

## VERY LOW DROP VOLTAGE REGULATORS WITH INHIBIT

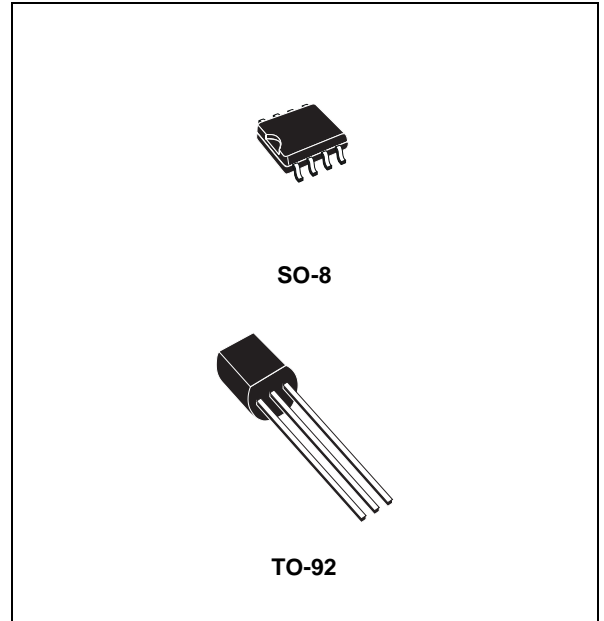
- VERY LOW DROPOUT VOLTAGE (0.2V TYP)
- VERY LOW QUIESCENT CURRENT (TYP. 50  $\mu$ A IN OFF MODE, 0.5 mA IN ON MODE, NO LOAD)
- OUTPUT CURRENT UP TO 100 mA
- OUTPUT VOLTAGES OF 1.25; 1.5; 2.5; 3; 3.3; 3.5; 4; 4.5; 4.7; 5; 5.2; 5.5; 6; 8V
- INTERNAL CURRENT AND THERMAL LIMIT
- ONLY 2.2  $\mu$ F FOR STABILITY
- AVAILABLE IN  $\pm 1\%$  (A) OR  $\pm 2\%$  (C) SELECTION AT 25°C
- SUPPLY VOLTAGE REJECTION: 80db (TYP.)
- TEMPERATURE RANGE: -40 TO 125 °C

### DESCRIPTION

The LE00 regulator series are very Low Drop regulators available in SO-8 and TO-92 packages and in a wide range of output voltages.

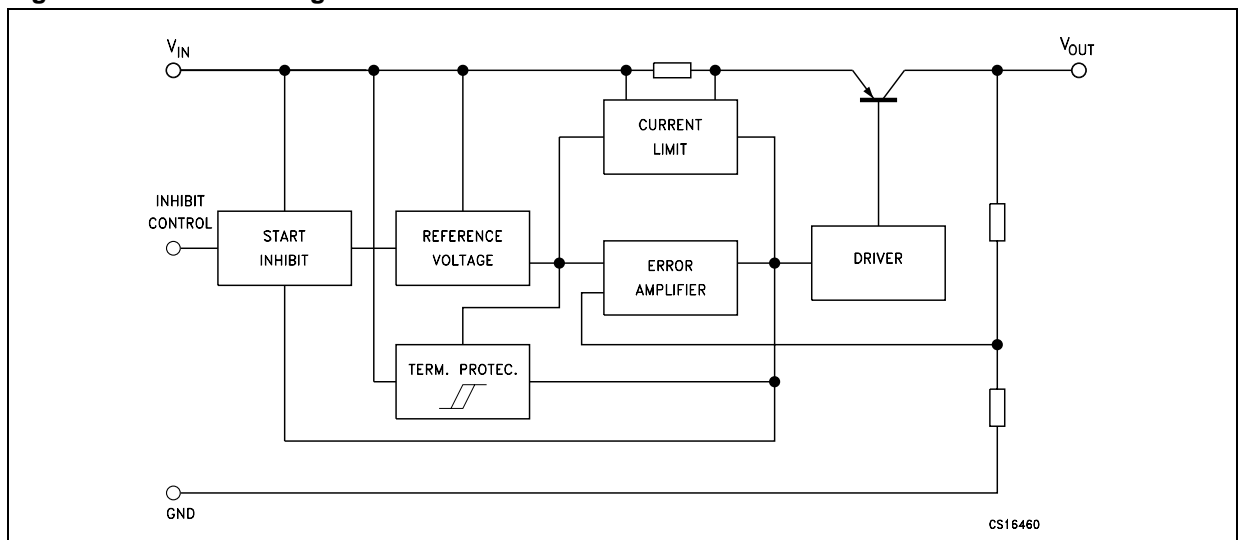
The very Low Drop voltage (0.2V) and the very low quiescent current make them particularly suitable for Low Noise Low Power applications and specially in battery powered systems.

They are pin to pin compatible with the older L78L00 series. Furthermore in the 8 pin configuration (SO-8) they employ a Shutdown Logic Control (pin 5, TTL compatible). This means that when the device is used as a local regulator,



it's possible to put in stand by a part of the board even more decreasing the total power consumption. In the three terminal configuration (TO-92) the device is even in ON STATE, maintaining the same electrical performances. It needs only 2.2 $\mu$ F capacitor for stability allowing room and cost saving effect.

**Figure 1: Schematic Diagram**



**Table 1: Absolute Maximum Ratings**

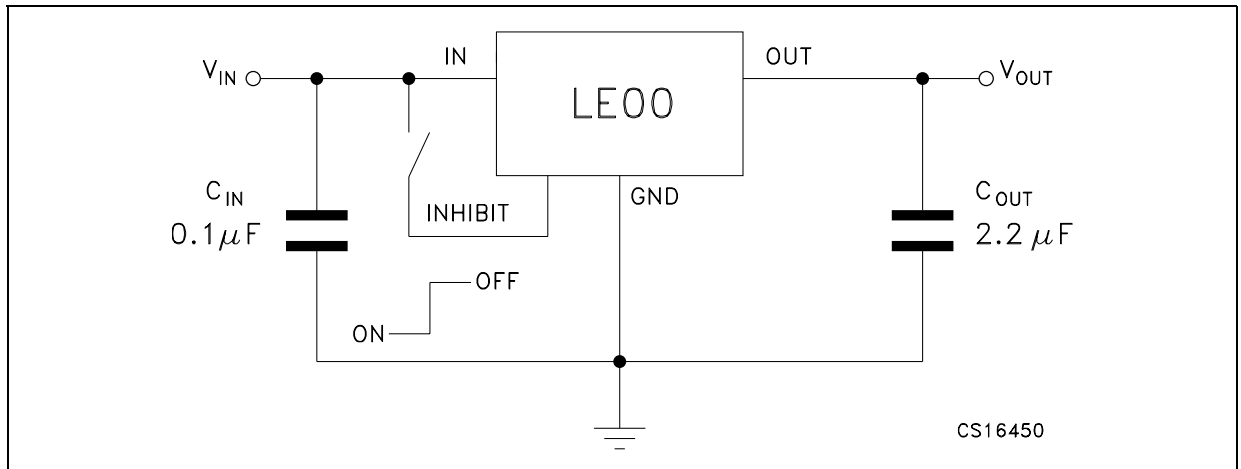
Symbol	Parameter	Value	Unit
$V_I$	DC Input Voltage	20	V
$I_O$	Output Current	Internally Limited (*)	
$P_{tot}$	Power Dissipation	Internally Limited (*)	
$T_{stg}$	Storage Temperature Range	-40 to 150	°C
$T_{op}$	Operating Junction Temperature Range	-40 to 125	°C

(\*) Our SO-8 package used for Voltage Regulators is modified internally to have pins 2, 3, 6 and 7 electrically communed to the die attach flag. This particular frame decreases the total thermal resistance of the package and increases its ability to dissipate power when an appropriate area of copper on the printed circuit board is available for heatsinking. The external dimensions are the same as for the standard SO-8.

**Table 2: Thermal Data**

Symbol	Parameter	SO-8	TO-92	Unit
$R_{thj-case}$	Thermal Resistance Junction-case	20		°C/W
$R_{thj-amb}$	Thermal Resistance Junction-ambient	55	200	°C/W

**Figure 2: Test Circuits**



Note: If the Inhibit pin is left floating, the regulator is in ON mode. However, to avoid any noise picking-up, it is suggested to ground it when the Inhibit function is not used.

**Figure 3: Pin Connection (top view)**

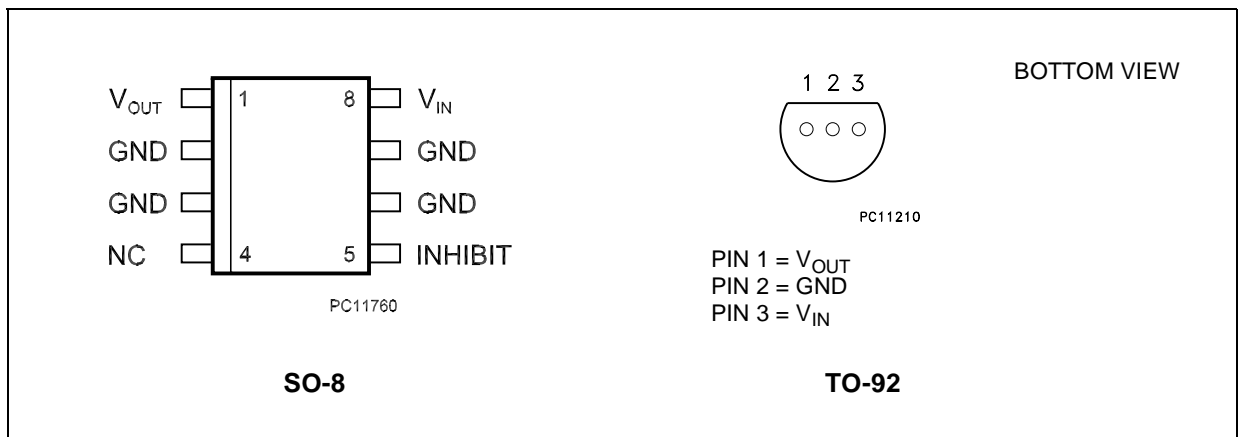


Table 3: Order Codes

TYPE	SO-8 (TUBE) (*)	TO-92 (TUBE) (#)	OUTPUT VOLTAGE
LE12AB	LE12ABD	LE12ABZ	1.25 V
LE12C	LE12CD	LE12CZ	1.25 V
LE15AB	LE15ABD	LE15ABZ	1.5 V
LE15C	LE15CD	LE15CZ	1.5 V
LE25AB	LE25ABD	LE25ABZ	2.5 V
LE25C	LE25CD	LE25CZ	2.5 V
LE27AB	LE27ABD	LE27ABZ	2.7 V
LE27C	LE27CD	LE27CZ	2.7 V
LE30AB	LE30ABD	LE30ABZ	3 V
LE30C	LE30CD	LE30CZ	3 V
LE33AB	LE33ABD	LE33ABZ	3.3 V
LE33C	LE33CD	LE33CZ	3.3 V
LE35AB	LE35ABD	LE35ABZ	3.5 V
LE35C	LE35CD	LE35CZ	3.5 V
LE40AB	LE40ABD	LE40ABZ	4 V
LE40C	LE40CD	LE40CZ	4 V
LE45AB	LE45ABD	LE45ABZ	4.5 V
LE45C	LE45CD	LE45CZ	4.5 V
LE47AB	LE47ABD	LE47ABZ	4.7 V
LE47C	LE47CD	LE47CZ	4.7 V
LE50AB	LE50ABD	LE50ABZ	5 V
LE50C	LE50CD	LE50CZ	5 V
LE52AB	LE52ABD	LE52ABZ	5.2 V
LE52C	LE52CD	LE52CZ	5.2 V
LE55AB	LE55ABD	LE55ABZ	5.5 V
LE55C	LE55CD	LE55CZ	5.5 V
LE60AB	LE60ABD	LE60ABZ	6 V
LE60C	LE60CD	LE60CZ	6 V
LE80AB	LE80ABD	LE80ABZ	8 V
LE80C	LE80CD	LE80CZ	8 V
LE120AB	LE120ABD	LE120ABZ	12 V
LE120C	LE120CD	LE120CZ	12 V

(\*) Available in Tape & Reel with the suffix "-TR".

(#) Available in Tape & Reel with the suffix "-TR" and in Ammopak with the suffix "-AP". Please note that in these cases pins are shaped according to Tape & Reel specifications.

**Table 4: Electrical Characteristics For LE12AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_0 = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 3.3 \text{ V}$	1.225	1.25	1.275	V
		$I_O = 10 \text{ mA}$ , $V_I = 3.3 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	1.2		1.3	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$	2.5		18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV
$\Delta V_O$	Load Regulation	$V_I = 2.8 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 3.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	82		dB
			$f = 1 \text{ KHz}$	77		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$		1.25		V
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 5: Electrical Characteristics For LE12C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_0 = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 3.3 \text{ V}$	1.225	1.25	1.275	V
		$I_O = 10 \text{ mA}$ , $V_I = 3.3 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	1.2		1.3	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$	2.5		18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV
$\Delta V_O$	Load Regulation	$V_I = 2.8 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 3.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	82		dB
			$f = 1 \text{ KHz}$	77		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$		1.25		V
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 6: Electrical Characteristics For LE15AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_I = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 3.5 \text{ V}$	1.47	1.5	1.53	V	
		$I_O = 10 \text{ mA}$ , $V_I = 3.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	1.44		1.56		
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$	2.5		18	V	
$I_O$	Output Current Limit		150			mA	
$\Delta V_O$	Line Regulation	$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV	
$\Delta V_O$	Load Regulation	$V_I = 2.8 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV	
$I_d$	Quiescent Current	$V_I = 2.5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE		0.5	1	mA
		$V_I = 2.5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$			1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE		50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 3.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$		82		dB
			$f = 1 \text{ KHz}$		77		
			$f = 10 \text{ KHz}$		60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$	
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$		1		V	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V	
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V	
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$	
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$	

**Table 7: Electrical Characteristics For LE15C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_I = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 3.5 \text{ V}$	1.47	1.5	1.53	V	
		$I_O = 10 \text{ mA}$ , $V_I = 3.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	1.44		1.56		
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$	2.5		18	V	
$I_O$	Output Current Limit		150			mA	
$\Delta V_O$	Line Regulation	$V_I = 2.5 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV	
$\Delta V_O$	Load Regulation	$V_I = 2.8 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV	
$I_d$	Quiescent Current	$V_I = 2.5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE		0.5	1	mA
		$V_I = 2.5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$			1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE		50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 3.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$		82		dB
			$f = 1 \text{ KHz}$		77		
			$f = 10 \text{ KHz}$		60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$	
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$		1		V	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V	
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V	
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$	
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$	

**Table 8: Electrical Characteristics For LE25AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 4.5 \text{ V}$	2.475	2.5	2.525	V	
		$I_O = 10 \text{ mA}$ , $V_I = 4.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	2.45		2.55		
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V	
$I_O$	Output Current Limit		150			mA	
$\Delta V_O$	Line Regulation	$V_I = 3.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV	
$\Delta V_O$	Load Regulation	$V_I = 3.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV	
$I_d$	Quiescent Current	$V_I = 3.5 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE		0.5	1	mA
		$V_I = 3.5 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$			1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE		50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 4.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	82		dB	
			$f = 1 \text{ KHz}$	77			
			$f = 10 \text{ KHz}$	60			
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$	
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V	
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5		
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V	
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V	
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$	
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$	

**Table 9: Electrical Characteristics For LE25C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 4.5 \text{ V}$	2.45	2.5	2.55	V	
		$I_O = 10 \text{ mA}$ , $V_I = 4.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	2.4		2.6		
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V	
$I_O$	Output Current Limit		150			mA	
$\Delta V_O$	Line Regulation	$V_I = 3.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV	
$\Delta V_O$	Load Regulation	$V_I = 3.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV	
$I_d$	Quiescent Current	$V_I = 3.5 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE		0.5	1	mA
		$V_I = 3.5 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$			1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE		50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 4.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	82		dB	
			$f = 1 \text{ KHz}$	77			
			$f = 10 \text{ KHz}$	60			
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$	
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V	
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5		
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V	
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V	
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$	
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$	

**Table 10: Electrical Characteristics For LE27AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 4.7 \text{ V}$	2.673	2.7	2.727	V
		$I_O = 10 \text{ mA}$ , $V_I = 4.7 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	2.646		2.754	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 3.4 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV
$\Delta V_O$	Load Regulation	$V_I = 3.7 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 3.7 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 3.7 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 4.7 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	82		dB
			$f = 1 \text{ KHz}$	77		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 11: Electrical Characteristics For LE27C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 4.7 \text{ V}$	2.646	2.7	2.754	V
		$I_O = 10 \text{ mA}$ , $V_I = 4.7 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	2.592		2.808	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 3.4 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV
$\Delta V_O$	Load Regulation	$V_I = 3.7 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 3.7 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 3.7 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 4.7 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	82		dB
			$f = 1 \text{ KHz}$	77		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 12: Electrical Characteristics For LE30AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 5 \text{ V}$	2.970	3	3.030	V
		$I_O = 10 \text{ mA}$ , $V_I = 5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	2.940		3.060	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 3.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV
$\Delta V_O$	Load Regulation	$V_I = 4 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 4 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 4 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	81		dB
			$f = 1 \text{ KHz}$	76		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 13: Electrical Characteristics For LE30C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 5 \text{ V}$	2.940	3	3.060	
		$I_O = 10 \text{ mA}$ , $V_I = 5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	2.880		3.120	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 3.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV
$\Delta V_O$	Load Regulation	$V_I = 4 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 4 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 4 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	81		dB
			$f = 1 \text{ KHz}$	76		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$



**Table 14: Electrical Characteristics For LE33AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 5.3 \text{ V}$	3.267	3.3	3.333	V
		$I_O = 10 \text{ mA}$ , $V_I = 5.3 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	3.234		3.366	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 4 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV
$\Delta V_O$	Load Regulation	$V_I = 4.3 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 4.3 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 4.3 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 5.3 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	80		dB
			$f = 1 \text{ KHz}$	75		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 15: Electrical Characteristics For LE33C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 5.3 \text{ V}$	3.234	3.3	3.366	V
		$I_O = 10 \text{ mA}$ , $V_I = 5.3 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	3.168		3.432	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 4 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV
$\Delta V_O$	Load Regulation	$V_I = 4.3 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 4.3 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 4.3 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 5.3 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	80		dB
			$f = 1 \text{ KHz}$	75		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 16: Electrical Characteristics For LE35AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 5.5 \text{ V}$	3.465	3.5	3.535	V
		$I_O = 10 \text{ mA}$ , $V_I = 5.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	3.43		3.57	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 4.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	15	mV
$\Delta V_O$	Load Regulation	$V_I = 4.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 4.5 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 4.5 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 5.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	79		dB
			$f = 1 \text{ KHz}$	74		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 17: Electrical Characteristics For LE35C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 5.5 \text{ V}$	3.43	3.5	3.57	V
		$I_O = 10 \text{ mA}$ , $V_I = 5.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	3.36		3.64	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 4.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		3	20	mV
$\Delta V_O$	Load Regulation	$V_I = 4.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 4.5 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 4.5 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 5.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	79		dB
			$f = 1 \text{ KHz}$	74		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 18: Electrical Characteristics For LE40AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 6 \text{ V}$	3.96	4	4.04	V
		$I_O = 10 \text{ mA}$ , $V_I = 6 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	3.92		4.08	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 4.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	20	mV
$\Delta V_O$	Load Regulation	$V_I = 5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 6 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	78		dB
			$f = 1 \text{ KHz}$	73		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 19: Electrical Characteristics For LE40C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 6 \text{ V}$	3.92	4	4.08	V
		$I_O = 10 \text{ mA}$ , $V_I = 6 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	3.84		4.16	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 4.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	30	mV
$\Delta V_O$	Load Regulation	$V_I = 5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 6 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	78		dB
			$f = 1 \text{ KHz}$	73		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 20: Electrical Characteristics For LE45AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 6.5 \text{ V}$	4.445	4.5	4.545	V
		$I_O = 10 \text{ mA}$ , $V_I = 6.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.41		4.59	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 5.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	20	mV
$\Delta V_O$	Load Regulation	$V_I = 5.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 5.5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 5.5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 6.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	77		dB
			$f = 1 \text{ KHz}$	72		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 21: Electrical Characteristics For LE45C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 6.5 \text{ V}$	4.41	4.5	4.59	V
		$I_O = 10 \text{ mA}$ , $V_I = 6.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.32		4.68	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 5.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	30	mV
$\Delta V_O$	Load Regulation	$V_I = 5.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 5.5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 5.5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 6.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	77		dB
			$f = 1 \text{ KHz}$	72		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 22: Electrical Characteristics For LE47AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 6.7 \text{ V}$	4.653	4.7	4.747	V
		$I_O = 10 \text{ mA}$ , $V_I = 6.7 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.606		4.794	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 5.4 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	20	mV
$\Delta V_O$	Load Regulation	$V_I = 5.7 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 5.7 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 5.7 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 6.7 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	77		dB
			$f = 1 \text{ KHz}$	72		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 23: Electrical Characteristics For LE47C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 6.7 \text{ V}$	4.606	4.7	4.794	V
		$I_O = 10 \text{ mA}$ , $V_I = 6.7 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.512		4.888	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 5.4 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	30	mV
$\Delta V_O$	Load Regulation	$V_I = 5.7 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 5.7 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 5.7 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 6.7 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	77		dB
			$f = 1 \text{ KHz}$	72		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 24: Electrical Characteristics For LE50AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_0 = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 7 \text{ V}$	4.95	5	5.05	V
		$I_O = 10 \text{ mA}$ , $V_I = 7 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.9		5.1	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150	350	425	mA
$\Delta V_O$	Line Regulation	$V_I = 5.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	20	mV
$\Delta V_O$	Load Regulation	$V_I = 6 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 6 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 6 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 7 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	76		dB
			$f = 1 \text{ KHz}$	71		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 25: Electrical Characteristics For LE50C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_0 = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 7 \text{ V}$	4.9	5	5.1	V
		$I_O = 10 \text{ mA}$ , $V_I = 7 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.8		5.2	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150	350	425	mA
$\Delta V_O$	Line Regulation	$V_I = 5.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	30	mV
$\Delta V_O$	Load Regulation	$V_I = 6 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 6 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 6 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 7 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	76		dB
			$f = 1 \text{ KHz}$	71		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 26: Electrical Characteristics For LE52AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 7.2 \text{ V}$	5.148	5.2	5.252	V
		$I_O = 10 \text{ mA}$ , $V_I = 7.2 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	5.096		5.304	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 5.9 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	20	mV
$\Delta V_O$	Load Regulation	$V_I = 6.2 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 6.2 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 6.2 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 7.2 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	76		dB
			$f = 1 \text{ KHz}$	71		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 27: Electrical Characteristics For LE52C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 7.2 \text{ V}$	5.096	5.2	5.304	V
		$I_O = 10 \text{ mA}$ , $V_I = 7.2 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	4.992		5.408	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 5.9 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	30	mV
$\Delta V_O$	Load Regulation	$V_I = 6.2 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 6.2 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.5	1	mA
		$V_I = 6.2 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 7.2 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	76		dB
			$f = 1 \text{ KHz}$	71		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 28: Electrical Characteristics For LE55AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 7.5 \text{ V}$	5.445	5.5	5.55	V
		$I_O = 10 \text{ mA}$ , $V_I = 7.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	5.39		5.61	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 6.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	20	mV
$\Delta V_O$	Load Regulation	$V_I = 6.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 6.5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 6.5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 7.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	76		dB
			$f = 1 \text{ KHz}$	71		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 29: Electrical Characteristics For LE55C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 7.5 \text{ V}$	5.39	5.5	5.61	V
		$I_O = 10 \text{ mA}$ , $V_I = 7.5 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	5.28		5.72	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 6.2 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		4	30	mV
$\Delta V_O$	Load Regulation	$V_I = 6.5 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 6.5 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.5	1	mA
		$V_I = 6.5 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.5	3	
		$V_I = 6 \text{ V}$	OFF MODE	50	100	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 7.5 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	76		dB
			$f = 1 \text{ KHz}$	71		
			$f = 10 \text{ KHz}$	60		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 6 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$



**Table 30: Electrical Characteristics For LE60AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 8 \text{ V}$	5.94	6	6.06	V
		$I_O = 10 \text{ mA}$ , $V_I = 8 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	5.88		6.12	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 6.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		5	25	mV
$\Delta V_O$	Load Regulation	$V_I = 7 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 7 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.7	1.6	mA
		$V_I = 7 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.7	3.6	
		$V_I = 9 \text{ V}$	OFF MODE	70	140	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 8 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	75		dB
			$f = 1 \text{ KHz}$	69		
			$f = 10 \text{ KHz}$	57		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 9 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 31: Electrical Characteristics For LE60C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 8 \text{ V}$	5.88	6	6.12	V
		$I_O = 10 \text{ mA}$ , $V_I = 8 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	5.76		6.24	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 6.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		5	35	mV
$\Delta V_O$	Load Regulation	$V_I = 7 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 7 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.7	1.6	mA
		$V_I = 7 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.7	3.6	
		$V_I = 9 \text{ V}$	OFF MODE	70	140	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 8 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	75		dB
			$f = 1 \text{ KHz}$	69		
			$f = 10 \text{ KHz}$	57		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 9 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 32: Electrical Characteristics For LE80AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_0 = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 10 \text{ V}$	7.92	8	8.08	V
		$I_O = 10 \text{ mA}$ , $V_I = 10 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	7.84		8.16	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 8.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		5	25	mV
$\Delta V_O$	Load Regulation	$V_I = 9 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 9 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.7	1.6	mA
		$V_I = 9 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.7	3.6	
		$V_I = 9 \text{ V}$	OFF MODE	70	140	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 10 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	72		dB
			$f = 1 \text{ KHz}$	66		
			$f = 10 \text{ KHz}$	57		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 9 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 33: Electrical Characteristics For LE80C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_0 = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 10 \text{ V}$	7.84	8	8.16	V
		$I_O = 10 \text{ mA}$ , $V_I = 10 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	7.68		8.32	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 8.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		5	35	mV
$\Delta V_O$	Load Regulation	$V_I = 9 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 9 \text{ to } 18\text{V}$ , $I_O = 0\text{mA}$	ON MODE	0.7	1.6	mA
		$V_I = 9 \text{ to } 18\text{V}$ , $I_O = 100\text{mA}$		1.7	3.6	
		$V_I = 9 \text{ V}$	OFF MODE	70	140	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 10 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	72		dB
			$f = 1 \text{ KHz}$	66		
			$f = 10 \text{ KHz}$	57		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 9 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 34: Electrical Characteristics For LE120AB** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 14 \text{ V}$	11.88	12	12.12	V
		$I_O = 10 \text{ mA}$ , $V_I = 14 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	11.76		12.24	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 12.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		5	25	mV
$\Delta V_O$	Load Regulation	$V_I = 13 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	15	mV
$I_d$	Quiescent Current	$V_I = 13 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.7	1.6	mA
		$V_I = 13 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.7	3.6	
		$V_I = 13 \text{ V}$	OFF MODE	90	180	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 14 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	69		dB
			$f = 1 \text{ KHz}$	63		
			$f = 10 \text{ KHz}$	55		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 13 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

**Table 35: Electrical Characteristics For LE120C** (refer to the test circuits,  $T_j = 25^\circ\text{C}$ ,  $C_1 = 0.1 \mu\text{F}$ ,  $C_O = 2.2 \mu\text{F}$  unless otherwise specified.)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_O$	Output Voltage	$I_O = 10 \text{ mA}$ , $V_I = 14 \text{ V}$	11.76	12	12.24	V
		$I_O = 10 \text{ mA}$ , $V_I = 14 \text{ V}$ , $T_a = -25 \text{ to } 85^\circ\text{C}$	11.52		12.48	
$V_I$	Operating Input Voltage	$I_O = 100 \text{ mA}$			18	V
$I_O$	Output Current Limit		150			mA
$\Delta V_O$	Line Regulation	$V_I = 12.7 \text{ to } 18 \text{ V}$ , $I_O = 0.5 \text{ mA}$		5	35	mV
$\Delta V_O$	Load Regulation	$V_I = 13 \text{ V}$ , $I_O = 0.5 \text{ to } 100 \text{ mA}$		3	25	mV
$I_d$	Quiescent Current	$V_I = 13 \text{ to } 18 \text{ V}$ , $I_O = 0 \text{ mA}$	ON MODE	0.7	1.6	mA
		$V_I = 13 \text{ to } 18 \text{ V}$ , $I_O = 100 \text{ mA}$		1.7	3.6	
		$V_I = 13 \text{ V}$	OFF MODE	90	180	$\mu\text{A}$
SVR	Supply Voltage Rejection	$I_O = 5 \text{ mA}$ $V_I = 14 \pm 1 \text{ V}$	$f = 120 \text{ Hz}$	69		dB
			$f = 1 \text{ KHz}$	63		
			$f = 10 \text{ KHz}$	55		
eN	Output Noise Voltage	$B = 10 \text{ Hz to } 100 \text{ KHz}$		50		$\mu\text{V}$
$V_d$	Dropout Voltage	$I_O = 100 \text{ mA}$		0.2	0.4	V
		$I_O = 100 \text{ mA}$ , $T_a = -40 \text{ to } 125^\circ\text{C}$			0.5	
$V_{IL}$	Control Input Logic Low	$T_a = -40 \text{ to } 125^\circ\text{C}$			0.8	V
$V_{IH}$	Control Input Logic High	$T_a = -40 \text{ to } 125^\circ\text{C}$	2			V
$I_I$	Control Input Current	$V_I = 13 \text{ V}$ , $V_C = 6 \text{ V}$		10		$\mu\text{A}$
$C_O$	Output Bypass Capacitance	$\text{ESR} = 0.1 \text{ to } 10 \Omega$ , $I_O = 0 \text{ to } 100 \text{ mA}$	2	10		$\mu\text{F}$

TYPICAL PERFORMANCE CHARACTERISTICS (unless otherwise specified  $V_{O(NOM)} = 3.3\text{ V}$ )

Figure 4: Dropout Voltage vs Output Current

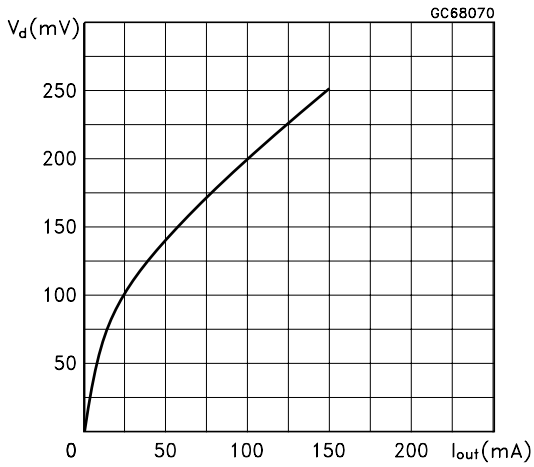


Figure 5: Dropout Voltage vs Temperature

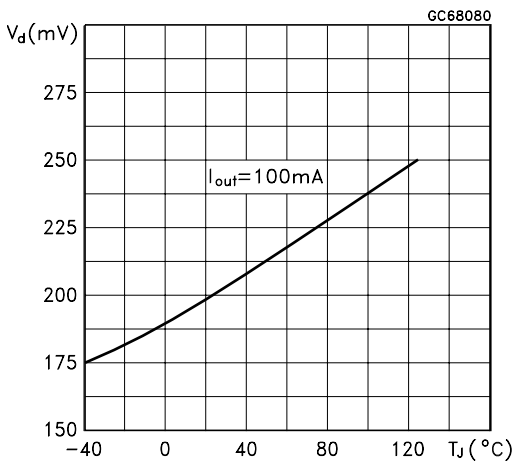


Figure 6: Supply Current vs Temperature

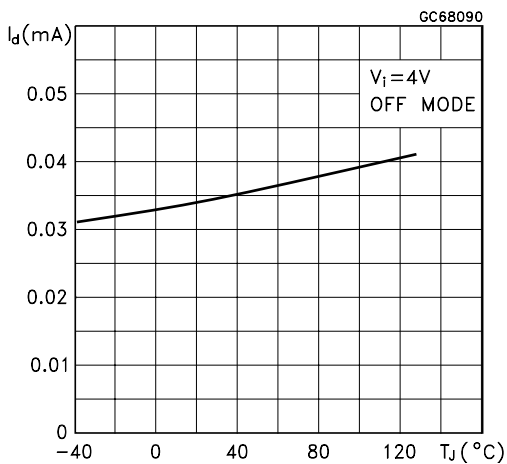


Figure 7: Supply Current vs Input Voltage

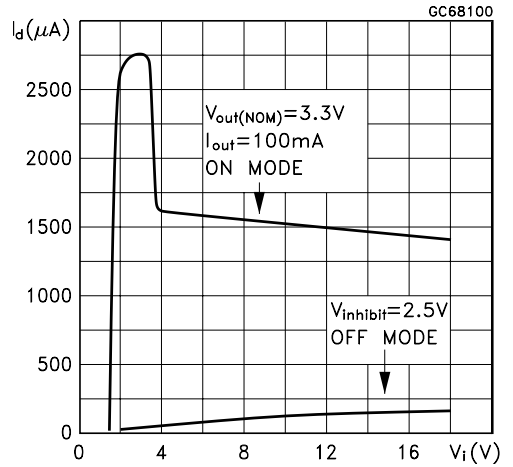


Figure 8: Short Circuit Current vs Dropout Voltage

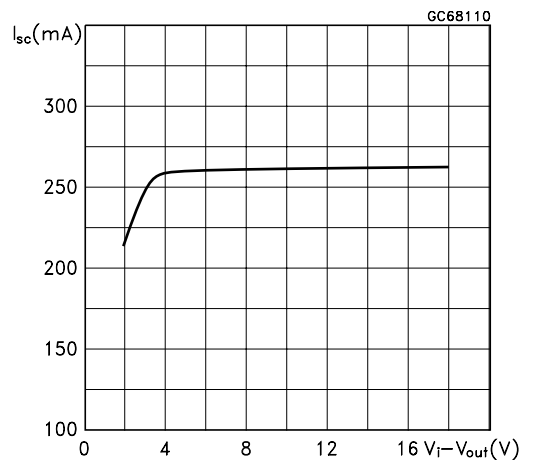


Figure 9: S.V.R. vs Frequency

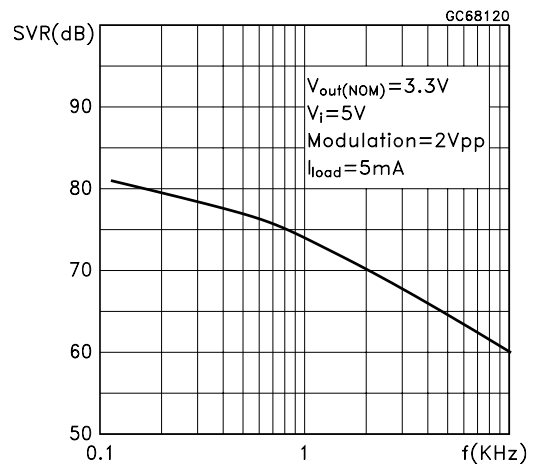


Figure 10: Logic Controlled Precision 3.3/5.0V Selectable Output

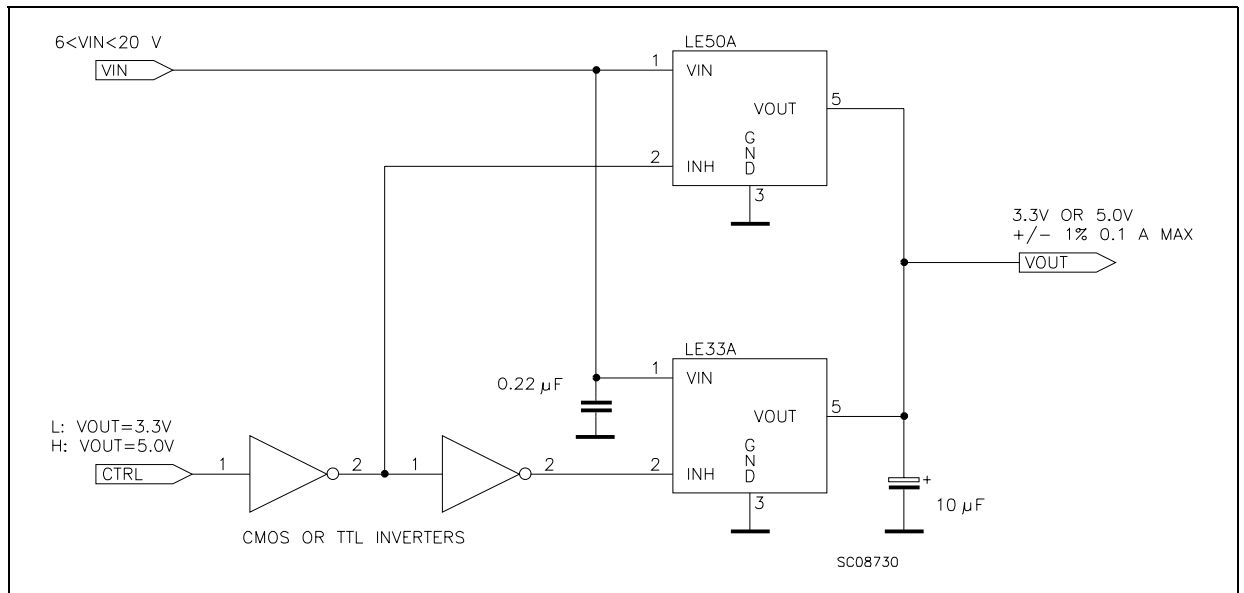


Figure 11: Sequential Multi-Output Supply

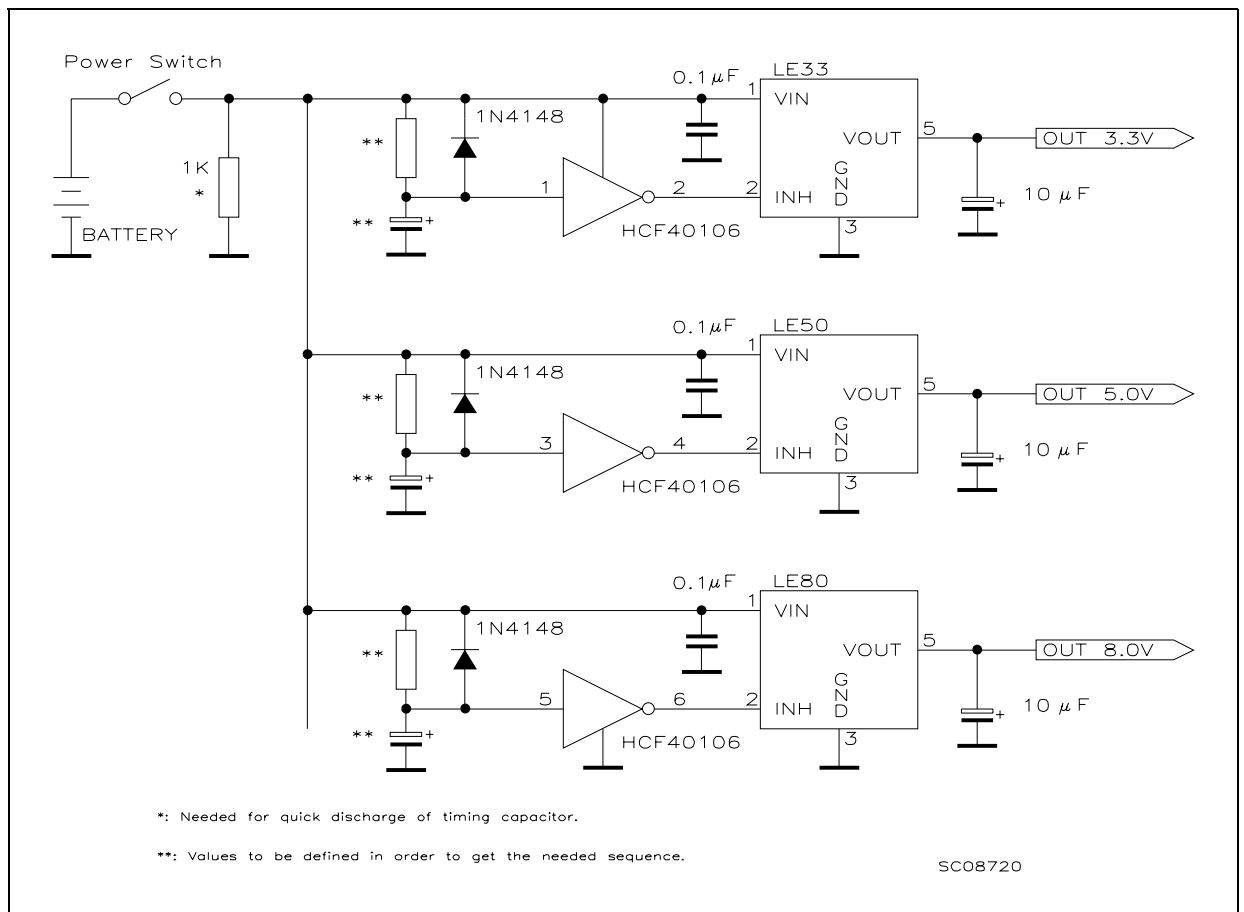


Figure 12: Multiple Supply With ON/OFF Toggle Switch

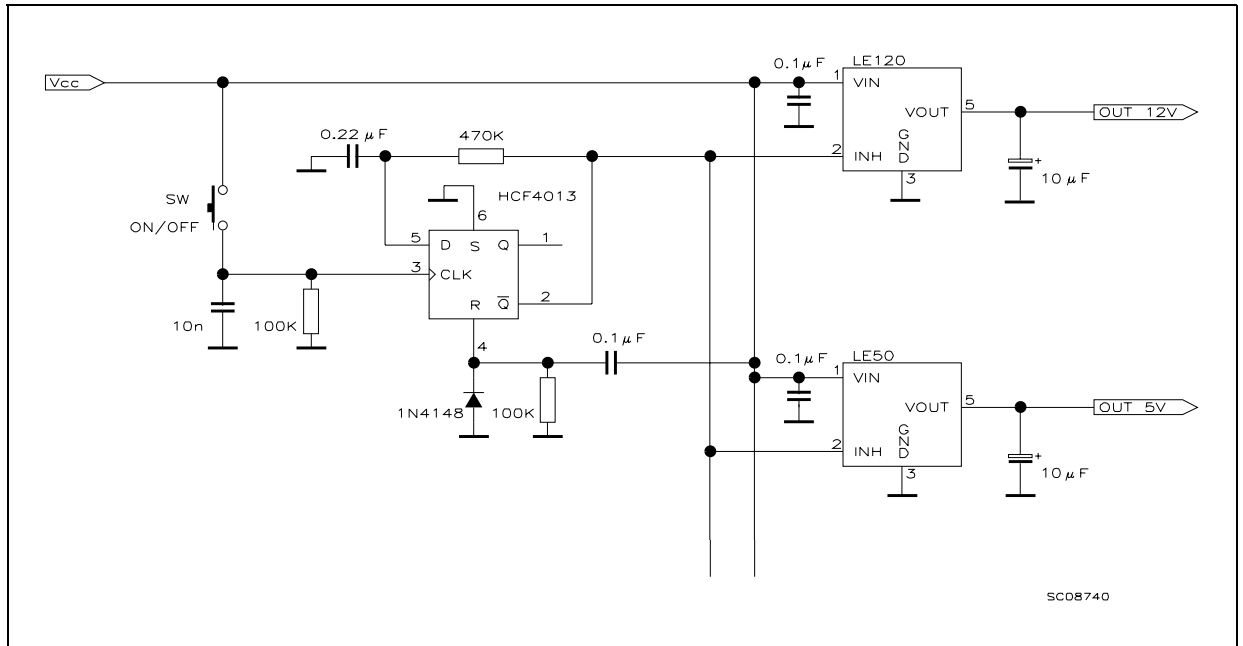
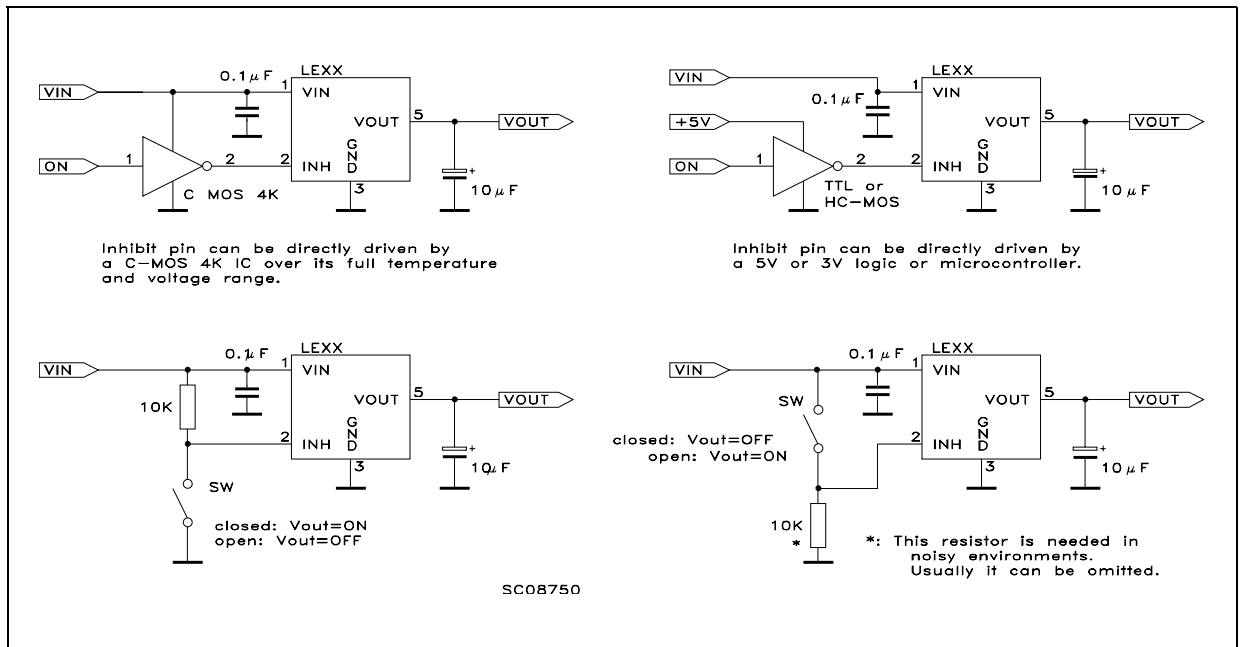
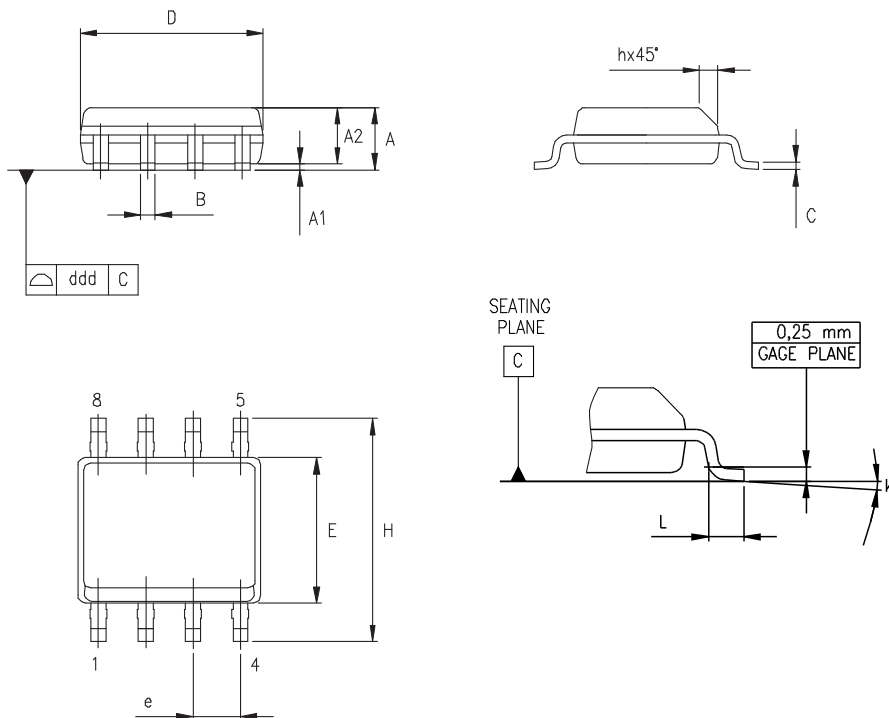


Figure 13: Basic Inhibit Functions



## SO-8 MECHANICAL DATA

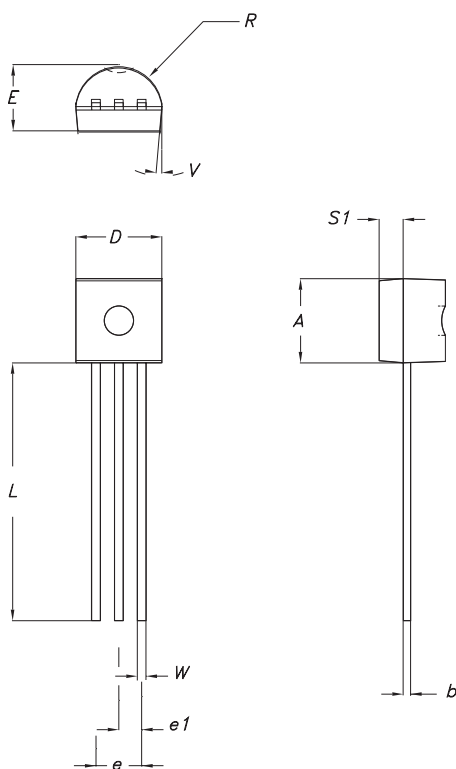
DIM.	mm.			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.04		0.010
A2	1.10		1.65	0.043		0.065
B	0.33		0.51	0.013		0.020
C	0.19		0.25	0.007		0.010
D	4.80		5.00	0.189		0.197
E	3.80		4.00	0.150		0.157
e		1.27			0.050	
H	5.80		6.20	0.228		0.244
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
k	$8^{\circ}$ (max.)					
ddd			0.1			0.04



0016023/C

## TO-92 MECHANICA DATA

DIM.	mm.			mils		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.32		4.95	170.1		194.9
b	0.36		0.51	14.2		20.1
D	4.45		4.95	175.2		194.9
E	3.30		3.94	129.9		155.1
e	2.41		2.67	94.9		105.1
e1	1.14		1.40	44.9		55.1
L	12.7		15.49	500.0		609.8
R	2.16		2.41	85.0		94.9
S1	0.92		1.52	36.2		59.8
W	0.41		0.56	16.1		22.0

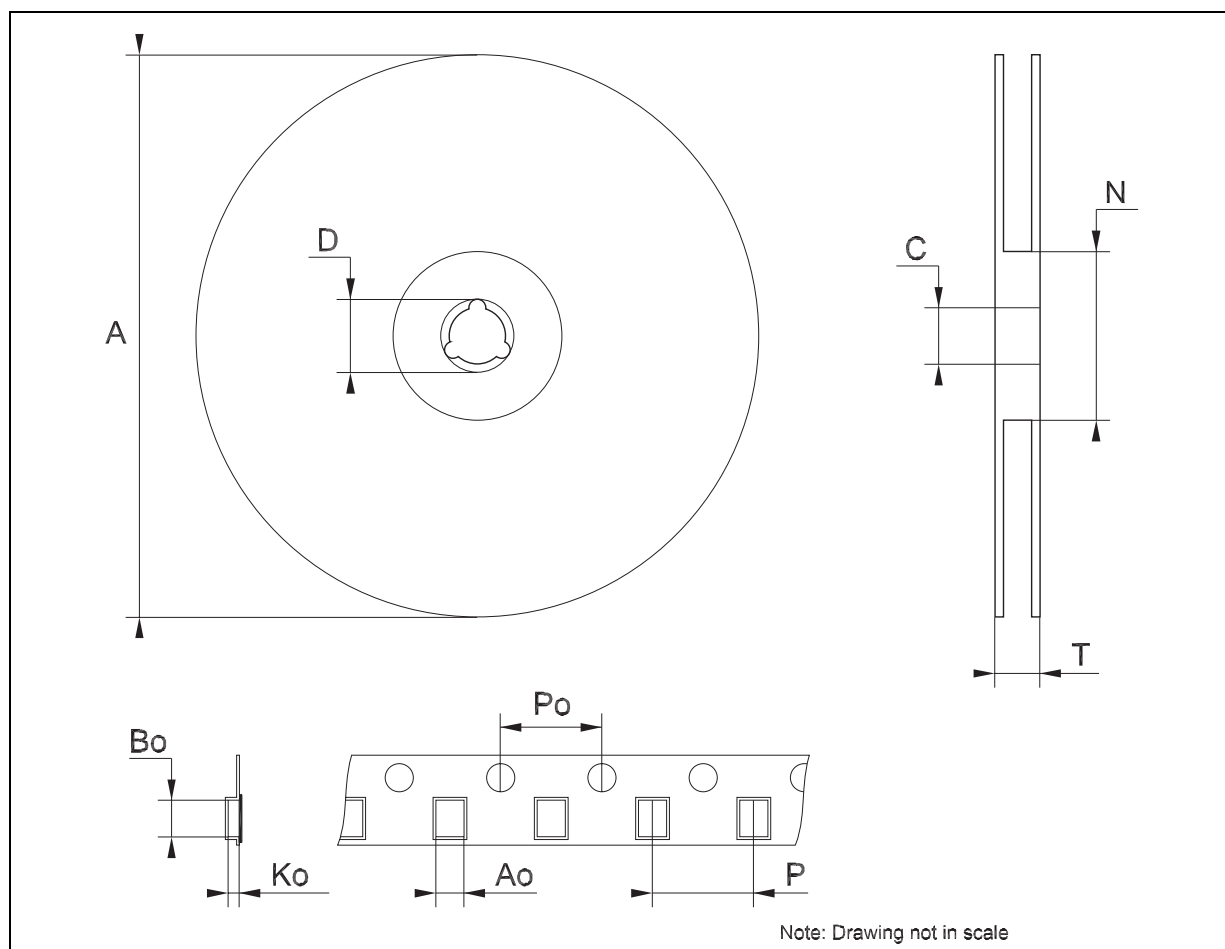


0102782/C



## Tape &amp; Reel SO-8 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A			330			12.992
C	12.8		13.2	0.504		0.519
D	20.2			0.795		
N	60			2.362		
T			22.4			0.882
Ao	8.1		8.5	0.319		0.335
Bo	5.5		5.9	0.216		0.232
Ko	2.1		2.3	0.082		0.090
Po	3.9		4.1	0.153		0.161
P	7.9		8.1	0.311		0.319



## Tape &amp; Reel for TO-92 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A1		4.80			0.189	
T		3.80			0.150	
T1		1.60			0.063	
T2		2.30			0.091	
d		0.48			0.019	
P0	12.5		12.9	0.492		0.508
P2	5.65		7.05	0.222		0.278
F1, F2	2.44	2.54	2.94	0.096	0.100	0.116
delta H		±2			0.079	
W	17.5	18.00	19.0	0.689	0.709	0.748
W0	5.7		6.3	0.224		0.248
W1	8.5		9.25	0.335		0.364
W2		0.50			0.20	
H		18.50	18.70		0.728	0.726
H0	15.50		16.50	0.610		0.650
H1		25.00			0.984	
D0	3.8		4.2	0.150		0.165
t		0.90			0.035	
L1		3			0.118	
delta P		±1			0.039	
u		50			1.968	
Φ1		360			14.173	
Φ2		30			1.181	

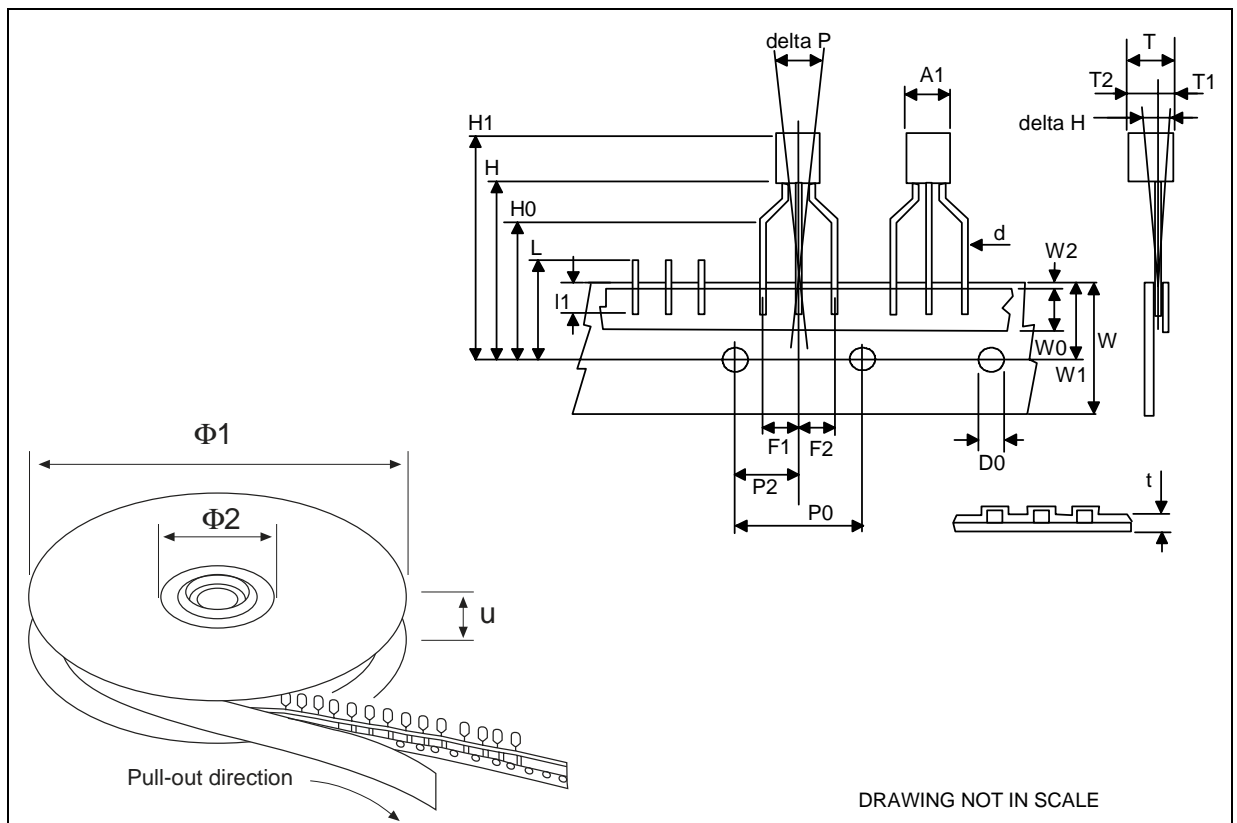


Table 36: Revision History

Date	Revision	Description of Changes
09-Jul-2004	6	I <sub>O</sub> typ. and max. are changed in tab. 24 and 25 - pag 14.
16-Mar-2005	7	Add Tape & Reel for TO-92 - Note on Table 3.

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics

All other names are the property of their respective owners

© 2005 STMicroelectronics - All Rights Reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

[www.st.com](http://www.st.com)