

## 3-Terminal 100mA Negative Voltage Regulator

### DESCRIPTION

The TS79L05CY 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 TS7905 and TS79M05 Series cousins, these regulators feature internal current limiting and thermal shutdown making them remarkably rugged. No external components are required with the TS79L05CY 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
- 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
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATION

- Switching power supply
- Home appliance



**SOT-89**

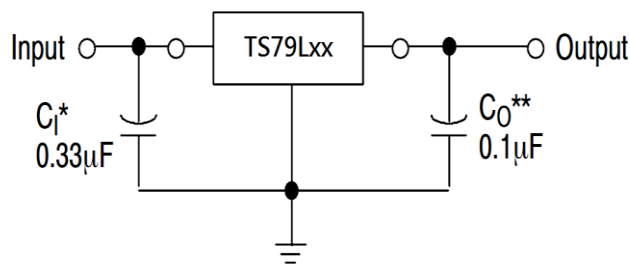


**Pin Definition:**

1. Ground
2. Input
3. Output

**Notes:** MSL 3 (Moisture Sensitivity Level) per J-STD-020

### 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.

\* =  $C_{in}$  is required if regulator is located an appreciable distance from power supply filter.

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

<b>ABSOLUTE MAXIMUM RATINGS</b>			
PARAMETER	SYMBOL	LIMIT	UNIT
DC Input Voltage	$V_{IN}$	-35	V
Power Dissipation	$P_D$	Internally Limited	W
Operating Temperature range	$T_{OPR}$	0 ~ +125	°C
Operating Junction Temperature Range	$T_J$	0 ~ +150	°C
Storage Temperature Range	$T_{STG}$	-65 ~ +150	°C

<b>THERMAL PERFORMANCE</b>			
PARAMETER	SYMBOL	TYP	UNIT
Junction to Case Thermal Resistance	$R_{\theta JC}$	18	°C/W

**Notes:** Considering 6cm<sup>2</sup> of copper board heat-sink

<b>ELECTRICAL SPECIFICATIONS TS79L05CY</b>						
(V <sub>IN</sub> =-10V, I <sub>OUT</sub> =40mA, 0°C≤T <sub>J</sub> ≤125°C, C <sub>IN</sub> =0.33μF, C <sub>OUT</sub> =0.1μF, unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Output voltage	T <sub>J</sub> =25°C	V <sub>OUT</sub>	-4.80	-5	-5.20	V
	-7.5V≤V <sub>IN</sub> ≤-20V, 5mA≤I <sub>OUT</sub> ≤100mA		-4.75	-5	-5.25	V
Line Regulation	T <sub>J</sub> =25°C    -7.5V≤V <sub>IN</sub> ≤-20V	REG <sub>LINE</sub>	--	50	150	mV
Load Regulation	T <sub>J</sub> =25°C    5mA≤I <sub>OUT</sub> ≤100mA	REG <sub>LOAD</sub>	--	20	60	mV
			5mA≤I <sub>OUT</sub> ≤40mA	--	10	
Quiescent Current	I <sub>OUT</sub> =0, T <sub>J</sub> =25°C	I <sub>Q</sub>	--	3	6	mA
Quiescent Current Change	-7.5V≤V <sub>IN</sub> ≤-25V	ΔI <sub>Q</sub>	--	--	1.5	mA
	5mA≤I <sub>OUT</sub> ≤40mA		--	--	0.1	
Output Noise Voltage	10Hz≤f≤100kHz, T <sub>J</sub> =25°C	V <sub>N</sub>	--	40	--	μV
Ripple Rejection Ratio	f=120Hz, -8V≤V <sub>IN</sub> ≤-18V	RR	41	49	--	dB
Voltage Drop	I <sub>OUT</sub> =100mA, T <sub>J</sub> =25°C	V <sub>DROP</sub>	--	1.7	--	V
Peak Output Current	T <sub>J</sub> =25°C	I <sub>o peak</sub>	--	0.15	--	A
Temperature Coefficient of Output Voltage	I <sub>OUT</sub> =5mA, 0°C≤T <sub>J</sub> ≤125°C	ΔV <sub>OUT</sub> /ΔT <sub>J</sub>	--	-0.65	--	mV/°C

**Note:**

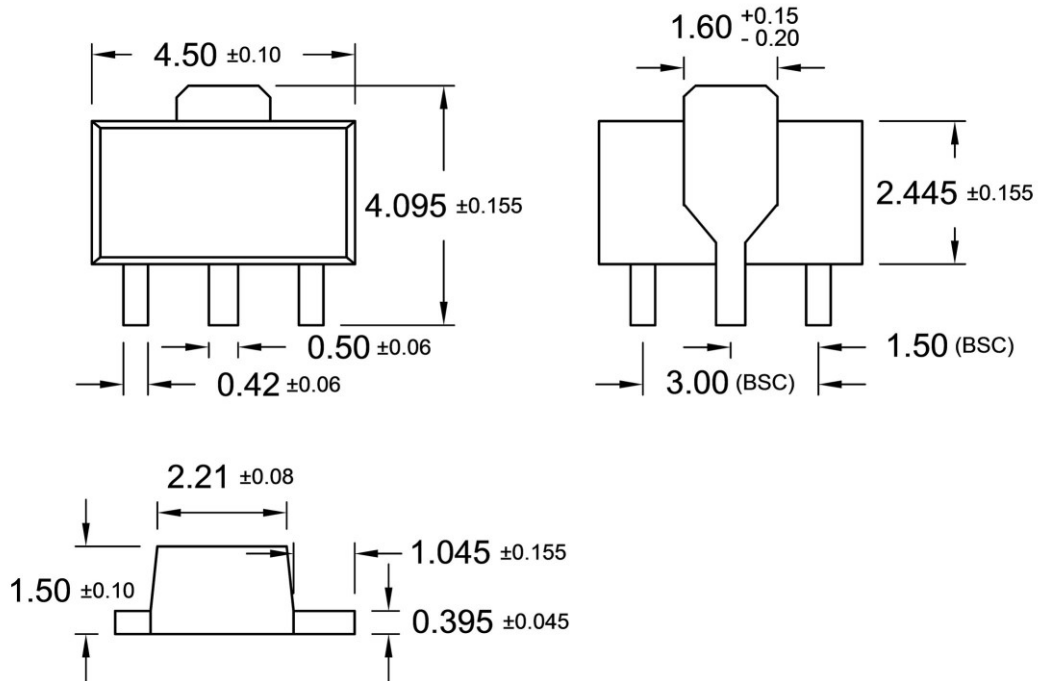
1. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately
2. This specification applies only for DC power dissipation permitted by absolute maximum ratings.

## ORDERING INFORMATION

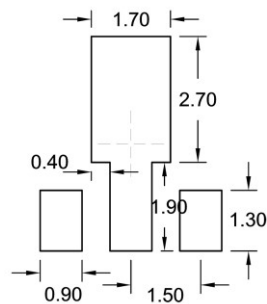
ORDERING CODE	PACKAGE	PACKING
TS79L05CY RMG	SOT-89	1,000pcs / 7" Reel

**PACKAGE OUTLINE DIMENSIONS** (Unit: Millimeters)

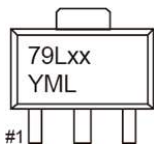
**SOT-89**



**SUGGESTED PAD LAYOUT** (Unit: Millimeters)



**MARKING DIAGRAM**



- XX** = Output Voltage (**05**=-5V)
- Y** = Year Code
- M** = Month Code for Halogen Free Product
  - O** =Jan    **P** =Feb    **Q** =Mar    **R** =Apr
  - S** =May    **T** =Jun    **U** =Jul    **V** =Aug
  - W** =Sep    **X** =Oct    **Y** =Nov    **Z** =Dec
- L** = Lot Code

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