ,  $I_O=0.12$  to  $3A$ ,  $C_I = 1\mu F$ (tant),  $C_O=10\mu F$ (tant),  $C_{ADJ}=1\mu F$

Figure 23. Load transient



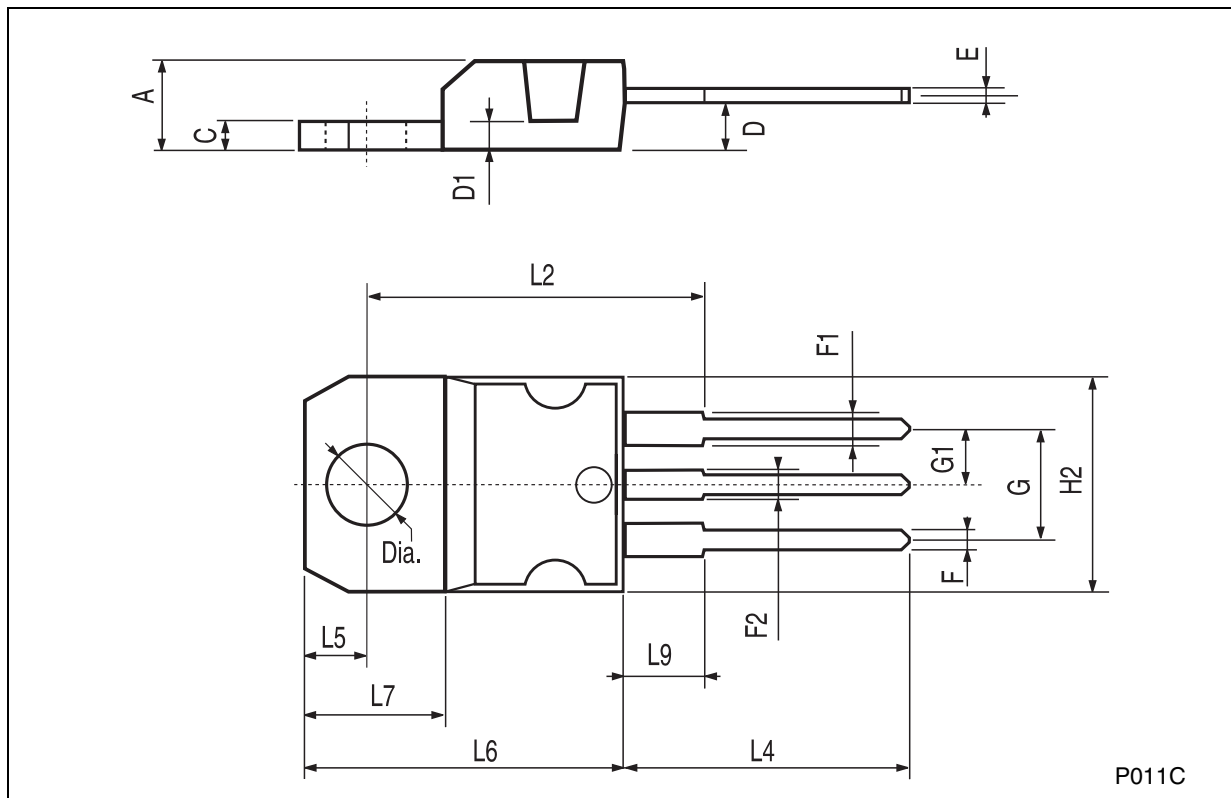
$V_I=12V$ ,  $I_O=0.12$  to  $3A$ ,  $C_I = 1\mu F$ (tant),  $C_O=10\mu F$ (tant),  $C_{ADJ}=1\mu F$

## 6 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: [www.st.com](http://www.st.com).

**TO-220 MECHANICAL DATA**

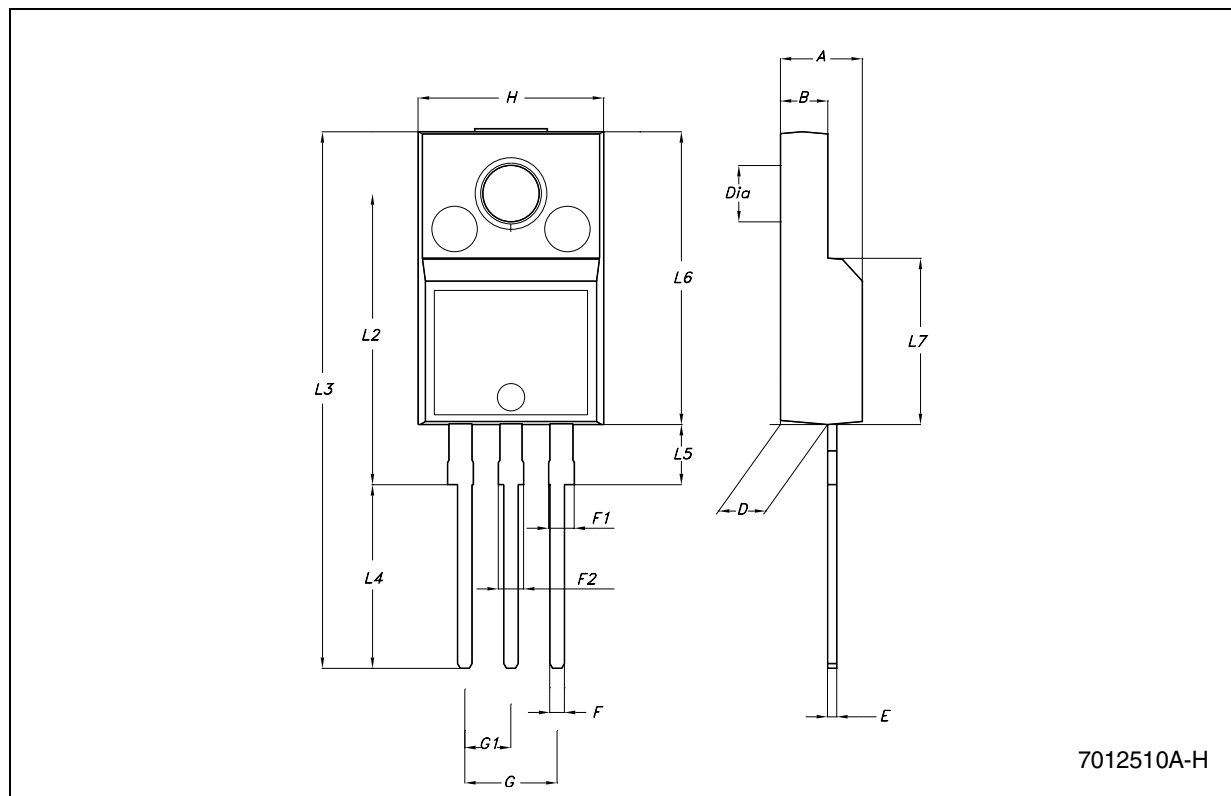
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
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



P011C

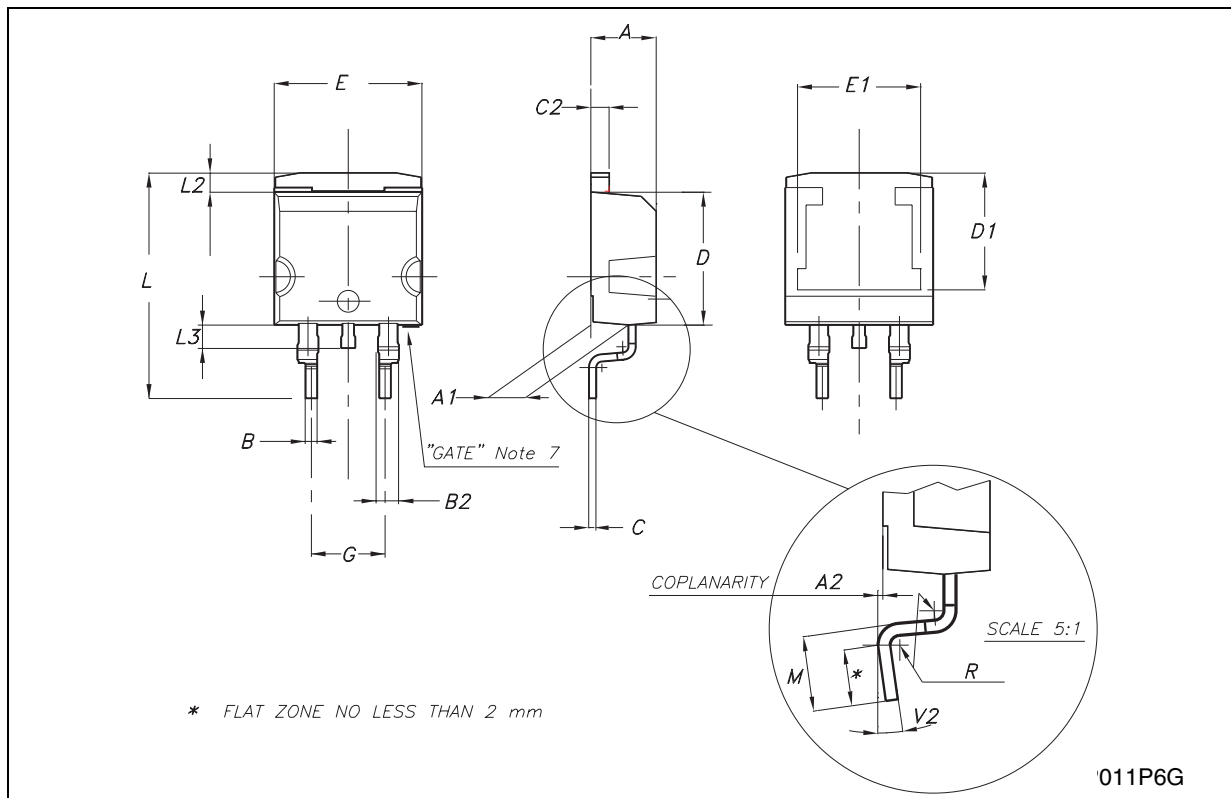
<b>TO-220FP MECHANICAL DATA</b>
---------------------------------

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



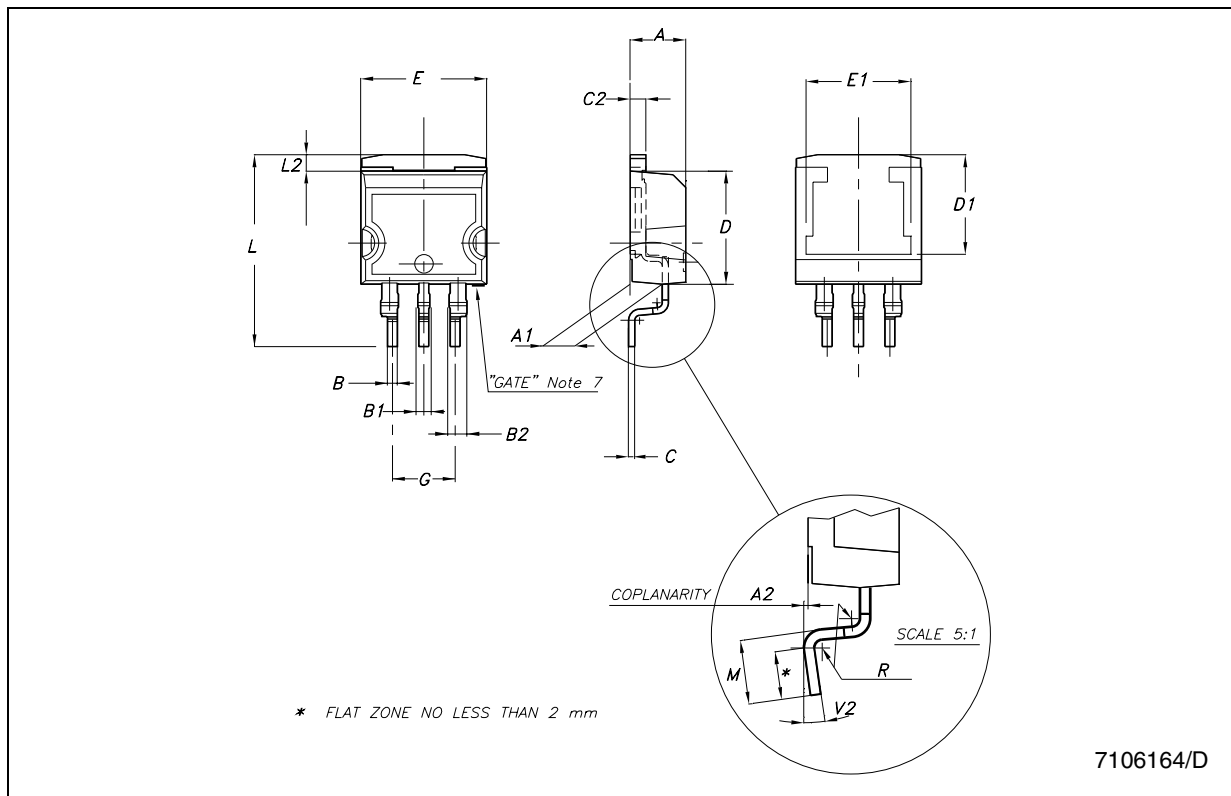
### D<sup>2</sup>PAK MECHANICAL DATA

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°



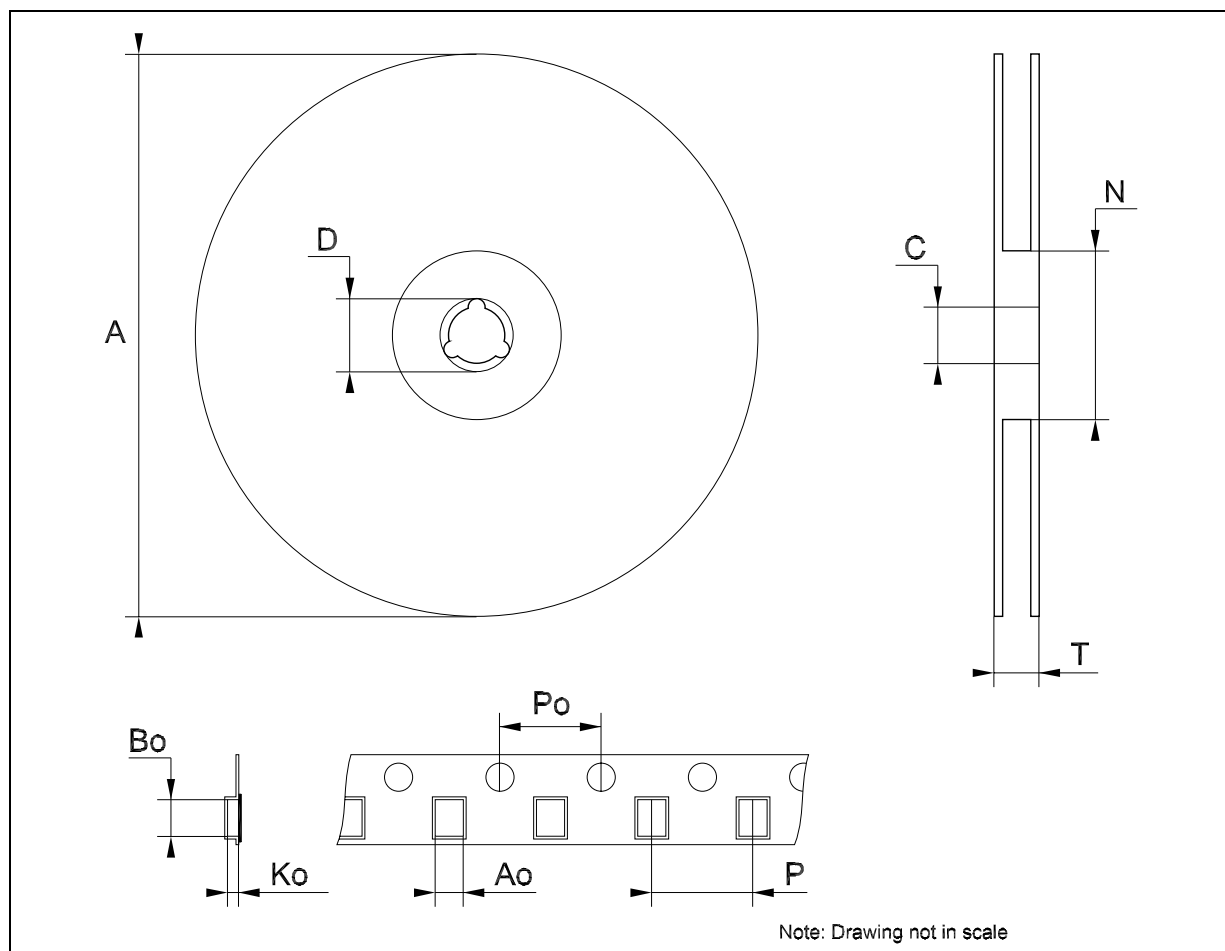
**D<sup>2</sup>PAK/A MECHANICAL DATA**

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**

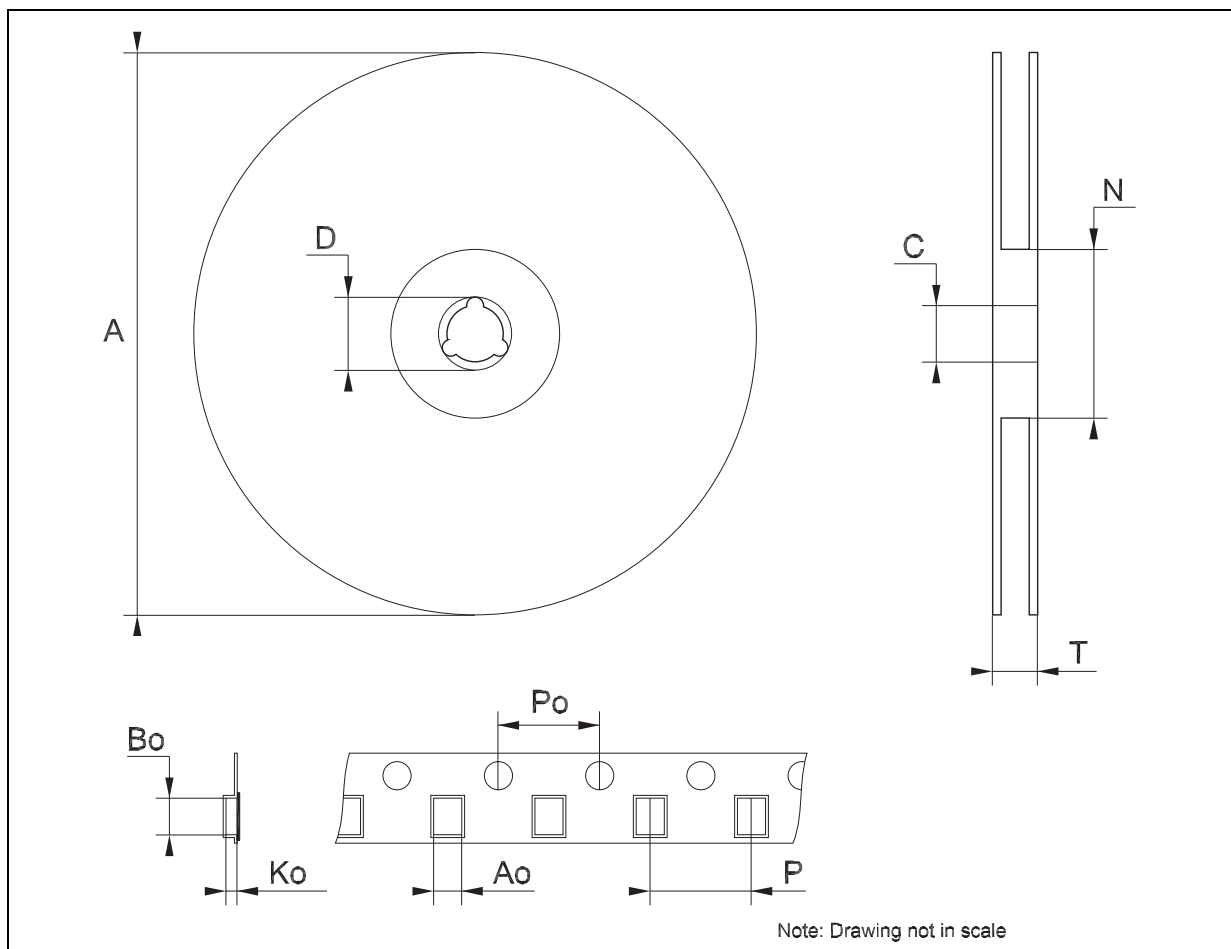
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			330			12.992
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			22.4			0.882
Ao	6.80	6.90	7.00	0.268	0.272	0.276
Bo	10.40	10.50	10.60	0.409	0.413	0.417
Ko	2.55	2.65	2.75	0.100	0.104	0.105
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	7.9	8.0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



## 7 Order code

Table 12. Order code

Part numbers						
TO-220	TO-220FP	D <sup>2</sup> PAK	DPAK (T&R)	D <sup>2</sup> PAK/A	D <sup>2</sup> PAK/A (T&R)	Output voltage
		LD1085D2T15	LD1085D2T15R			1.5 V
LD1085V18			LD1085D2T18R	LD1085D2M18	LD1085D2M18R	1.8 V
LD1085V25		LD1085D2T25	LD1085D2T25R	LD1085D2M25	LD1085D2M25R	2.5 V
LD1085V33		LD1085D2T33	LD1085D2T33R	LD1085D2M33	LD1085D2M33R	3.3 V
LD1085V36						3.6 V
LD1085V50		LD1085D2T50		LD1085D2M50	LD1085D2M50R	5.0 V
LD1085V90			LD1085D2T90R			9.0 V
LD1085V12			LD1085D2T12R	LD1085D2M12	LD1085D2M12R	12.0 V
LD1085V	LD1085P	LD1085D2T	LD1085D2T-R	LD1085D2M	LD1085D2M-R	ADJ

## 8 Revision history

**Table 13. 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 1.2V removed.
22-May-2006	15	Order Codes has been updated and new template.

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