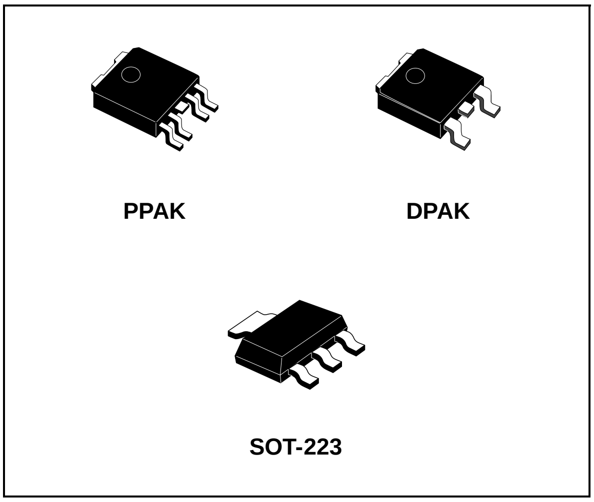
LD29080 SERIES

800mA FIXED AND ADJUSTABLE OUTPUT VERY LOW DROP VOLTAGE REGULATOR

PRELIMINARY DATA

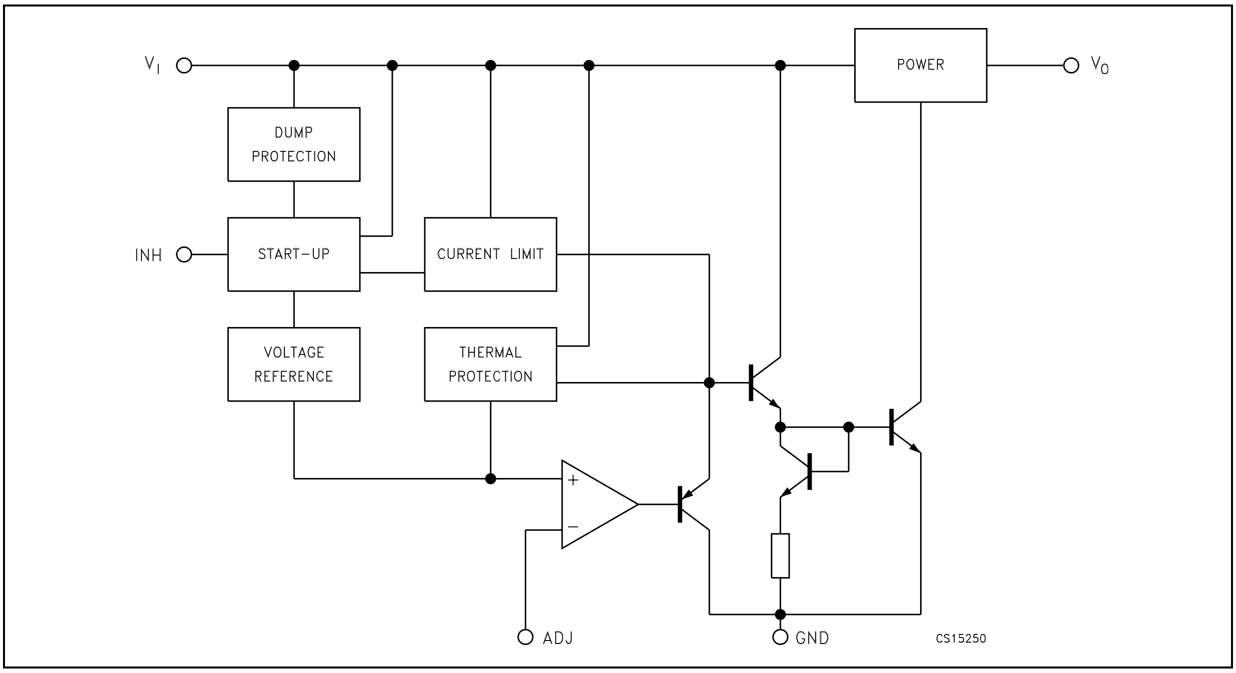
- VERY LOW DROPOUT VOLTAGE (TYP. 0.4V AT 800mA)
- GUARANTEED OUTPUT CURRENT UP TO 800mA
- FIXED AND ADJUSTABLE OUTPUT VOLTAGE (±1% AT 25°C)
- INTERNAL CURRENT AND THERMAL LIMIT
- LOGIC CONTROLLED ELECTRONIC SHUTDOWN



DESCRIPTION

The LD29080 is a high current, high accuracy, low-dropout voltage regulators series. These regulators feature 400mV dropout voltages and very low ground current. Designed for high current loads, these devices also find applications in lower current, extremely low dropout-critical systems, where their tiny dropout voltage and ground current values are important attributes. Typical application 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.

Figure 1: Schematic Diagram For Adjustable Version



This is preliminary information on a new product now in development or undergoing evaluation. Details are subject to change without notice.

Figure 2: Schematic Diagram For Fixed Version

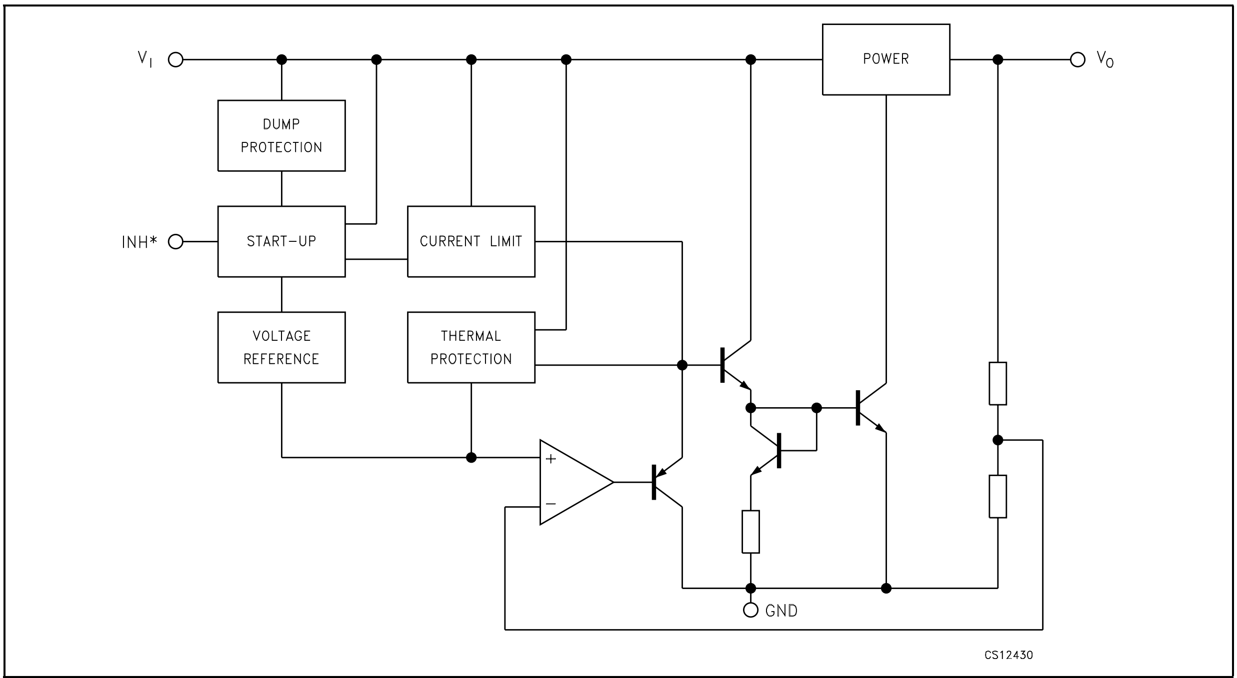


Table 1: Ordering Codes

DPAK (*)	PPAK (*)	SOT-223	OUTPUT VOLTAGE
LD29080DT15	LD29080PT15	LD29080S15	1.5 V
LD29080DT18	LD29080PT18	LD29080S18	1.8 V
LD29080DT25	LD29080PT25	LD29080S25	2.5 V
LD29080DT33	LD29080PT33	LD29080S33	3.3 V
LD29080DT50	LD29080PT50	LD29080S50	5.0 V
LD29080DT80	LD29080PT80	LD29080S80	8.0 V (**)
LD29080DT90	LD29080PT90	LD29080S90	9.0 V (**)
	LD29080PT		ADJ

(*) Available in Tape & Reel with the suffix "R", for the adj version "-R"
(**) Available on Request

Table 2: Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V_I	DC Input Voltage	30 (*)	V
V_{INH}	Inhibit Input Voltage	14	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}	Storage 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.

Table 3: Thermal Data

Symbol	Parameter	DPAK	PPAK	SOT-223	Unit
$R_{thj\text{-}case}$	Thermal Resistance Junction-case	8	8	15	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient	100	100		°C/W

Figure 3: Pin Connection (top view)

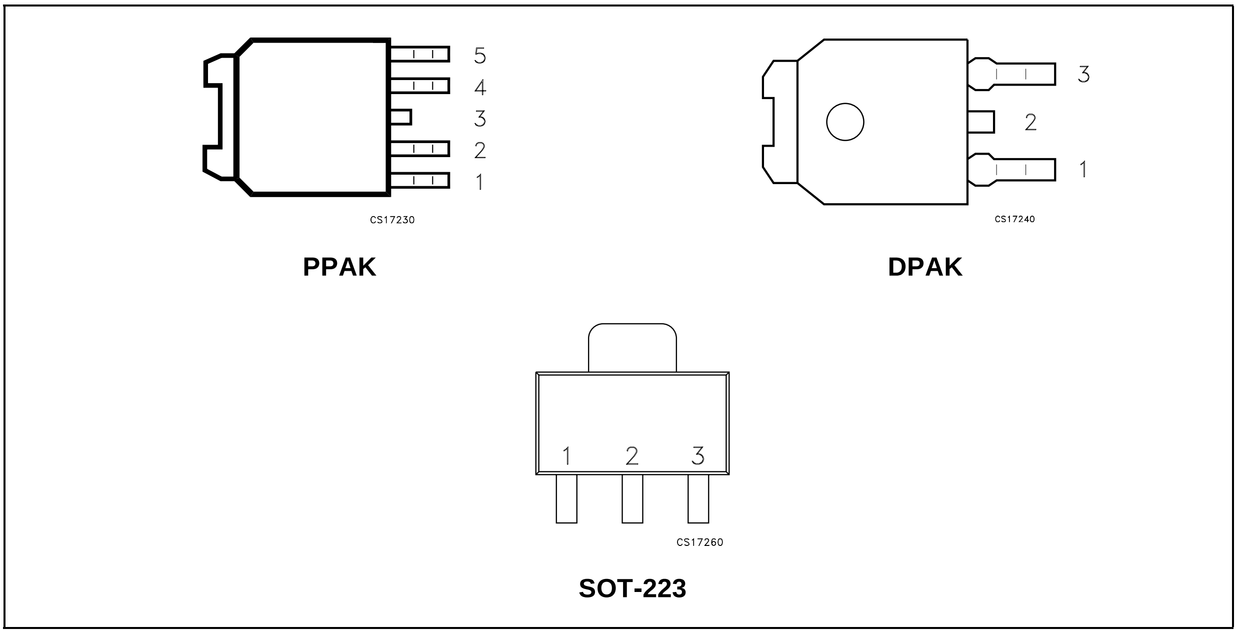
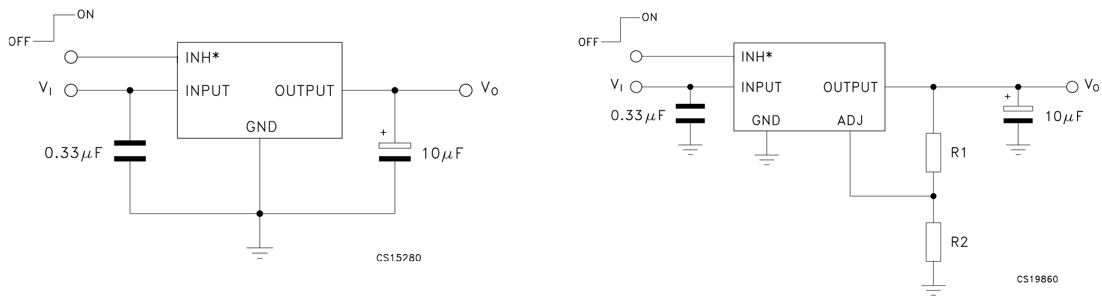


Table 4: Pin Description

Symbol	PPAK	DPAK	SOT-223
V_I	2	1	1
GND	3	2	2
V_O	4	3	3
ADJ/N.C.**	5		
INHIBIT*	1		

* Not internally pulled up; in order to assure the operating condition (device in ON mode), it must be connected to a positive voltage higher than 2V.
** Not connect for fixed version.

Figure 4: Application Circuit



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

* Only for version with inhibit function.

Table 5: Electrical Characteristics Of LD29080#15
(I_O = 10mA (Note 4), T_J = 25°C, V_I = 3.5V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA	2.5		13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 3 to 7V	1.485	1.5	1.515	V
		T_J = -40 to 125°C	1.463		1.537	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	65	75		dB
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHzI_O = 100mA		60		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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 6: Electrical Characteristics Of LD29080#18

(I_O = 10mA (Note 4), T_J = 25°C, V_I = 3.5V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA	2.5		13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 3 to 7.3V	1.782	1.8	1.818	V
		T_J = -40 to 125°C	1.755		1.845	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	62	72		dB
V_{DROP}	Dropout Voltage	I_O = 150mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 400mA, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 800mA, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 7: Electrical Characteristics Of LD29080#25

(I_O = 10mA (Note 4), T_J = 25°C, V_I = 4.5V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA			13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 3.5 to 8V	2.475	2.5	2.525	V
		T_J = -40 to 125°C	2.438		2.562	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	55	70		dB
V_{DROP}	Dropout Voltage	I_O = 150mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 400mA, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 800mA, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 8: Electrical Characteristics Of LD29080#33
(I_O = 10mA (Note 4), T_J = 25°C, V_I = 5.3V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA			13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 4.3 to 8.8V	3.267	3.3	3.333	V
		T_J = -40 to 125°C	3.218		3.382	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	52	67		dB
V_{DROP}	Dropout Voltage	I_O = 150mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 400mA, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 800mA, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHzI_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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 9: Electrical Characteristics Of LD29080#50
(I_O = 10mA (Note 4), T_J = 25°C, V_I = 7V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA			13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 6 to 10.5V	4.95	5	5.05	V
		T_J = -40 to 125°C	4.875		5.125	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	49	64		dB
V_{DROP}	Dropout Voltage	I_O = 150mA, T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 400mA, T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 800mA, T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 10: Electrical Characteristics Of LD29080#80
(I_O = 10mA (Note 4), T_J = 25°C, V_I = 10V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA			13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 9 to 13V	7.92	8	8.08	V
		T_J = -40 to 125°C	7.80		8.20	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	45	59		dB
V_{DROP}	Dropout Voltage	I_O = 150mA,T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 400mA,T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 800mA,T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHzI_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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 11: Electrical Characteristics Of LD29080#90
(I_O = 10mA (Note 4), T_J = 25°C, V_I = 11V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Operating Input Voltage	I_O = 10mA to 800mA			13	V
V_O	Output Voltage	I_O = 10mA to 800mA, V_I = 10 to 13V	8.91	9	9.09	V
		T_J = -40 to 125°C	8.775		9.225	
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 = 400mA (Note 1)	45	58		dB
V_{DROP}	Dropout Voltage	I_O = 150mA,T_J = -40 to 125°C (Note 2)		0.1		V
		I_O = 400mA,T_J = -40 to 125°C (Note 2)		0.2		
		I_O = 800mA,T_J = -40 to 125°C (Note 2)		0.4	0.7	
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		V_I = 13V, V_{INH} = GND T_J = -40 to 125°C		130	180	µA
I_{sc}	Short Circuit Current	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHzI_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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

Table 12: Electrical Characteristics Of LD29080#ADJ
(I_O = 10mA (Note 4), T_J = 25°C, V_I = 3.23 V, V_{INH} = 2V, C_I = 330nF, C_O = 10µF adjust pin tied to output pin, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_I	Minimum Operating Input Voltage	I_O = 10mA to 800mA	2.5		13	V
ΔV_O	Load Regulation	I_O = 10mA to 800mA		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 800mA, V_I = 2.5 to 6.73V	1.2177	1.23	1.2423	V
		T_J = -40 to 125°C (Note 3)	1.1993		1.2607	
SVR	Supply Voltage Rejection	f = 120 Hz, V_I = 3.23 ± 1V, I_O = 400mA (Note 1)	45	75		dB
I_q	Quiescent Current	I_O = 10mA, T_J = -40 to 125°C		2	5	mA
		I_O = 400mA, T_J = -40 to 125°C		8	20	
		I_O = 800mA, T_J = -40 to 125°C		14	35	
		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	R_L = 0		1.2		A
V_{IL}	Control Input Logic Low	OFF MODE T_J = -40 to 125°C			0.8	V
V_{IH}	Control Input Logic High	ON MODE T_J = -40 to 125°C	2			V
I_{INH}	Control Input Current	V_{INH} = 13V T_J = -40 to 125°C		5	10	µA
eN	Output Noise Voltage	B_P = 10Hz to 100KHzI_O = 100mA		50		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: Reference Voltage is measured between output and GND pins, with ADJ PIN tied to V_{OUT}.
NOTE 4: in order to avoid any output voltage rise within the whole operating temperature range, due to output leakage current, a minimum load current of 2mA is required.

TYPICAL CHARACTERISTICS

Figure 5: Output Voltage vs Temperature

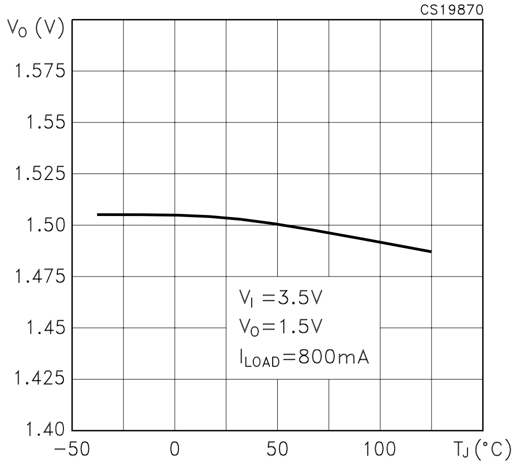


Figure 6: Reference Voltage vs Temperature

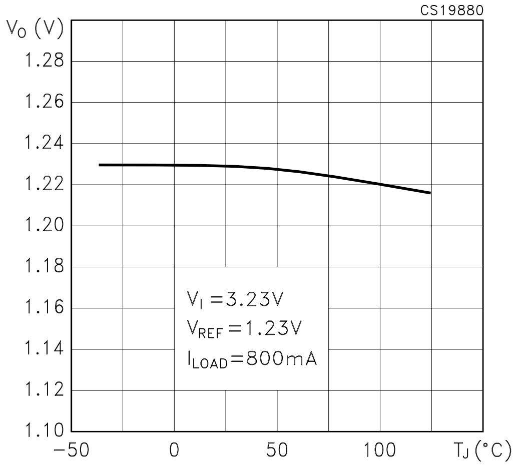


Figure 7: Dropout Voltage vs Temperature

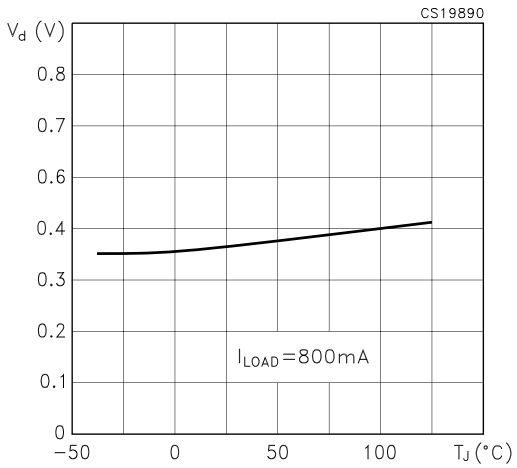


Figure 8: Dropout Voltage vs Output Current

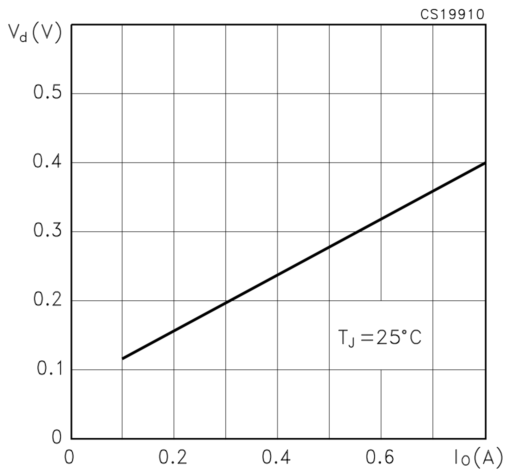


Figure 9: Quiescent Current vs Output Current

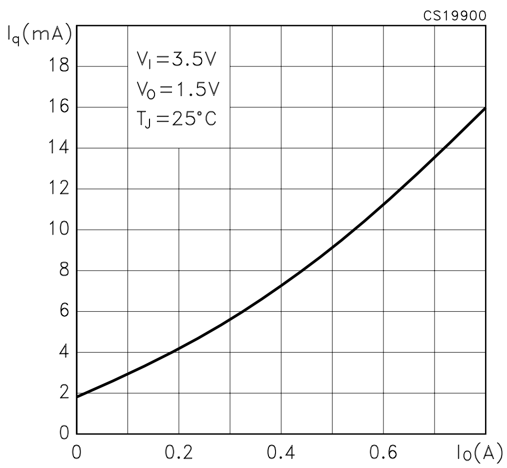


Figure 10: Quiescent Current vs Temperature

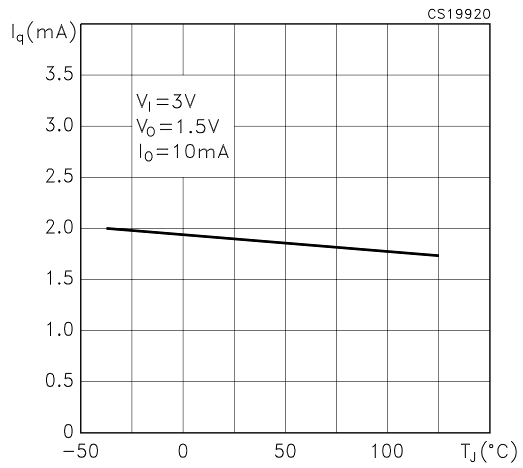


Figure 11: Quiescent Current vs Supply Voltage

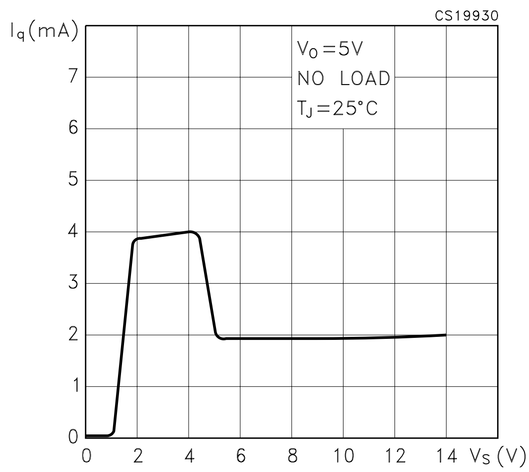


Figure 12: Quiescent Current vs Temperature

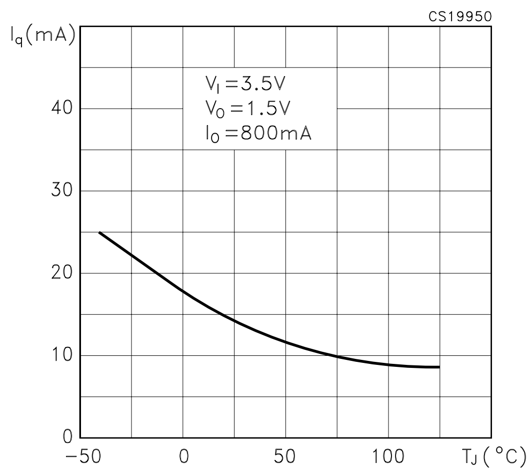


Figure 13: Short Circuit Current vs Temperature

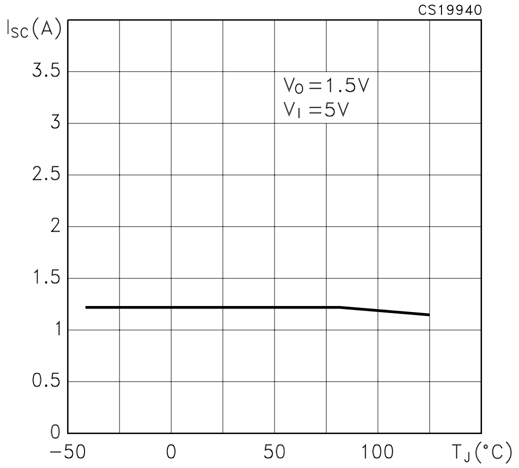


Figure 16: Output Voltage vs Input Voltage

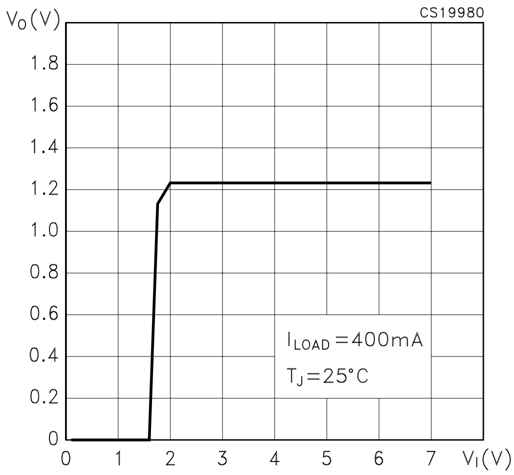


Figure 14: Adjust Pin Current vs Temperature

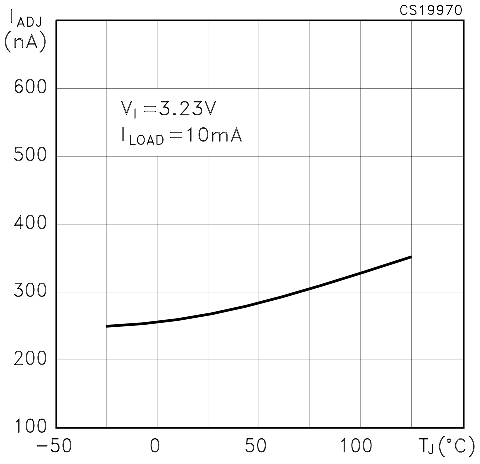


Figure 17: Stability vs C_{OUT}

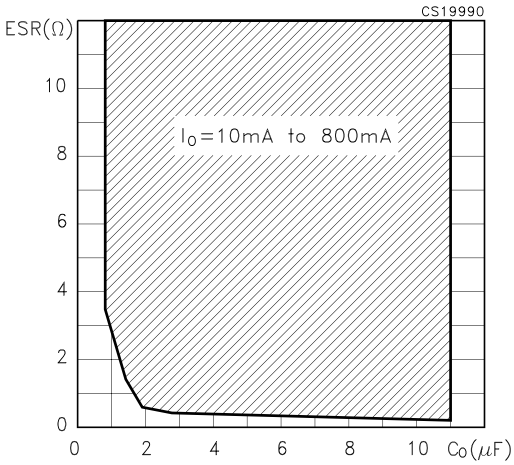


Figure 15: Supply Voltage Rejection vs Temperature

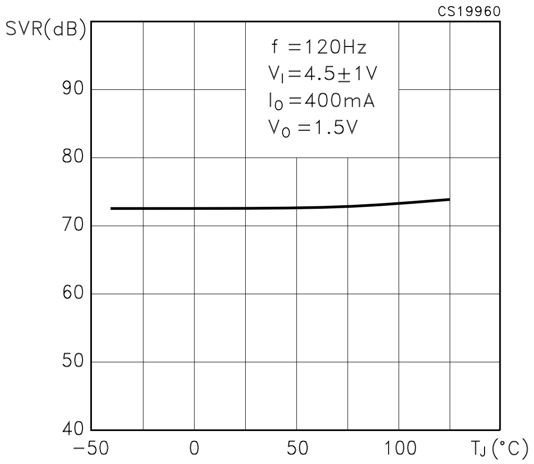
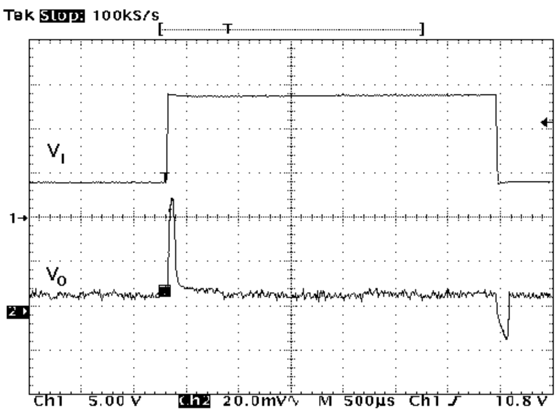
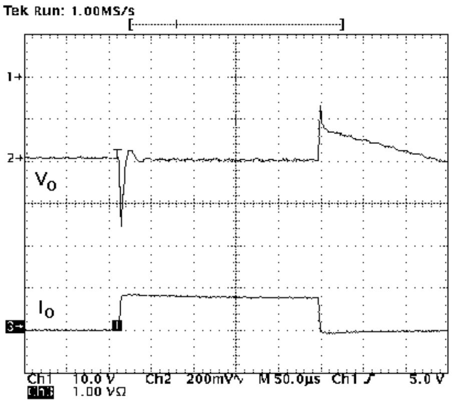


Figure 18: Line Transient



V_I=3.5 to 13V, I_O=10mA, V_O=1.5V

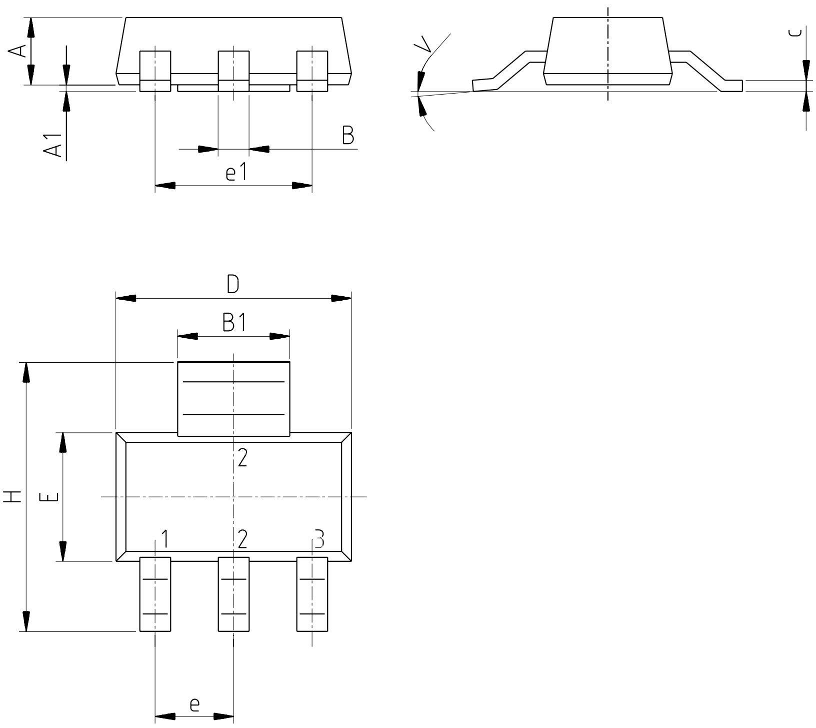
Figure 19: Load Transient



V_I=3.5V, V_O=1.5V, I_O=10mA to 0.8A

SOT-223 MECHANICAL DATA

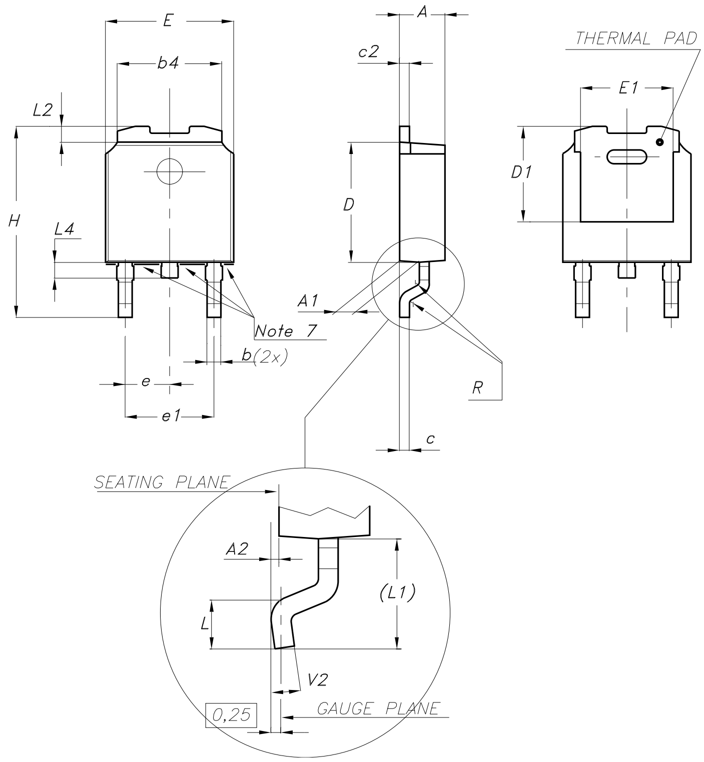
DIM.	mm.			mils		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			1.8			70.9
A1	0.02		0.1	0.8		3.9
B	0.6	0.7	0.85	23.6	27.6	33.5
B1	2.9	3	3.15	114.2	118.1	124.0
c	0.24	0.26	0.35	9.4	10.2	13.8
D	6.3	6.5	6.7	248.0	255.9	263.8
e		2.3			90.6	
e1		4.6			181.1	
E	3.3	3.5	3.7	129.9	137.8	145.7
H	6.7	7	7.3	129.9	137.8	145.7
V			10°			10°



0046067/H

DPAK MECHANICAL DATA

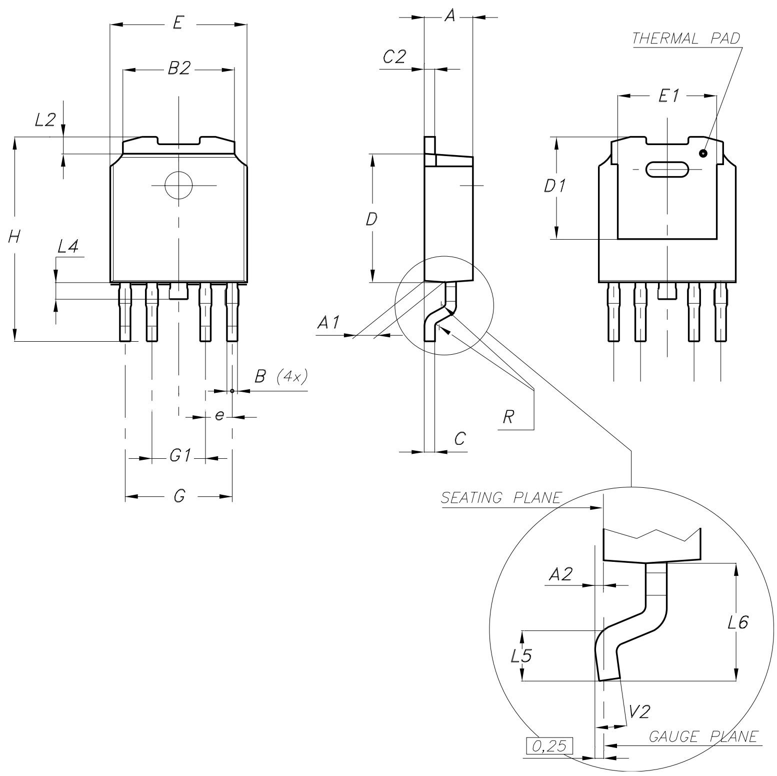
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
D1		5.1			0.200	
E	6.4		6.6	0.252		0.260
E1		4.7			0.185	
e		2.28			0.090	
e1	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L	1			0.039		
(L1)		2.8			0.110	
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



0068772-F

PPAK MECHANICAL DATA

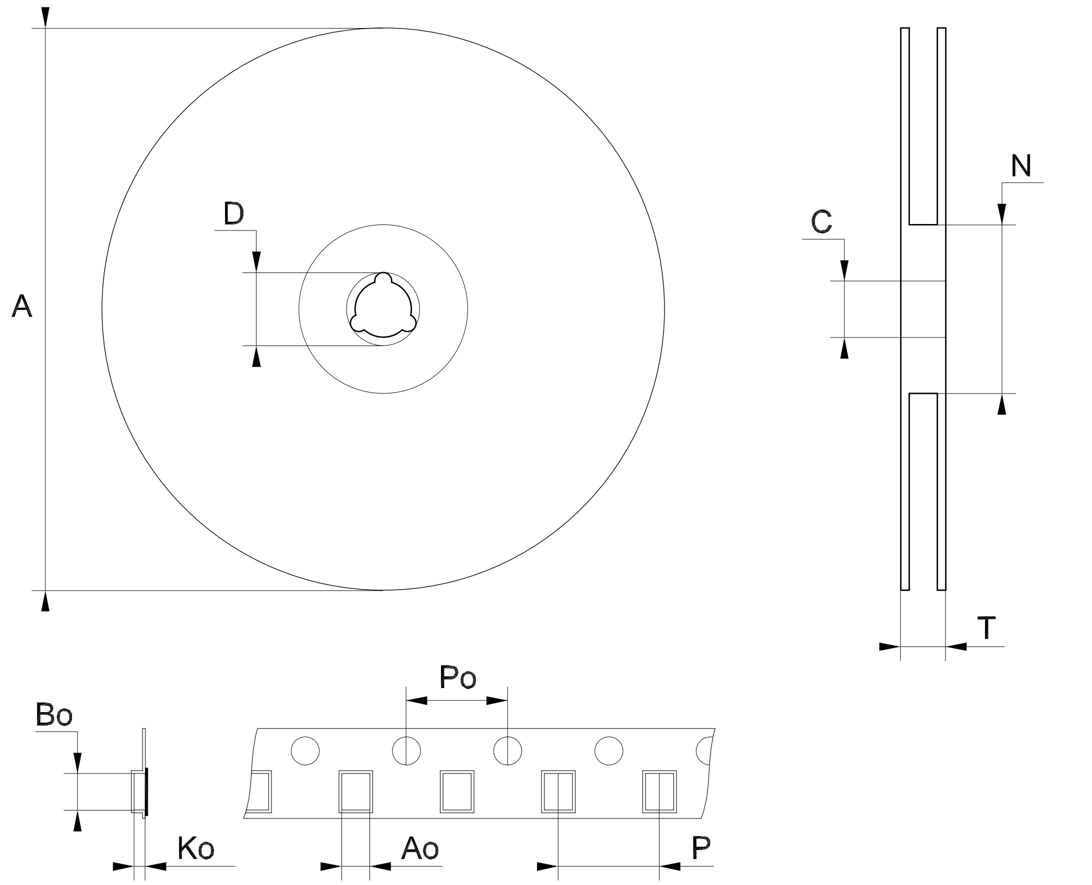
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.4		0.6	0.015		0.023
B2	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
D1		5.1			0.201	
E	6.4		6.6	0.252		0.260
E1		4.7			0.185	
e		1.27			0.050	
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	1		0.031	0.039
L4	0.6		1	0.023		0.039
L5	1			0.039		
L6		2.8			0.110	



0078180-E

Tape & Reel SOT223 MECHANICAL DATA

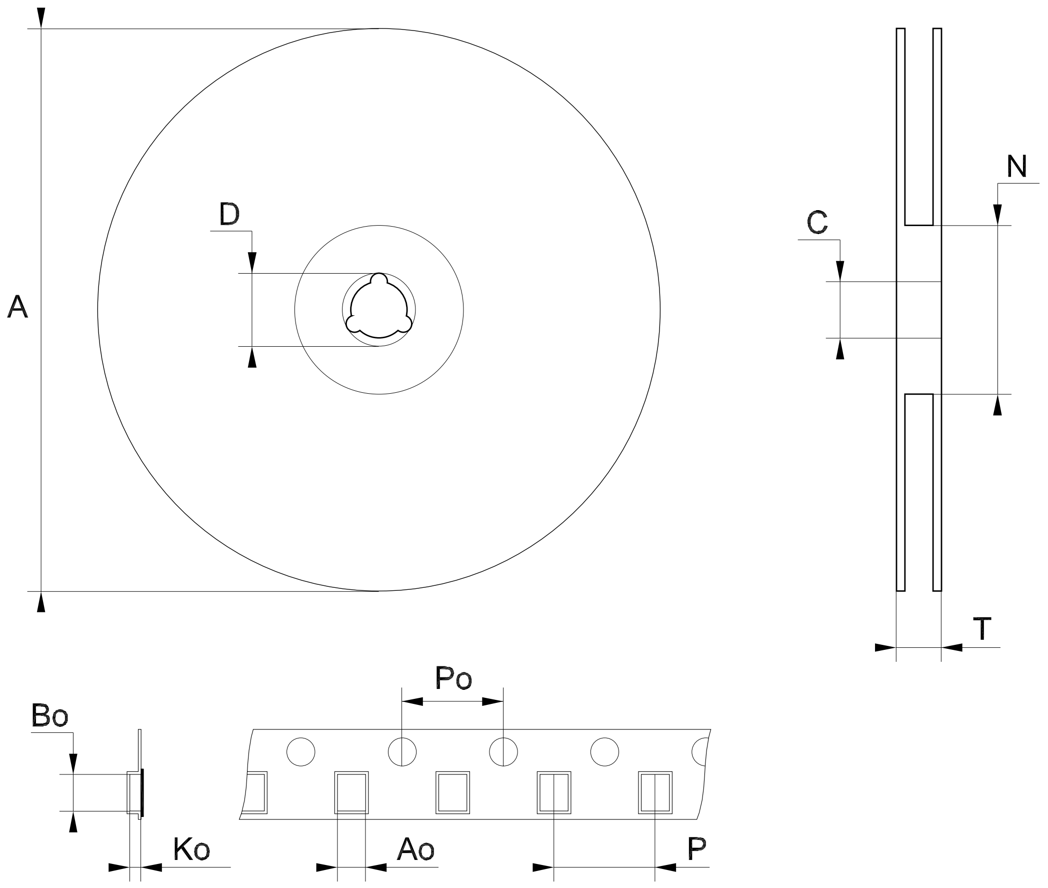
DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			330			12.992
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			14.4			0.567
Ao	6.73	6.83	6.93	0.265	0.269	0.273
Bo	7.32	7.42	7.52	0.288	0.292	0.296
Ko	1.78		2	0.070		0.078
Po	3.9	4.0	4.1	0.153	0.157	0.161
P	7.9	8.0	8.1	0.311	0.315	0.319



Note: Drawing not in scale

Tape & Reel DPAK-PPAK MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			330			12.992
C	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
T			22.4			0.882
Ao	6.80	6.90	7.00	0.268	0.272	0.2.76
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

Table 13: Revision History

Date	Revision	Description of Changes
15-Oct-2004	1	First Release.