

VERY LOW DROP VOLTAGE REGULATORS WITH INHIBIT

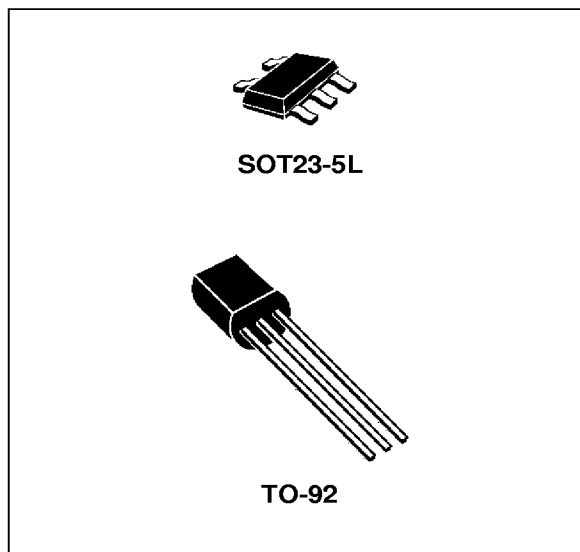
- VERY LOW DROPOUT VOLTAGE
(0.2V TYP. AT 50mA LOAD)
- VERY LOW QUIESCENT CURRENT
(TYP. 500 μ A AT 50mA LOAD)
- OUTPUT CURRENT UP TO 50 mA
- LOGIC-CONTROLLED ELECTRONIC
SHUTDOWN
- OUTPUT VOLTAGES OF 2.85; 3.0; 3.2; 3.3;
3.8; 5.0V
- INTERNAL CURRENT AND THERMAL LIMIT
- SUPPLY VOLTAGE REJECTION: 63dB (TYP)
- ONLY 1 μ F FOR STABILITY
- SELECTION AT 25 °C
- TEMPERATURE RANGE: -25 TO 125 °C
- PACKAGE AVAILABLE: SOT23-5L AND TO-92

DESCRIPTION

The LD2979 series are very Low Drop regulators available in SOT23-5L and TO-92.

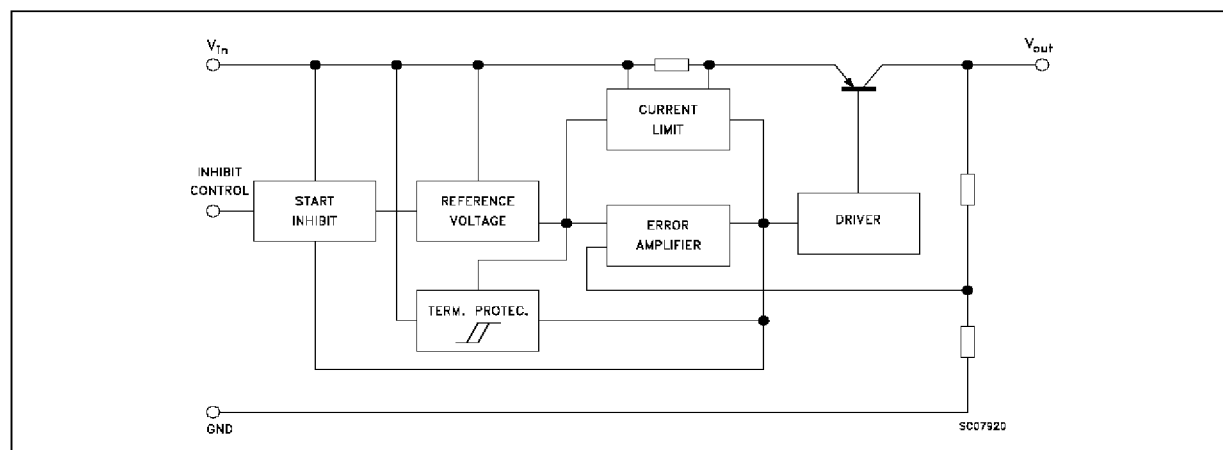
The very low drop-voltage and the very low quiescent current make them particularly suitable for low noise, low power applications and in battery powered systems.

Shutdown Logic Control function is available on five pin version (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.

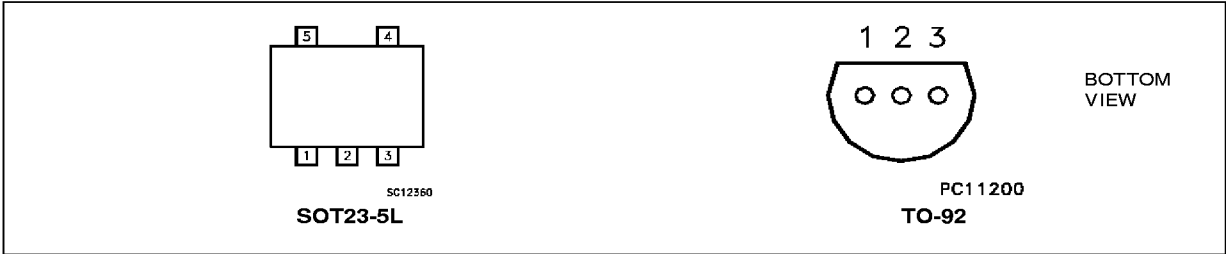
SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
V_{IN}	DC Input Voltage	16	V
I_o	Output Current	Internally limited	mA
P_{tot}	Power Dissipation	Internally limited	mW
T_{stg}	Storage Temperature Range	- 40 to 150	°C
T_{op}	Operating Junction Temperature Range	- 40 to 125	°C

CONNECTION DIAGRAM (top view)



SYMBOL	NAME AND FUNCTION	PIN NUMBER	
		SOT23-5L	TO-92
V_{IN}	Input Voltage	1	3
GND	Ground	2	2
INHIBIT	Control Switch ON/OFF	3	-
NC	Not to be connected	4	-
V_{OUT}	Output Voltage	5	1

ORDERING NUMBERS

SOT23-5L	TO-92	Output Voltage
LD2979M28	LD2979Z28	2.85 V
LD2979M30	LD2979Z30	3.0 V
LD2979M32	LD2979Z32	3.2 V
LD2979M33	LD2979Z33	3.3 V
LD2979M38	LD2979Z38	3.8 V
LD2979M50	LD2979Z50	5.0 V

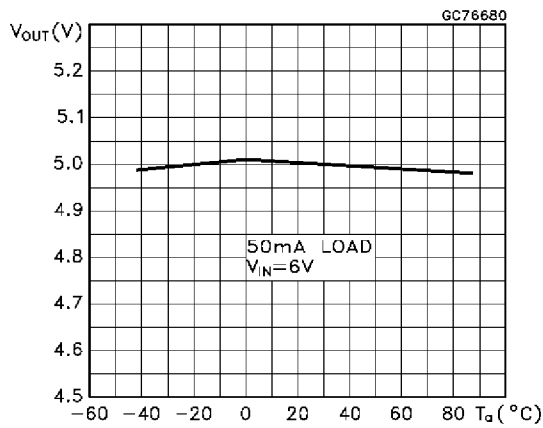
ELECTRICAL CHARACTERISTICS FOR LD2979 (refer to the test circuits, $T_a = 25\text{ }^{\circ}\text{C}$, $V_{IN} = V_{O(NOM)} + 1$, $C_O = 1\text{ }\mu\text{F}$, $I_O = 1\text{ mA}$, $V_{inh} = 2\text{ V}^{(*)}$) (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_O	Output Voltage	$V_{IN} = 3.85\text{ V}$ $1 < I_O < 50\text{ mA}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$	2.793 2.736	2.85	2.907 2.964	V V
V_O	Output Voltage	$V_{IN} = 4\text{ V}$ $1 < I_O < 50\text{ mA}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$	2.940 2.880	3	3.060 3.120	V V
V_O	Output Voltage	$V_{IN} = 4.2\text{ V}$ $1 < I_O < 50\text{ mA}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$	3.136 3.072	3.2	3.264 3.328	V V
V_O	Output Voltage	$V_{IN} = 4.3\text{ V}$ $1 < I_O < 50\text{ mA}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$	3.234 3.168	3.3	3.366 3.432	V V
V_O	Output Voltage	$V_{IN} = 4.8\text{ V}$ $1 < I_O < 50\text{ mA}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$	3.724 3.648	3.8	3.876 3.952	V V
V_O	Output Voltage	$V_{IN} = 6\text{ V}$ $1 < I_O < 50\text{ mA}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$	4.9 4.8	5	5.1 5.2	V V
I_{out}	Output Current Limit		100			mA
ΔV_O	Line Regulation	$V_{O(NOM)} + 1 < V_{IN} < 16\text{ V}$, $I_O = 1\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$			0.028 0.064	%/ V_{in}
I_d	Quiescent Current	ON MODE $I_O = 0\text{ mA}$ $I_O = 0\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$ $I_O = 50\text{ mA}$ $I_O = 50\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$		80 500	110 170 700 1300	μA μA μA μA
		OFF MODE (*) $V_{ihn} < 0.18\text{ V}$ $V_{ihn} < 0.18\text{ V}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$		0	1	μA μA
SVR	Supply Voltage Rejection	$I_O = 50\text{ mA}$, $f = 120\text{ Hz}$, $C_{out} = 10\text{ }\mu\text{F}$		63		dB
V_d	Dropout Voltage	$I_O = 0\text{ mA}$ $I_O = 0\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$ $I_O = 1\text{ mA}$ $I_O = 1\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$ $I_O = 10\text{ mA}$ $I_O = 10\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$ $I_O = 50\text{ mA}$ $I_O = 50\text{ mA}$ $-25 < T_a < 125\text{ }^{\circ}\text{C}$		6 30 100 200	12 18 60 90 200 300 400 600	mV mV mV mV mV mV mV mV
V_{il}	Control Input Logic Low	$-25 < T_a < 125\text{ }^{\circ}\text{C}$ (*)			0.18	V
V_{ih}	Control Input Logic High	$-25 < T_a < 125\text{ }^{\circ}\text{C}$ (*)	2			V
I_i	Control Input Current	$V_{inhbit} = 0\text{ V}$ (*) $V_{inhbit} = 5\text{ V}$, $-25 < T_a < 125\text{ }^{\circ}\text{C}$ (*)		5 0	15 -1	μA μA
eN	Output Noise Voltage (RMS)	$BW = 300\text{ Hz to }50\text{ KHz}$, $C_{out} = 10\text{ }\mu\text{F}$		160		μV

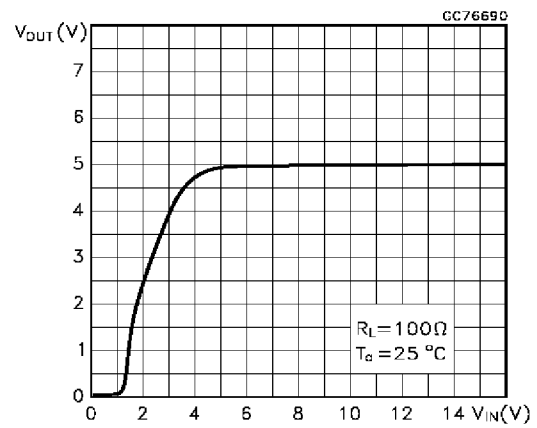
(*) Note: Only for types in SOT23-5L

TYPICAL PERFORMANCE CHARACTERISTICS (unless otherwise specified $T_a=25^\circ\text{C}$)

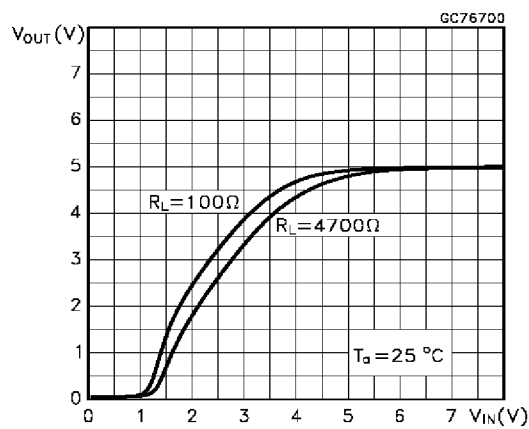
Output Voltage vs Temperature



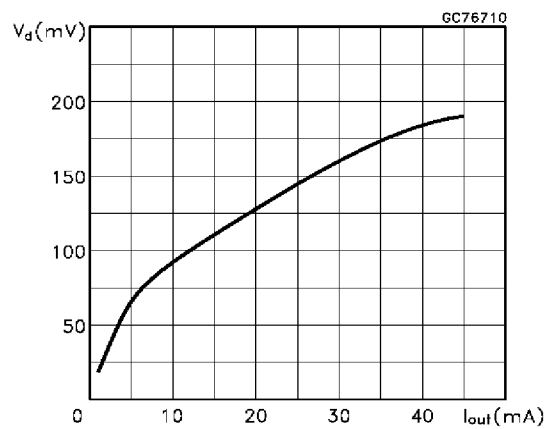
Output Voltage vs Input Voltage



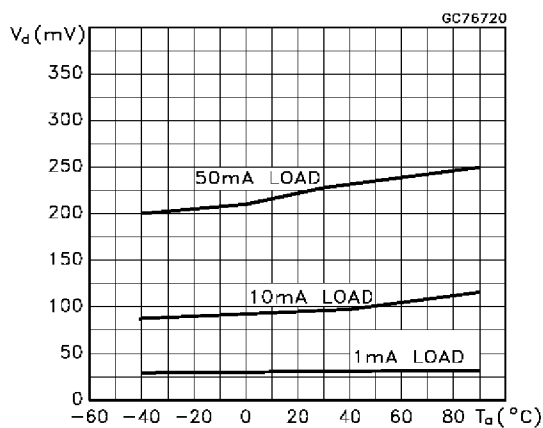
Output Voltage vs Input Voltage



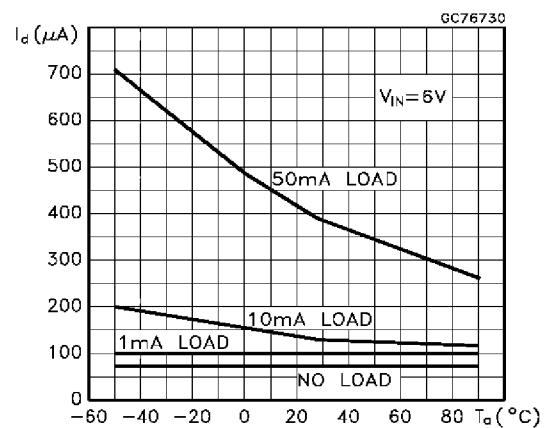
Dropout Voltage vs Output Current



Dropout Voltage vs Temperature

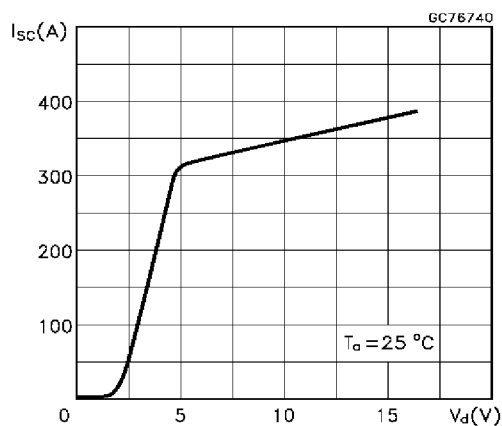


Quiescent Current vs Temperature

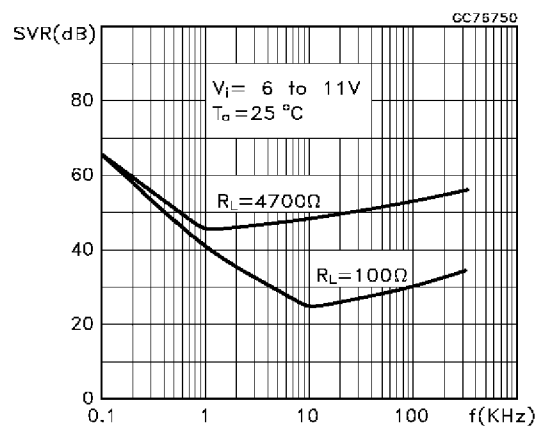


TYPICAL PERFORMANCE CHARACTERISTICS (continued)

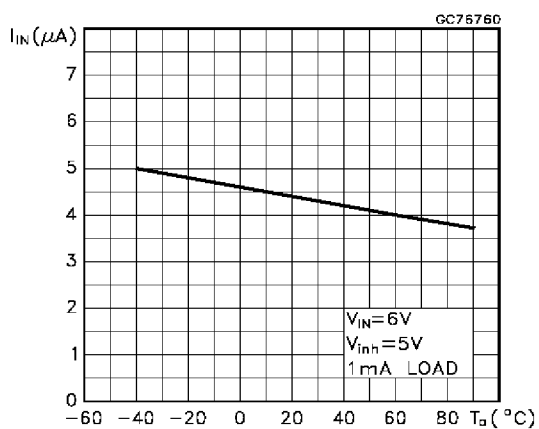
Short Circuit Current vs Dropout Voltage



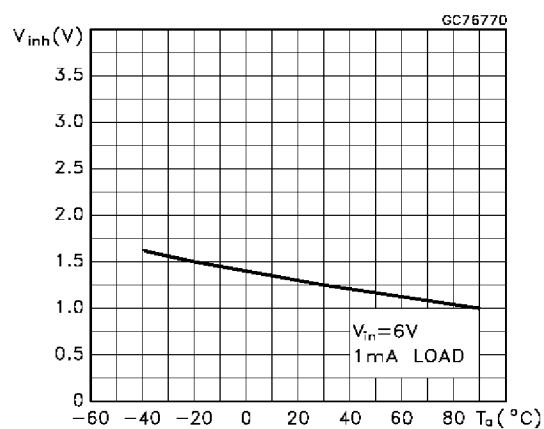
S.V.R. vs Frequency



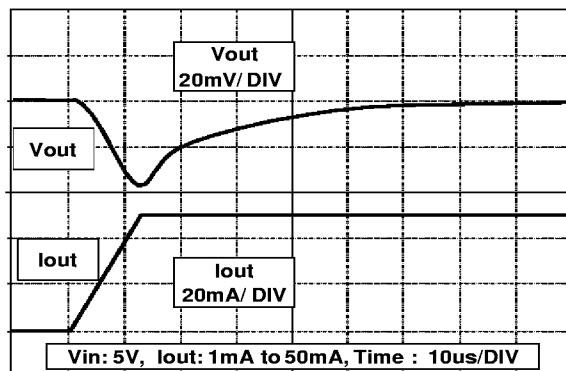
Inhibit Current vs Temperature



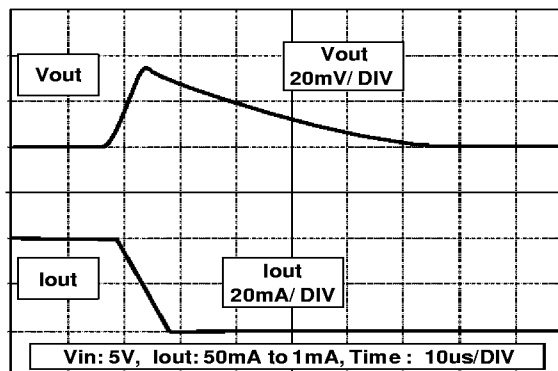
Inhibit Voltage vs Temperature



Load Transient Response

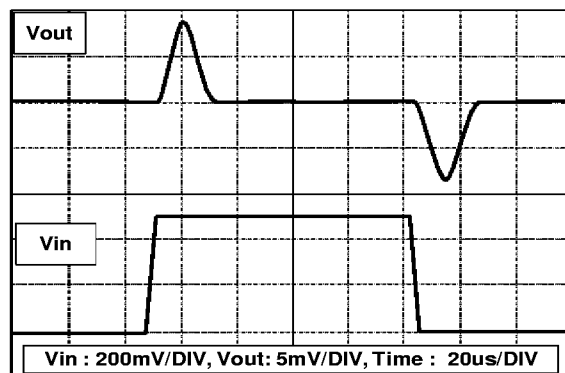
 $C_o = 10\mu\text{F}$ (ESR=1 Ω at 1KHz)

Load Transient Response

 $C_o = 10\mu\text{F}$ (ESR=1 Ω at 1KHz)

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

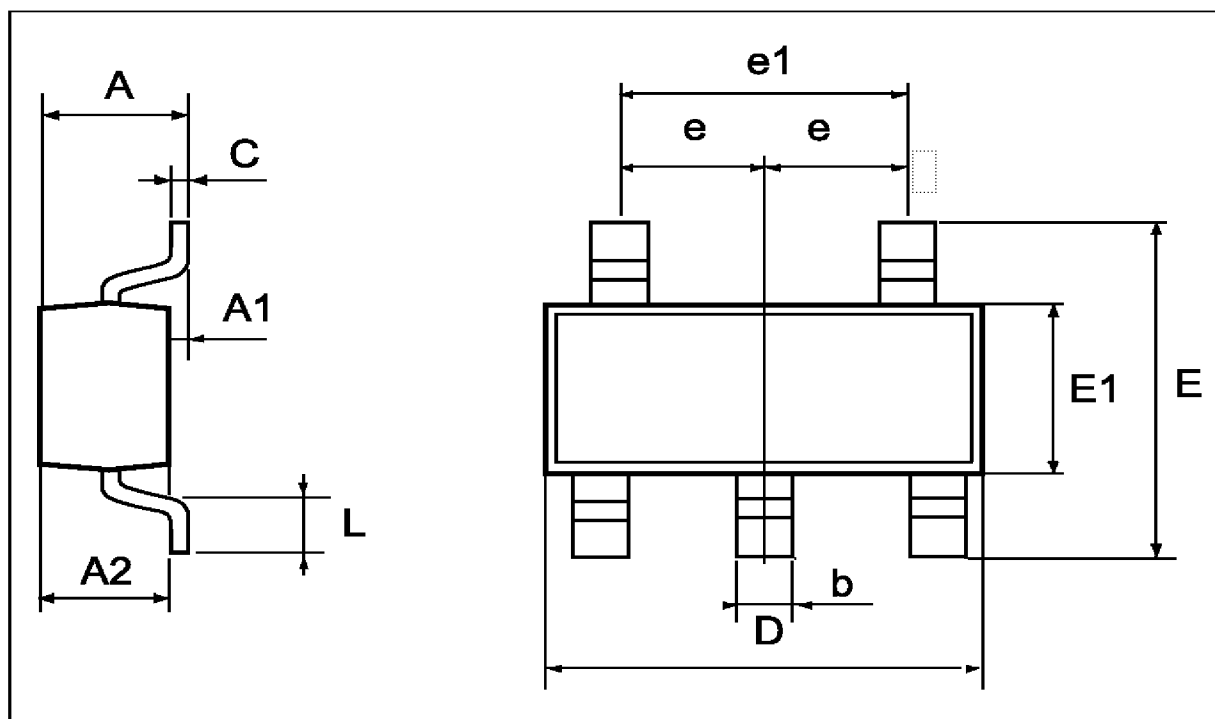
Line Transient Response



$V_{CC} = 4.75$ to $5.25V$, $I_{OUT} = 0.1A$, $C_O = 10\mu F$ (ESR=1 Ω at 1KHz)

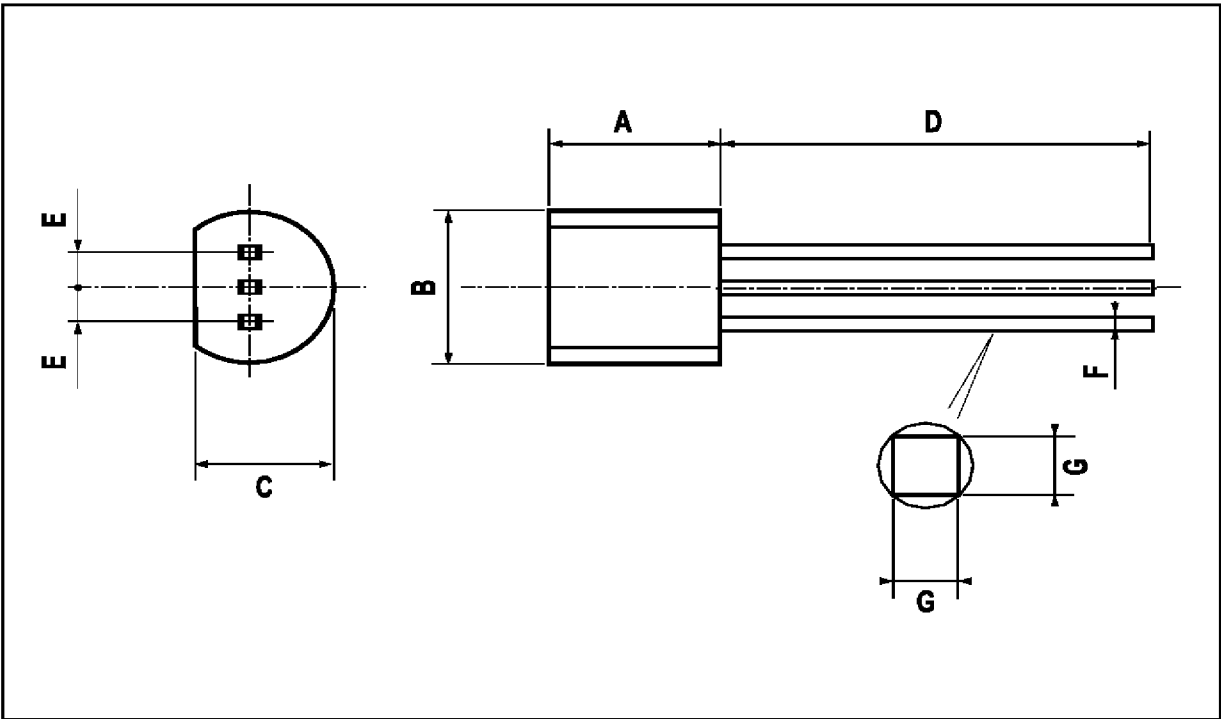
SOT23-5L MECHANICAL DATA

DIM.	mm			mils		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	0.90		1.45	35.4		57.1
A1	0.00		0.15	0.0		5.9
A2	0.90		1.30	35.4		51.2
b	0.35		0.50	13.7		19.7
C	0.09		0.20	3.5		7.8
D	2.80		3.00	110.2		118.1
E	2.60		3.00	102.3		118.1
E1	1.50		1.75	59.0		68.8
L	0.35		0.55	13.7		21.6
e		0.95			37.4	
e1		1.9			74.8	



TO-92 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.58		5.33	0.180		0.210
B	4.45		5.2	0.175		0.204
C	3.2		4.2	0.126		0.165
D	12.7			0.500		
E		1.27			0.050	
F	0.4		0.51	0.016		0.020
G	0.35			0.14		



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics 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 SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1998 SGS-THOMSON Microelectronics - Printed in Italy - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES

Australia - Brazil - Canada - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands - Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A

