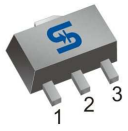
TS79L00 Series

3-Terminal 100mA Negative Voltage Regulator

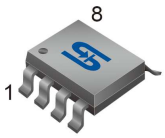
TO-92

SOT-89



Pin Definition:
1. Ground
2. Input
3. Output

SOP-8



Pin Definition:

1. Output	8. N/C
2. Input	7. Input
3. Input	6. Input
4. N/C	5. Ground

General Description

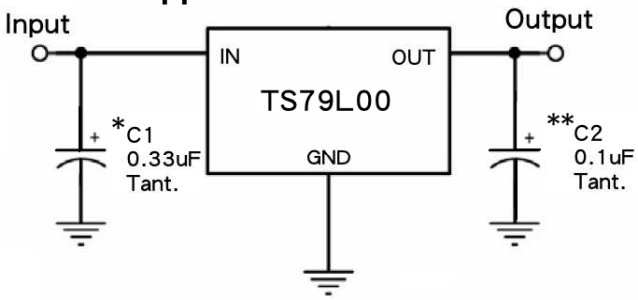
The TS79L00 Series of negative voltage regulators are inexpensive, easy-to-use devices suitable for a multitude of applications that require a regulated supply of up to 100mA. Like their higher power TS7900 and TS79M00 Series cousins, these regulators feature internal current limiting and thermal shutdown making them remarkably rugged. No external components are required with the TS79L00 devices in many applications.

These devices offer a substantial performance advantage over the traditional zener diode-resistor combination, as output impedance and quiescent current are substantially reduced.

Features

- Output Voltage Range -5V, -9V, -12V
- Output current up to 100mA
- Internal thermal overload protection
- Internal short-circuit current limiting
- Output transistor safe-area compensation
- Output voltage offered in 4% tolerance

Standard Application Circuit



A common ground is required between the input and the output voltages. The input voltage must remain typically 2.0V above the output voltage even during the low point on the Input ripple voltage.

XX = these two digits of the type number indicate voltage.

* = Cin is required if regulator is located an appreciable distance from power supply filter.

** = Co is not needed for stability; however, it does improve transient response.

Ordering Information

Part No.	Package	Packing
TS79L**xx**CT B0	TO-92	1Kpcs / Bulk
TS79L**xx**CT A3	TO-92	2Kpcs / Ammo
TS79L**xx**CY RM	SOT-89	1Kpcs / 7” Reel
TS79L**xx**CS RL	SOP-8	2.5Kpcs / 13” Reel

Note: Where **xx** denote voltage option

05=-5V, **09**=-9V, **12**=-12V

Absolute Maximum Rating (Ta = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Input Voltage		V_{IN}	-35	V
Power Dissipation		P_D	Internal Limited	W
Operating Temperature range		T_{OPR}	0~+125	°C
Junction Temperature		T_J	+150	°C
Storage Temperature Range		T_{STG}	-65~+150	°C
Thermal Resistance - Junction to Case	TO-92	$R\Theta_{JC}$	--	°C/W
	SOT-89		18	
	SOP-8		20	
Thermal Resistance - Junction to Ambient	TO-92	$R\Theta_{JA}$	210	°C/W
	SOT-89		--	
	SOP-8		60*	

Note: * Considering 6cm2 of copper board heat-sink

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TS79L05 Electrical Characteristics

(Vin=-10V, Iout=40mA, 0°C≤Tj≤125°C, Cin=0.33uF, Cout=0.1uF; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output voltage	Vout	Tj=25°C		-4.80	-5	-5.20	V
		-7.5V≤Vin≤-20V, 5mA≤Iout≤100mA		-4.75	-5	-5.25	
Line Regulation	REGline	Tj=25°C	-7.5V≤Vin≤-20V	--	50	150	mV
Load Regulation	REGload	Tj=25°C	5mA≤Iout≤100mA	--	20	60	
			5mA≤Iout≤40mA	--	10	30	
Quiescent Current	Iq	Iout=0, Tj=25°C		--	3	6	mA
Quiescent Current Change	ΔIq	-7.5V≤Vin≤--25V		--	--	1.5	
		5mA≤Iout≤40mA		--	--	0.1	
Output Noise Voltage	Vn	10Hz≤f≤100KHz, Tj=25°C		--	40	--	μV
Ripple Rejection Ratio	RR	f=120Hz, -8V≤Vin≤-18V		41	49	--	dB
Voltage Drop	Vdrop	Iout=100mA, Tj=25°C		--	1.7	--	V
Peak Output Current	Io peak	Tj=25°C		--	0.15	--	A
Temperature Coefficient of Output Voltage	ΔVout/ ΔTj	Iout=5mA, 0°C≤Tj≤125°C		--	-0.65	--	mV/°C

TS79L09 Electrical Characteristics

Vin=-15V, Iout=40mA, 0°C≤Tj≤125°C, Cin=0.33uF, Cout=0.1uF; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output voltage	Vout	Tj=25°C		-8.65	-9	-9.36	V
		-11.5V≤Vin≤-24V, 5mA≤Iout≤100mA		-8.57	-9	-9.45	
Line Regulation	REGline	Tj=25°C	-11.5V≤Vin≤-24V	--	90	180	mV
Load Regulation	REGload	Tj=25°C	5mA≤Iout≤100mA	--	30	90	
			5mA≤Iout≤40mA	--	15	45	
Quiescent Current	Iq	Iout=0, Tj=25°C		--	3	6	mA
Quiescent Current Change	ΔIq	=11V≤Vin≤=23V		--	--	1.5	
		5mA≤Iout≤40mA		--	--	0.1	
Output Noise Voltage	Vn	10Hz≤f≤100KHz, Tj=25°C		--	60	--	μV
Ripple Rejection Ratio	RR	f=120Hz, =13V≤Vin≤=24V		37	57	--	dB
Voltage Drop	Vdrop	Iout=100mA, Tj=25°C		--	1.7	--	V
Peak Output Current	Io peak	Tj=25°C		--	0.15	--	A
Temperature Coefficient of Output Voltage	ΔVout/ ΔTj	Iout=5mA, 0°C≤Tj≤125°C		--	-0.9	--	mV/°C

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

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TS79L12 Electrical Characteristics

Vin=-19V, Iout=40mA, 0°C≤Tj≤125°C, Cin=0.33uF, Cout=0.1uF; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output voltage	Vout	Tj=25°C		-11.53	-12	-12.48	V
		-14.5V≤Vin≤-27V, 5mA≤Iout≤100mA		-11.42	-12	-12.60	
Line Regulation	REGline	Tj=25°C	-14.5V≤Vin≤-27V	--	120	240	mV
Load Regulation	REGload	Tj=25°C	5mA≤Iout≤100mA	--	40	120	
			5mA≤Iout≤40mA	--	20	60	
Quiescent Current	Iq	Iout=0, Tj=25°C		--	3	6.5	mA
Quiescent Current Change	ΔIq	-16V≤Vin≤-27V		--	--	1.5	
		5mA≤Iout≤40mA		--	--	0.1	
Output Noise Voltage	Vn	10Hz≤f≤100KHz, Tj=25°C		--	80	--	μV
Ripple Rejection Ratio	RR	f=120Hz, -11V≤Vin≤-23V		37	42	--	dB
Voltage Drop	Vdrop	Iout=100mA, Tj=25°C		--	1.7	--	V
Peak Output Current	Io peak	Tj=25°C		--	0.15	--	A
Temperature Coefficient of Output Voltage	ΔVout/ ΔTj	Iout=5mA, 0°C≤Tj≤125°C		--	-1.0	--	mV/°C

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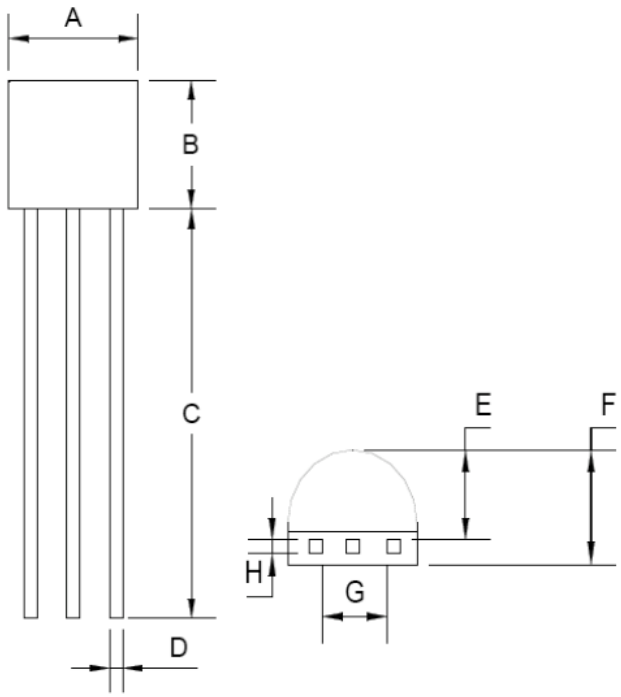
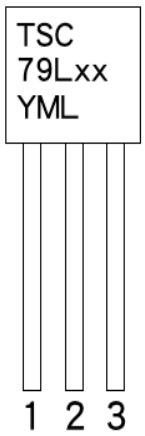
TO-92 Mechanical Drawing



TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	14.30(typ)		0.563(typ)	
D	0.43	0.49	0.017	0.019
E	2.19	2.81	0.086	0.111
F	3.30	3.70	0.130	0.146
G	2.42	2.66	0.095	0.105
H	0.37	0.43	0.015	0.017

Marking Diagram



XX = Output Voltage
(**05**=-5V, **09**=-9V, **12**=-12V)
Y = Year Code
M = Month Code
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apl, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
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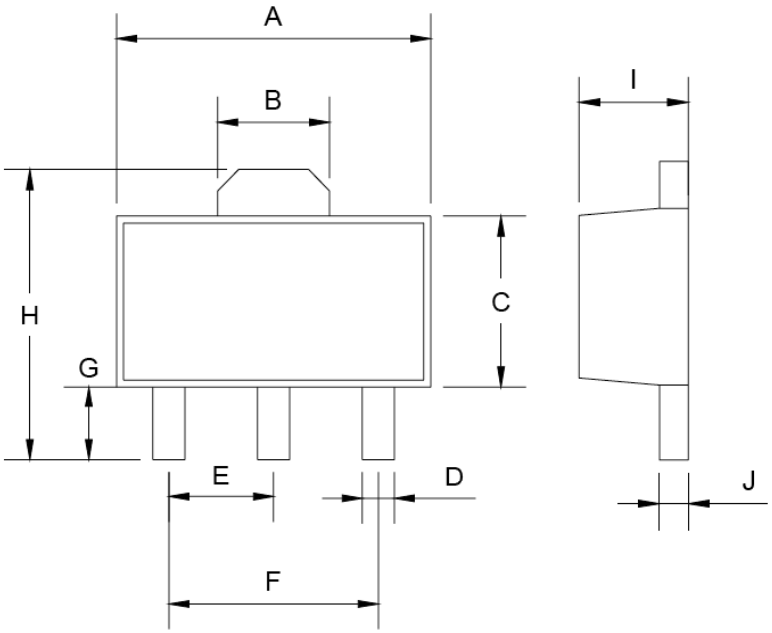
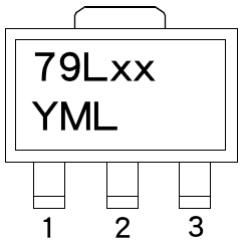
SOT-89 Mechanical Drawing



SOT-89 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.40	4.60	0.173	0.181
B	1.50	1.7	0.059	0.070
C	2.30	2.60	0.090	0.102
D	0.40	0.52	0.016	0.020
E	1.50	1.50	0.059	0.059
F	3.00	3.00	0.118	0.118
G	0.89	1.20	0.035	0.047
H	4.05	4.25	0.159	0.167
I	1.4	1.6	0.055	0.068
J	0.35	0.44	0.014	0.017

Marking Diagram



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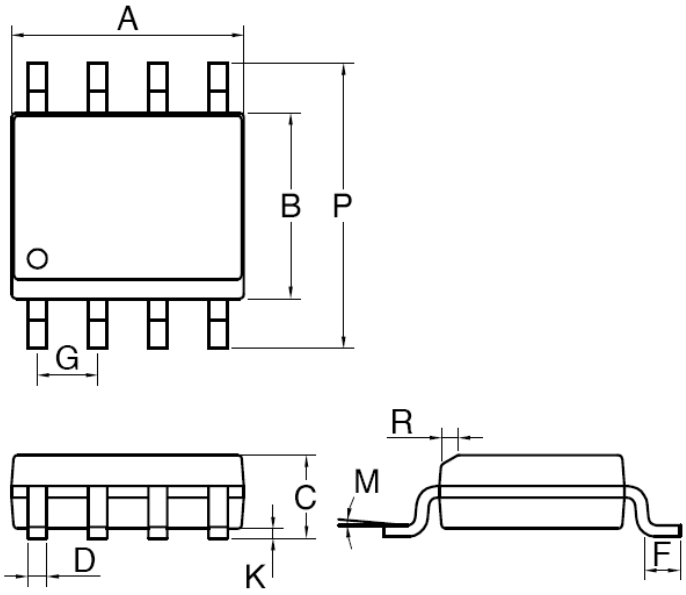
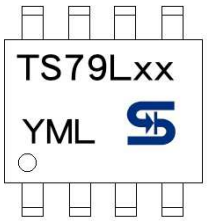
SOP-8 Mechanical Drawing



SOP-8 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	4.80	5.00	0.189	0.196
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27BSC		0.05BSC	
K	0.10	0.25	0.004	0.009
M	0º	7º	0º	7º
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

Marking Diagram



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