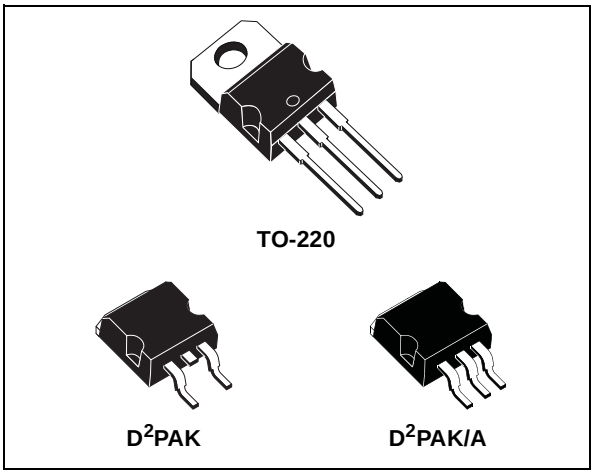
LD1585C SERIES

5A LOW DROPOUT FAST RESPONSE POSITIVE VOLTAGE REGULATOR ADJUSTABLE AND FIXED

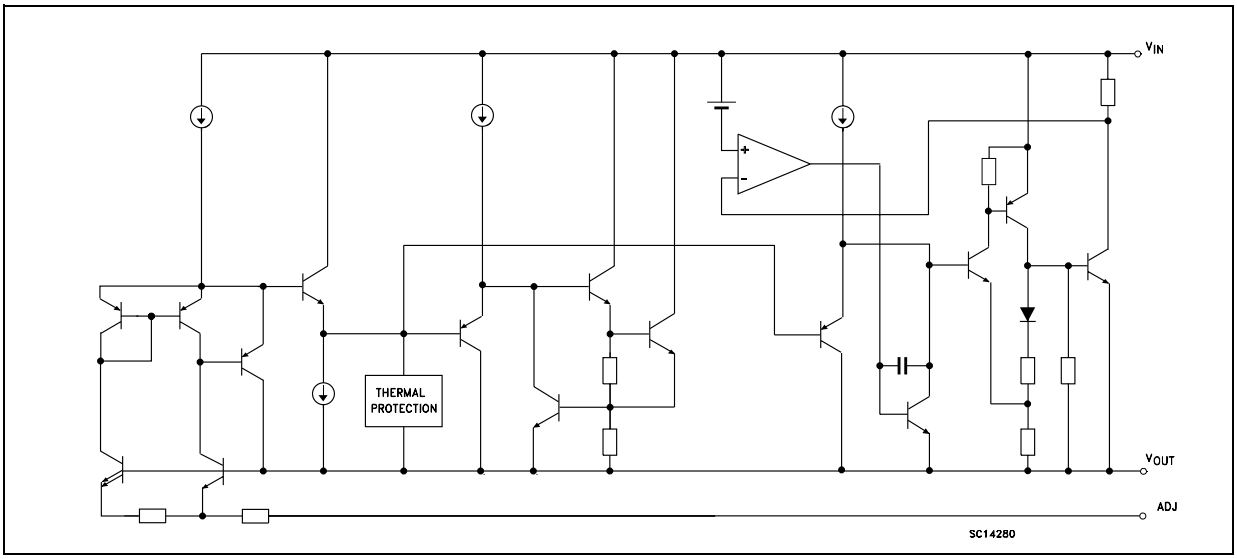
- TYPICAL DROPOUT 1.2V
- FAST TRANSIENT RESPONSE
- THREE TERMINAL ADJUSTABLE OR FIXED OUTPUT VOLTAGE 1.5V 1.8V, 2.5V, 2.85V, 3.3V, 5V, 8V, 9V, 12V.
- GUARANTEED OUTPUT CURRENT UP TO 5A
- OUPUT TOLERANCE ±1% AT 25°C AND ±2% IN FULL TEMPERATURE RANGE
- INTERNAL POWER AND THERMAL LIMIT
- WIDE OPERATING TEMPERATURE RANGE 0°C TO 125°C
- PACKAGE AVAILABLE : TO-220, D^2PAK, D^2PAK/A
- PINOUT COMPATIBILITY WITH STANDARD ADJUSTABLE VREG



DESCRIPTION

The LD1585C is a LOW DROP Voltage Regulator able to provide up to 5A of Output Current. Dropout is guaranteed at a maximum of 1.4V at the maximum output current, decreasing at lower loads. The device has been improved to be utilized in low voltage applications where transient response and minimum input voltage are critical.
The most important feature of the device consist in lower dropout voltage and very fast transient response. 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 LD1585C quiescent current flows into the load, so increase efficiency. Only a 10µF minimum capacitor is need for stability.
The device is supplied in TO-220, D^2PAK and D^2PAK/A. On chip trimming allows the regulator to reach a very tight output voltage tolerance, within ±1% at 25°C.

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

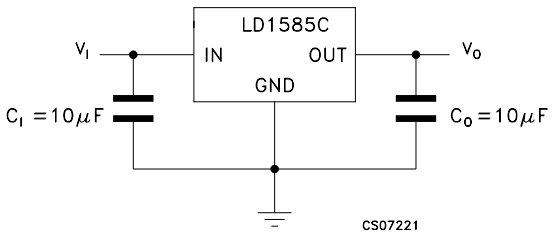
Symbol	Parameter[2]	Value	Unit
V_I	DC Input Voltage	30	V
I_O	Output Current	Internally Limited	mA
P_D	Power Dissipation	Internally Limited	mW
T_{stg}	Storage Temperature Range	-55 to +150	°C
T_{op}	Operating Junction Temperature Range	0 to +125	°C

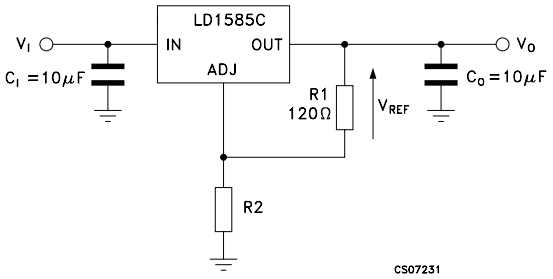
Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied.

THERMAL DATA

Symbol	Parameter	TO-220	D^2PAK	Unit
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	3	3	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	50	62.5	°C/W

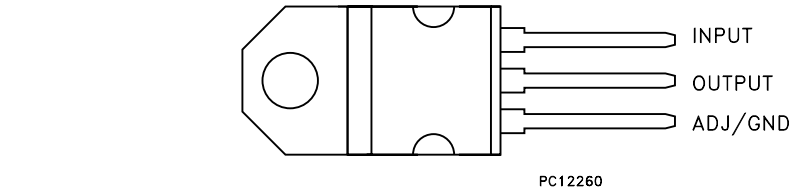
APPLICATION CIRCUITS



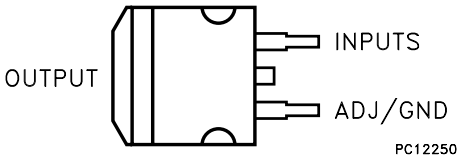


$$V_O = V_{REF}\left(1 + \frac{R_2}{R_1}\right)$$

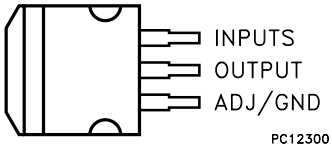
CONNECTION DIAGRAM (top view)



TO-220



D^2PAK



D^2PAK/A

ORDERING CODES

TO-220	D^2PAK (*)	D^2PAK/A (*)	OUTPUT VOLTAGE
LD1585CV15	LD1585CD2T15	LD1585CD2M15	1.5 V
LD1585CV18	LD1585CD2T18	LD1585CD2M18	1.8 V
LD1585CV25	LD1585CD2T25	LD1585CD2M25	2.5 V
LD1585CV28	LD1585CD2T28	LD1585CD2M28	2.85 V
LD1585CV33	LD1585CD2T33	LD1585CD2M33	3.3 V
LD1585CV50	LD1585CD2T50	LD1585CD2M50	5.0 V
LD1585CV80	LD1585CD2T80	LD1585CD2M80	8.0 V
LD1585CV90	LD1585CD2T90	LD1585CD2M90	9.0 V
LD1585CV12	LD1585CD2T120	LD1585CD2M120	12.0 V
LD1585CV	LD1585CD2T	LD1585CD2M	ADJ

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

ELECTRICAL CHARACTERISTICS OF LD1585#15 (V_I=4.5V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	1.485	1.5	1.515	V
		I_O = 0 to 5A V_I = 3 to 25V (note 1)	1.47	1.5	1.53	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 3 to 15V T_J = 25°C		0.005	0.2	%
		I_O = 0 mA V_I = 3 to 15V		0.005	0.2	%
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	%
		I_O = 0 to 5A		0.05	0.5	%
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#18 (V_I=4.8V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	1.782	1.8	1.818	V
		I_O = 0 to 5A V_I = 3.3 to 25V (note 1)	1.764	1.8	1.836	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 3.3 to 15V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 3.3 to 15V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#25 (V_I=5.5V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	2.475	2.5	2.525	V
		I_O = 0 to 5A V_I = 4 to 25V (note 1)	2.45	2.5	2.55	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 4 to 16V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 4 to 16V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#285 (V_I=5.85V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°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 mA V_I = 4.5 to 18V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 4.5 to 18V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#33 (V_I=6.3V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	3.267	3.3	3.333	V
		I_O = 0 to 5A V_I = 4.8 to 25V (note 1)	3.234	3.35	3.366	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 4.8 to 18V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 4.9 to 18V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#50 (V_I=8V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	4.95	5	5.05	V
		I_O = 0 to 5A V_I = 6.5 to 30V (note 1)	4.9	5	5.1	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 6.5 to 20V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 6.5 to 20V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#80 (V_I=11V, $C_I = C_O$ =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	7.92	8	8.08	V
		I_O = 0 to 5A V_I = 9.5 to 30V (note 1)	7.84	8	8.16	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 9.5 to 20V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 9.5 to 20V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O$ = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A $V_I - V_O = 3 \pm 1$V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#90 (V_I=12V, $C_I = C_O$ =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	8.91	9	9.09	V
		I_O = 0 to 5A V_I = 10.5 to 30V (note 1)	8.82	9	9.18	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 10.5 to 20V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 10.5 to 20V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	$V_I - V_O$ = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A $V_I - V_O = 3 \pm 1$V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585#120 (V_I=15V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 0 mA T_J = 25°C	11.88	12	12.12	V
		I_O = 0 to 5A V_I = 13.5 to 30V (note 1)	11.76	12	12.24	V
ΔV_O	Line Regulation	I_O = 0 mA V_I = 13.5 to 25V T_J = 25°C		0.005	0.2	mV
		I_O = 0 mA V_I = 13.5 to 25V		0.005	0.2	
ΔV_O	Load Regulation	I_O = 0 to 5A T_J = 25°C		0.05	0.3	mV
		I_O = 0 to 5A		0.05	0.5	
V_d	Dropout Voltage	I_O =5 A		1.2	1.4	V
I_q	Quiescent Current	$V_I \leq$ 25V		5	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°C 1000Hrs		0.03	1	%

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

ELECTRICAL CHARACTERISTICS OF LD1585# (V_I=4.25V, C_I = C_O =10µF, T_J = 0 to 125°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA V_I - V_O = 3V T_J = 25°C	1.237	1.25	1.263	V
		I_O = 10mA to 5AV_I - V_O =1.5 to 25V (note 1)	1.225	1.25	1.275	V
ΔV_O	Line Regulation	I_O = 10mA V_I = 2.75 to 15V T_J = 25°C		0.015	0.2	%
		I_O = 10mA V_I = 2.75 to 15V		0.1	0.2	%
ΔV_O	Load Regulation	I_O = 10mA to 5AT_J = 25°C		0.1	0.3	%
		I_O = 0 to 5A		0.25	0.5	%
V_d	Dropout Voltage	I_O = 5A		1.2	1.4	V
$I_{O(min)}$	Minimum Load Current	V_I = 25V		3	10	mA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V	5.5	7		A
	Termal Regulation	T_J = 25°C, 30ms pulse		0.004	0.02	%/W
SVR	Supply Voltage Rejection	f = 120 Hz, C_O = 25 µF, C_{ADJ} = 25 µF, I_O = 5A V_I - V_O = 3 ± 1V	60	75		dB
I_{ADJ}	Adjust Pin Current	I_O = 10 mA		50	100	µA
ΔI_{ADJ}	Adjust Pin Current Change	I_O = 10mA to 5A V_I = 3 to 25V (note 1)		0.2	5	µA
eN	RMS Output Noise Voltage (% of V_O)	T_J = 25°C f =10Hz to 10KHz		0.003		%
S	Temperature Stability			0.5		%
S	Long Term Stability	T_J = 125°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°C, C_I=C_O=10µF tant)

Figure 1 : Output Voltage vs Temperature

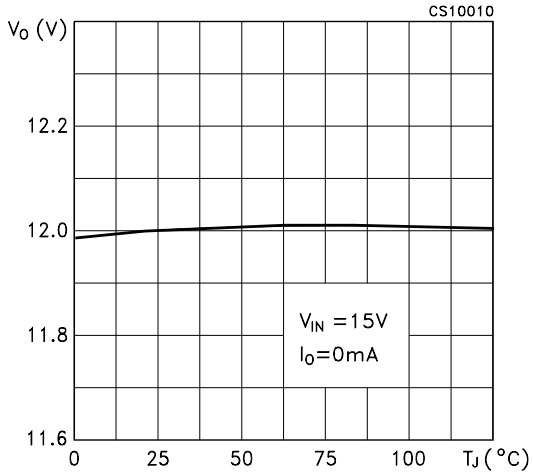


Figure 2 : Short Circuit Current vs Dropout Voltage

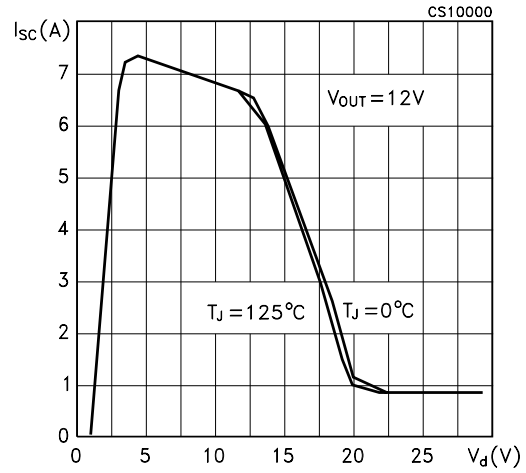


Figure 3 : Line Regulation vs Temperature

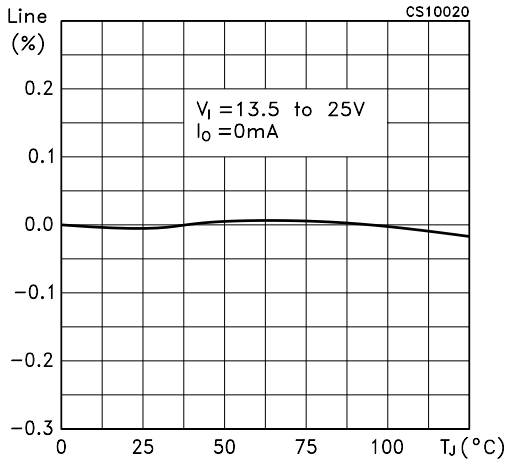


Figure 4 : Line Regulation vs Temperature

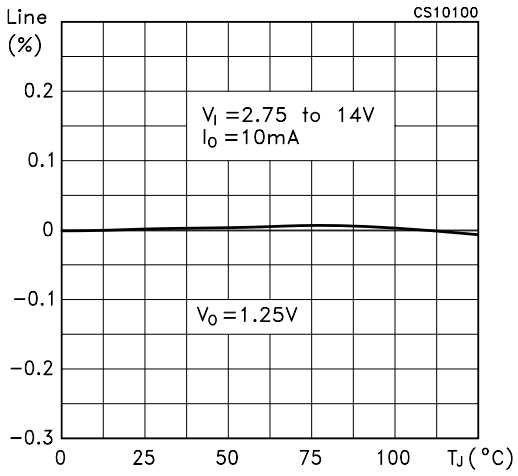


Figure 5 : Load Regulation vs Temperature

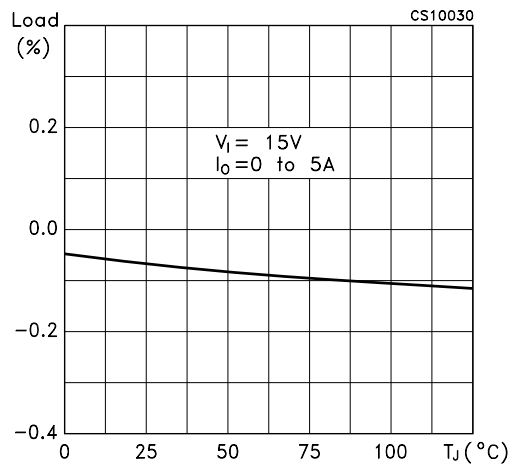


Figure 6 : Load Regulation vs Temperature

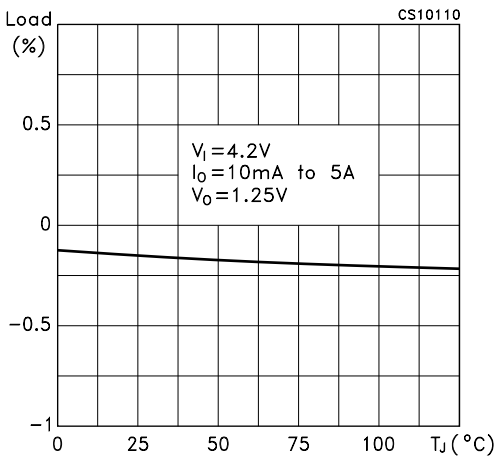


Figure 7 : Dropout Voltage vs Temperature

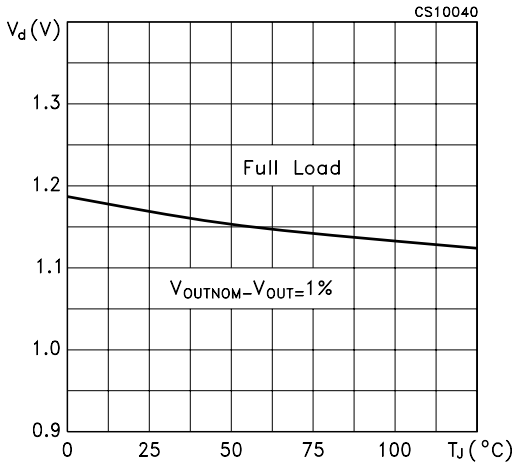


Figure 8 : Dropout Voltage vs Output Current

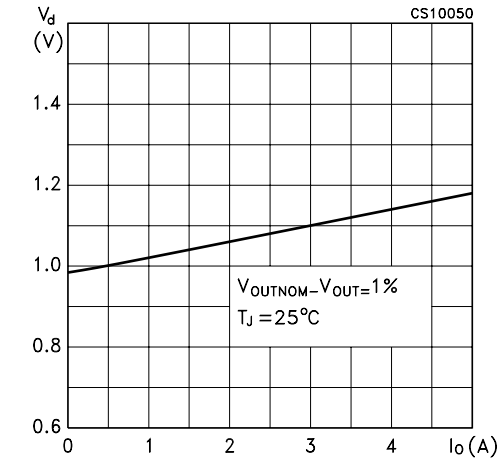


Figure 9 : Adjust Pin Current vs Input Voltage

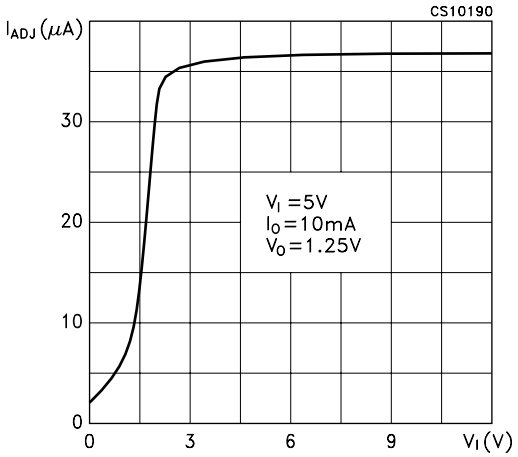


Figure 10 : Adjust Pin Current vs Temperature

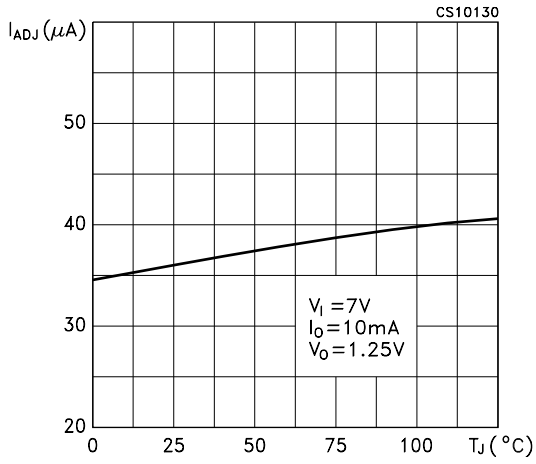


Figure 11 : Adjust Pin Current Change vs Temperature

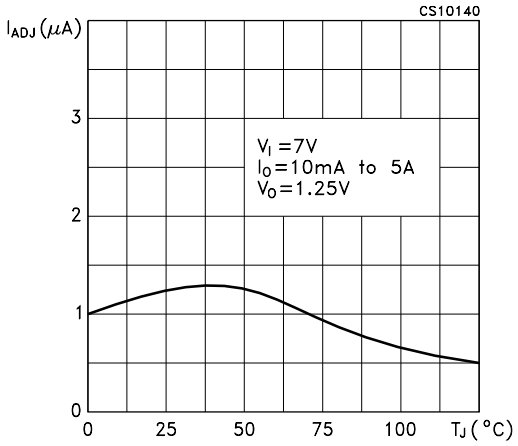


Figure 12 : Quiescent Current vs Temperature

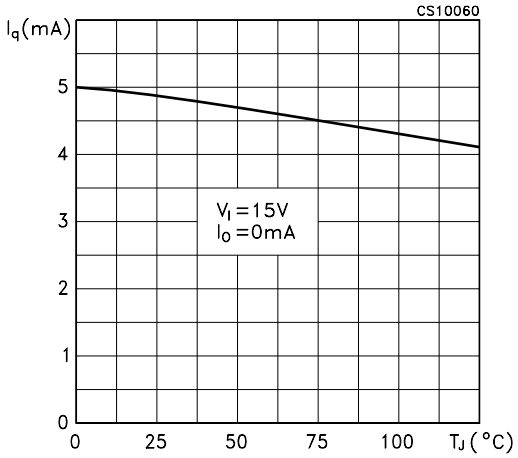


Figure 13 : Reference Voltage vs Temperature

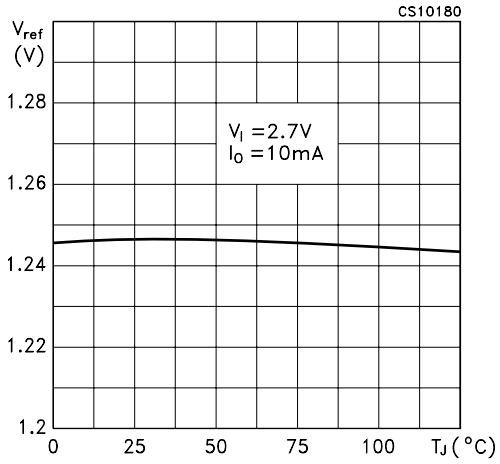


Figure 14 : Minimum Load Current vs Temperature

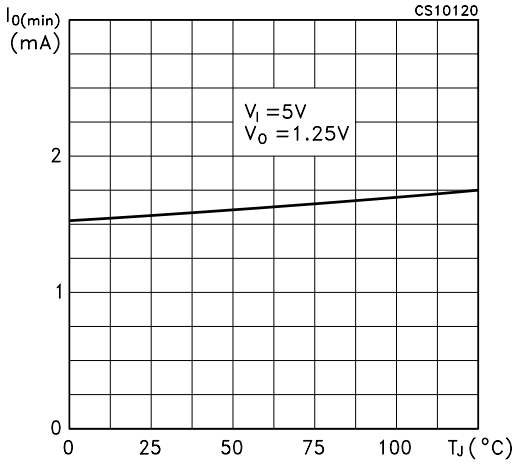


Figure 15 : Supply Voltage Rejection vs Output Current

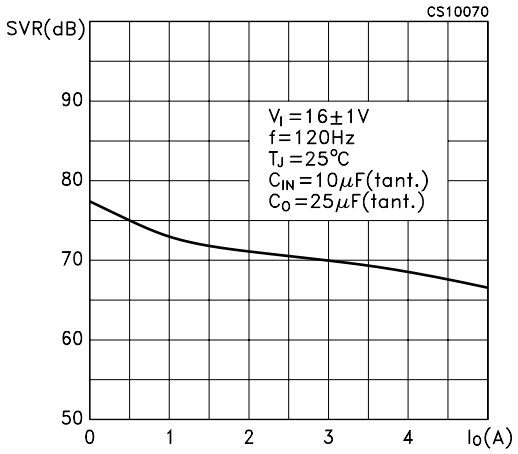


Figure 16 : Supply Voltage Rejection vs Output Current

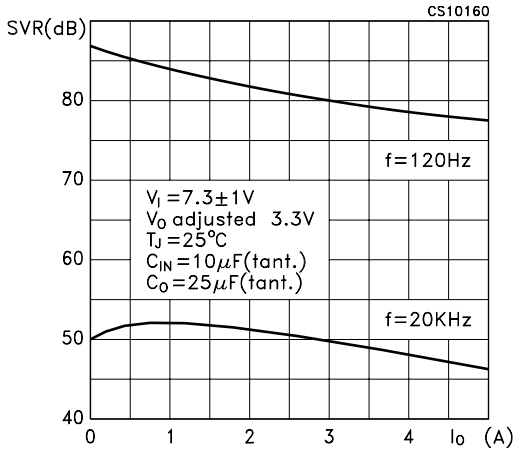


Figure 17 : Supply Voltage Rejection vs Frequency

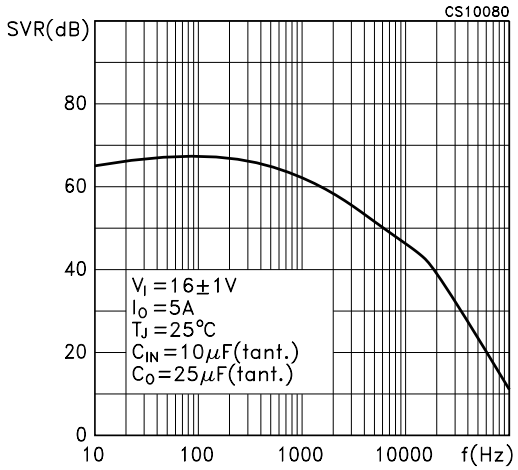


Figure 18 : Supply Voltage Rejection vs Frequency

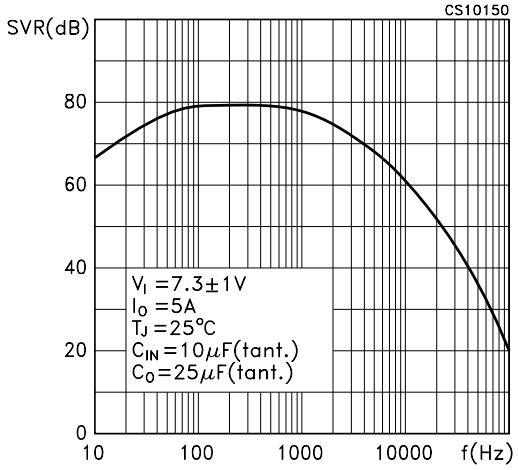


Figure 19 : Supply Voltage Rejection vs Temperature

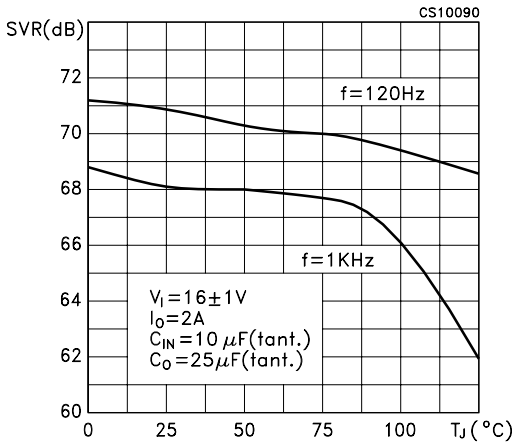


Figure 20 : Supply Voltage Rejection vs Temperature

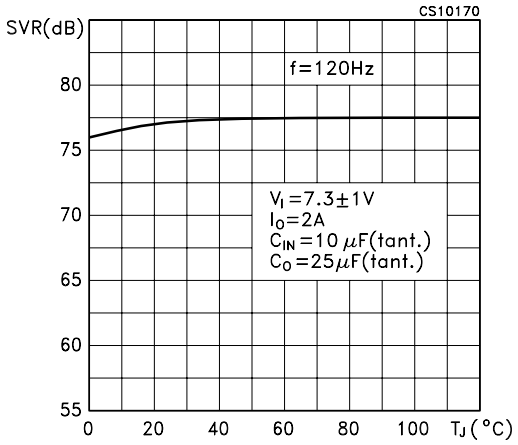
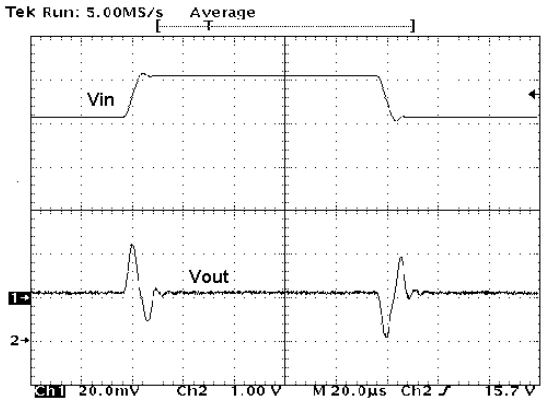
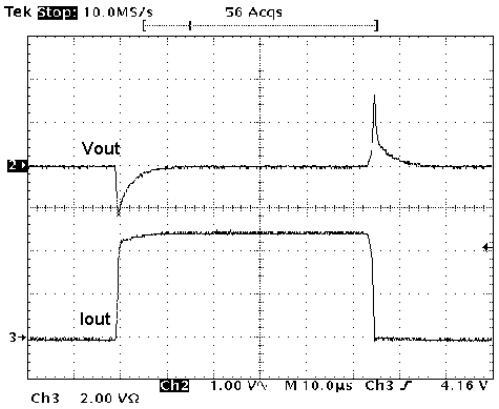


Figure 21 : Line Transient



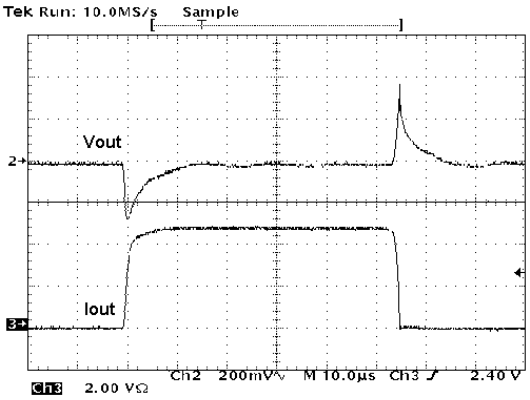
V_I=15 to 16V, I_O=200mA, C_I = 1µF(tant), C_O=10µF(tant),

Figure 22 : Load Transient



V_I=15 V, I_O=0.1 to 5 A, C_I = 10µF(tant), C_O=10µF(tant)

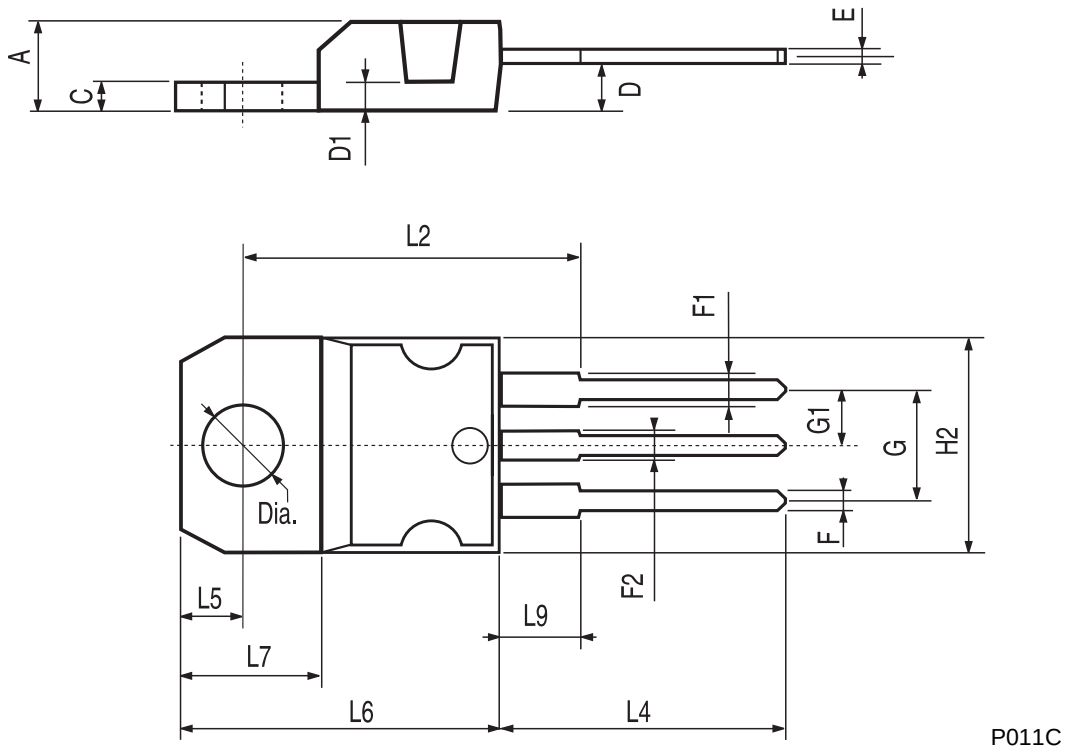
Figure 23 : Load Transient



V_I=7 V, I_O=0.1 to 5 A, C_I = 10µF(tant), C_O=10µF(tant)

TO-220 MECHANICAL DATA

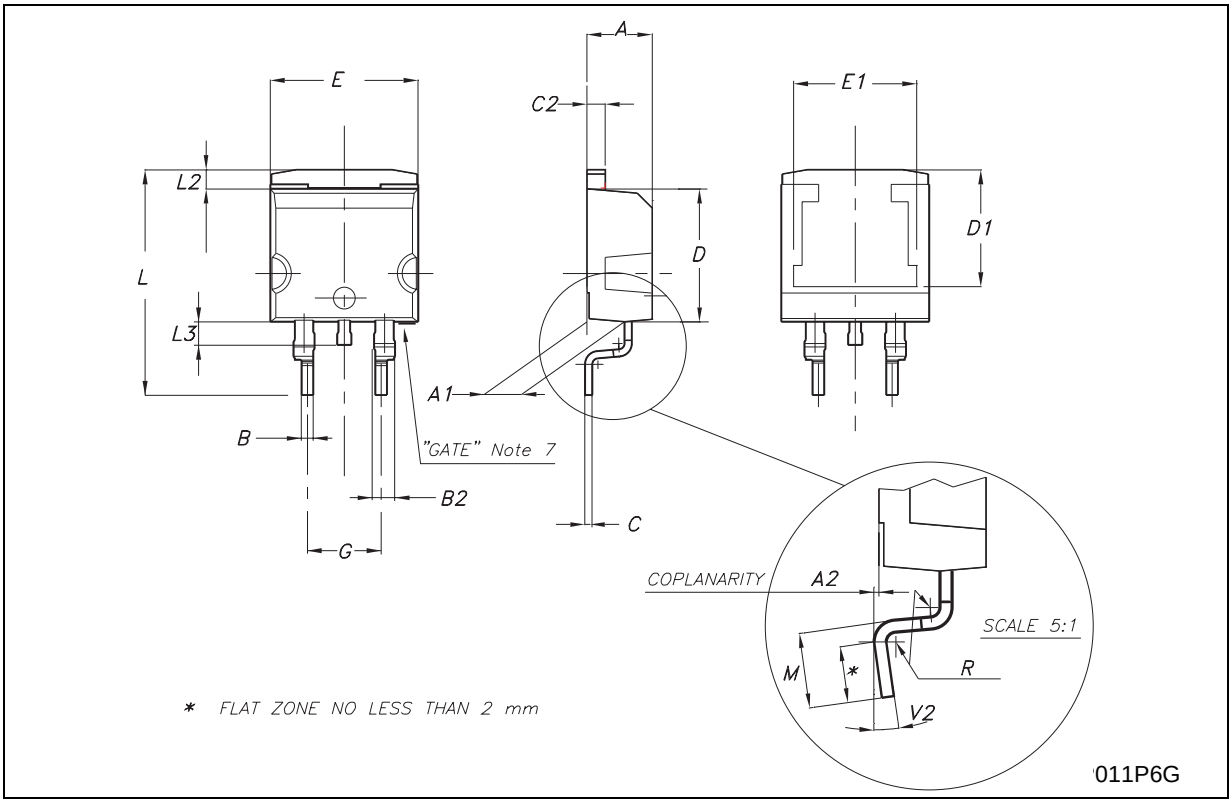
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106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

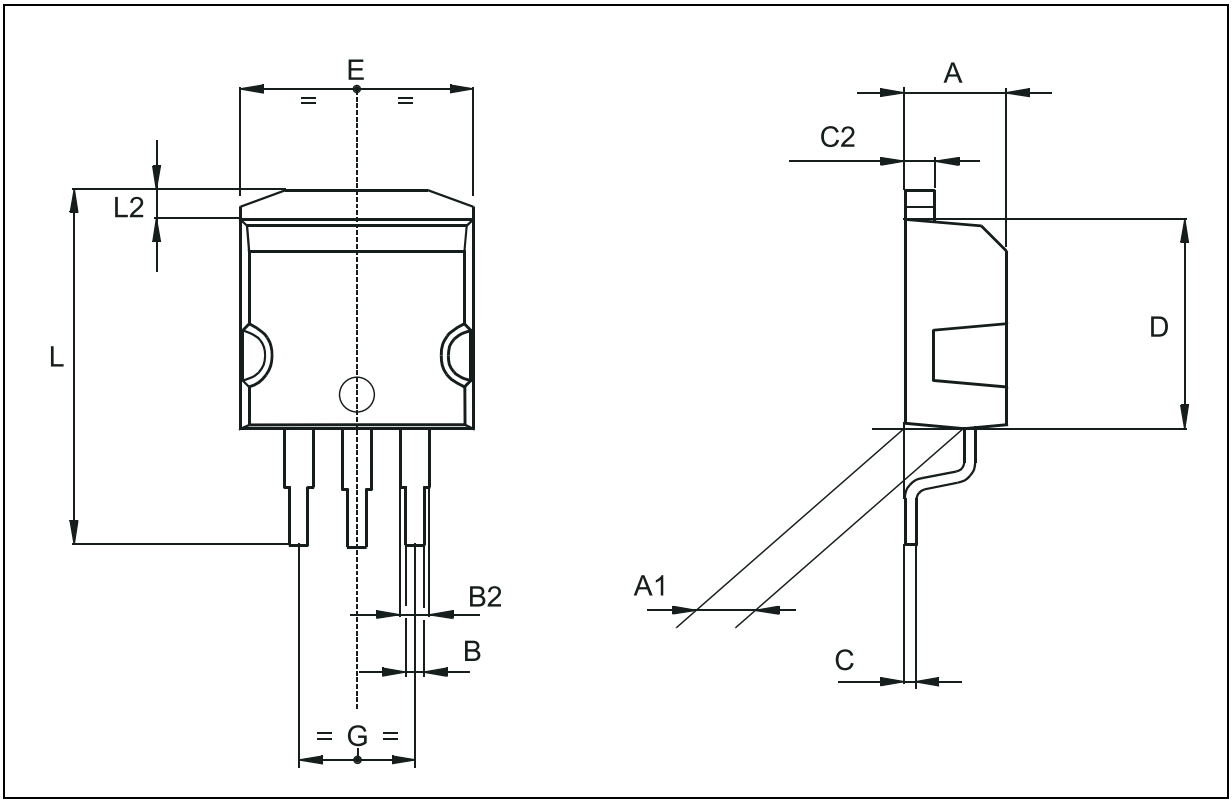
D²PAK MECHANICAL DATA

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°



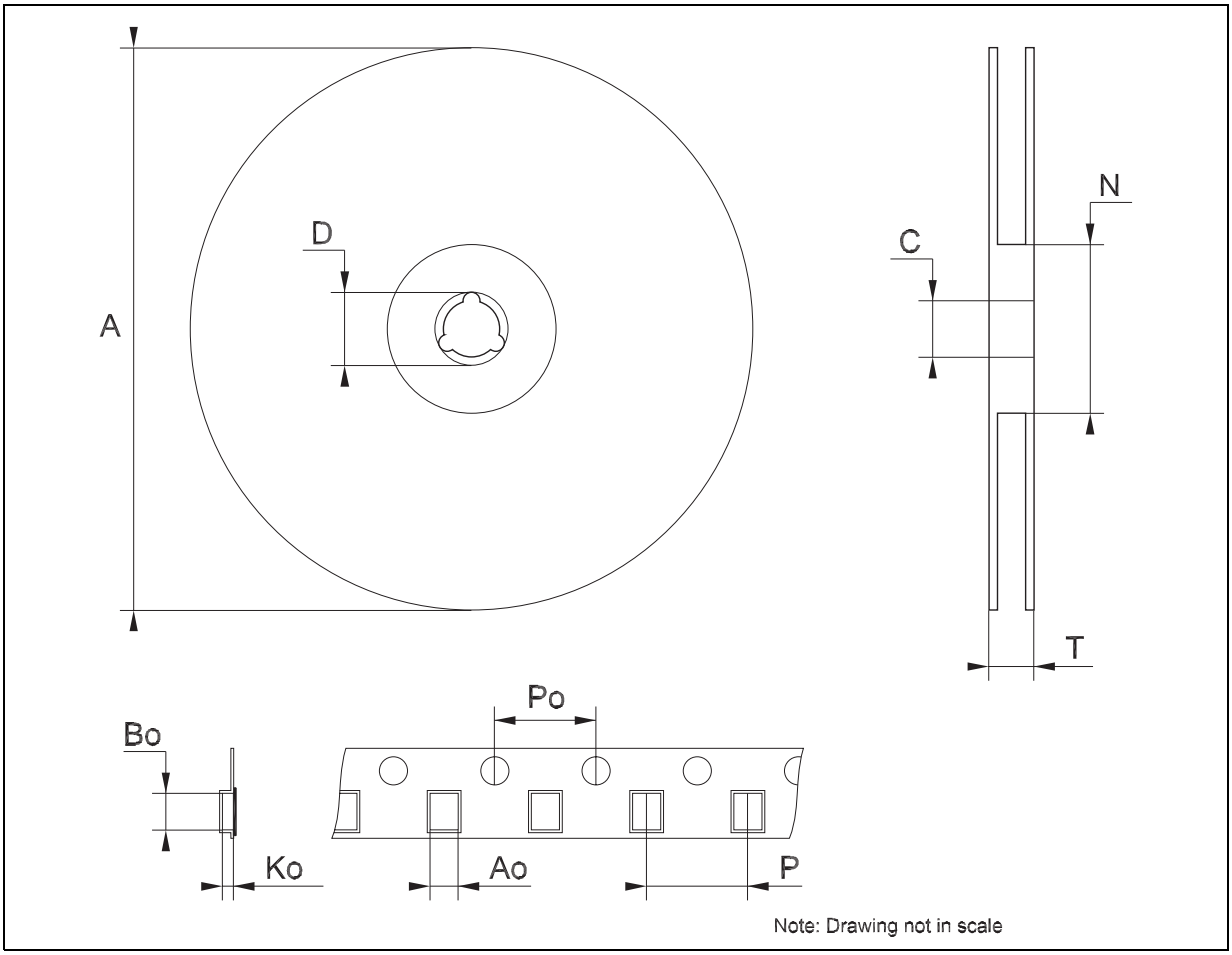
D²PAK/A MECHANICAL DATA

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
B	0.7		0.93	0.027		0.036
B2	1.14		1.7	0.044		0.067
C	0.45		0.60	0.017		0.023
C2	1.21		1.36	0.047		0.053
D	8.95		9.35	0.352		0.368
E	10		10.4	0.393		0.409
G	4.88		5.28	0.192		0.208
L	15		15.85	0.590		0.106
L2	1.27		1.4	0.050		0.055



Tape & Reel D^2PAK-P^2PAK-D^2PAK/A-P^2PAK/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



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