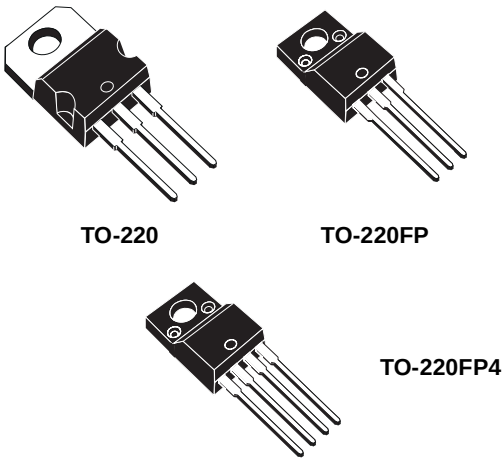
LD29150 SERIES

1.5A, VERY LOW DROP VOLTAGE REGULATORS

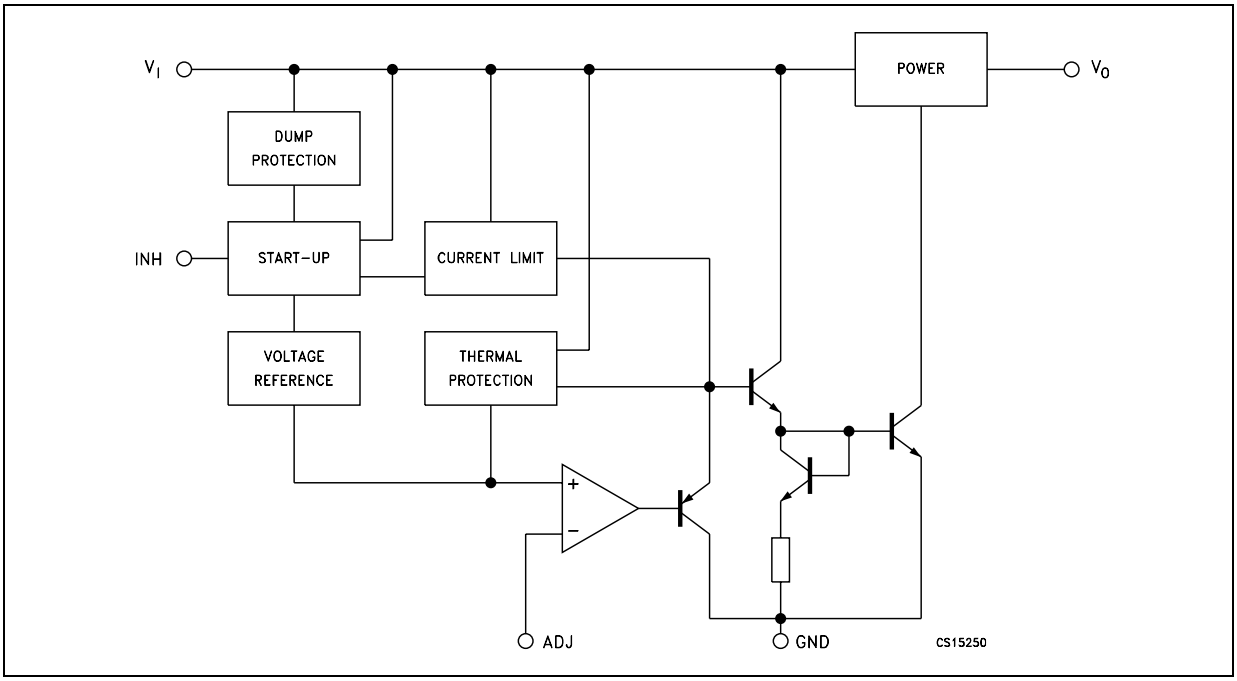
- VERY LOW DROPOUT VOLTAGE (TYP. 0.4 AT 1.5A)
- GUARANTEED OUTPUT CURRENT UP TO 1.5A
- FIXED AND ADJUSTABLE OUTPUT VOLTAGE (±1% AT 25°C)
- INTERNAL CURRENT AND THERMAL LIMIT
- LOGIC CONTROLLED ELECTRONIC SHUTDOWN AVAILABLE IN PPAK AND TO-220FP4



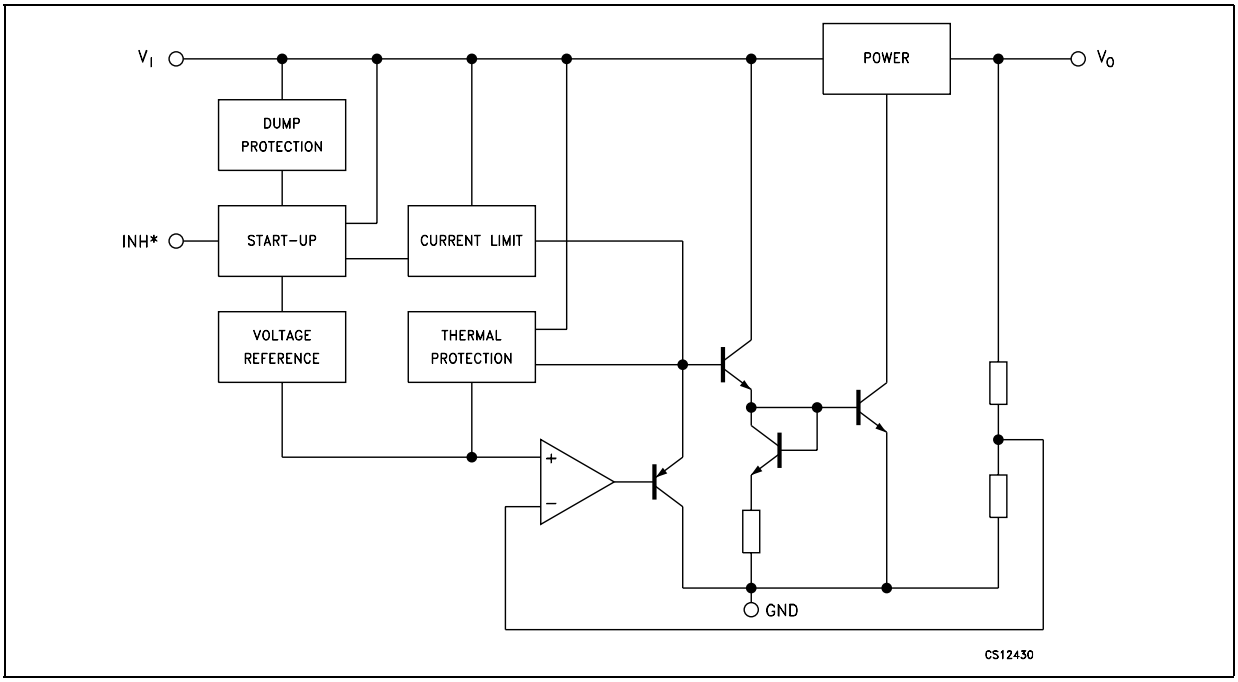
DESCRIPTION

The LD29150 is a high current, high accuracy, low-dropout voltage regulator series. These regulators feature 400mV dropout voltage and very low ground current. Designed for high current loads, these devices are also used in lower current, extremely low dropout-critical systems, where their tiny dropout voltage and ground current values are important attributes. Typical applications are in Power supply switching post regulation, Series power supply for monitors, Series power supply for VCRs and TVs, Computer Systems and Battery powered systems.

SCHEMATIC DIAGRAM FOR ADJUSTABLE VERSION



SCHEMATIC DIAGRAM FOR FIXED VERSION



* Only for version with inhibit function.

ORDERING CODES

TO-220	TO-220FP (#)	TO-220FP4 (#)	DPAK (*)	PPAK (*)	OUTPUT VOLTAGE
LD29150V15	LD29150P15	LD29150F4-15	LD29150DT15	LD29150PT15	1.5 V
LD29150V18	LD29150P18	LD29150F4-18	LD29150DT18	LD29150PT18	1.8 V
LD29150V25	LD29150P25	LD29150F4-25	LD29150DT25	LD29150PT25	2.5 V
LD29150V33	LD29150P33	LD29150F4-33	LD29150DT33	LD29150PT33	3.3 V
LD29150V50	LD29150P50	LD29150F4-50	LD29150DT50	LD29150PT50	5.0 V
LD29150V80	LD29150P80	LD29150F4-80	LD29150DT80	LD29150PT80	8.0 V
LD29150V90	LD29150P90	LD29150F4-90	LD29150DT90	LD29150PT90	9.0 V
				LD29150PT	ADJ

(*) Available in Tape & Reel with the suffix "R".

(#) Available on request.

ABSOLUTE MAXIMUM RATINGS

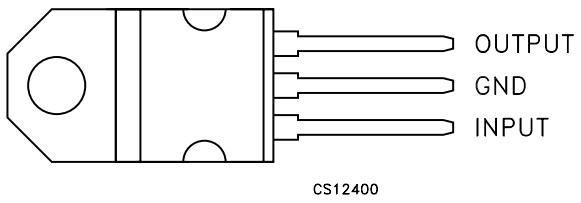
Symbol	Parameter	Value	Unit
V_I	DC Input Voltage	30 (*)	V
I_O	Output Current	Internally Limited	mA
P_D	Power Dissipation	Internally Limited	mW
T_{stg}	Storage Temperature Range	-55 to 150	°C
T_{op}	Operating Junction Temperature Range	-40 to 125	°C

(*) Above 14V the device is automatically in shut-down.
Absolute Maximum Ratings are those beyond which damage to the device may occur. Functional operation under these condition is not implied.

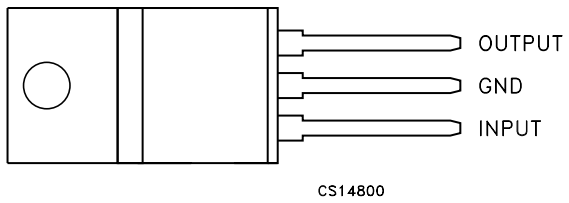
THERMAL DATA

Symbol	Parameter	DPAK	PPAK	TO-220	TO-220FP	TO-220FP4	Unit
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	8	8	3	4	4	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	100	100	50	60	60	°C/W

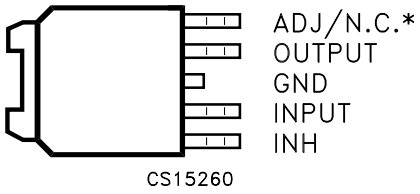
CONNECTION DIAGRAM (top view)



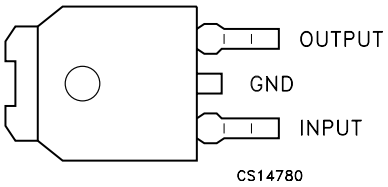
TO-220



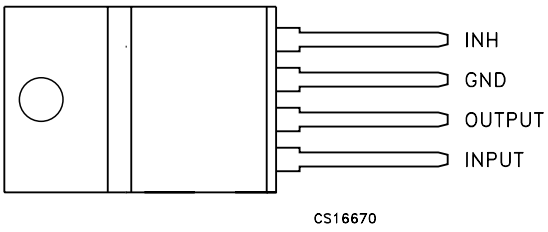
TO-220FP



PPAK



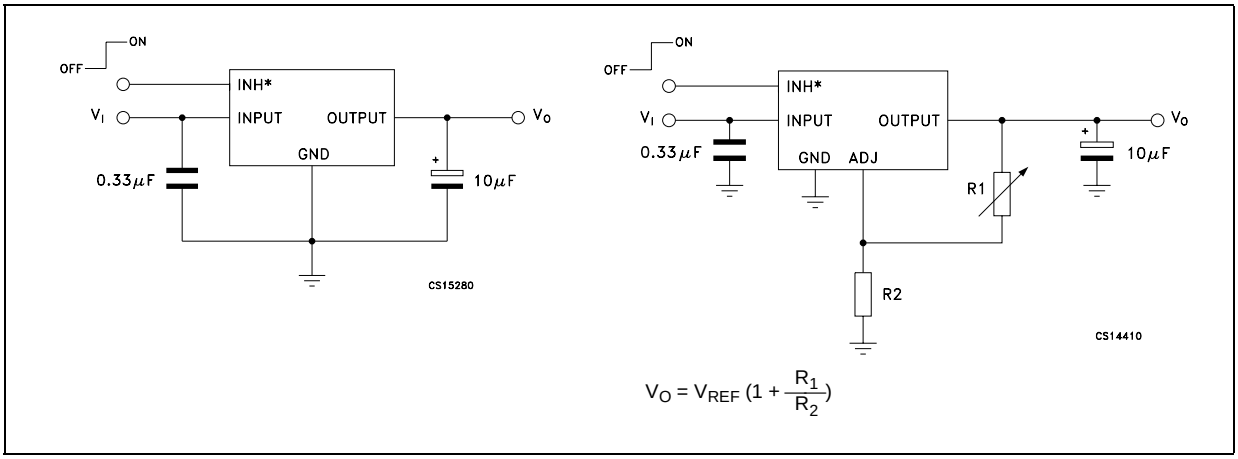
DPAK



TO-220FP4

* Not connected for fixed version.

APPLICATION CIRCUIT



* Only for version with inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#15

(I_O = 10mA, T_J = 25°C, V_I = 3.5V, V_{INH} = 2V (Note 2), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Minimum Operating Input Voltage	I_O = 10mA to 1.5A T_J = -40 to 125°C	2.5			V
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 3 to 7V	1.485	1.5	1.515	V
		T_J = -40 to 125°C	1.47		1.53	
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 3 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 3.5 ± 1V, I_O = 0.75A (Note 1)	65	75		dB
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 2) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 2) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		60		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#18

(I_O = 10mA, T_J = 25°C, V_I = 3.8V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 3 to 7.3V	1.782	1.8	1.818	V
		T_J = -40 to 125°C	1.764		1.836	
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 3 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 3.8 ± 1V, I_O = 0.75A (Note 1)	62	72		dB
V_{DROP}	Dropout Voltage	I_O = 250mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 0.75A, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 1.5A, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		72		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Dropout voltage is defined as the input-to-output differential when the output voltage drops to 99% of its nominal value with V_O+1V applied to V_I.
NOTE 3: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#25

(I_O = 10mA, T_J = 25°C, V_I = 4.5V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 3.5 to 8V	2.475	2.5	2.525	V
		T_J = -40 to 125°C	2.45		2.55	
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 3.5 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 4.5 ± 1V, I_O = 0.75A (Note 1)	55	70		dB
V_{DROP}	Dropout Voltage	I_O = 250mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 0.75A, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 1.5A, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		100		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Dropout voltage is defined as the input-to-output differential when the output voltage drops to 99% of its nominal value with V_O+1V applied to V_I.
NOTE 3: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#33

(I_O = 10mA, T_J = 25°C, V_I = 5.3V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 4.3 to 8.8V T_J = -40 to 125°C	3.267 3.234	3.3	3.333 3.366	V
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 4.3 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 5.3 ± 1V, I_O = 0.75A (Note 1)	52	67		dB
V_{DROP}	Dropout Voltage	I_O = 250mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 0.75A, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 1.5A, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		132		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Dropout voltage is defined as the input-to-output differential when the output voltage drops to 99% of its nominal value with V_O+1V applied to V_I.
NOTE 3: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#50

(I_O = 10mA, T_J = 25°C, V_I = 7V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 6 to 10.5V T_J = -40 to 125°C	4.95 4.9	5	5.05 5.1	V
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 6 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 7 ± 1V, I_O = 0.75A (Note 1)	49	64		dB
V_{DROP}	Dropout Voltage	I_O = 250mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 0.75A, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 1.5A, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		200		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Dropout voltage is defined as the input-to-output differential when the output voltage drops to 99% of its nominal value with V_O+1V applied to V_I.
NOTE 3: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#80

(I_O = 10mA, T_J = 25°C, V_I = 10V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 9 to 13V	7.92	8	8.08	V
		T_J = -40 to 125°C	7.84		8.16	
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 9 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 9 ± 1V, I_O = 0.75A (Note 1)	45	59		dB
V_{DROP}	Dropout Voltage	I_O = 250mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 0.75A, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 1.5A, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		320		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Dropout voltage is defined as the input-to-output differential when the output voltage drops to 99% of its nominal value with V_O+1V applied to V_I.
NOTE 3: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#90

(I_O = 10mA, T_J = 25°C, V_I = 11V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	I_O = 10mA to 1.5A, V_I = 10 to 13V	8.91	9	9.09	V
		T_J = -40 to 125°C	8.82		9.18	
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 10 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 11 ± 1V, I_O = 0.75A (Note 1)	45	58		dB
V_{DROP}	Dropout Voltage	I_O = 250mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 0.75A, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 1.5A, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		360		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: Dropout voltage is defined as the input-to-output differential when the output voltage drops to 99% of its nominal value with V_O+1V applied to V_I.
NOTE 3: Only for version with Inhibit function.

ELECTRICAL CHARACTERISTICS OF LD29150#ADJ

(I_O = 10mA, T_J = 25°C, V_I = 3.23 V, V_{INH} = 2V (Note 3), C_I = 330nF, C_O = 10µF adjust pin tied to output pin)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Minimum Operating Input Voltage	I_O = 10mA to 1.5A T_J = -40 to 125°C	2.5			V
ΔV_O	Load Regulation	I_O = 10mA to 1.5A		0.2	1.0	%
ΔV_O	Line Regulation	V_I = 2.5 V to 13V I_O = 10mA		0.06	0.5	%
V_{REF}	Reference Voltage	I_O = 10mA to 1.5A, V_I = 2.5 to 4.5V T_J = -40 to 125°C (Note 2)	-1%	1.23	+1%	V
			-2%		+2%	
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 3.23 ± 1V, I_O = 0.75A (Note 1)	45	75		dB
I_q	Quiescent Current	I_O = 0.75A, T_J = -40 to 125°C		15	40	mA
		I_O = 1.5A, T_J = -40 to 125°C		30	80	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{ADJ}	Adjust Pin Current	T_J = -40 to 125°C (Note 1)			1	µA
I_{sc}	Short Circuit Current	V_I - V_O = 5.5V		2.2		A
V_{IL}	Control Input Logic Low	OFF MODE, (NOTE 3) T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE, (NOTE 3) T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	T_J = -40 to 125°C V_{INH} = 13V		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHz I_O = 100mA		50		μV_{RMS}

NOTE 1: Guaranteed by design.
NOTE 2: reference Voltage is measured between output and GND pin, with ADJ PIN tied to V_{OUT}.
NOTE 3: Only for version with Inhibit function.

TYPICAL CHARACTERISTICS

Figure 1 : Output Voltage vs Temperature

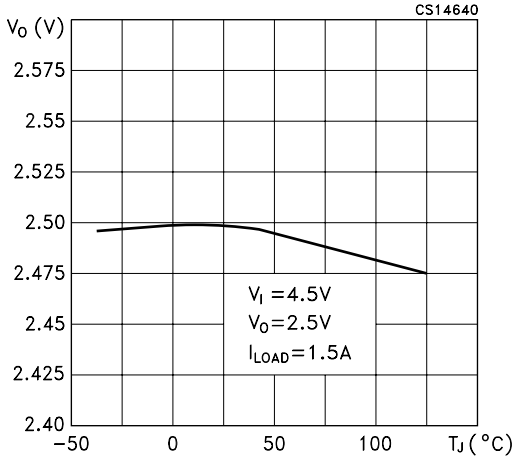


Figure 2 : Reference Voltage vs Temperature

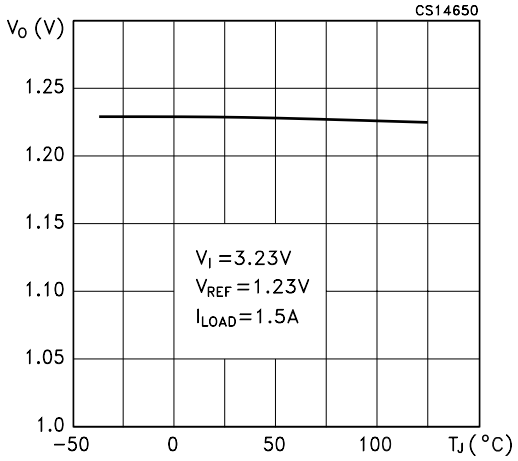


Figure 3 : Dropout Voltage vs Temperature

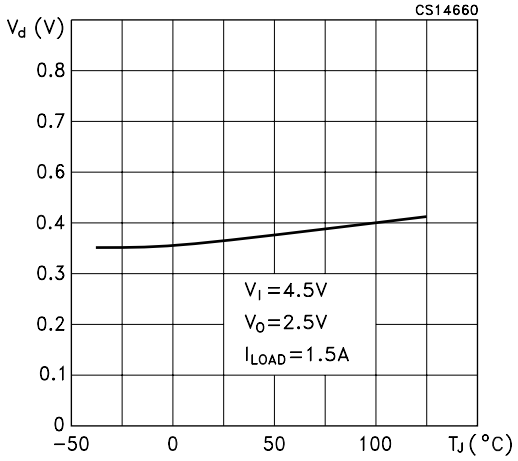


Figure 4 : Dropout Voltage vs Output Current

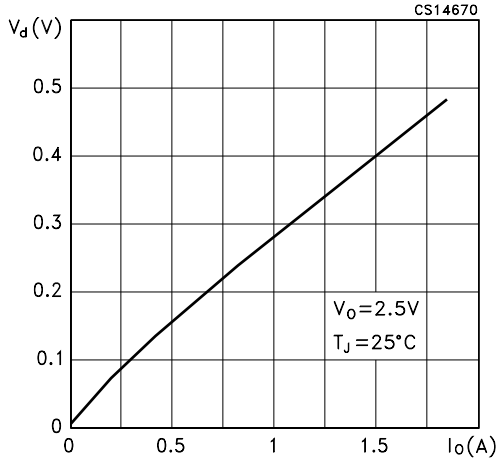


Figure 5 : Quiescent Current vs Output Current

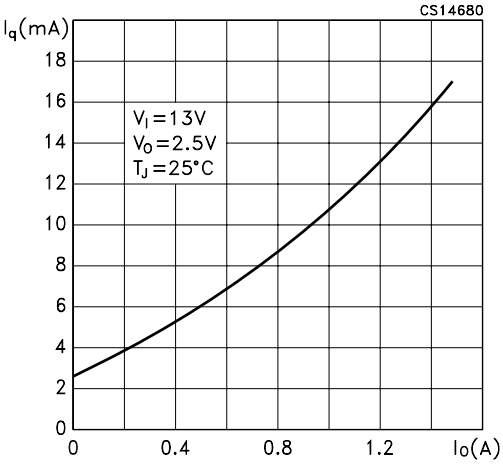


Figure 6 : Quiescent Current vs Output Current

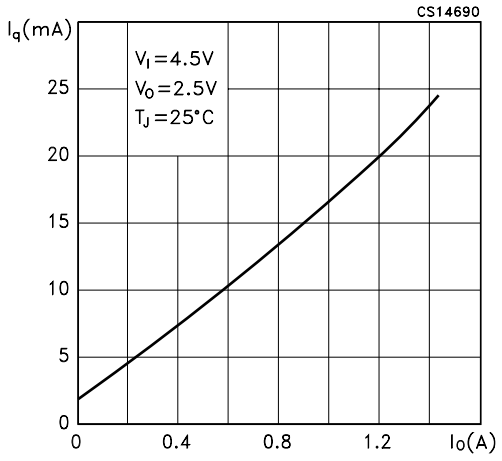


Figure 7 : Quiescent Current vs Supply Voltage

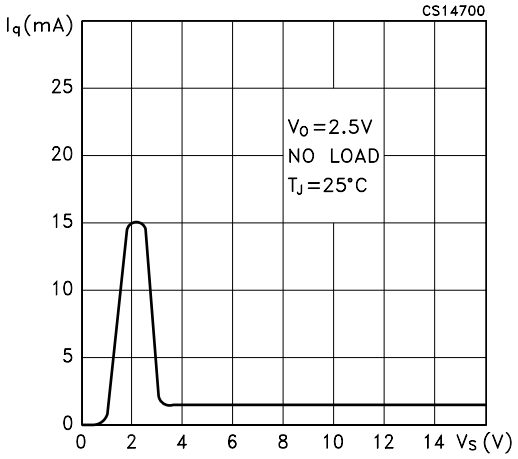


Figure 8 : Quiescent Current vs Temperature

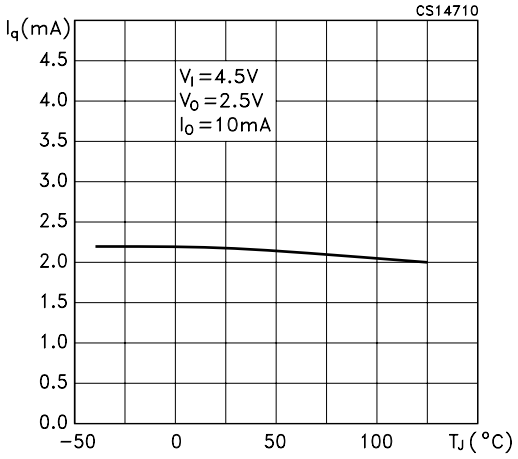


Figure 9 : Quiescent Current vs Temperature

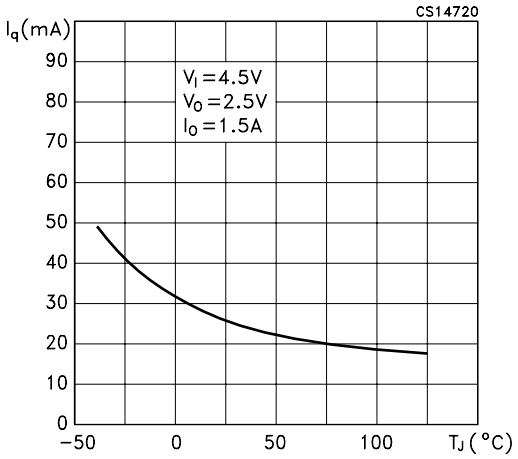


Figure 10 : Short Circuit Current vs Temperature

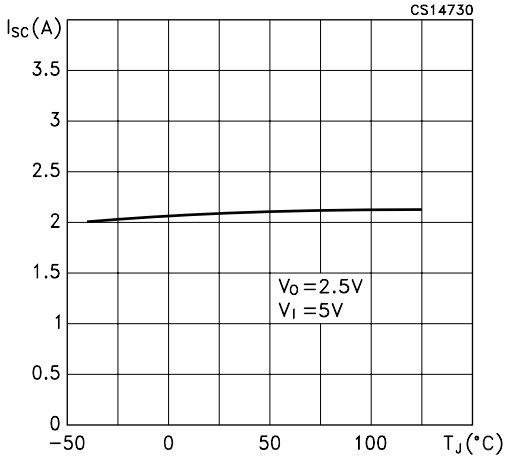


Figure 11 : Adjust Pin Current vs Temperature

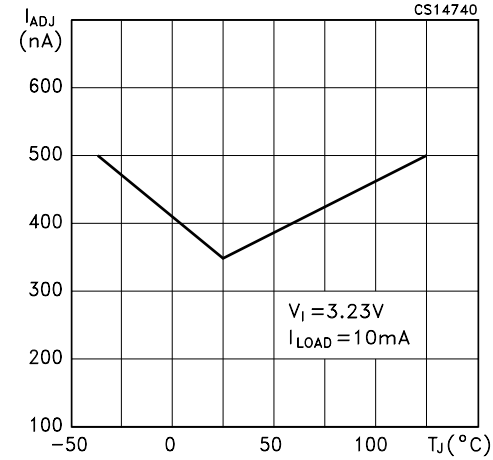


Figure 12 : Supply Voltage Rejection vs Temperature

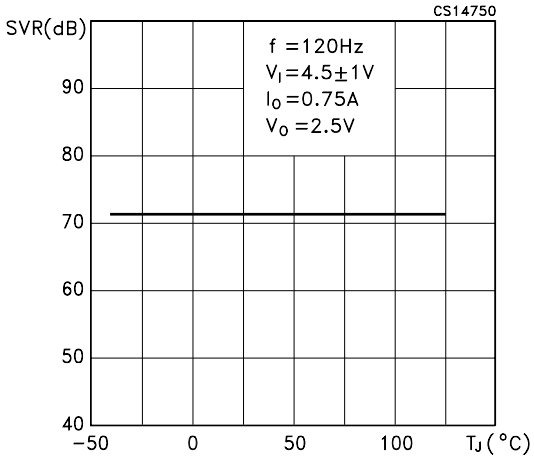


Figure 13 : Output Voltage vs Input Voltage

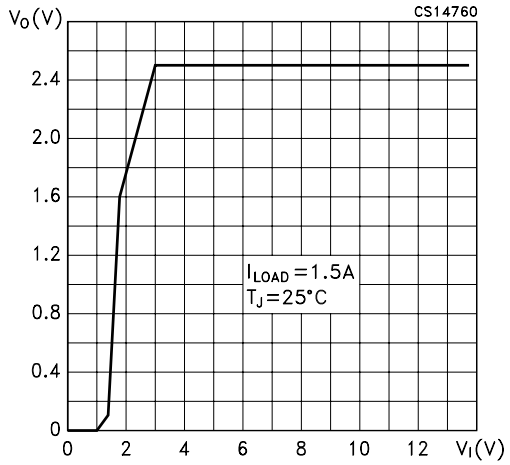


Figure 14 : Stability vs C_O

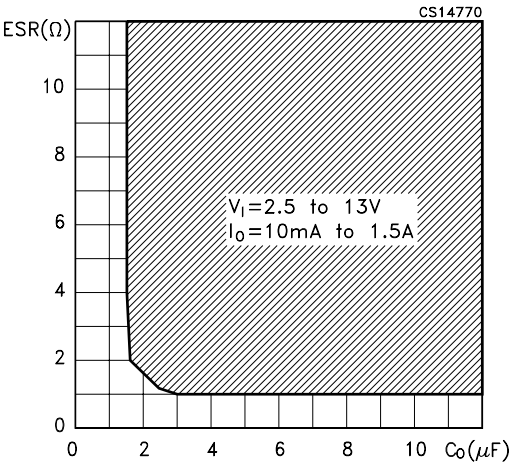
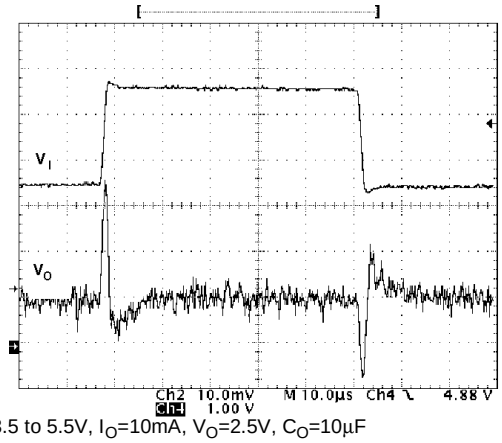
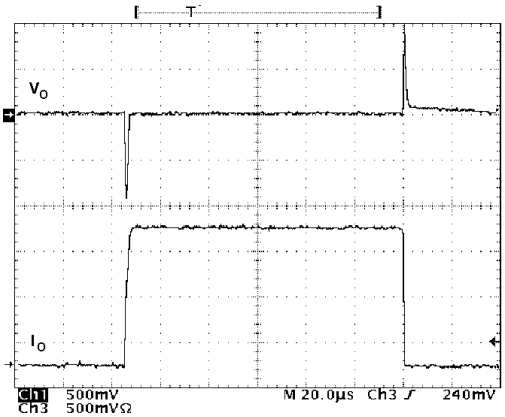


Figure 15 : Line Transient



V_I=3.5 to 5.5V, I_O=10mA, V_O=2.5V, C_O=10µF

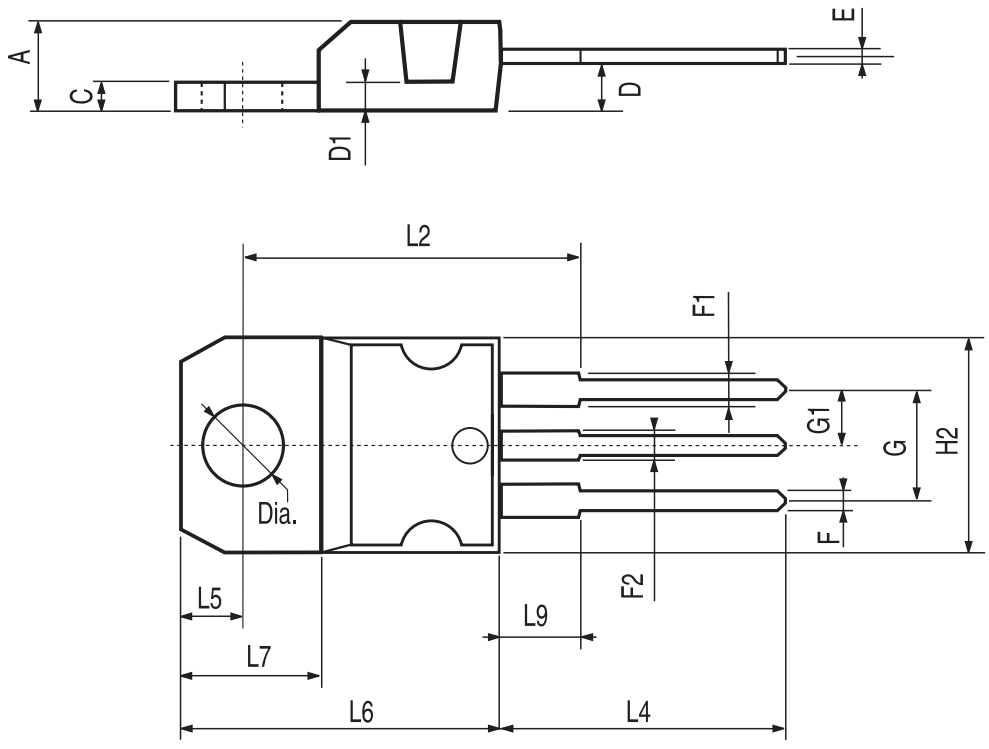
Figure 16 : Load Transient



V_I=5V, I_O=10mA to 1.5A, V_O=2.5V, C_O=10µF

TO-220 MECHANICAL DATA

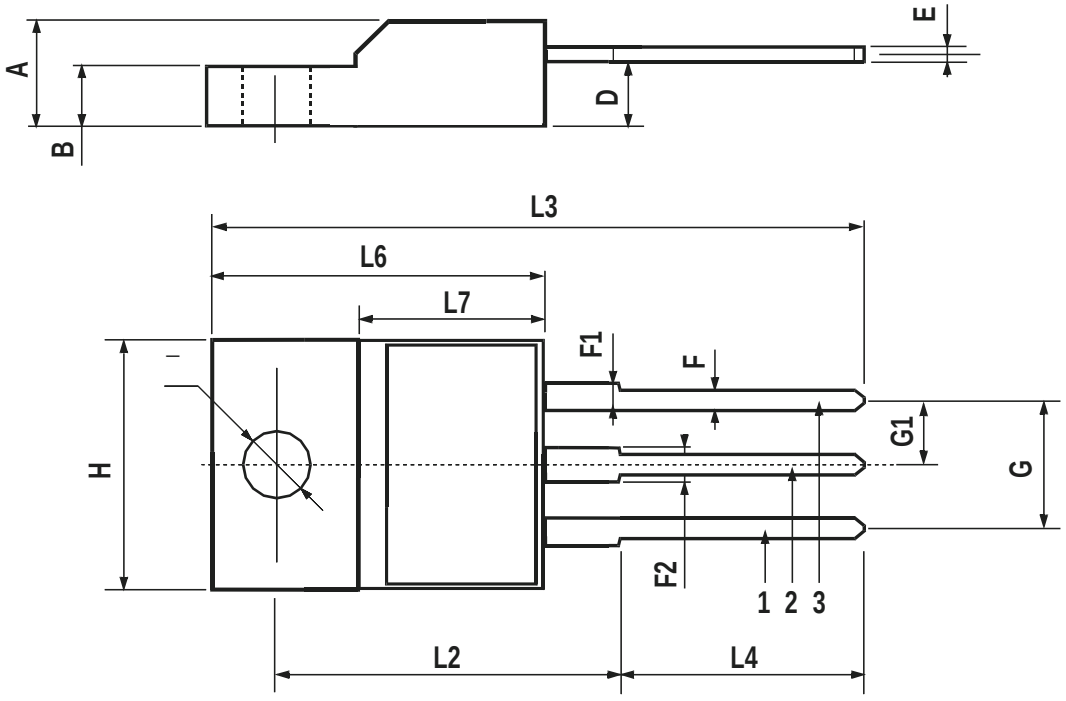
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106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

TO-220FP MECHANICAL DATA

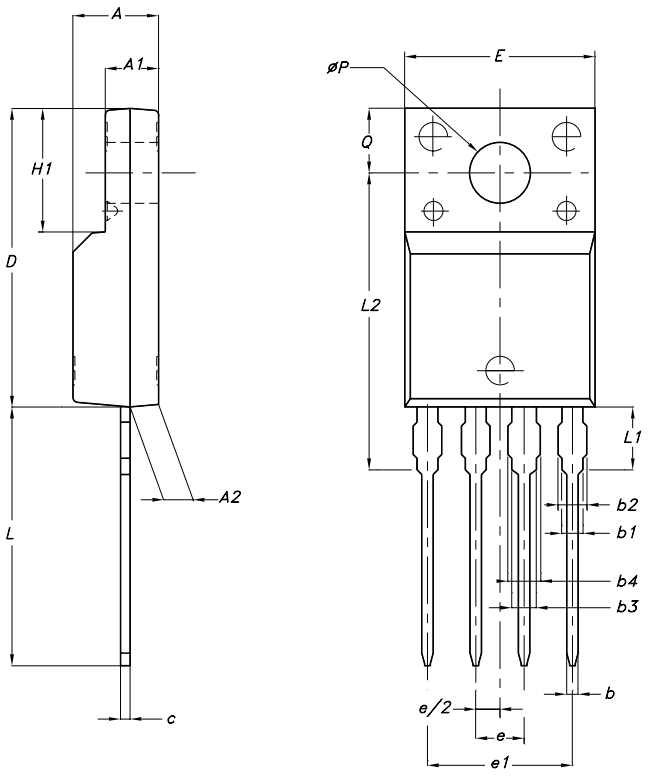
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.45		0.70	0.017		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.50	0.045		0.059
F2	1.15		1.50	0.045		0.059
G	4.95		5.2	0.194		0.204
G1	2.4		2.7	0.094		0.106
H	10.0		10.40	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
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



7012510/G

TO-220FP4 MECHANICAL DATA

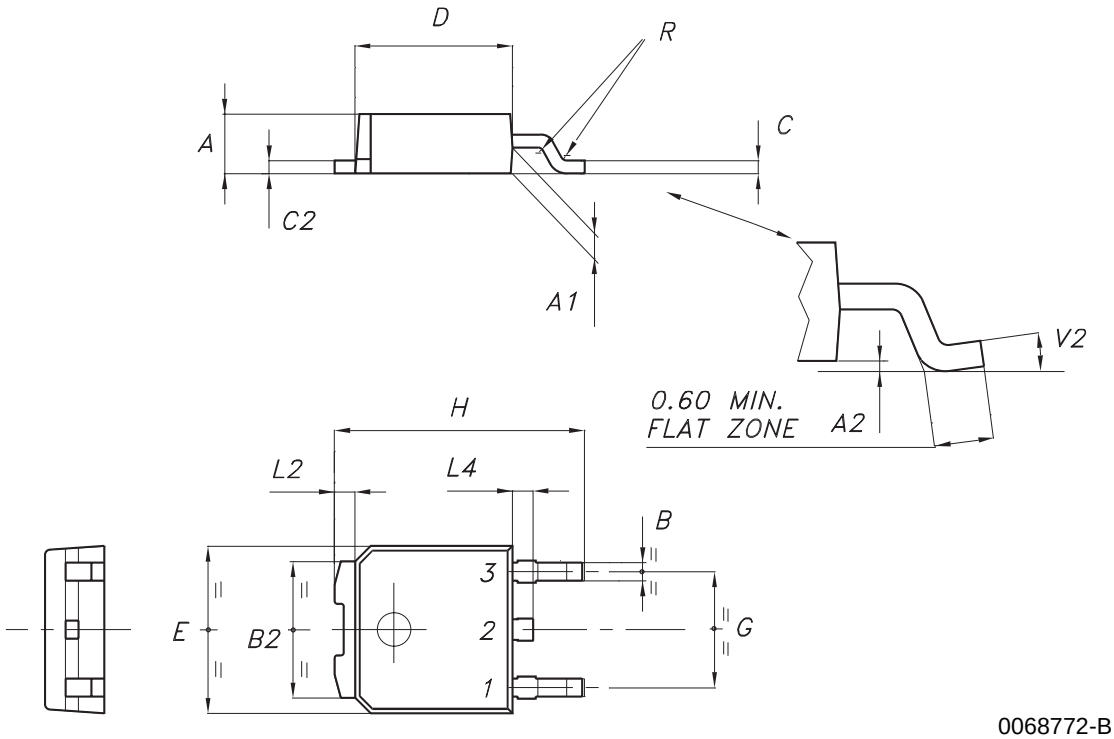
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.30		4.70	0.169		0.185
A1	2.60		3.00	0.102		0.118
A2	1.30	1.50	1.70	0.051	0.059	0.067
b	0.50		0.70	0.020		0.028
b1	1.05			0.041		
b2			1.30			0.051
b3	1.25			0.049		
b4			1.50			0.059
c	0.45	0.50	0.60	0.018	0.020	0.024
D	15.50		15.90	0.610		0.626
E	9.80		10.20	0.386		0.402
e	2.29	2.54	2.79	0.090	0.100	0.110
e1		7.62			0.300	
H1	6.30		6.70	0.248		0.264
L		13.60			0.535	
L1		3.30			0.130	
L2	15.40		15.80	0.606		0.622
ϕP	3		3.40	0.118		0.134
Q	3.3		3.5	0.130		0.138



7514291/A

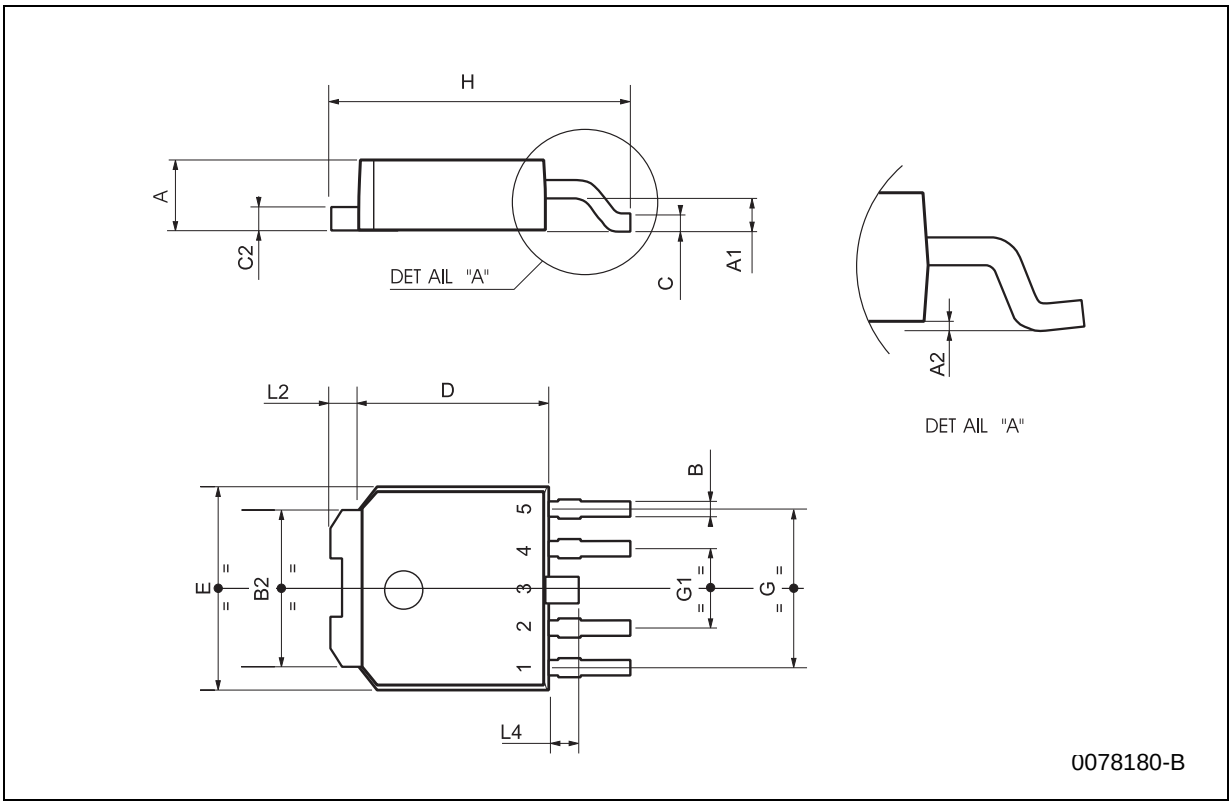
DPAK MECHANICAL DATA

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
B2	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
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



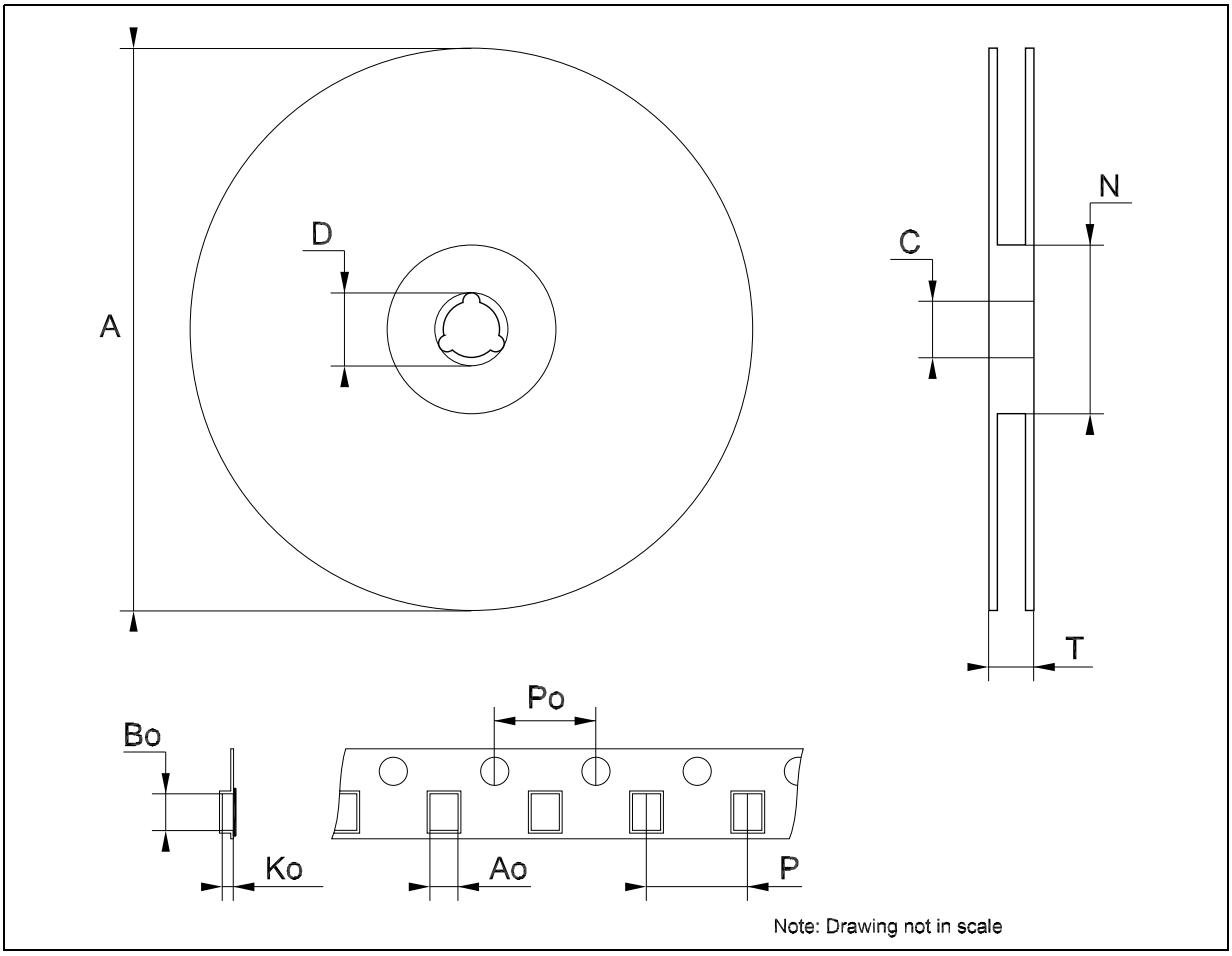
PPAK MECHANICAL DATA

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	0.4		0.6	0.015		0.023
B2	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
E	6.4		6.6	0.252		0.260
G	4.9		5.25	0.193		0.206
G1	2.38		2.7	0.093		0.106
H	9.35		10.1	0.368		0.397
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



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			14.4			0.567
Ao	6.80	6.90	7.00	0.268	0.272	0.2.76
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



Note: Drawing not in scale