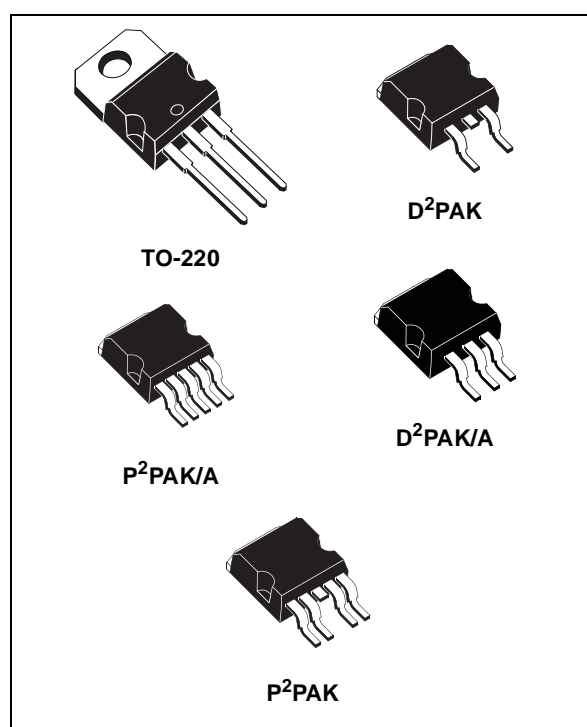


## 3A, VERY LOW DROP VOLTAGE REGULATORS

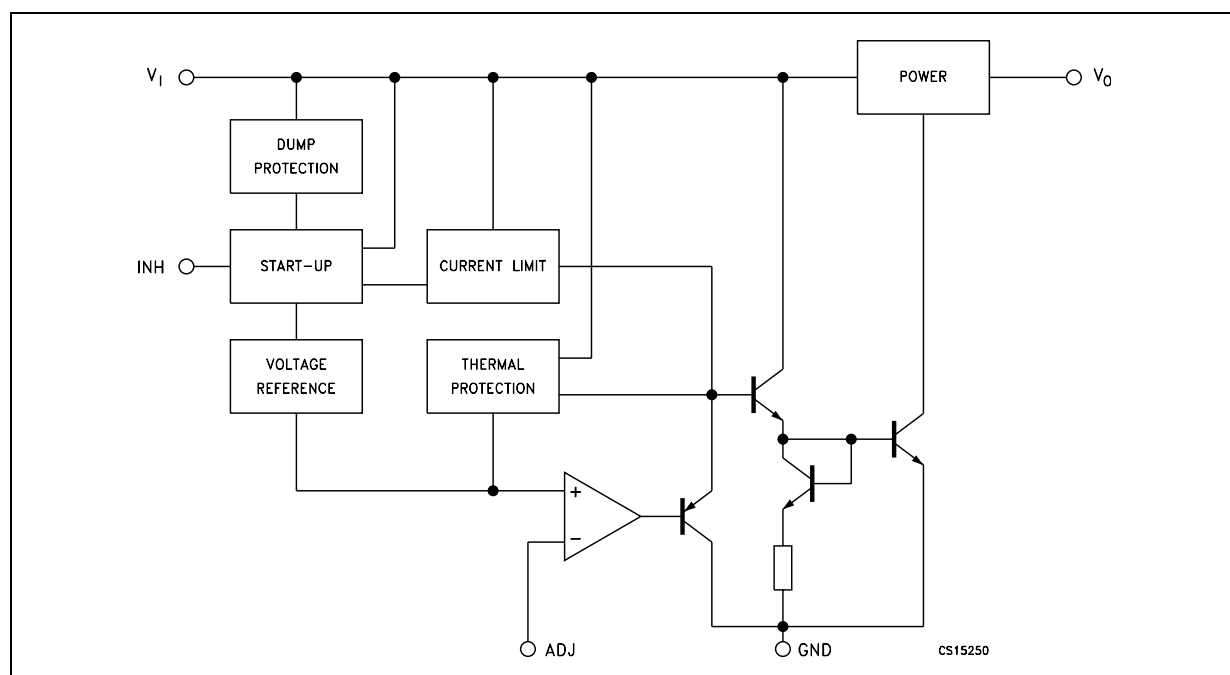
- VERY LOW DROPOUT VOLTAGE (TYP. 0.4 AT 3A)
- GUARANTEED OUTPUT CURRENT UP TO 3A
- FIXED VOLTAGE WITH  $\pm 1\%$  TOLERANCE AT 25°C
- INTERNAL CURRENT AND THERMAL LIMIT
- LOGIC CONTROLLED ELECTRONIC SHUTDOWN AVAILABLE IN PPAK

### DESCRIPTION

The LD29300 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

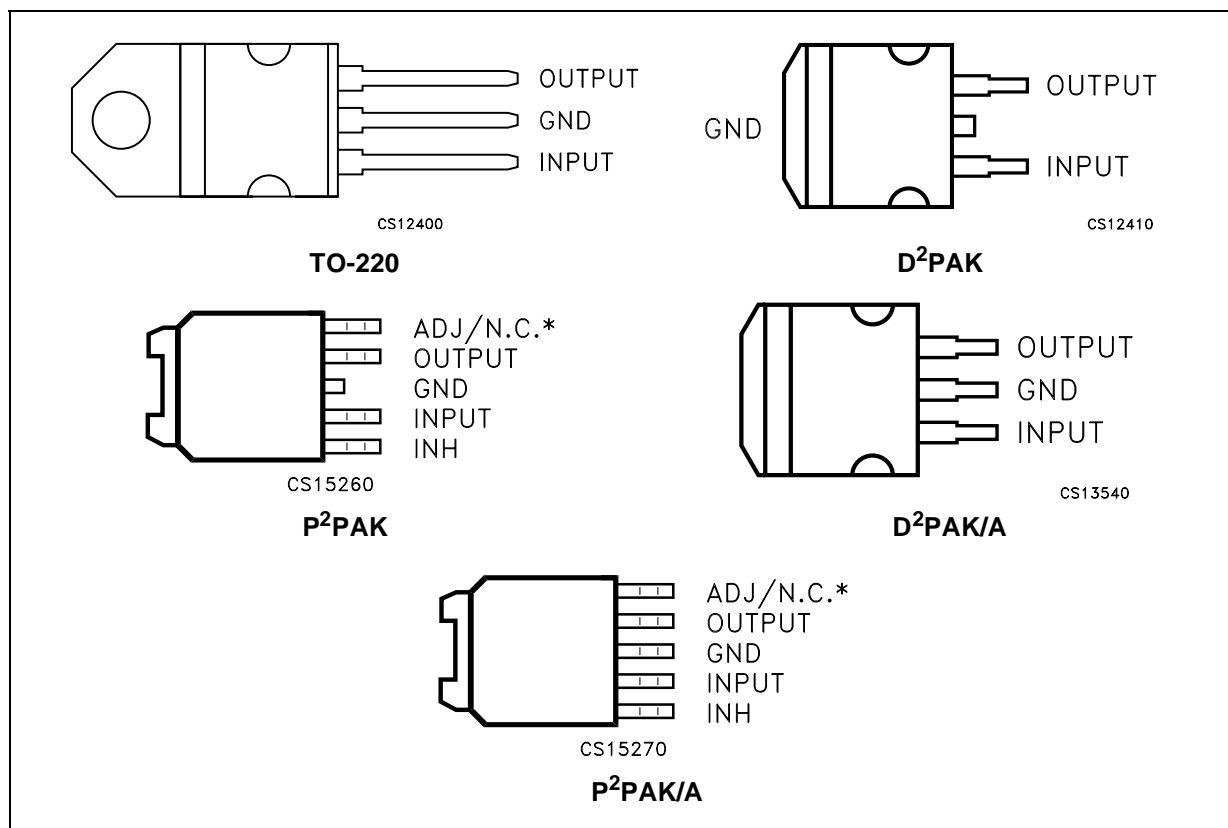




## THERMAL DATA

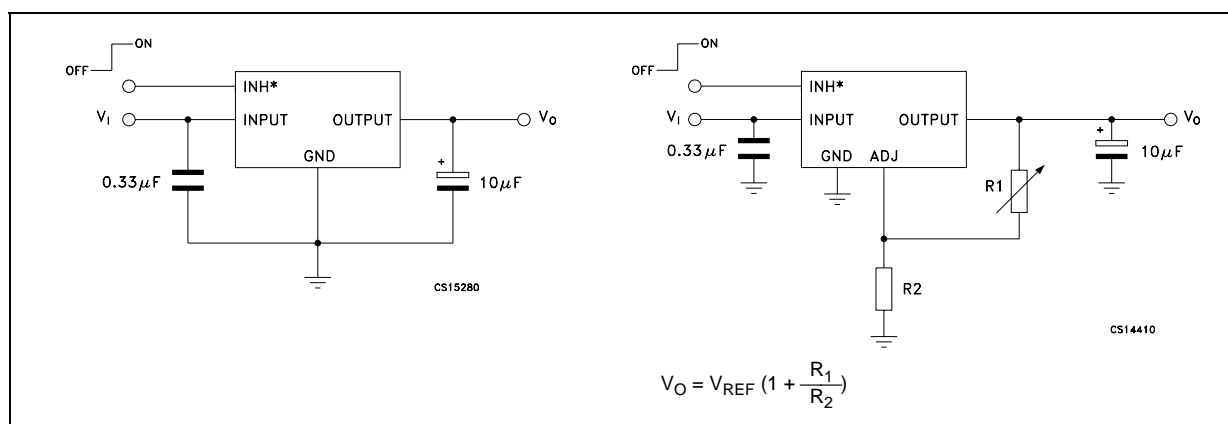
Symbol	Parameter	TO-220	D <sup>2</sup> PAK-P <sup>2</sup> PAK D <sup>2</sup> PAK/A-P <sup>2</sup> PAK/A	Unit
R <sub>thj-case</sub>	Thermal Resistance Junction-case	3	3	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	50	60	°C/W

## CONNECTION DIAGRAM (top view)



\* Not connected for fixed version.

## APPLICATION CIRCUIT



\* Only for version with inhibit function.

## LD29300 SERIES

### ELECTRICAL CHARACTERISTICS OF LD29300#15

( $I_O = 10\text{mA}$ ,  $T_J = 25^\circ\text{C}$ ,  $V_I = 3.5\text{V}$ ,  $V_{INH} = 2\text{V}$  (Note 2),  $C_I = 330\text{nF}$ ,  $C_O = 10\mu\text{F}$ , unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_I$	Minimum Operating Input Voltage	$I_O = 10\text{mA}$ to $3\text{A}$ $T_J = -40$ to $125^\circ\text{C}$	2.5			V
$V_O$	Output Voltage	$I_O = 10\text{mA}$ to $3\text{A}$ , $V_I = 3$ to $7\text{V}$ $T_J = -40$ to $125^\circ\text{C}$	1.485 1.47	1.5	1.515 1.53	V
$\Delta V_O$	Load Regulation	$I_O = 10\text{mA}$ to $3\text{A}$		0.2	1.0	%
$\Delta V_O$	Line Regulation	$V_I = 3$ to $13\text{V}$		0.06	0.5	%
SVR	Supply Voltage Rejection	$f = 120\text{Hz}$ , $V_I = 3.5 \pm 1\text{V}$ , $I_O = 1.5\text{A}$ (Note 1)	65	75		dB
$I_q$	Quiescent Current	$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		20	50	mA
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		45	100	
		$V_I = 13\text{V}$ , $V_{INH} = \text{GND}$ , $T_J = -40$ to $125^\circ\text{C}$		130	180	$\mu\text{A}$
$I_{sc}$	Short Circuit Current	$V_I - V_O = 5.5\text{V}$		4.5		A
$V_{IL}$	Control Input Logic Low	OFF MODE, (NOTE 2) $T_J = -40$ to $125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	ON MODE, (NOTE 2) $T_J = -40$ to $125^\circ\text{C}$	2			V
$I_{INH}$	Control Input Current	$T_J = -40$ to $125^\circ\text{C}$ , $V_{INH} = 13\text{V}$		5	10	$\mu\text{A}$
eN	Output Noise Voltage	$B_P = 10\text{Hz}$ to $100\text{KHz}$ , $I_O = 100\text{mA}$		60		$\mu\text{V}_{\text{RMS}}$

NOTE 1: Guaranteed by design.

NOTE 2: Only for version with Inhibit function.

### ELECTRICAL CHARACTERISTICS OF LD29300#18

( $I_O = 10\text{mA}$ ,  $T_J = 25^\circ\text{C}$ ,  $V_I = 3.8\text{V}$ ,  $V_{INH} = 2\text{V}$  (Note 3),  $C_I = 330\text{nF}$ ,  $C_O = 10\mu\text{F}$ , unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10\text{mA}$ to $3\text{A}$ , $V_I = 3$ to $7.3\text{V}$ $T_J = -40$ to $125^\circ\text{C}$	1.782 1.764	1.8	1.818 1.836	V
$\Delta V_O$	Load Regulation	$I_O = 10\text{mA}$ to $3\text{A}$		0.2	1.0	%
$\Delta V_O$	Line Regulation	$V_I = 3$ to $13\text{V}$		0.06	0.5	%
SVR	Supply Voltage Rejection	$f = 120\text{Hz}$ , $V_I = 3.8 \pm 1\text{V}$ , $I_O = 1.5\text{A}$ (Note 1)	62	72		dB
$V_{\text{DROP}}$	Dropout Voltage	$I_O = 500\text{mA}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.1		V
		$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.2		
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.4	0.7	
$I_q$	Quiescent Current	$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		20	50	mA
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		45	100	
		$V_I = 13\text{V}$ , $V_{INH} = \text{GND}$ , $T_J = -40$ to $125^\circ\text{C}$		130	180	$\mu\text{A}$
$I_{sc}$	Short Circuit Current	$V_I - V_O = 5.5\text{V}$		4.5		A
$V_{IL}$	Control Input Logic Low	OFF MODE, (NOTE 3) $T_J = -40$ to $125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	ON MODE, (NOTE 3) $T_J = -40$ to $125^\circ\text{C}$	2			V
$I_{INH}$	Control Input Current	$T_J = -40$ to $125^\circ\text{C}$ , $V_{INH} = 13\text{V}$		5	10	$\mu\text{A}$
eN	Output Noise Voltage	$B_P = 10\text{Hz}$ to $100\text{KHz}$ , $I_O = 100\text{mA}$		60		$\mu\text{V}_{\text{RMS}}$

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  $V_O + 1\text{V}$  applied to  $V_I$ .

NOTE 3: Only for version with Inhibit function.

**ELECTRICAL CHARACTERISTICS OF LD29300#25**(I<sub>O</sub> = 10mA, T<sub>J</sub> = 25°C, V<sub>I</sub> = 4.5V, V<sub>INH</sub> = 2V (Note 3), C<sub>I</sub> = 330nF, C<sub>O</sub> = 10μF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output Voltage	I <sub>O</sub> = 10mA to 3A, V <sub>I</sub> = 3.5 to 8V T <sub>J</sub> = -40 to 125°C	2.475 2.45	2.5	2.525 2.55	V
ΔV <sub>O</sub>	Load Regulation	I <sub>O</sub> = 10mA to 3A		0.2	1.0	%
ΔV <sub>O</sub>	Line Regulation	V <sub>I</sub> = 3.5 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V <sub>I</sub> = 4.5 ± 1V, I <sub>O</sub> = 1.5A (Note 1)	55	70		dB
V <sub>DROP</sub>	Dropout Voltage	I <sub>O</sub> = 500mA, T <sub>J</sub> = -40 to 125°C (Note 2)		0.1		V
		I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C (Note 2)		0.2		
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C (Note 2)		0.4	0.7	
I <sub>q</sub>	Quiescent Current	I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C		20	50	mA
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C		45	100	
		V <sub>I</sub> = 13V, V <sub>INH</sub> = GND T <sub>J</sub> = -40 to 125°C		130	180	
I <sub>sc</sub>	Short Circuit Current	V <sub>I</sub> - V <sub>O</sub> = 5.5V		4.5		A
V <sub>IL</sub>	Control Input Logic Low	OFF MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C			0.8	V
V <sub>IH</sub>	Control Input Logic High	ON MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C	2			V
I <sub>INH</sub>	Control Input Current	T <sub>J</sub> = -40 to 125°C V <sub>INH</sub> = 13V		5	10	μA
eN	Output Noise Voltage	B <sub>P</sub> = 10Hz to 100KHz I <sub>O</sub> = 100mA		100		μV <sub>RMS</sub>

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<sub>O</sub>+1V applied to V<sub>I</sub>.

NOTE 3: Only for version with Inhibit function.

**ELECTRICAL CHARACTERISTICS OF LD29300#33**(I<sub>O</sub> = 10mA, T<sub>J</sub> = 25°C, V<sub>I</sub> = 5.3V, V<sub>INH</sub> = 2V (Note 3), C<sub>I</sub> = 330nF, C<sub>O</sub> = 10μF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output Voltage	I <sub>O</sub> = 10mA to 3A, V <sub>I</sub> = 4.3 to 8.8V T <sub>J</sub> = -40 to 125°C	3.267 3.234	3.3	3.333 3.366	V
ΔV <sub>O</sub>	Load Regulation	I <sub>O</sub> = 10mA to 3A		0.2	1.0	%
ΔV <sub>O</sub>	Line Regulation	V <sub>I</sub> = 4.3 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V <sub>I</sub> = 5.3 ± 1V, I <sub>O</sub> = 1.5A (Note 1)	52	67		dB
V <sub>DROP</sub>	Dropout Voltage	I <sub>O</sub> = 500mA, T <sub>J</sub> = -40 to 125°C (Note 2)		0.1		V
		I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C (Note 2)		0.2		
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C (Note 2)		0.4	0.7	
I <sub>q</sub>	Quiescent Current	I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C		20	50	mA
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C		45	100	
		V <sub>I</sub> = 13V, V <sub>INH</sub> = GND T <sub>J</sub> = -40 to 125°C		130	180	
I <sub>sc</sub>	Short Circuit Current	V <sub>I</sub> - V <sub>O</sub> = 5.5V		4.5		A
V <sub>IL</sub>	Control Input Logic Low	OFF MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C			0.8	V
V <sub>IH</sub>	Control Input Logic High	ON MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C	2			V
I <sub>INH</sub>	Control Input Current	T <sub>J</sub> = -40 to 125°C V <sub>INH</sub> = 13V		5	10	μA
eN	Output Noise Voltage	B <sub>P</sub> = 10Hz to 100KHz I <sub>O</sub> = 100mA		132		μV <sub>RMS</sub>

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<sub>O</sub>+1V applied to V<sub>I</sub>.

NOTE 3: Only for version with Inhibit function.

## LD29300 SERIES

### ELECTRICAL CHARACTERISTICS OF LD29300#50

( $I_O = 10\text{mA}$ ,  $T_J = 25^\circ\text{C}$ ,  $V_I = 7\text{V}$ ,  $V_{INH} = 2\text{V}$  (Note 3),  $C_I = 330\text{nF}$ ,  $C_O = 10\mu\text{F}$ , unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10\text{mA}$ to $3\text{A}$ , $V_I = 6$ to $10.5\text{V}$ $T_J = -40$ to $125^\circ\text{C}$	4.95 4.9	5	5.05 5.1	V
$\Delta V_O$	Load Regulation	$I_O = 10\text{mA}$ to $3\text{A}$		0.2	1.0	%
$\Delta V_O$	Line Regulation	$V_I = 6$ to $13\text{V}$		0.06	0.5	%
SVR	Supply Voltage Rejection	$f = 120\text{Hz}$ , $V_I = 7 \pm 1\text{V}$ , $I_O = 1.5\text{A}$ (Note 1)	49	64		dB
$V_{DROP}$	Dropout Voltage	$I_O = 500\text{mA}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.1		V
		$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.2		
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.4	0.7	
$I_q$	Quiescent Current	$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		20	50	mA
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		45	100	
		$V_I = 13\text{V}$ , $V_{INH} = \text{GND}$ , $T_J = -40$ to $125^\circ\text{C}$		130	180	
$I_{sc}$	Short Circuit Current	$V_I - V_O = 5.5\text{V}$		4.5		A
$V_{IL}$	Control Input Logic Low	OFF MODE, (NOTE 3) $T_J = -40$ to $125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	ON MODE, (NOTE 3) $T_J = -40$ to $125^\circ\text{C}$	2			V
$I_{INH}$	Control Input Current	$T_J = -40$ to $125^\circ\text{C}$ , $V_{INH} = 13\text{V}$		5	10	$\mu\text{A}$
eN	Output Noise Voltage	$B_P = 10\text{Hz}$ to $100\text{KHz}$ , $I_O = 100\text{mA}$		200		$\mu\text{V}_{RMS}$

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  $V_O + 1\text{V}$  applied to  $V_I$ .

NOTE 3: Only for version with Inhibit function.

### ELECTRICAL CHARACTERISTICS OF LD29300#80

( $I_O = 10\text{mA}$ ,  $T_J = 25^\circ\text{C}$ ,  $V_I = 10\text{V}$ ,  $V_{INH} = 2\text{V}$  (Note 3),  $C_I = 330\text{nF}$ ,  $C_O = 10\mu\text{F}$ , unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10\text{mA}$ to $3\text{A}$ , $V_I = 9$ to $13\text{V}$ $T_J = -40$ to $125^\circ\text{C}$	7.92 7.84	8	8.08 8.16	V
$\Delta V_O$	Load Regulation	$I_O = 10\text{mA}$ to $3\text{A}$		0.2	1.0	%
$\Delta V_O$	Line Regulation	$V_I = 9$ to $13\text{V}$		0.06	0.5	%
SVR	Supply Voltage Rejection	$f = 120\text{Hz}$ , $V_I = 9 \pm 1\text{V}$ , $I_O = 1.5\text{A}$ (Note 1)	45	59		dB
$V_{DROP}$	Dropout Voltage	$I_O = 500\text{mA}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.1		V
		$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.2		
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$ (Note 2)		0.4	0.7	
$I_q$	Quiescent Current	$I_O = 1.5\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		20	50	mA
		$I_O = 3\text{A}$ , $T_J = -40$ to $125^\circ\text{C}$		45	100	
		$V_I = 13\text{V}$ , $V_{INH} = \text{GND}$ , $T_J = -40$ to $125^\circ\text{C}$		130	180	
$I_{sc}$	Short Circuit Current	$V_I - V_O = 5.5\text{V}$		4.5		A
$V_{IL}$	Control Input Logic Low	OFF MODE, (NOTE 3) $T_J = -40$ to $125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	ON MODE, (NOTE 3) $T_J = -40$ to $125^\circ\text{C}$	2			V
$I_{INH}$	Control Input Current	$T_J = -40$ to $125^\circ\text{C}$ , $V_{INH} = 13\text{V}$		5	10	$\mu\text{A}$
eN	Output Noise Voltage	$B_P = 10\text{Hz}$ to $100\text{KHz}$ , $I_O = 100\text{mA}$		320		$\mu\text{V}_{RMS}$

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  $V_O + 1\text{V}$  applied to  $V_I$ .

NOTE 3: Only for version with Inhibit function.

**ELECTRICAL CHARACTERISTICS OF LD29300#90**(I<sub>O</sub> = 10mA, T<sub>J</sub> = 25°C, V<sub>I</sub> = 11V, V<sub>INH</sub> = 2V (Note 3), C<sub>I</sub> = 330nF, C<sub>O</sub> = 10μF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>O</sub>	Output Voltage	I <sub>O</sub> = 10mA to 3A, V <sub>I</sub> = 10 to 13V T <sub>J</sub> = -40 to 125°C	8.91 8.82	9	9.09 9.18	V
ΔV <sub>O</sub>	Load Regulation	I <sub>O</sub> = 10mA to 3A		0.2	1.0	%
ΔV <sub>O</sub>	Line Regulation	V <sub>I</sub> = 10 to 13V		0.06	0.5	%
SVR	Supply Voltage Rejection	f = 120 Hz, V <sub>I</sub> = 11 ± 1V, I <sub>O</sub> = 1.5A (Note 1)	45	58		dB
V <sub>DROP</sub>	Dropout Voltage	I <sub>O</sub> = 500mA, T <sub>J</sub> = -40 to 125°C (Note 2)		0.1		V
		I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C (Note 2)		0.2		
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C (Note 2)		0.4	0.7	
I <sub>q</sub>	Quiescent Current	I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C		20	50	mA
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C		50	100	
		V <sub>I</sub> = 13V, V <sub>INH</sub> = GND, T <sub>J</sub> = -40 to 125°C		130	180	
I <sub>sc</sub>	Short Circuit Current	V <sub>I</sub> - V <sub>O</sub> = 5.5V		4.5		A
V <sub>IL</sub>	Control Input Logic Low	OFF MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C			0.8	V
V <sub>IH</sub>	Control Input Logic High	ON MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C	2			V
I <sub>INH</sub>	Control Input Current	T <sub>J</sub> = -40 to 125°C V <sub>INH</sub> = 13V		5	10	μA
eN	Output Noise Voltage	B <sub>P</sub> = 10Hz to 100KHz I <sub>O</sub> = 100mA		360		μV <sub>RMS</sub>

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<sub>O</sub>+1S applied to V<sub>I</sub>.

NOTE 3: Only for version with Inhibit function.

**ELECTRICAL CHARACTERISTICS OF LD29300#ADJ**(I<sub>O</sub> = 10mA, T<sub>J</sub> = 25°C, V<sub>I</sub> = 3.23 V, V<sub>INH</sub> = 2V (Note 3), C<sub>I</sub> = 330nF, C<sub>O</sub> = 10μF adjust pin tied to output)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V <sub>I</sub>	Minimum Operating Input Voltage	I <sub>O</sub> = 10mA to 3A T <sub>J</sub> = -40 to 125°C	2.5			V
ΔV <sub>O</sub>	Load Regulation	I <sub>O</sub> = 10mA to 3A		0.2	1.0	%
ΔV <sub>O</sub>	Line Regulation	V <sub>I</sub> = 2.5 V to 13V		0.06	0.5	%
V <sub>REF</sub>	Reference Voltage	I <sub>O</sub> = 10mA to 3A, V <sub>I</sub> = 2.5 to 4.5V T <sub>J</sub> = -40 to 125°C (Note 2)	-1% -2%	1.23	+1% +2%	V
SVR	Supply Voltage Rejection	f = 120 Hz, V <sub>I</sub> = 3.23 ± 1V, I <sub>O</sub> = 1.5A (Note 1)	65	75		dB
I <sub>q</sub>	Quiescent Current	I <sub>O</sub> = 1.5A, T <sub>J</sub> = -40 to 125°C		20	50	mA
		I <sub>O</sub> = 3A, T <sub>J</sub> = -40 to 125°C		45	100	
		V <sub>I</sub> = 13V, V <sub>INH</sub> = GND, T <sub>J</sub> = -40 to 125°C		130	180	
I <sub>ADJ</sub>	Adjust Pin Current	T <sub>J</sub> = -40 to 125°C (Note 1)			1	μA
I <sub>sc</sub>	Short Circuit Current	V <sub>I</sub> - V <sub>O</sub> = 5.5V		4.5		A
V <sub>IL</sub>	Control Input Logic Low	OFF MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C			0.8	V
V <sub>IH</sub>	Control Input Logic High	ON MODE, (NOTE 3) T <sub>J</sub> = -40 to 125°C	2			V
I <sub>INH</sub>	Control Input Current	T <sub>J</sub> = -40 to 125°C V <sub>INH</sub> = 13V		5	10	μA
eN	Output Noise Voltage	B <sub>P</sub> = 10Hz to 100KHz I <sub>O</sub> = 100mA		50		μV <sub>RMS</sub>

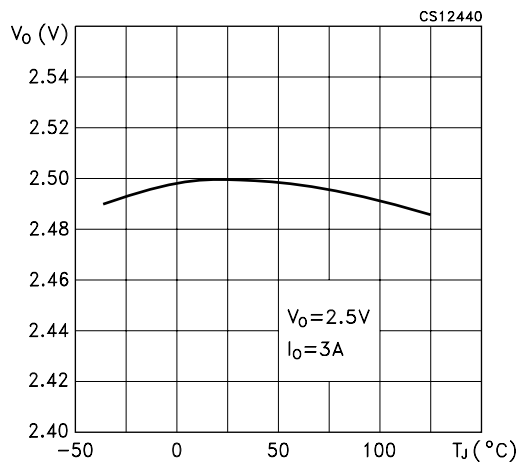
NOTE 1: Guaranteed by design.

NOTE 2: Reference Voltage is measured between output and GND pin, with ADJ PIN tied to V<sub>OUT</sub>.

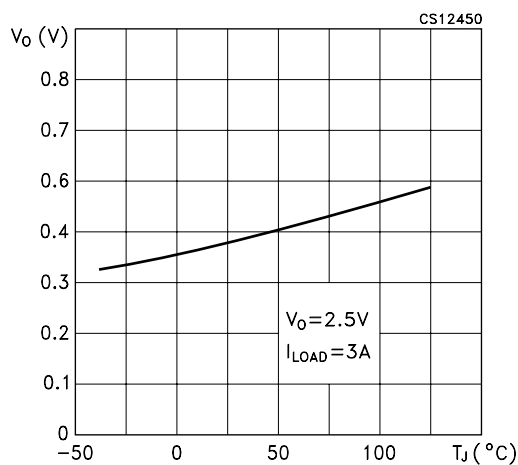
NOTE 3: Only for version with Inhibit function.

## TYPICAL CHARACTERISTICS ( $C_I = 330\text{nF}$ , $C_O = 10\mu\text{F}$ )

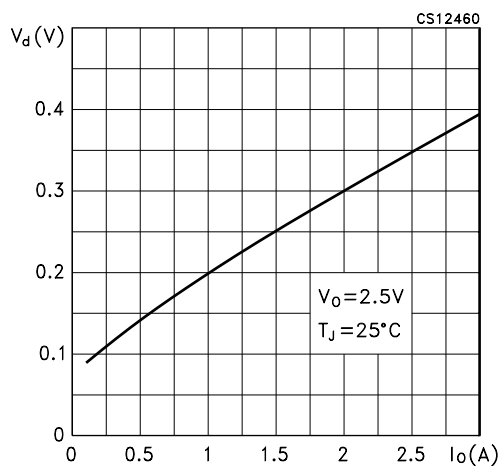
**Figure 1 : Output Voltage vs Temperature**



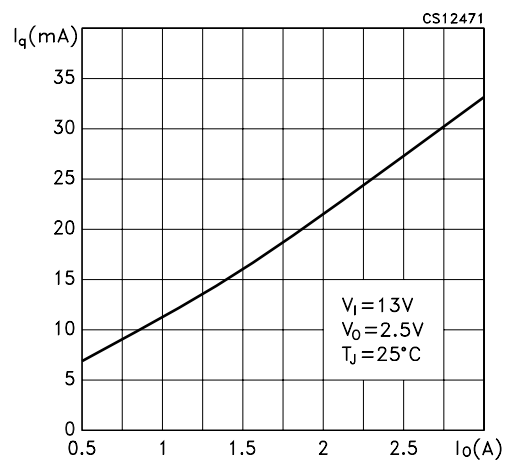
**Figure 2 : Dropout Voltage vs Temperature**



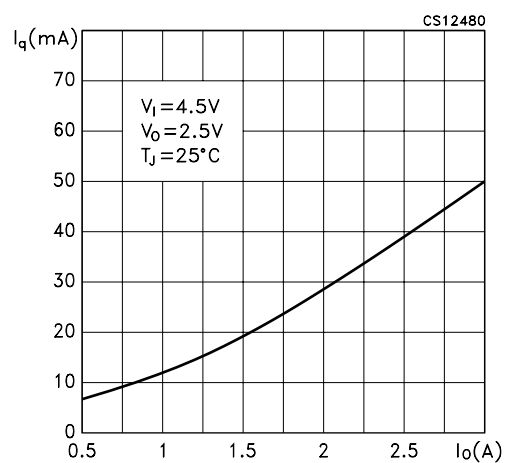
**Figure 3 : Dropout Voltage vs Output Current**



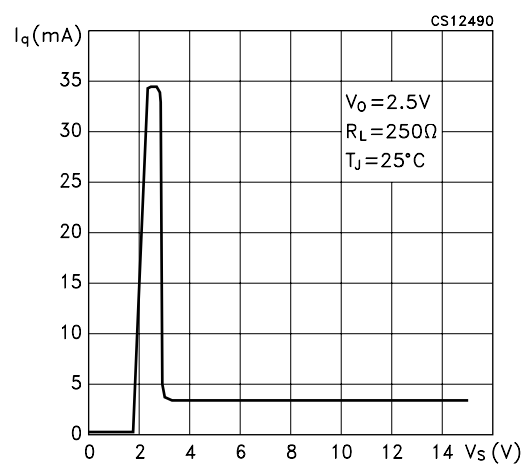
**Figure 4 : Quiescent Current vs Output Current**



**Figure 5 : Quiescent Current vs Output Current**

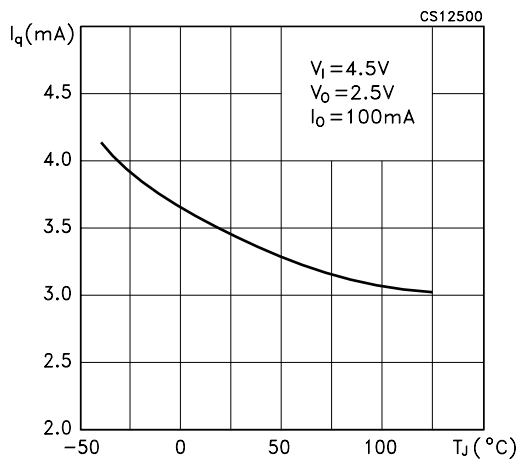


**Figure 6 : Quiescent Current vs Supply Voltage**

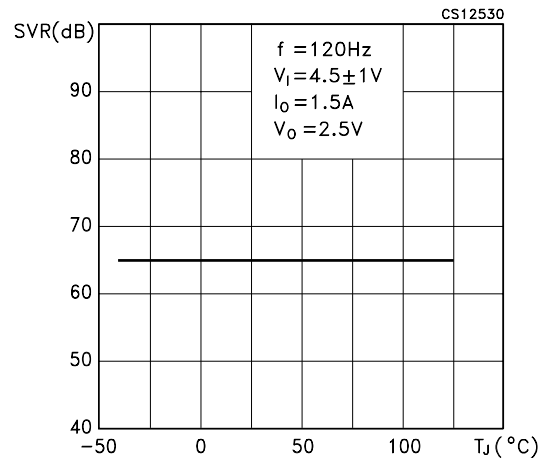




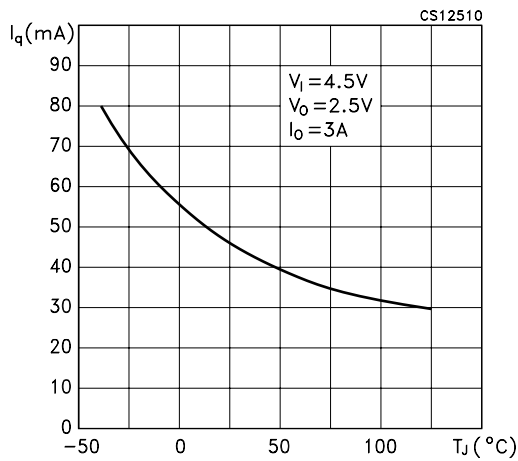
**Figure 7 : Quiescent Current vs Temperature**



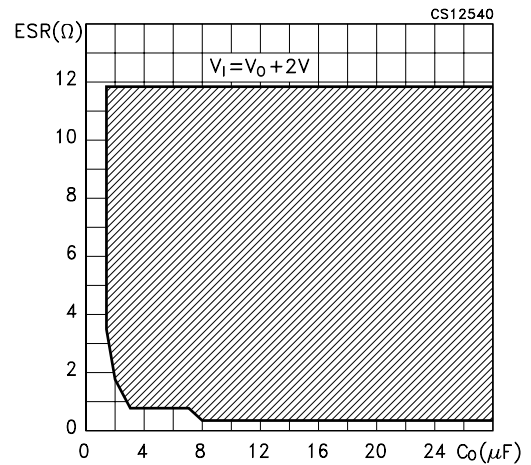
**Figure 10 : Supply Voltage Rejection vs Temperature**



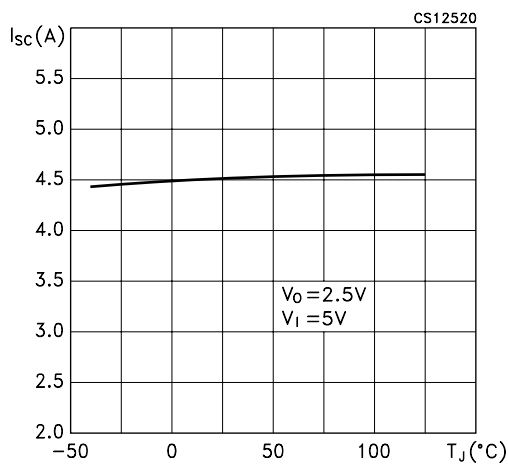
**Figure 8 : Quiescent Current vs Temperature**



**Figure 11 : Stability vs  $C_O$**



**Figure 9 : Short Circuit Current vs Temperature**



**Figure 12 : Line Transient**

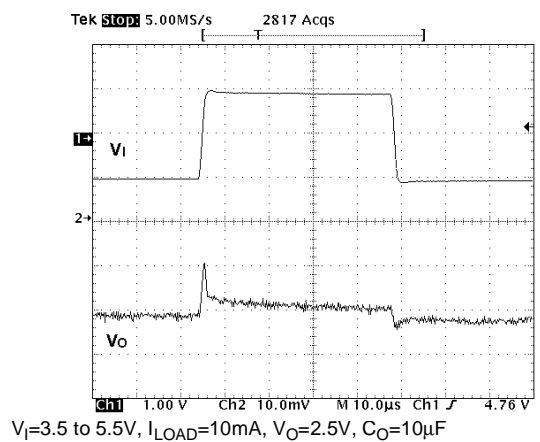
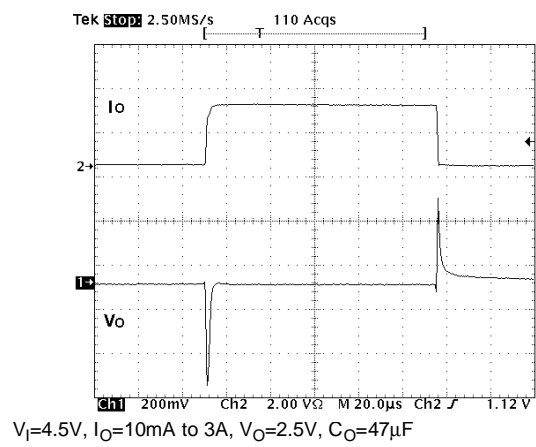
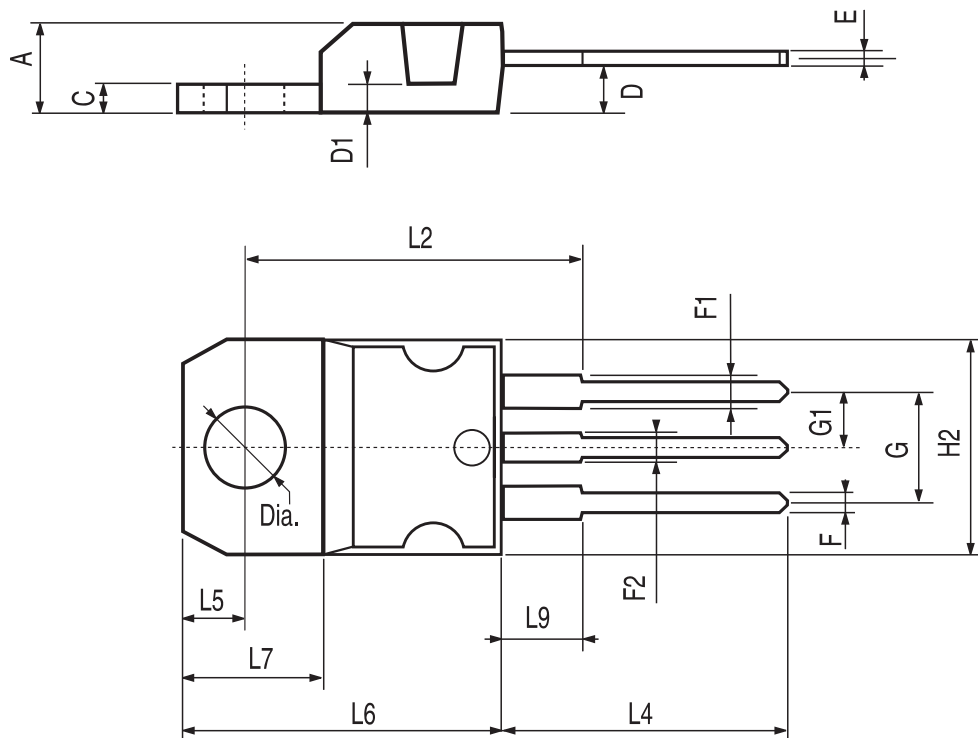


Figure 13 : Load Transient



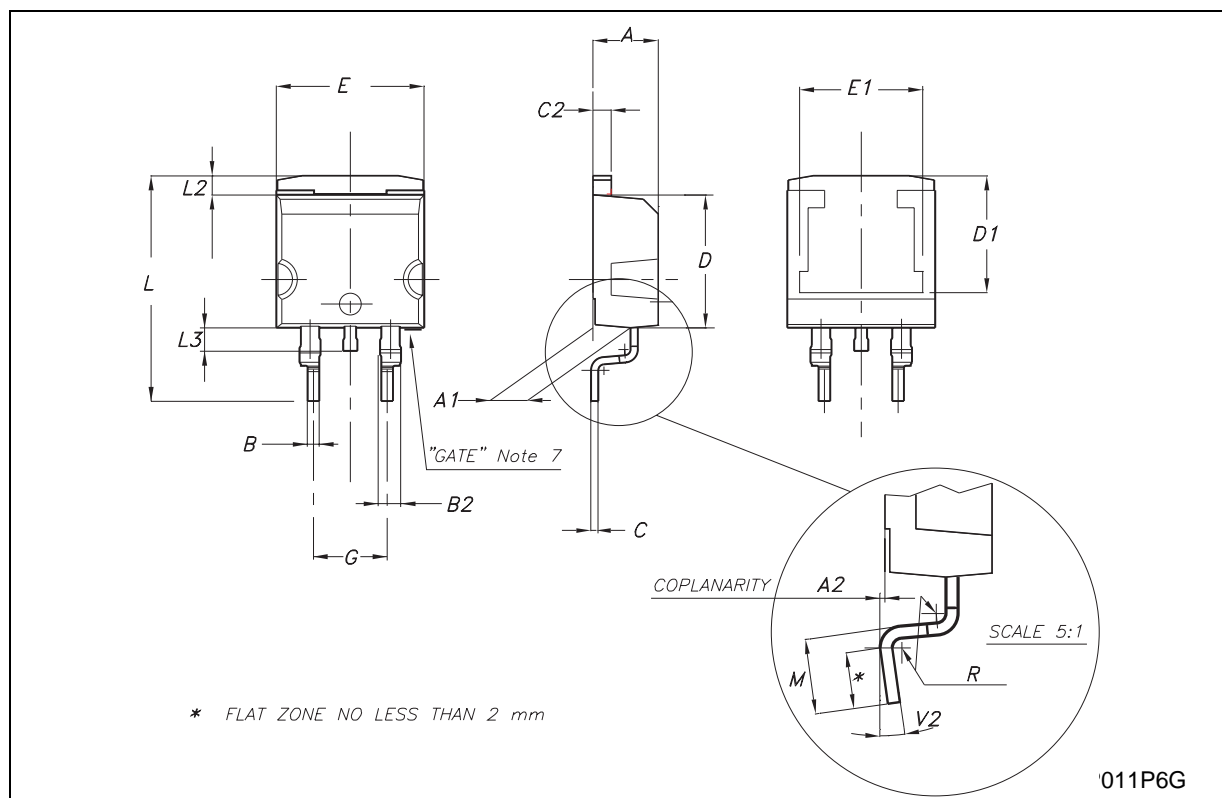
## TO-220 MECHANICAL DATA

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



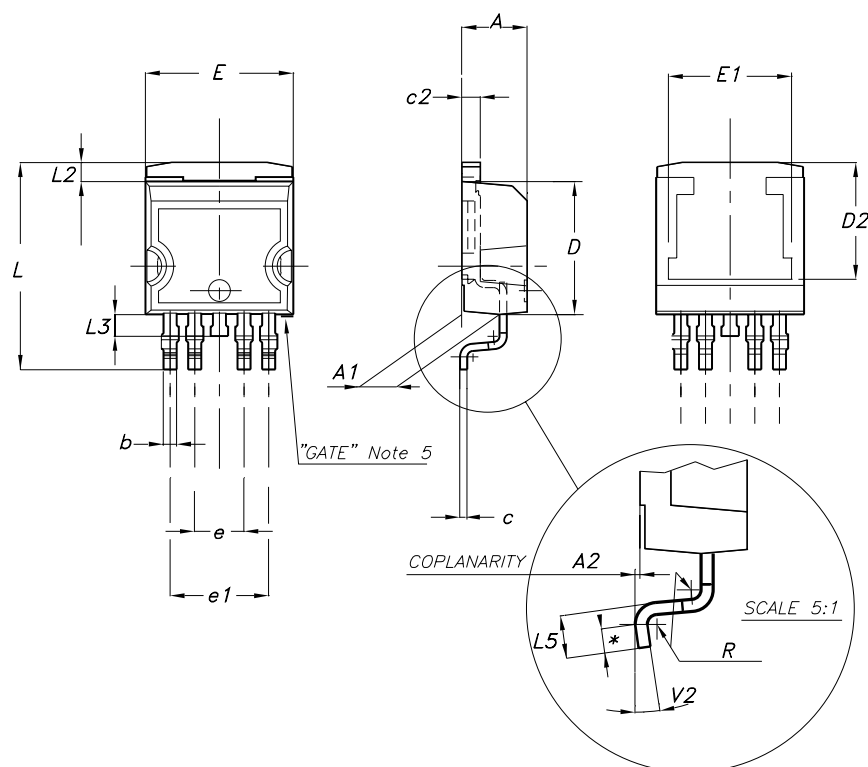
D<sup>2</sup>PAK MECHANICAL DATA

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°



P<sup>2</sup>PAK MECHANICAL DATA

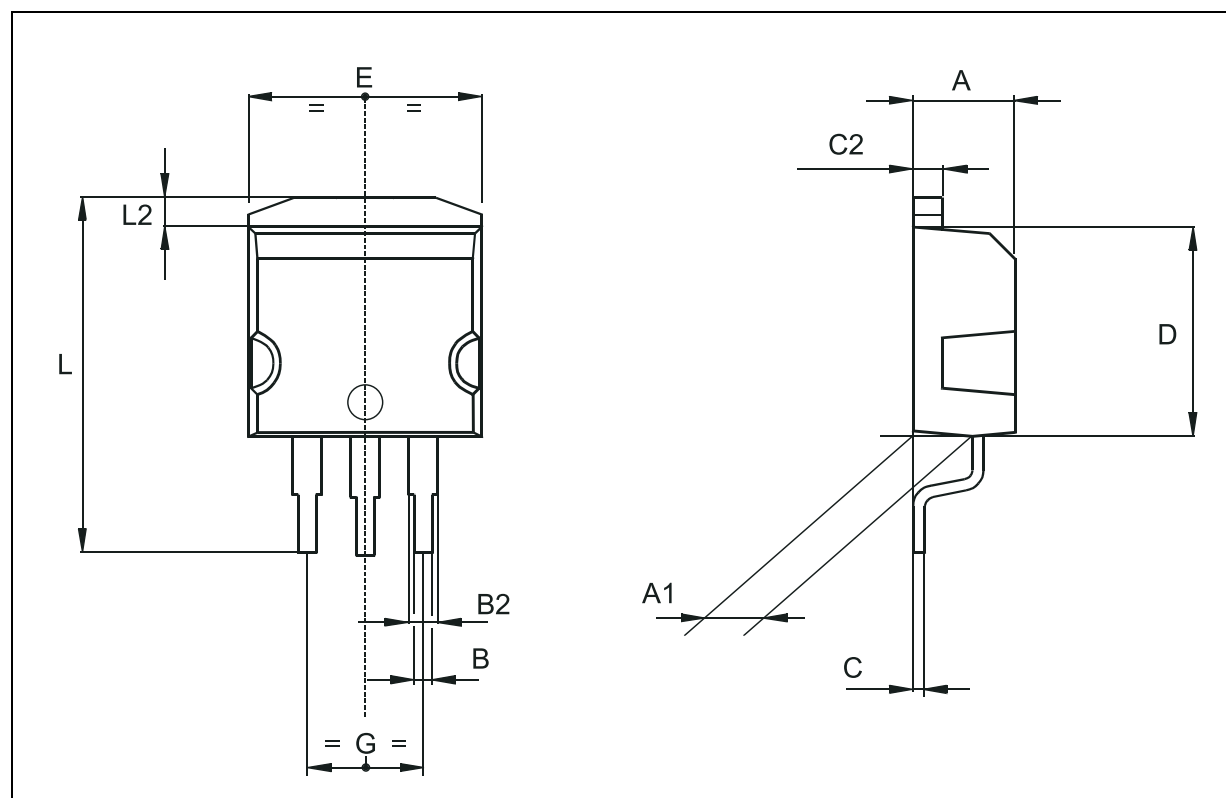
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.30		4.80	0.169		0.188
A1	2.40		2.80	0.094		0.110
A2	0.03		0.23	0.001		0.009
b	0.80		1.05	0.031		0.041
c	0.45		0.60	0.017		0.023
c2	1.17		1.37	0.046		0.053
D	8.95		9.35	0.352		0.368
D2		8			0.315	
E	10.00		10.40	0.393		0.409
E1		8.5			0.334	0.409
e	3.20		3.60	0.126		0.142
e1	6.60		7.00	0.260		0.275
L	13.70		14.50	0.539		0.571
L2	1.25		1.40	0.049		0.055
L3	0.90		1.70	0.035		0.067
L5	1.55		2.40	0.061		0.094
R		0.40			0.016	
V2	0°		8°	0°		8°



7226255/B

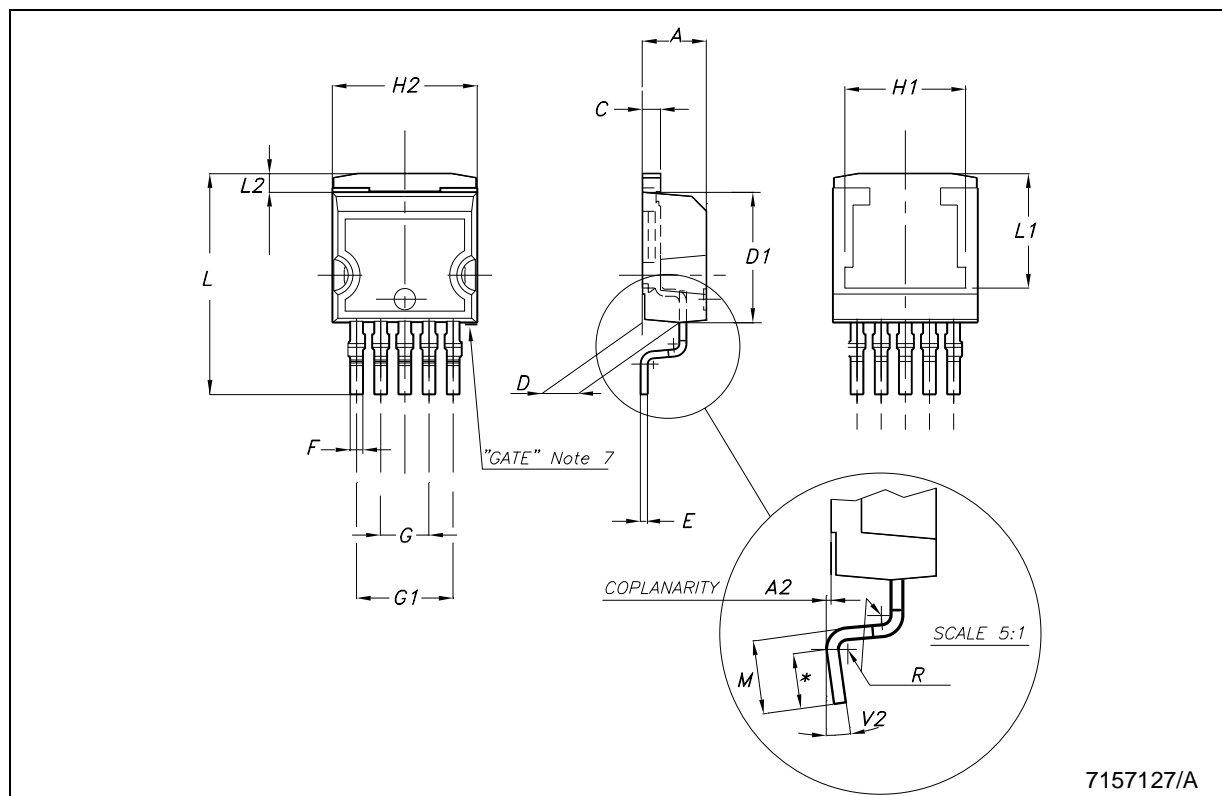
D<sup>2</sup>PAK/A MECHANICAL DATA

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
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



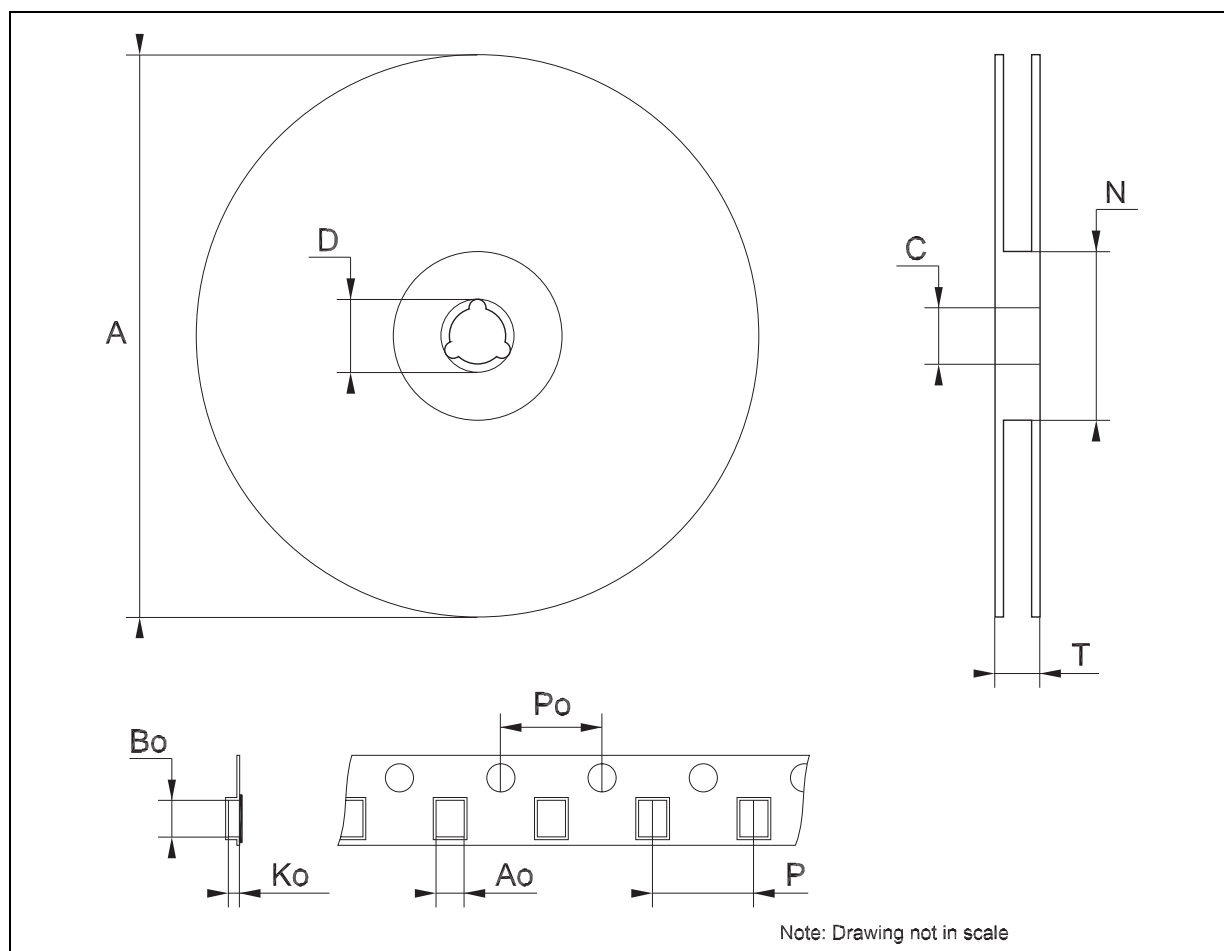
P<sup>2</sup>PAK/A MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.30		4.80	0.169		0.188
A2	0.03		0.23	0.001		0.009
C	1.17		1.37	0.046		0.053
D	2.40		2.80	0.094		0.110
D1	8.95		9.35	0.352		0.368
E	0.45		0.60	0.017		0.023
F	0.80		1.05	0.031		0.041
G	3.20		3.60	0.126		0.142
G1	6.60		7.00	0.260		0.275
H1		8.5			0.334	0.409
H2	10.00		10.40	0.393		0.409
L	15		15.85	0.590		0.624
L1		8			0.315	
L2	1.27		1.40	0.050		0.055
M	2.4		3.2	0.094		0.126
R		0.40			0.016	
V2	0°		8°	0°		8°



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





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