

LD2980 series

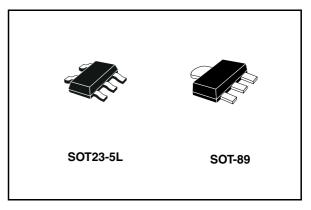
Ultra low drop voltage regulators with inhibit Low ESR output capacitors compatible

Feature summary

- Stable with low ESR ceramic capacitors
- Ultra low dropout voltage (0.12V typ. at 50mA load, 7mV typ. at 1mA load)
- Very low quiescent current (80µA typ. at no load in on mode; max 1µA in off mode)
- Guaranteed output current up to 50mA
- Logic-controlled electronic shutdown
- Output voltage of 1.8; 2.5; 2.85; 3.0; 3.3; 3.6; 3.8; 5.0V
- Internal current and thermal limit
- ± 0.5% Tolerance output voltage available (A version)
- Output low noise voltage 160µVRMS
- Temperature range: -40 to 125°C
- Smallest package SOT23-5L and SOT-89
- Fast dynamic response to line and load changes

Description

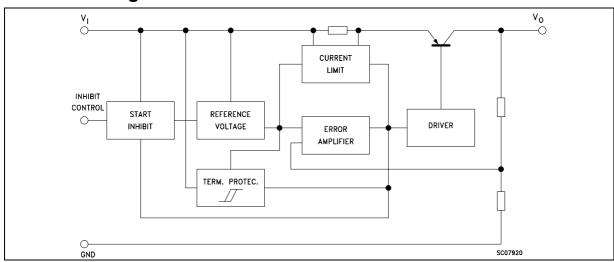
The LD2980 series are 50mA fixed-output voltage regulator. The low drop-voltage and the ultra low



quiescent current make them suitable for low noise, low power applications and in battery powered systems.

The quiescent current in sleep mode is less than $1\mu A$ when INHIBIT pin is pulled low. Shutdown Logic Control function is available on pin n.3 (TTL compatible). This means that when the device is used as local regulator, it is possible to put a part of the board in standby, decreasing the total power consumption. The LD2980 is designed to work with low ESR ceramic capacitor. Typical applications are in cellular phone, palmtop/laptop computer, personal digital assistant (PDA), personal stereo, camcorder and camera.

Schematic diagram



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LD2980 series Pin configuration

1 Pin configuration

Figure 1. Pin connections (top view)

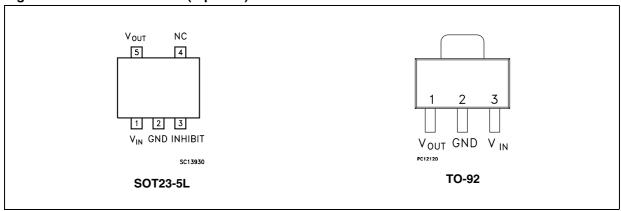


Table 1. Pin description

Pin N° SOT23-5L	Pin N° SOT-89	Symbol	Name and Function
1	3	V _{IN}	Input port
2	2	GND	Ground pin
3		INHIBIT	Control switch ON/OFF. Inhibit is not internally pulled-up; it cannot be left floating. Disable the device when connected to GND or to a positive voltage less than 0.18V
4		NC	Not connected
5	1	V _{OUT}	Output port

Table 2. Thermal data

Symbol	Parameter	SOT23-5L	SOT-89	Unit
R _{thJC}	Thermal resistance junction-case	81	15	°C/W
R _{thJA}	Thermal resistance junction-ambient	255	110	°C/W

Maximum ratings LD2980 series

2 Maximum ratings

Table 3. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V _I	DC Input voltage	-0.3 to 16	V
V _{INH}	INHIBIT Input voltage	-0.3 to 16	V
Io	Output current	Internally limited	
P _D	Power dissipation	Internally limited	
T _{STG}	Storage temperature range	-55 to 150	°C
T _{OP}	Operating junction temperature range	-40 to 125	°C

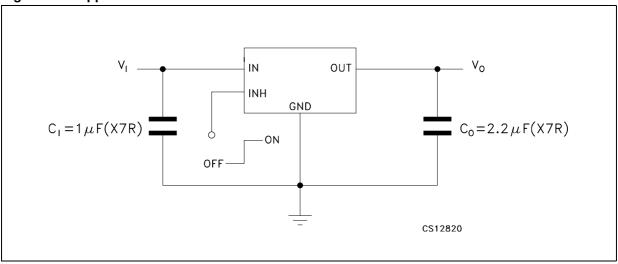
Note:

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

LD2980 series Typical application

3 Typical application

Figure 2. Application circuit



Note: Inhibit Pin is not internally pulled-up then it must not be left floating. Disable the device when connected to GND or to a positive voltage less than 0.18V.

Electrical characteristics LD2980 series

4 Electrical characteristics

Table 4. Electrical characteristics for LD2980AB ($T_J = 25^{\circ}\text{C}$, $V_I = V_{O(\text{NOM})} + 1\text{V}$, $C_I = 1\mu\text{F}(\text{X7R})$, $C_O = 2.2\mu\text{F}(\text{X7R})$, $I_O = 1\text{mA}$, $V_{INH} = 2\text{V}$, unless otherwise specified).

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
V _{OP}	Operating input voltage		2.5		16	V
		I _O = 1 mA	2.487	2.5	2.513	
V _O	Output voltage	I _O = 1 to 50 mA	2.481		2.519	V
		$I_{O} = 1 \text{ to } 50 \text{ mA}, T_{J} = -40 \text{ to } 125^{\circ}\text{C}$	2.437		2.562	
		I _O = 1 mA	2.835	2.85	2.864	
Vo	Output voltage	I _O = 1 to 50 mA	2.828		2.871	V
		$I_{O} = 1 \text{ to } 50 \text{ mA}, T_{J} = -40 \text{ to } 125^{\circ}\text{C}$	2.779		2.921	
		I _O = 1 mA	2.985	3	3.015	
Vo	Output voltage	I _O = 1 to 50 mA	2.978		3.023	V
		I_{O} = 1 to 50 mA, T_{J} = -40 to 125°C	2.925		3.075	
		I _O = 1 mA	3.184	3.2	3.216	
Vo	Output voltage	I _O = 1 to 50 mA	3.176		3.224	V
	$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.12		3.28		
		I _O = 1 mA	3.284	3.3	3.317	
Vo	Output voltage	I _O = 1 to 50 mA	3.275		3.325	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.217		3.383	
		I _O = 1 mA	3.582	3.6	3.618	
Vo	Output voltage	I _O = 1 to 50 mA	3.573		3.627	V
3		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.51		3.690	
		I _O = 1 mA	3.781	3.8	3.819	
Vo	Output voltage	I _O = 1 to 50 mA	3.772		3.829	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.705		3.895	
		I _O = 1 mA	3.98	4	4.02	
Vo	Output voltage	I _O = 1 to 50 mA	3.97		4.03	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.9		4.1	
		I _O = 1 mA	4.677	4.7	4.724	
Vo	Output voltage	I _O = 1 to 50 mA	4.665		4.735	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	4.582		4.818	
		I _O = 1 mA	4.826	4.85	4.874	
V _O	Output voltage	I _O = 1 to 50 mA	4.814		4.886	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	4.729		4.971	
		I _O = 1 mA	4.975	5	5.025	
Vo	Output voltage	I _O = 1 to 50 mA	4.963		5.038	٧
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	4.875		5.125	
41/	Line regulation	$V_{O(NOM)} + 1 < V_{IN} < 16 \text{ V}, I_O = 1 \text{ mA}$		0.003	0.014	0/ /\ /
ΔV _O	Line regulation	T _J = -40 to 125°C			0.032	%/V

Table 4.Electrical characteristics for LD2980AB ($T_J = 25^{\circ}C$, $V_I = V_{O(NOM)} + 1V$, $C_I = 1\mu F(X7R)$, $C_O = 2.2\mu F(X7R)$, $I_O = 1mA$, $V_{INH} = 2V$, unless otherwise specified).

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit		
		I _O = 0		80	100			
		I _O = 0, T _J = -40 to 125°C			150			
		I _O = 1 mA		100	150			
	Quiescent current	I _O = 1 mA, T _J = -40 to 125°C			200			
l la	ON MODE	I _O = 10 mA		175	250			
lQ		I _O = 10 mA, T _J = -40 to 125°C			450	μA		
		I _O = 50 mA		500	700			
		I _O = 50 mA, T _J = -40 to 125°C			1200			
	OFF MODE	V _{INH} < 0.18 V		0				
	OFF WODE	V _{INH} < 0.18 V, T _J = -40 to 125°C			1			
		I _O = 0		1	3			
	Dropout voltage (<i>Note: 1</i>)	I _O = 0, T _J = -40 to 125°C			5			
		I _O = 1mA		7	10			
V		I _O = 1mA, T _J = -40 to 125°C			15	mV		
V _{DROP}		I _O = 10mA		40	60			
		I _O = 10mA, T _J = -40 to 125°C			90			
		I _O = 50mA		120	150			
		$I_{O} = 50$ mA, $T_{J} = -40$ to 125 °C			225	1		
I _{SC}	Short circuit current	$R_L = 0$		150		mA		
SVR	Supply voltage rejection	$C_O = 10\mu F$, $f = 1KHz$		63		dB		
V _{INH}	Inhibit input logic low	LOW = Output OFF, T _J = -40 to 125°C		0.8	0.18	V		
V _{INL}	Inhibit input logic high	HIGH = Output ON, T _J = -40 to 125°C	1.6	1.3		V		
1	Inhibit input current	V _{INH} = 0V, T _J = -40 to 125°C		0	-1	μA		
I _{INH}	minor input current	V _{INH} = 5V, T _J = -40 to 125°C		5	15	μΑ		
e _N	Output noise voltage	$B_W = 300 \text{ Hz to } 50 \text{ KHz}, C_O = 10 \mu\text{F}$		160		μV_{RMS}		
T _{SHDN}	Thermal shutdown			170		°C		

Note: 1 For V_O < 2.5V dropout voltage can be calculated according to the minimum input voltage in full temperature range.

Electrical characteristics LD2980 series

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
V _{OP}	Operating input voltage		2.5		16	V
		I _O = 1 mA	1.478	1.5	1.522	
Vo	Output voltage	I _O = 1 to 50 mA	1.470		1.530	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	1.445		1.555	
		I _O = 1 mA	1.782	1.8	1.818	
V_{O}	Output voltage	I _O = 1 to 50 mA	1.773		1.827	V
		$I_{O} = 1 \text{ to } 50 \text{ mA}, T_{J} = -40 \text{ to } 125^{\circ}\text{C}$	1.737		1.863	
		I _O = 1 mA	2.475	2.5	2.525	
V_{O}	Output voltage	I _O = 1 to 50 mA	2.463		2.538	V
		$I_{O} = 1 \text{ to } 50 \text{ mA}, T_{J} = -40 \text{ to } 125^{\circ}\text{C}$	2.412		2.587	
		I _O = 1 mA	2.822	2.85	2.879	
Vo	Output voltage	I _O = 1 to 50 mA	2.807		2.893	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	2.75		2.949	
		I _O = 1 mA	2.97	3	3.03	
Vo	Output voltage	I _O = 1 to 50 mA	2.955		3.045	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	2.895		3.105	
		I _O = 1 mA	3.168	3.2	3.232	
Vo	Output voltage	I _O = 1 to 50 mA	3.152		3.248	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.088		3.312	
		I _O = 1 mA	3.267	3.3	3.333	
Vo	Output voltage	I _O = 1 to 50 mA	3.251		3.35	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.184		3.415	
		I _O = 1 mA	3.564	3.6	3.636	
Vo	Output voltage	I _O = 1 to 50 mA	3.546		3.654	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.474		3.726	
		I _O = 1 mA	3.76	3.8	3.838	
Vo	Output voltage	I _O = 1 to 50 mA	3.743		3.857	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.667		3.933	
		I _O = 1 mA	3.96	4	4.04	
V_{O}	Output voltage	I _O = 1 to 50 mA	3.94		4.06	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	3.86		4.14	
		I _O = 1 mA	4.653	4.7	4.747	
V_{O}	Output voltage	I _O = 1 to 50 mA	4.630		4.771	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	4.535		4.864	
		I _O = 1 mA	4.802	4.85 4.899		
V_{O}	Output voltage	I _O = 1 to 50 mA	4.777		4.923	V
		$I_O = 1 \text{ to } 50 \text{ mA}, T_J = -40 \text{ to } 125^{\circ}\text{C}$	4.68		5.02	

Symbol	Parameter	Test conditions	Min.	Тур.	Max.	Unit
		I _O = 1 mA	4.95	5	5.05	
V_{O}	Output voltage	I _O = 1 to 50 mA	4.925		5.075	V
		I _O = 1 to 50 mA, T _J = -40 to 125°C		5.175		
ΔV _O	Line regulation	$V_{O(NOM)} + 1 < V_{IN} < 16 \text{ V}, I_O = 1 \text{ mA}$		0.003	0.014	%/V
70	Line regulation	T _J = -40 to 125°C				/6/ V
		I _O = 0		80	100	
		$I_{O} = 0$, $T_{J} = -40$ to 125° C			150	
		I _O = 1 mA		100	150	
	Quiescent current	$I_{O} = 1 \text{ mA}, T_{J} = -40 \text{ to } 125^{\circ}\text{C}$			200	
ΙQ	ON MODE	I _O = 10 mA		175	250	μA
'Q		I _O = 10 mA, T _J = -40 to 125°C			450	μΑ
		I _O = 50 mA		500	700	
		I _O = 50 mA, T _J = -40 to 125°C			1200	
	OFF MODE	V _{INH} < 0.18 V		0		
	OFF WODE	V _{INH} < 0.18 V, T _J = -40 to 125°C			1	
		I _O = 0		1	3	
		I _O = 0, T _J = -40 to 125°C			5	
		I _O = 1mA		7	10	
V	Dropout voltage (<i>Note: 1</i>)	I _O = 1mA, T _J = -40 to 125°C			15	mV
V_{DROP}	Diopout voitage (Note: 1)	I _O = 10mA		40	60	1111
		I _O = 10mA, T _J = -40 to 125°C			90	
		I _O = 50mA		120	150	
		I _O = 50mA, T _J = -40 to 125°C			225	
I _{SC}	Short circuit current	$R_L = 0$		150		mA
SVR	Supply voltage rejection	$C_O = 10\mu F$, $f = 1KHz$		63		dB
V _{INH}	Inhibit input logic low	LOW = Output OFF, T _J = -40 to 125°C		0.8	0.18	V
V_{INL}	Inhibit input logic high	HIGH = Output ON, T _J = -40 to 125°C 1.6 1.3		1.3		V
I	Inhibit input current	V _{INH} = 0V, T _J = -40 to 125°C		0	-1	μF
I _{INH}	minor input current	V _{INH} = 5V, T _J = -40 to 125°C		5	15] µ
e _N	Output noise voltage	$B_W = 300 \text{ Hz to } 50 \text{ KHz}, C_O = 10 \mu\text{F}$		160		μV_{RMS}
T _{SHDN}	Thermal shutdown			170		°C

Note: 1 For V_O < 2.5V dropout voltage can be calculated according to the minimum input voltage in full temperature range.

5 Typical performance characteristics

 $(T_J=25^{\circ}C,~V_I=V_{O(NOM)}$ +1V, $C_I=1\mu F(X7R),~C_O=2.2\mu F(X7R),~V_{INH}=2V,$ unless otherwise specified)

Figure 3. Output voltage vs temperature

V₀(V)
4.775
4.725
4.70
4.675
4.625
4.60
-50
0
50
100
T_J(°C)

Figure 4. Output voltage vs temperature

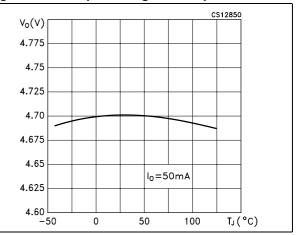


Figure 5. Line regulation vs temperature

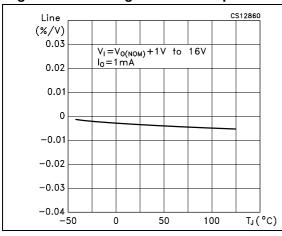


Figure 6. Load regulation vs temperature

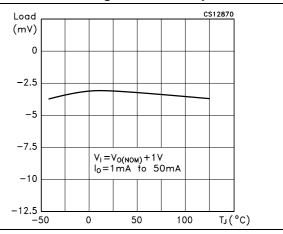


Figure 7. Dropout voltage vs temperature

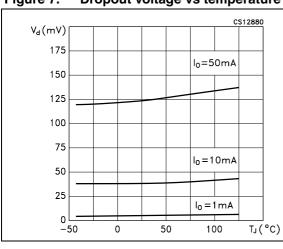
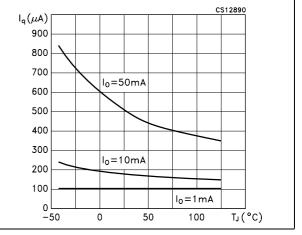


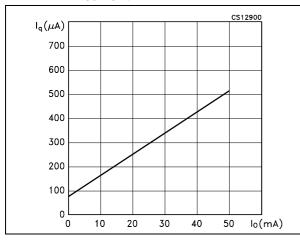
Figure 8. Quiescent current vs temperature



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Figure 9. Quiescent current vs output current

Figure 10. Off mode quiescent current vs temperature



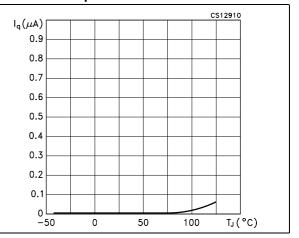
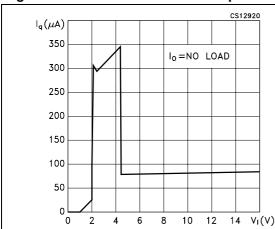


Figure 11. Quiescent current vs input voltage Figure 12. Dropout voltage vs output current



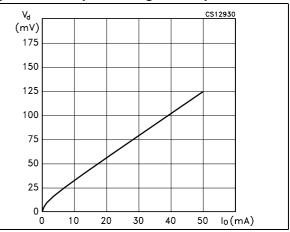
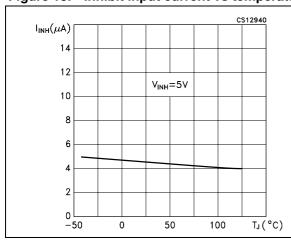


Figure 13. Inhibit input current vs temperature Figure 14. Inhibit voltage vs temperature



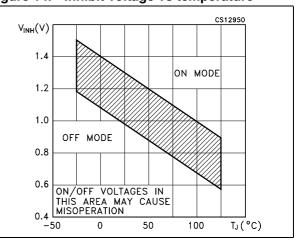
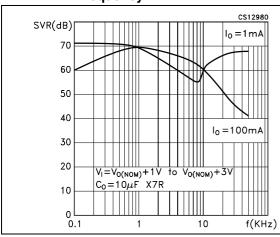


Figure 15. Supply voltage rejection vs frequency

Figure 16. Noise voltage vs frequency



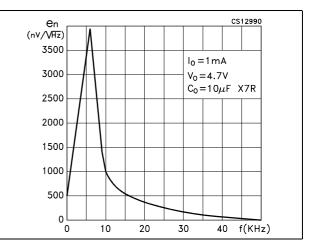
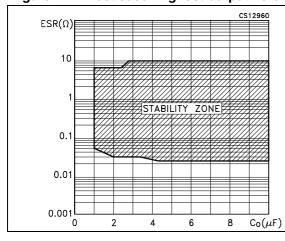


Figure 17. Best case: highest output version

Figure 18. Worst case: lowest output version



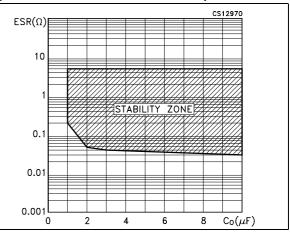
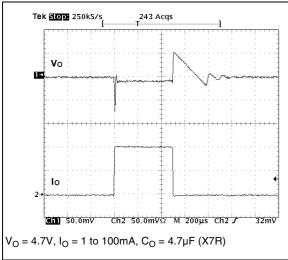
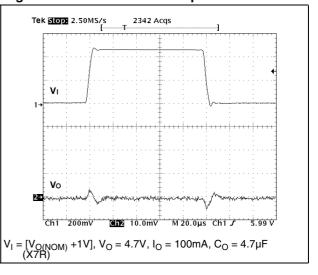


Figure 19. Load transient response

Figure 20. Line transient response





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LD2980 series Application notes

6 Application notes

6.1 External capacitors

Like any low-dropout regulator, the LD2980 requires external capacitors for regulator stability. This capacitor must be selected to meet the requirements of minimum capacitance and equivalent series resistance. We suggest to solder input and output capacitors as close as possible to the relative pins.

6.2 Input capacitor

An input capacitor whose value is $1\mu F$ is required with the LD2980 (amount of capacitance can be increased without limit). This capacitor must be located a distance of not more than 0.5" from the input pin of the device and returned to a clean analog ground. Any good quality ceramic, tantalum or film capacitors can be used for this capacitor.

6.3 Output capacitor

The LD2980 is designed specifically to work with ceramic output capacitors. It may also be possible to use Tantalum capacitors, but these are not as attractive for reasons of size and cost. By the way, the output capacitor must meet both the requirement for minimum amount of capacitance and ESR (equivalent series resistance) value. The *Figure 3.* and *Figure 4.* show the allowable ESR range as a function of the output capacitance. These curves represent the stability region over the full temperature and I_O range. Due to the different loop gain, the stability improves for higher output versions and so the suggested minimum output capacitor value, if low ESR ceramic type is used, is $1\mu F$ for output voltages equal or major than 3.8V, $2.2\mu F$ for output voltages from 2.85 to 3.3V, and $3.3\mu F$ for the other versions. However, if an output capacitor lower than the suggested one is used, it's possible to make stable the regulator adding a resistor in series to the capacitor (see Figure 1 & Figure 2 to choose the right value according to the used version and keeping in account that the ESR of ceramic capacitors has been measured @ 100KHz).

6.4 Important

The output capacitor must maintain its ESR in the stable region over the full operating temperature to assure stability. Also, capacitor tolerance and variation with temperature must be considered to assure the minimum amount of capacitance is provided at all times. This capacitor should be located not more than 0.5" from the output pin of the device and returned to a clean analog ground.

6.5 Inhibit input operation

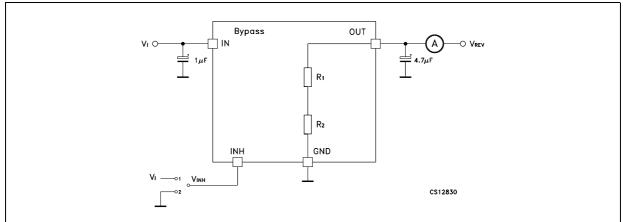
The inhibit pin can be used to turn OFF the regulator when pulled low, so drastically reducing the current consumption down to less than $1\mu A.$ When the inhibit feature is not used, this pin must be tied to V_I to keep the regulator output ON at all times. To assure proper operation, the signal source used to drive the inhibit pin must be able to swing above and below the specified thresholds listed in the electrical characteristics section under V_{IH} $V_{IL}.$ Any slew rate can be used to drive the inhibit.

Application notes LD2980 series

6.6 Reverse current

The power transistor used in the LD2980 has not an inherent diode connected between the regulator input and output. If the output is forced above the input, no current will flow from the output to the input across the series pass transistor. When a V_{REV} voltage is applied on the output, the reverse current measured, according to the test circuit in *Figure 21*., flows to the GND across the two feedback resistors. This current typical value is $160\mu A$. R_1 and R_2 resistors are implanted type; typical values are, respectively, $42.6~K\Omega$ and $51.150~K\Omega$

Figure 21. Reverse current test circuit

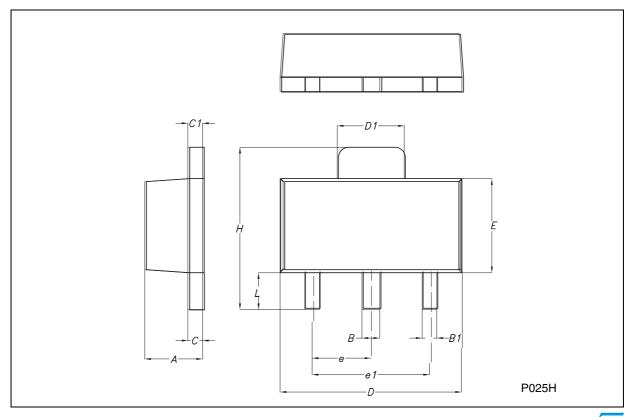


7 Package mechanical data

In order to meet environmental requirements, ST offers these devices in ECOPACK[®] packages. These packages have a Lead-free second level interconnect. The category of second Level Interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com.

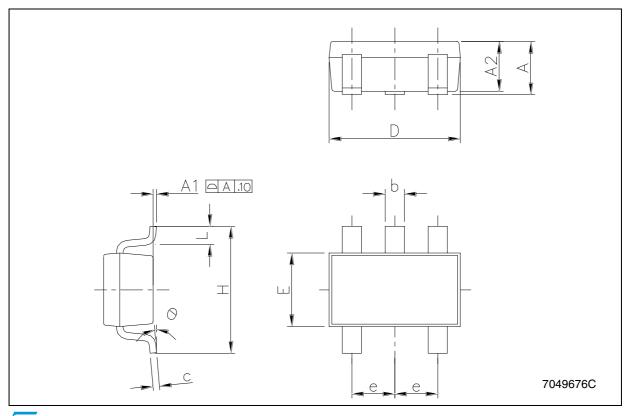
SOT-89 MECHANICAL DATA

DIM.		mm.			mils			
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.		
Α	1.4		1.6	55.1		63.0		
В	0.44		0.56	17.3		22.0		
B1	0.36		0.48	14.2		18.9		
С	0.35		0.44	13.8		17.3		
C1	0.35		0.44	13.8		17.3		
D	4.4		4.6	173.2		181.1		
D1	1.62		1.83	63.8		72.0		
Е	2.29		2.6	90.2		102.4		
е	1.42		1.57	55.9		61.8		
e1	2.92		3.07	115.0		120.9		
Н	3.94		4.25	155.1		167.3		
L	0.89		1.2	35.0		47.2		



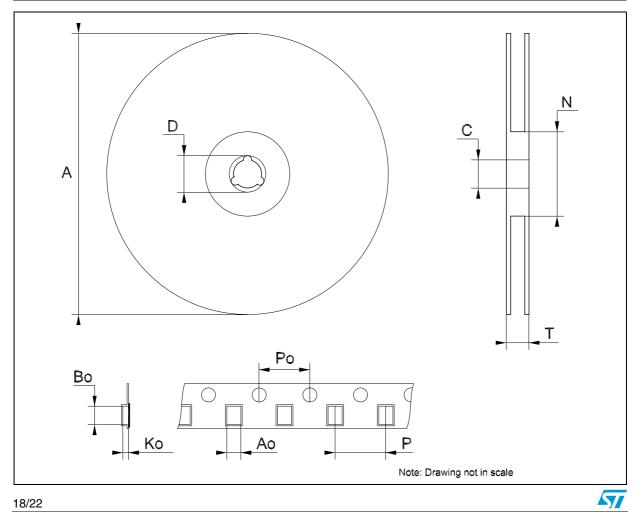
SOT23-5L MECHANICAL DATA

DIM.	mm.			mils		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
А	0.90		1.45	35.4		57.1
A1	0.00		0.10	0.0		3.9
A2	0.90		1.30	35.4		51.2
b	0.35		0.50	13.7		19.7
С	0.09		0.20	3.5		7.8
D	2.80		3.00	110.2		118.1
E	1.50		1.75	59.0		68.8
е		0.95			37.4	
Н	2.60		3.00	102.3		118.1
L	0.10		0.60	3.9		23.6



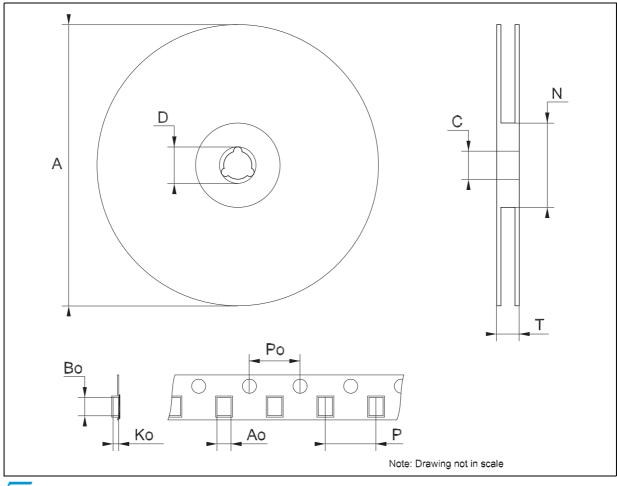
577

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
А			180			7.086
С	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
Т			14.4			0.567
Ao	3.13	3.23	3.33	0.123	0.127	0.131
Во	3.07	3.17	3.27	0.120	0.124	0.128
Ко	1.27	1.37	1.47	0.050	0.054	0.0.58
Po	3.9	4.0	4.1	0.153	0.157	0.161
Р	3.9	4.0	4.1	0.153	0.157	0.161



Tape & Reel SOT89 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
Α			180			7.086
С	12.8	13.0	13.2	0.504	0.512	0.519
D	20.2			0.795		
N	60			2.362		
Т			14.4			0.567
Ao	4.70	4.80	4.90	0.185	0.189	0.193
Во	4.30	4.40	4.50	0.169	0.173	0.177
Ko	1.70	1.80	1.90	0.067	0.071	0.075
Po	3.9	4.0	4.1	0.153	0.157	0.161
Р	7.9	8.0	8.1	0.311	0.315	0.319



Order code LD2980 series

8 Order code

Table 6. Order code

AB Ve	ersion	C Ve	Output voltage	
SOT23-5L	SOT23-5L SOT-89		SOT-89	
	LD2980ABU18TR	LD2980CM18TR	LD2980CU18TR	1.8 V
LD2980ABM25TR	LD2980ABU25TR ⁽¹⁾	LD2980CM25TR	LD2980CU25TR (1)	2.5 V
LD2980ABM28TR	LD2980ABU28TR ⁽¹⁾	LD2980CM28TR	LD2980CU28TR ⁽¹⁾	2.85 V
LD2980ABM30TR	LD2980ABU30TR ⁽¹⁾	LD2980CM30TR ⁽¹⁾	LD2980CU30TR (1)	3.0 V
LD2980ABM33TR	LD2980ABU33TR	LD2980CM33TR	LD2980CU33TR	3.3 V
LD2980ABM36TR	LD2980ABU36TR ⁽¹⁾	LD2980CM36TR	LD2980CU36TR ⁽¹⁾	3.6 V
LD2980ABM38TR	LD2980ABU38TR ⁽¹⁾	LD2980CM38TR	LD2980CU38TR ⁽¹⁾	3.8 V
LD2980ABM50TR	LD2980ABU50TR	LD2980CM50TR		5.0 V

^{1.} Available on request.

LD2980 series Revision history

9 Revision history

Table 7. Revision history

Date	Revision	Changes	
03-Jul-2006	13	Order Codes has been updated and new template.	
13-Nov-2006	14	Add part number LD2980ABU18TR in order code <i>Table 6</i> .	

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