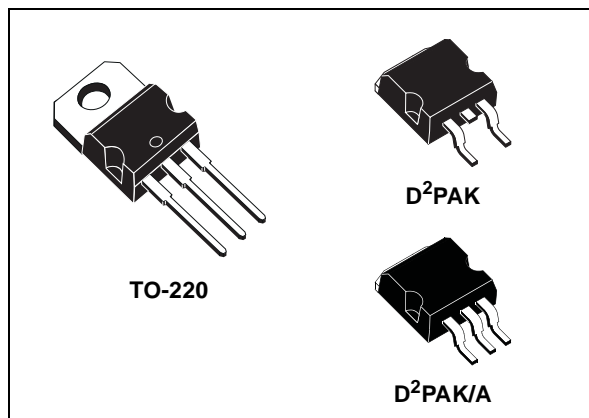


5A LOW DROP POSITIVE VOLTAGE REGULATOR ADJUSTABLE AND FIXED

- TYPICAL DROPOUT 1.3V (AT 5A)
- THREE TERMINAL ADJUSTABLE OR FIXED OUTPUT VOLTAGE 1.5, 1.8V, 2.5V, 2.85V, 3.3V, 3.6V, 5V, 8V, 9V, 12V.
- GUARANTEED OUTPUT CURRENT UP TO 5A
- 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, D²PAK, D²PAK/A
- PINOUT COMPATIBILITY WITH STANDARD ADJUSTABLE VREG

DESCRIPTION

The LD1084 is a LOW DROP Voltage Regulator able to provide up to 5A of Output Current. Dropout is guaranteed at a maximum of 1.5V at the maximum output current, decreasing at lower loads. The LD1084 is pin to pin compatible with the older 3-terminal adjustable regulators, but has better performances in term of drop and output tolerance.



A 2.85V 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 LD1084 quiescent current flows into the load, so increase efficiency. Only a 10 μ F minimum capacitor is need for stability. The device is supplied in TO-220, D²PAK and D²PAK/A. On chip trimming allows the regulator to reach a very tight output voltage tolerance, within $\pm 1\%$ at 25°C.

Figure 1: Schematic Diagram

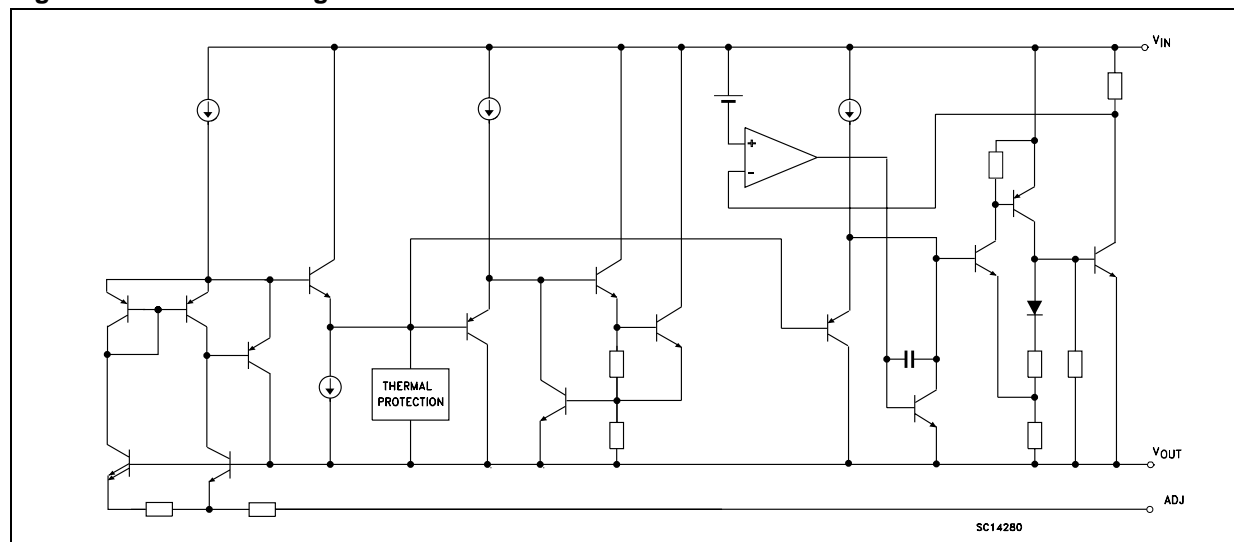


Figure 2: Application Circuits

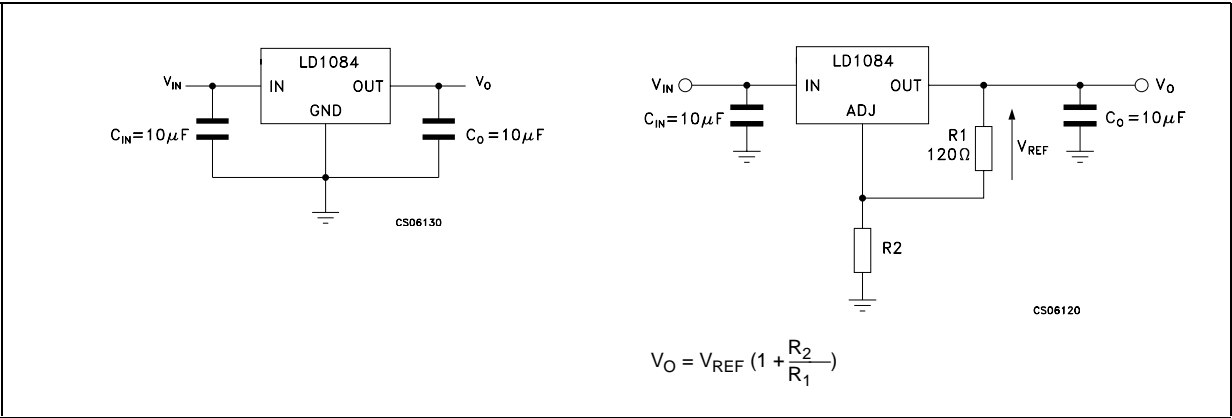


Figure 3: Pin Connection (top view)

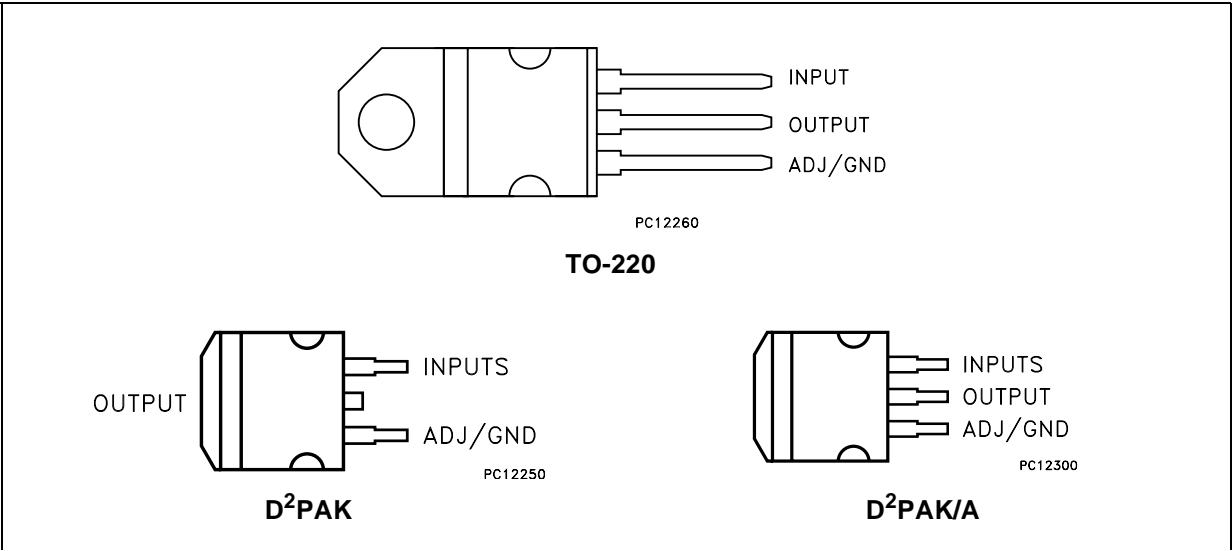


Table 1: Order Codes

TYPE	D²PAK (*)	D²PAK/A	OUTPUT VOLTAGE
LD1084V15	LD1084D2T15	LD1084D2M15	1.5 V
LD1084V18	LD1084D2T18	LD1084D2M18	1.8 V
LD1084V25	LD1084D2T25	LD1084D2M25	2.5 V
LD1084V28	LD1084D2T28	LD1084D2M28	2.85 V
LD1084V33	LD1084D2T33	LD1084D2M33	3.3 V
LD1084V36	LD1084D2T36	LD1084D2M36	3.6 V
LD1084V50	LD1084D2T50	LD1084D2M50	5.0 V
LD1084V80	LD1084D2T80	LD1084D2M80	8.0 V
LD1084V90	LD1084D2T90	LD1084D2M90	9.0 V
LD1084V12	LD1084D2T12	LD1084D2M12	12.0 V
LD1084V	LD1084D2T	LD1084D2M	ADJ

(*) Available in Tape & Reel with the suffix "R" for fixed versions and "-R" for adjustable version

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

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	D ² PAK	Unit
$R_{thj-case}$	Thermal Resistance Junction-case	3	3	°C/W
$R_{thj-amb}$	Thermal Resistance Junction-ambient	50	62.5	°C/W

Table 4: Electrical Characteristics Of LD1084#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 Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	1.485	1.5	1.515	V
		$I_O = 0$ to $5A$ $V_I = 3.1$ to $30V$ (note 1)	1.47	1.5	1.53	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 3.1$ to $18V$ $T_J = 25^\circ C$		0.5	6	mV
		$I_O = 0\text{ mA}$ $V_I = 3.1$ to $15V$		0.1	6	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		3	15	mV
		$I_O = 0$ to $5A$		7	20	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 6.8 \pm 3V$	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz to } 10\text{KHz}$		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 5: Electrical Characteristics Of LD1084#18 ($V_I=4.8V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	1.782	1.8	1.818	V
		$I_O = 0$ to $5A$ $V_I = 3.4$ to $30V$ (note 1)	1.764	1.8	1.836	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 3.4$ to $18V$ $T_J = 25^\circ C$		0.5	6	mV
		$I_O = 0\text{ mA}$ $V_I = 3.4$ to $15V$		0.1	6	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		3	15	mV
		$I_O = 0$ to $5A$		7	20	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 6.8 \pm 3V$	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 6: Electrical Characteristics Of LD1084#25 ($V_I=5.5V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	2.475	2.5	2.525	V
		$I_O = 0$ to $5A$ $V_I = 4.1$ to $30V$ (note 1)	2.45	2.5	2.55	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 4.1$ to $18V$ $T_J = 25^\circ C$		0.5	6	mV
		$I_O = 0\text{ mA}$ $V_I = 4.1$ to $18V$		0.1	6	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		3	15	mV
		$I_O = 0$ to $5A$		7	20	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 7.5 \pm 3V$	60	72		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 7: Electrical Characteristics Of LD1084#285 ($V_I=5.85V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	2.821	2.85	2.879	V
		$I_O = 0$ to $5A$ $V_I = 4.5$ to $30V$ (note 1)	2.793	2.85	2.907	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 4.5$ to $18V$ $T_J = 25^\circ C$		0.5	6	mV
		$I_O = 0\text{ mA}$ $V_I = 4.5$ to $18V$		0.1	6	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		3	15	mV
		$I_O = 0$ to $5A$		7	20	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\mu F$, $I_O = 5A$ $V_I = 7.85 \pm 3V$	60	72		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 8: Electrical Characteristics Of LD1084#33 ($V_I=6.3V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	3.267	3.3	3.333	V
		$I_O = 0$ to $5A$ $V_I = 4.9$ to $30V$ (note 1)	3.234	3.35	3.366	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 4.9$ to $18V$ $T_J = 25^\circ C$		0.5	6	mV
		$I_O = 0\text{ mA}$ $V_I = 4.9$ to $18V$		0.1	6	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		3	15	mV
		$I_O = 0$ to $5A$		7	20	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\mu F$, $I_O = 5A$ $V_I = 8.3 \pm 3V$	60	72		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 9: Electrical Characteristics Of LD1084#36 ($V_I=6.6V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	3.564	3.6	3.636	V
		$I_O = 0$ to $5A$ $V_I = 5.2$ to $30V$ (note 1)	3.528	3.6	3.672	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 5.2$ to $18V$ $T_J = 25^\circ C$		0.5	10	mV
		$I_O = 0\text{ mA}$ $V_I = 5.2$ to $18V$		0.1	10	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		3	15	mV
		$I_O = 0$ to $5A$		7	20	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 8.6 \pm 3V$	60	72		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 10: Electrical Characteristics Of LD1084#5 ($V_I=8V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	4.95	5	5.05	V
		$I_O = 0$ to $5A$ $V_I = 6.6$ to $30V$ (note 1)	4.9	5	5.1	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 6.6$ to $20V$ $T_J = 25^\circ C$		0.5	10	mV
		$I_O = 0\text{ mA}$ $V_I = 6.6$ to $20V$		1	10	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		5	20	mV
		$I_O = 0$ to $5A$		10	35	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 10 \pm 3V$	60	72		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 11: Electrical Characteristics Of LD1084#8 ($V_I=11V$, $C_I = C_O = 10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	7.92	8	8.08	V
		$I_O = 0$ to $5A$ $V_I = 9.6$ to $30V$ (note 1)	7.84	8	8.16	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 9.6$ to $20V$ $T_J = 25^\circ C$		1	18	mV
		$I_O = 0\text{ mA}$ $V_I = 9.6$ to $20V$		2	18	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		8	30	mV
		$I_O = 0$ to $5A$		12	60	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 13 \pm 3V$	54	71		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 12: Electrical Characteristics Of LD1084#9 ($V_I=12V$, $C_I = C_O = 10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0\text{ mA}$ $T_J = 25^\circ C$	8.91	9	9.09	V
		$I_O = 0$ to $5A$ $V_I = 10.6$ to $30V$ (note 1)	8.82	9	9.18	V
ΔV_O	Line Regulation	$I_O = 0\text{ mA}$ $V_I = 10.6$ to $20V$ $T_J = 25^\circ C$		1	20	mV
		$I_O = 0\text{ mA}$ $V_I = 10.6$ to $20V$		2	20	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		8	30	mV
		$I_O = 0$ to $5A$		12	60	mV
V_d	Dropout Voltage	$I_O = 5\text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120\text{ Hz}$, $C_O = 25\text{ }\mu F$, $I_O = 5A$ $V_I = 14 \pm 3V$	54	70		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 13: Electrical Characteristics Of LD1084#12 ($V_I=15V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 0 \text{ mA}$ $T_J = 25^\circ C$	11.88	12	12.12	V
		$I_O = 0$ to $5A$ $V_I = 13.6$ to $30V$ (note 1)	11.76	12	12.24	V
ΔV_O	Line Regulation	$I_O = 0 \text{ mA}$ $V_I = 13.6$ to $25V$ $T_J = 25^\circ C$		2	25	mV
		$I_O = 0 \text{ mA}$ $V_I = 13.6$ to $25V$		4	25	mV
ΔV_O	Load Regulation	$I_O = 0$ to $5A$ $T_J = 25^\circ C$		12	36	mV
		$I_O = 0$ to $5A$		24	72	mV
V_d	Dropout Voltage	$I_O = 5 \text{ A}$		1.3	1.5	V
I_q	Quiescent Current	$V_I \leq 30V$		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120 \text{ Hz}$, $C_O = 25 \mu F$, $I_O = 5A$ $V_I = 17 \pm 3V$	54	66		dB
eN	RMS Output Noise Voltage (% of V_O)	$T_A = 25^\circ C$ $f = 10\text{Hz}$ to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	$T_A = 125^\circ C$ 1000Hrs		0.5		%

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

Table 14: Electrical Characteristics Of LD1084 ($V_I=4.25V$, $C_I = C_O=10\mu F$, $T_A = -40$ to $125^\circ C$, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$I_O = 10mA$ $T_J = 25^\circ C$	1.237	1.25	1.263	V
		$I_O = 10mA$ to $5A$ $V_I = 2.85$ to $30V$ (note 1)	1.225	1.25	1.275	V
ΔV_O	Line Regulation	$I_O = 10mA$ $V_I = 2.85$ to $16.5V$ $T_J = 25^\circ C$		0.015	0.2	%
		$I_O = 10mA$ $V_I = 2.85$ to $16.5V$		0.035	0.2	%
ΔV_O	Load Regulation	$I_O = 10mA$ to $5A$ $T_J = 25^\circ C$		0.1	0.3	%
		$I_O = 10mA$ to $5A$		0.2	0.4	%
V_d	Dropout Voltage	$I_O = 5A$		1.3	1.5	V
$I_{O(min)}$	Minimum Load Current	$V_I = 30V$		3	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O = 5V$	5.5	6.5		A
		$V_I - V_O = 25V$	0.5	0.7		A
	Thermal Regulation	$T_A = 25^\circ C$, 30ms pulse		0.003	0.015	%/W
SVR	Supply Voltage Rejection	$f = 120$ Hz, $C_O = 25 \mu F$, $C_{ADJ} = 25 \mu F$, $I_O = 5A$ $V_I = 6.25 \pm 3V$	60	72		dB
I_{ADJ}	Adjust Pin Current	$V_I = 4.25V$ $I_O = 10$ mA		55	120	μA
ΔI_{ADJ}	Adjust Pin Current Change	$I_O = 10mA$ to $5A$ $V_I = 2.85$ to $16.5V$ (note 1)		0.2	5	μA
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		%

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

TYPICAL CHARACTERISTICS (unless otherwise specified $T_J = 25^{\circ}\text{C}$, $C_I = 10\mu\text{F}$ (tant.), $C_O = 22\mu\text{F}$ (tant.)

Figure 4: Short Circuit Current vs Dropout Voltage

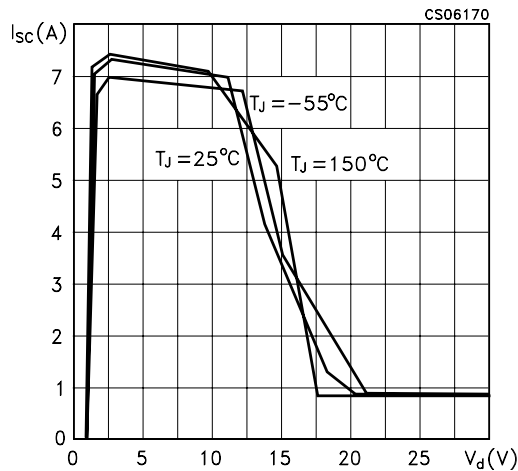


Figure 5: Line Regulation vs Temperature

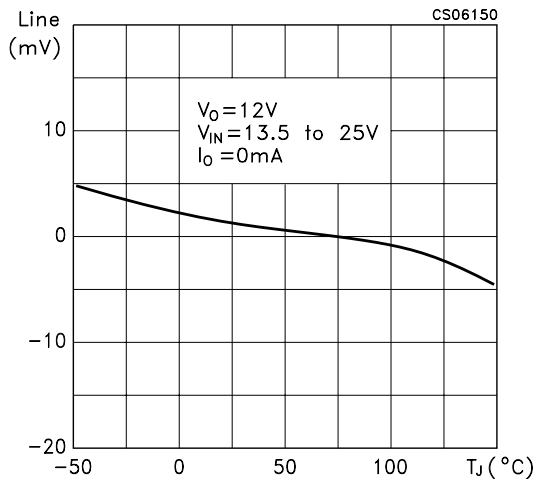


Figure 6: Quiescent Current vs Temperature

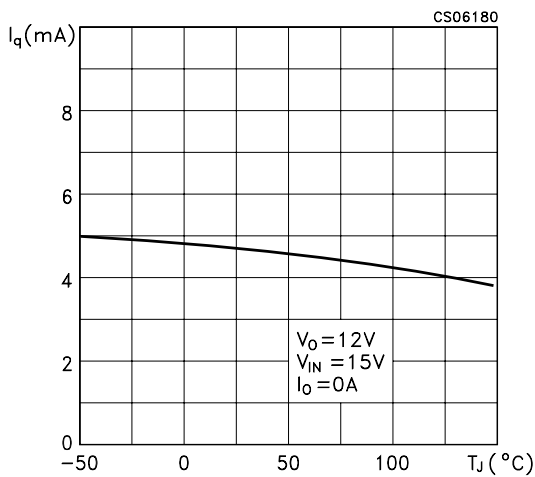


Figure 7: Output Voltage vs Temperature

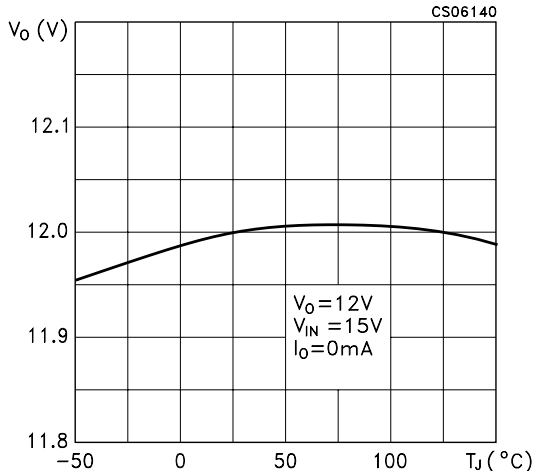


Figure 8: Load Regulation vs Temperature

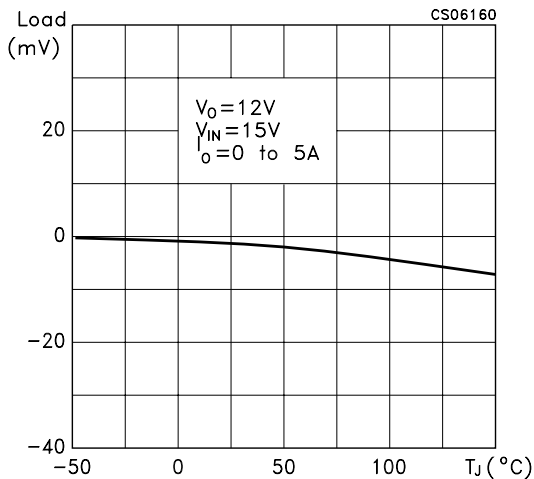


Figure 9: Quiescent Current vs Output Voltage

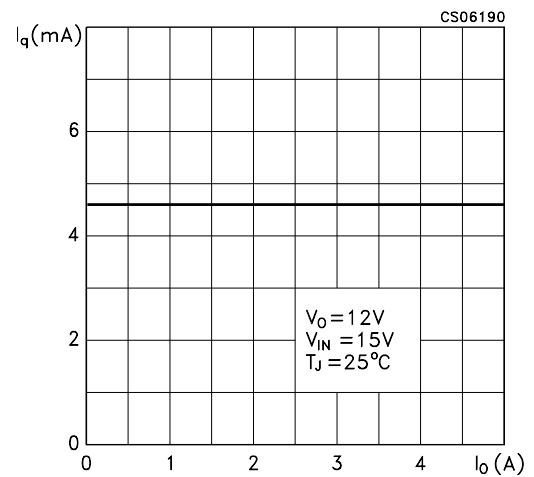


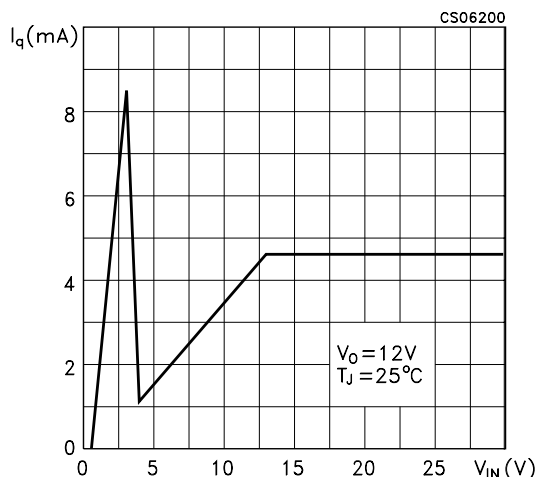
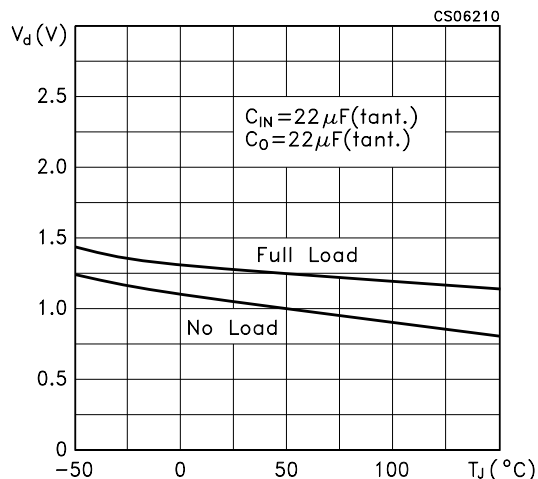
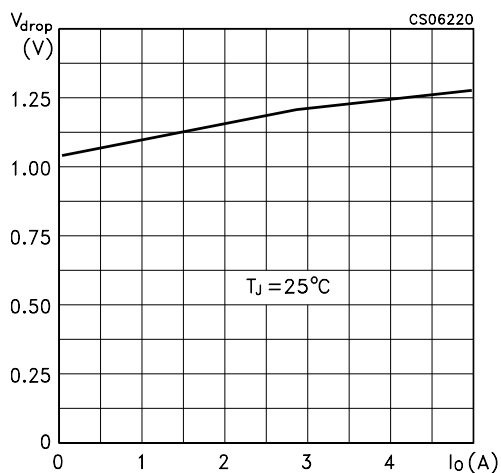
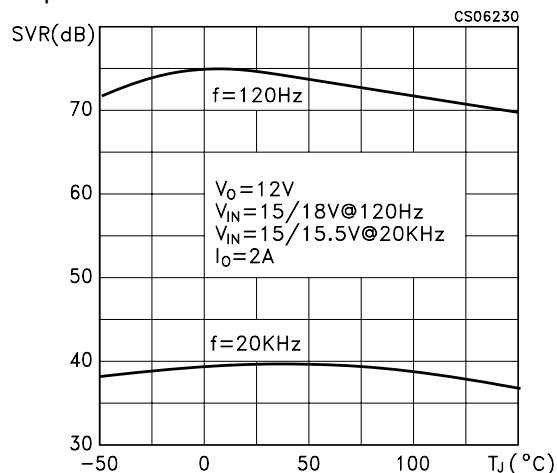
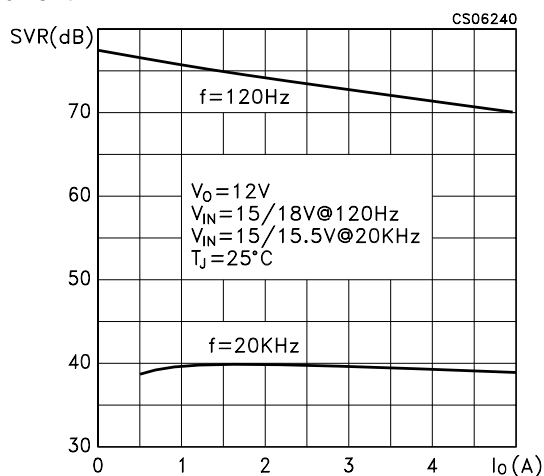
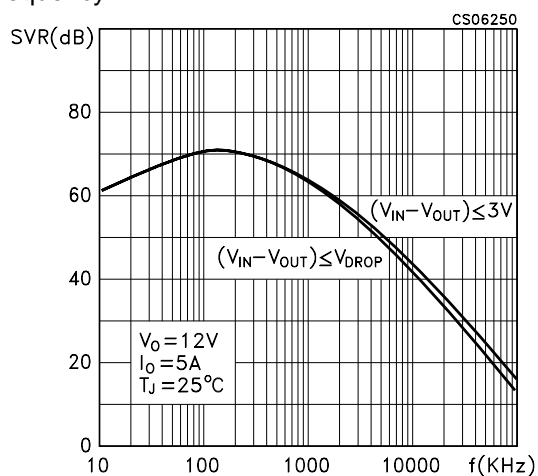
Figure 10: Quiescent Current vs Input Voltage**Figure 13: Dropout Voltage vs Temperature****Figure 11: Dropout Voltage vs Output Current****Figure 14: Supply Voltage Rejection vs Temperature****Figure 12: Supply Voltage Rejection vs Output Current****Figure 15: Supply Voltage Rejection vs Frequency**

Figure 16: Adjust Pin Current vs Output Current

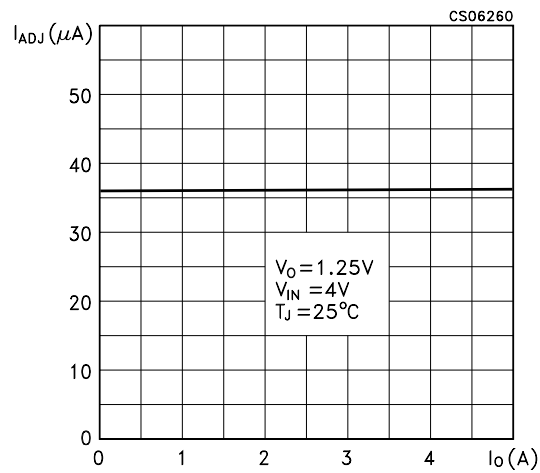


Figure 17: Reference Voltage vs Temperature

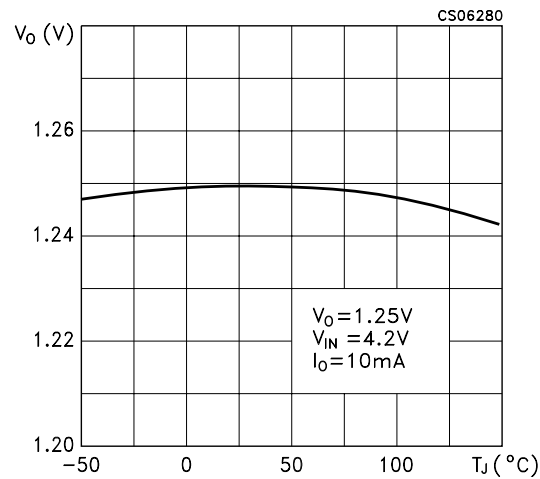


Figure 18: Load Regulation vs Temperature

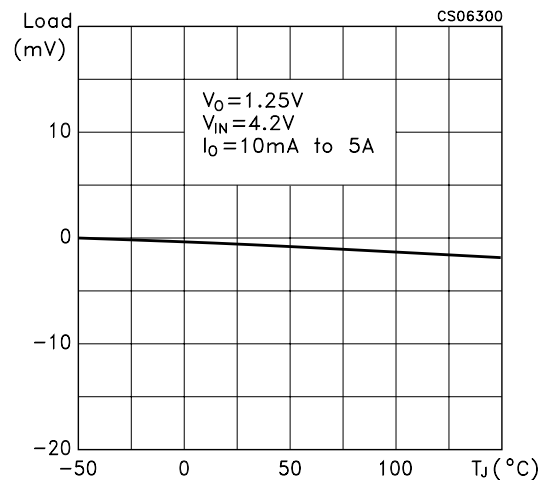


Figure 19: Adjust Pin Current vs Temperature

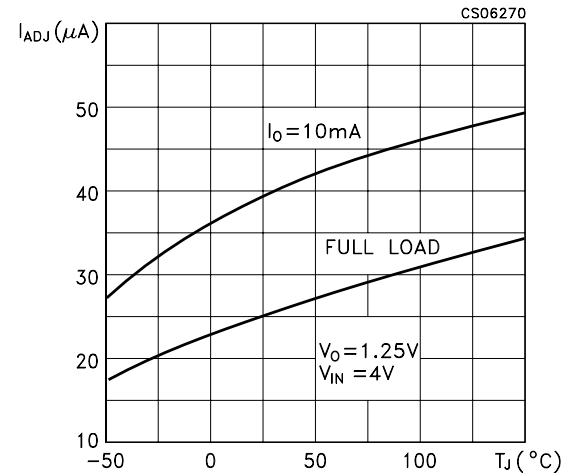


Figure 20: Line Regulation vs Temperature

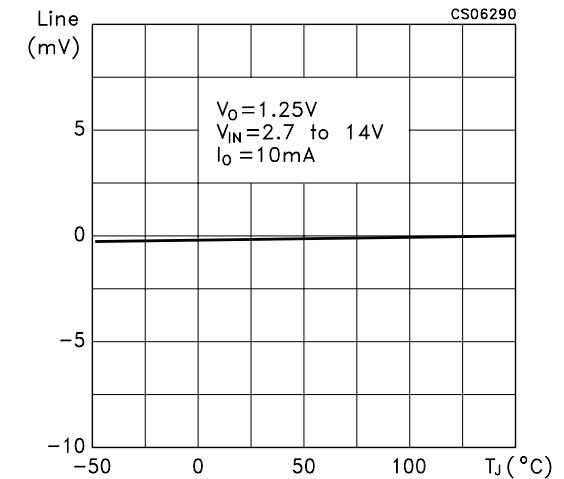


Figure 21: Minimum Load Current vs Temperature

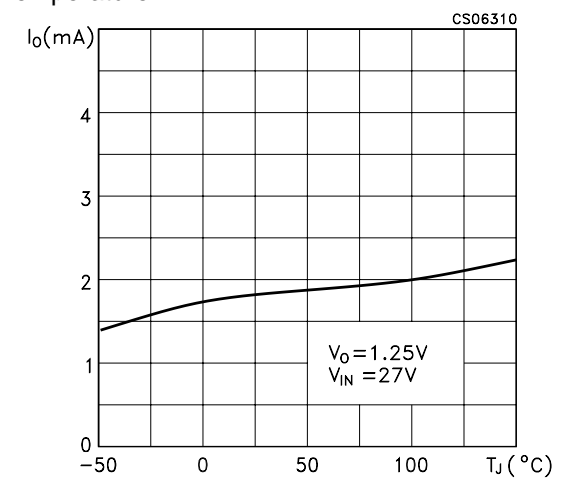


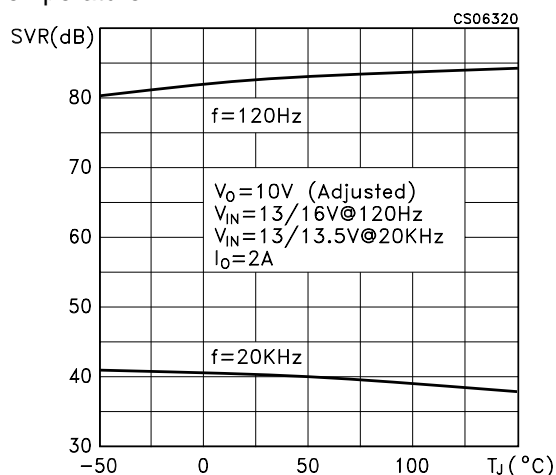
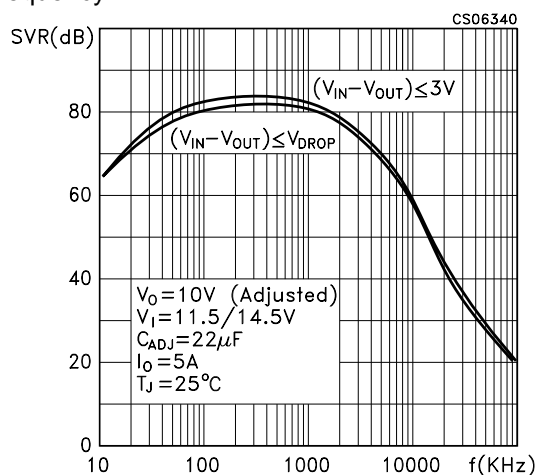
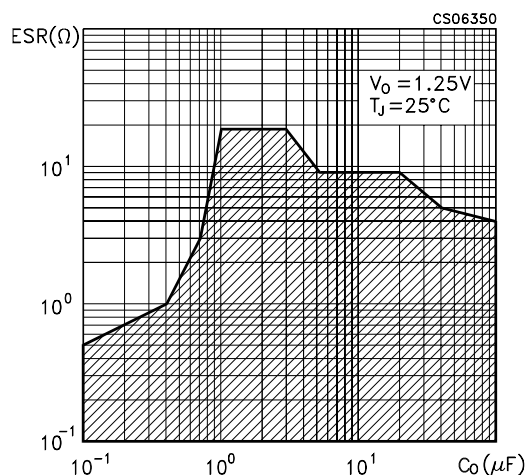
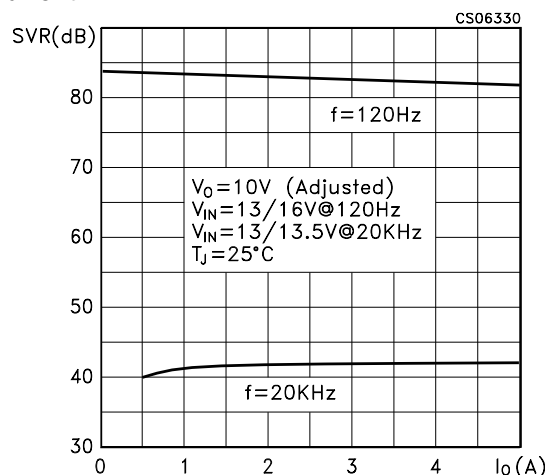
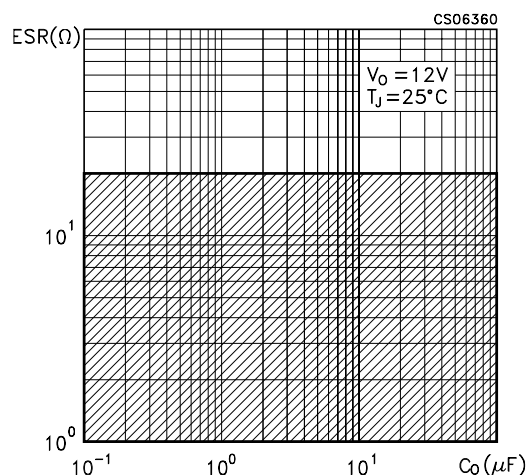
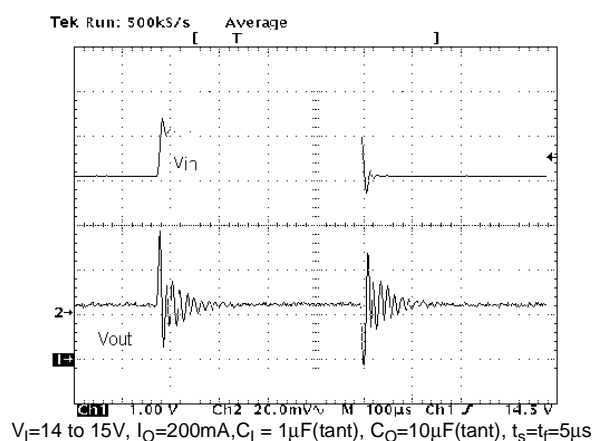
Figure 22: Supply Voltage Rejection vs Temperature**Figure 23: Supply Voltage Rejection vs Frequency****Figure 24: Stability****Figure 25: Supply Voltage Rejection vs Output Current****Figure 26: Stability****Figure 27: Line Transient**

Figure 28: Line Transient

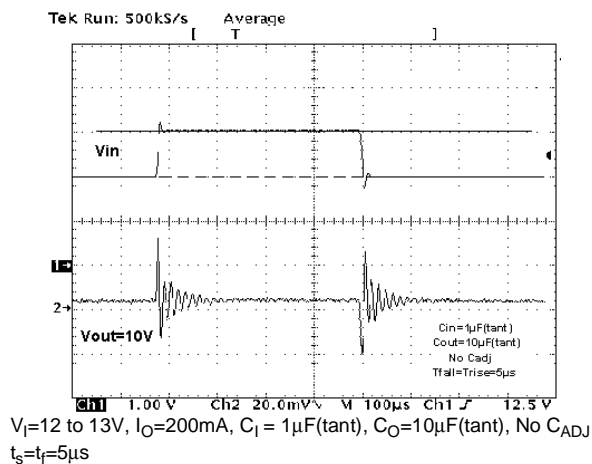


Figure 31: Line Transient

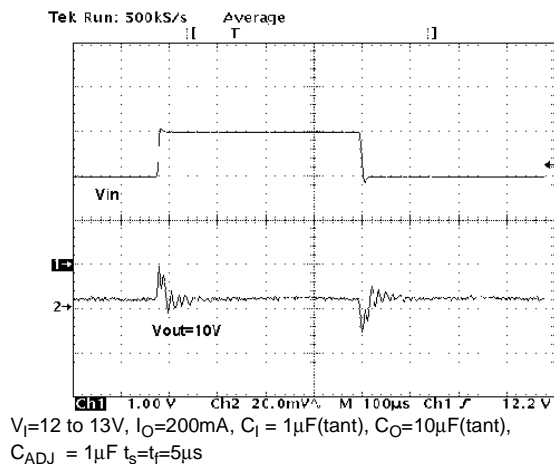


Figure 29: Load Transient

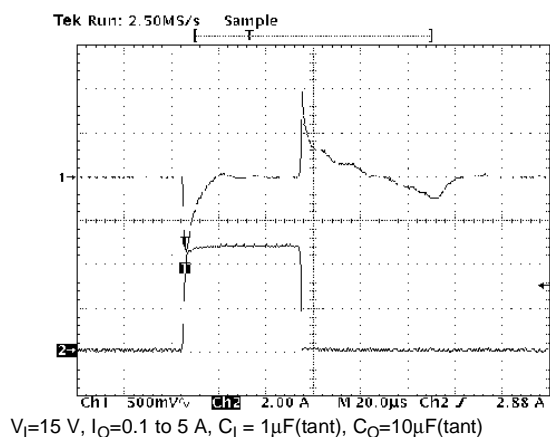


Figure 32: Load Transient

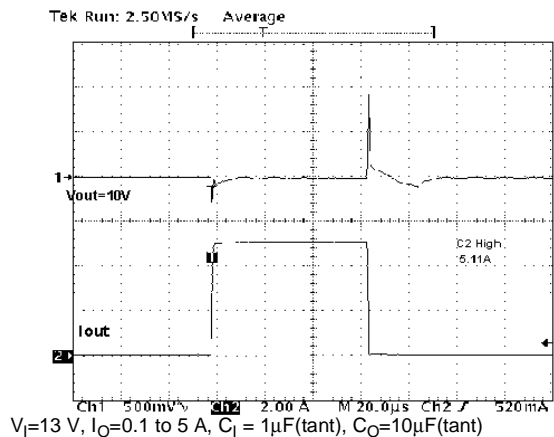
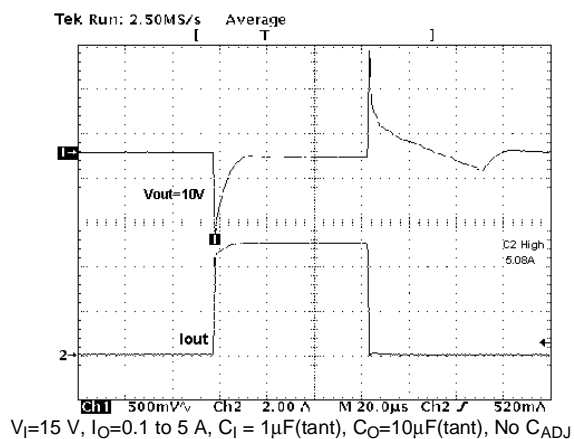
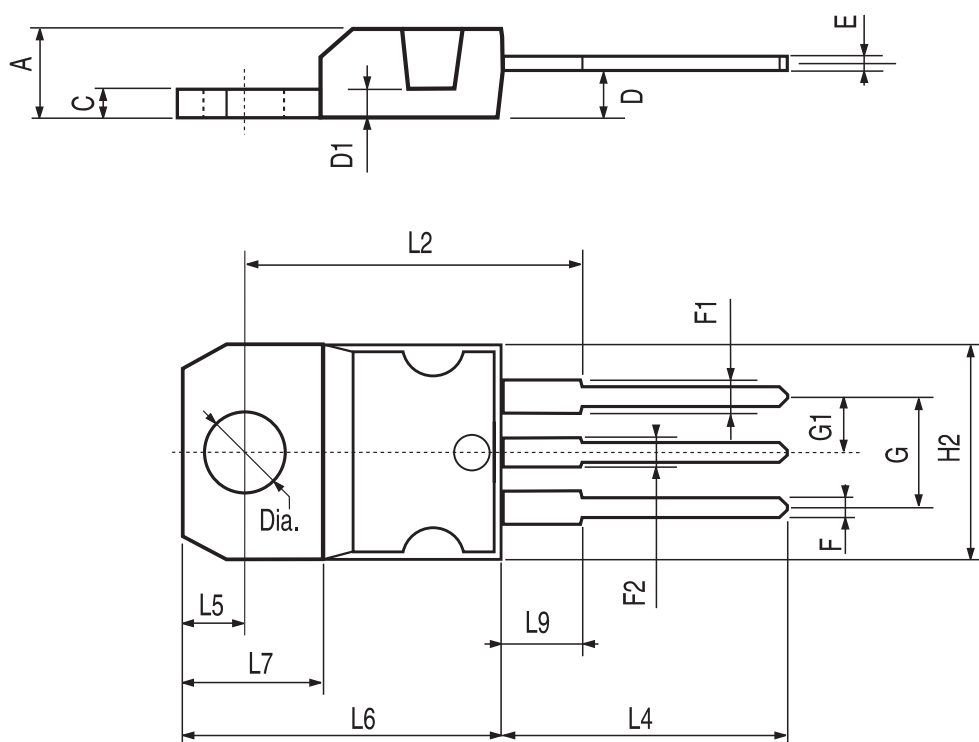


Figure 30: Load Transient



TO-220 MECHANICAL DATA

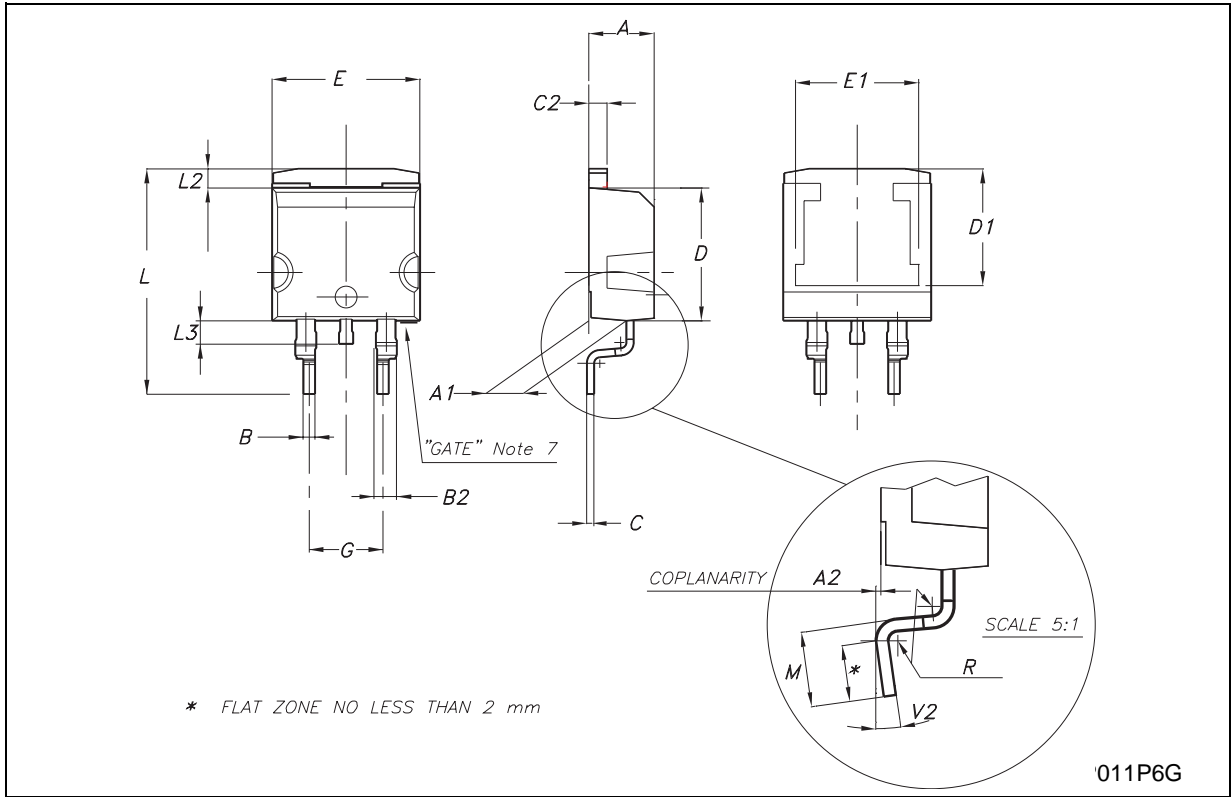
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106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

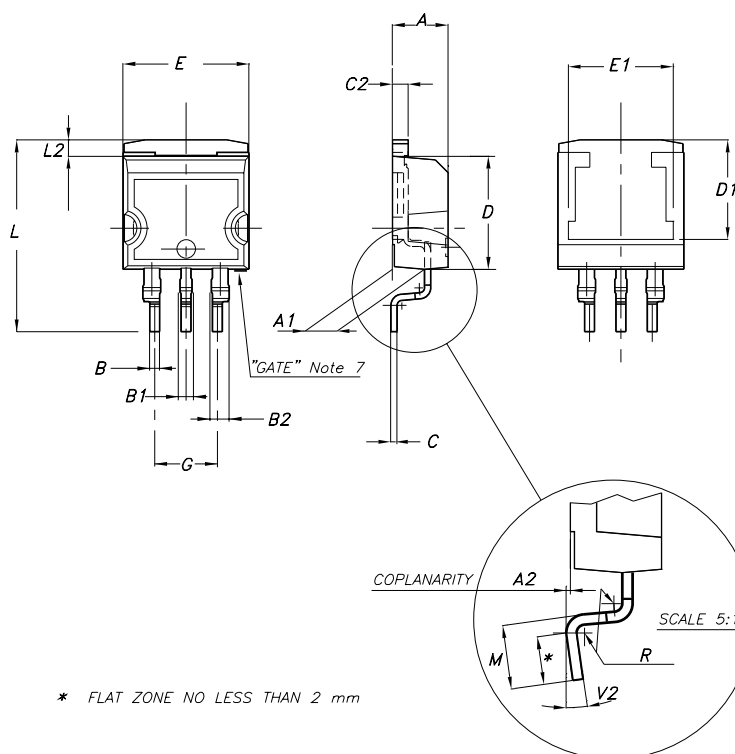
D²PAK MECHANICAL DATA

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°



D²PAK/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 D²PAK-P²PAK-D²PAK/A-P²PAK/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

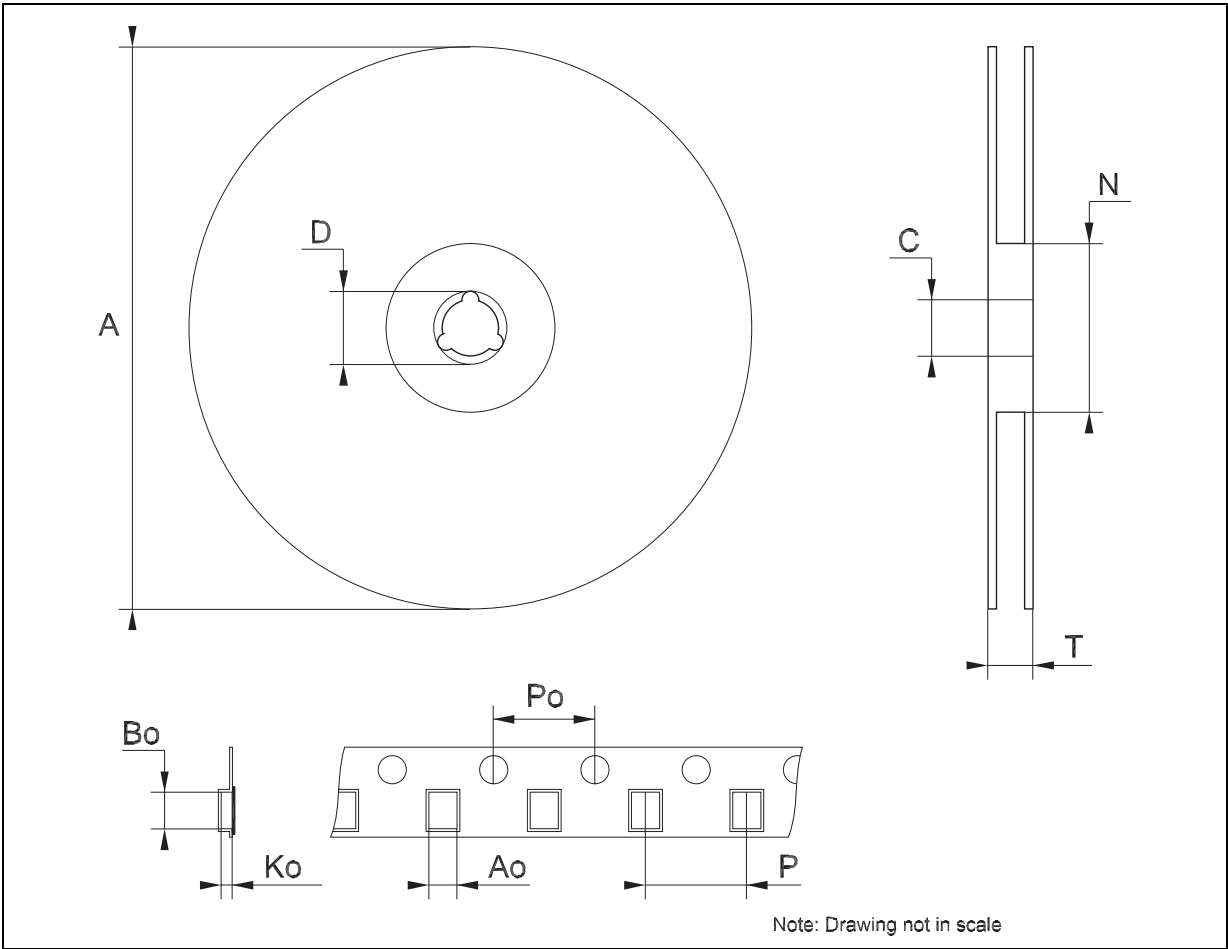


Table 15: Revision History

Date	Revision	Description of Changes
07-Oct-2004	3	Mistake Order Codes - Table 1.
08-Feb-2005	4	Mistake U.M. Load Regulation - V ==> mV.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

All other names are the property of their respective owners

© 2005 STMicroelectronics - All Rights Reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com