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

Pb-Free RoHS COMPLIANT HALOGEN FREE

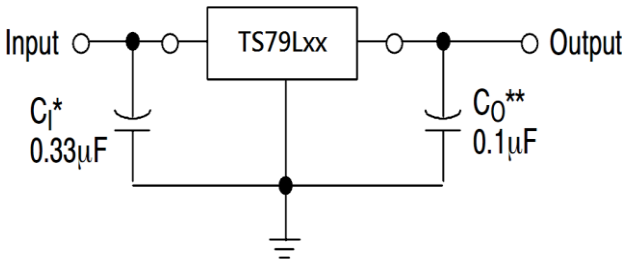
SOT-89



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.
* = 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.

ABSOLUTE MAXIMUM RATINGS

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

THERMAL PERFORMANCE

PARAMETER	SYMBOL	TYP	UNIT
Junction to Case Thermal Resistance	$R_{\Theta JC}$	18	°C/W

Notes: Considering 6cm^2 of copper board heat-sink

ELECTRICAL SPECIFICATIONS TS79L05CY

(V_{IN}=-10V, I_{OUT}=40mA, 0°C≤T_J≤125°C, C_{IN}=0.33μF, C_{OUT}=0.1μF, unless otherwise noted)

PARAMETER	CONDITIONS		SYMBOL	MIN	TYP	MAX	UNIT
Output voltage	T_J=25°C		V_{OUT}	-4.80	-5	-5.20	V
	-7.5V≤V_{IN}≤-20V, 5mA≤I_{OUT}≤100mA			-4.75	-5	-5.25	V
Line Regulation	T_J=25°C	-7.5V≤Vin≤-20V	REG_{LINE}	--	50	150	mV
Load Regulation	T_J=25°C	5mA≤ I_{OUT}≤100mA	REG_{LOAD}	--	20	60	mV
		5mA≤I_{OUT}≤40mA		--	10	30	
Quiescent Current	I_{OUT}=0, T_J=25°C		I_Q	--	3	6	mA
Quiescent Current Change	-7.5V≤Vin≤-25V		ΔI_Q	--	--	1.5	mA
	5mA≤I_{OUT}≤40mA			--	--	0.1	
Output Noise Voltage	10Hz≤f≤100kHz, T_J=25°C		V_N	--	40	--	μV
Ripple Rejection Ratio	f=120Hz, -8V≤Vin≤-18V		RR	41	49	--	dB
Voltage Drop	I_{OUT}=100mA, T_J=25°C		V_{DROP}	--	1.7	--	V
Peak Output Current	T_J=25°C		Io peak	--	0.15	--	A
Temperature Coefficient of Output Voltage	I_{OUT}=5mA, 0°C≤T_J≤125°C		$\Delta V_{OUT}/ \Delta T_J$	--	-0.65	--	mV/ °C

Note:

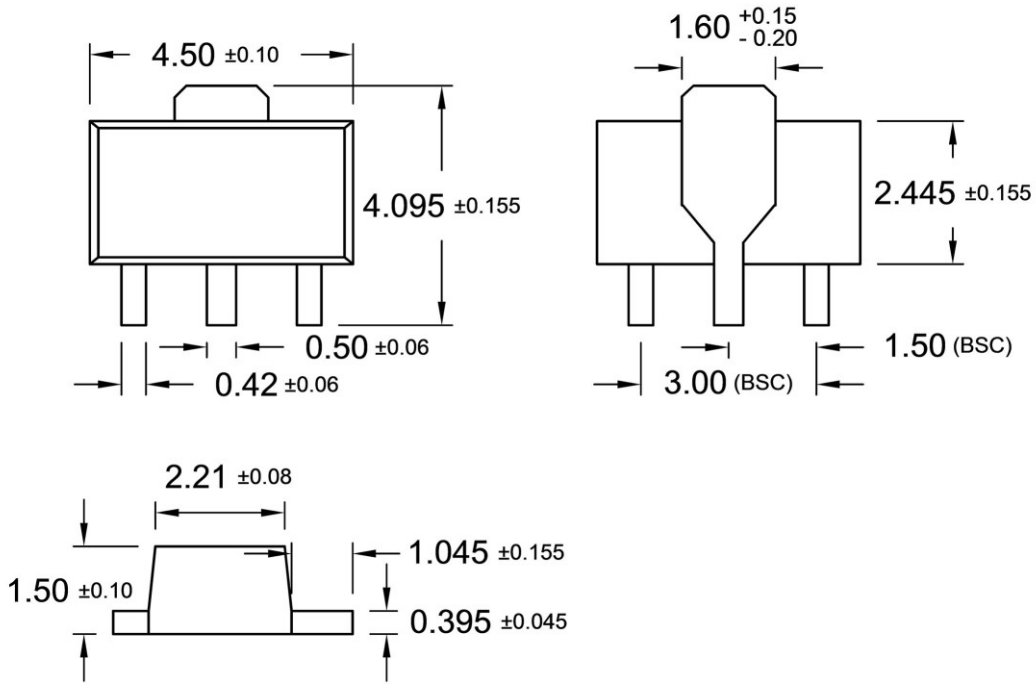
1. Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately
2. This specification applies only for DC power dissipation permitted by absolute maximum ratings.

ORDERING INFORMATION

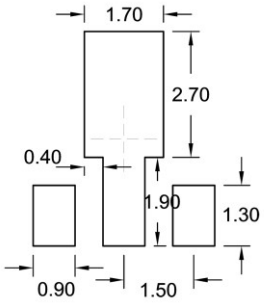
ORDERING CODE	PACKAGE	PACKING
TS79L05CY RMG	SOT-89	1,000pcs / 7" Reel

PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

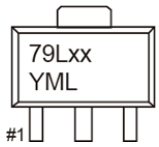
SOT-89



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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