

LINEAR VOLTAGE REGULATOR THREE TERMINAL-POSITIVE-ADJUSTABLE 7.5 Amp, Low Dropout Voltage LCC-3P (SMD Hermetic Package)

Features:

- **Three-Terminal Adjustable**
- **Operates Down to 1V Dropout**
- **Guaranteed Dropout Voltage at Multiple Current Levels**
- **On-Chip Thermal Limiting**
- **Line Regulation: 0.035%**
- **Load Regulation: 0.20%**
- **Fixed Versions Available**
- **Electrically Equivalent to LT®1083**

Description: This positive adjustable regulator is designed to provide 7.5A with high efficiency using simple 3-terminal configurations. All internal circuitry is designed to operate down to 1V input-to-output differential and the dropout voltage is fully specified as a function of load current. Dropout is guaranteed at a maximum of 1.5V at maximum output current, decreasing at lower load currents. Available in fixed voltages.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal limiting provides protection against any combination of overload that would create excessive junction temperatures.

Applications:

- **High Efficiency Linear Regulators**
- **Post Regulator for Switching Supplies**
- **Constant Current Regulators**

ELECTRICAL CHARACTERISTICS $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$ (UNLESS OTHERWISE SPECIFIED)

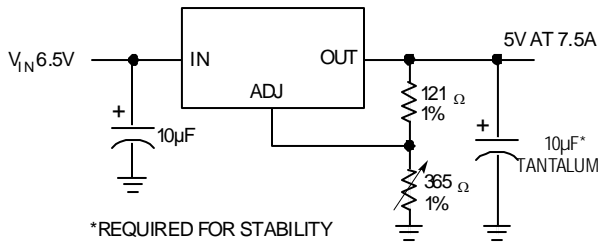
PARAMETER	SYMBOL	Test Conditions	Min	TYP	Max.	Units
Input Voltage	V _{in}			-	35	V
Reference Voltage	V _{ref}	1.5V < (V _{in} -V _{out}) ≤ 25V, I _{out} ≤ 7.5A	1.225	1.250	1.270	V
Line Regulation Note(1,2)	ΔV _{out} /ΔV _{in}	1.50V < V _{in} < 15V, I _{out} = 10mA		0.035	0.20	%
Line Regulation Note(1,2)	ΔV _{out} /ΔV _{in}	(V _{in} -V _{out}) = 15V to 30V 10mA < I _{out} < I _{full load}		0.60	1.00	%
Load Regulation Note(1,2,3)	ΔV _{out} /ΔI _{out}	(V _{in} -V _{out}) = 3V 10mA < I _{out} < I _{full load}		0.50	1.00	%
Dropout Voltage	V _{D0}	ΔV _{ref} = 1%, I _{out} = 7.5A		1.30	1.50	V
Current Limit	I _{LIM}	(V _{in} -V _{out}) = 5V	8.00	9.50	-	A
Current Limit	I _{LIM}	(V _{in} -V _{out}) = 25V	0.40	1.00	-	A
Adjust Pin	I _{adj}	Typical value is at T _j = 25°C		55	120	μA
Adjust Pin Current Change	ΔI _{adj}	1.5V < (V _{in} -V _{out}) < 25V, 10mA < I _{out} < I _{full load}		0.2	5	μA
Minimum Load Current	I _{MIN}	(V _{in} -V _{out}) = 25V		5	10	mA
Quiescent Current	I _q	V _{in} = 5.0V		8	13	mA
Ripple Rejection	ΔV _{in} /ΔV _{out}	f = 120Hz, C _{adj} = 25μF, C _{out} = 25μF(T _{ant.}), (V _{in} -V _{out}) = 3V, I _{out} = 7.5.0A	60	72	-	dB
Thermal Regulation		T _A = °C, 30ms Pulse		0.004	0.02	%/W
Temperature Stability	ΔV _{out} /ΔT	-55°C < T _j < +125°C		0.50		%
Long Term Stability	ΔV _{out} /ΔT	T _A = +125°C, t = 1000hrs		0.30	1.0	%
RMS Output Noise	(% of V _{out})	T _A = 25°C, 10Hz < f < 10kHz		0.003	-	%
Thermal Resistance (J-C)	T _{jc}	Surface mount LCC-3P package		-	1.43	°C/W

Notes:

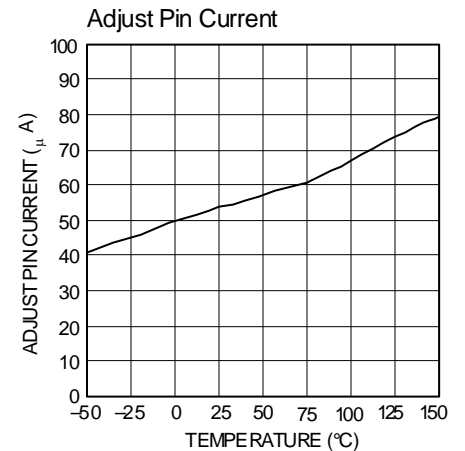
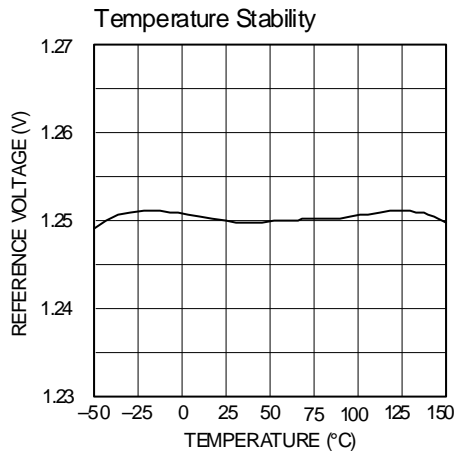
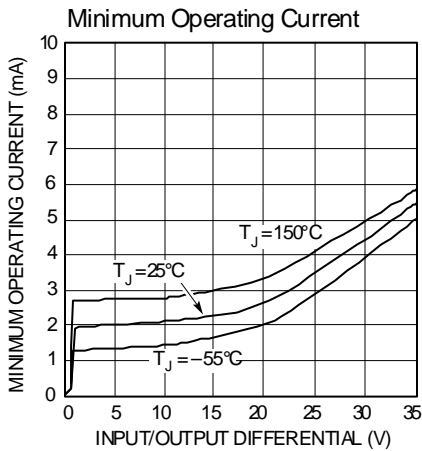
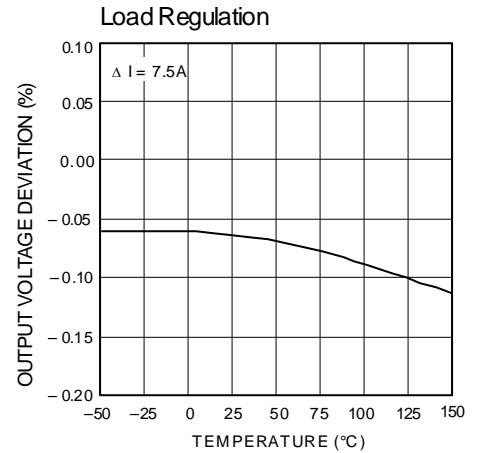
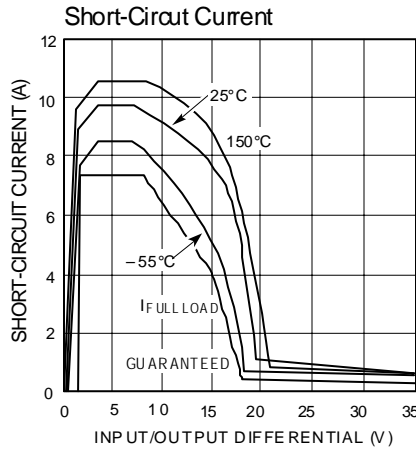
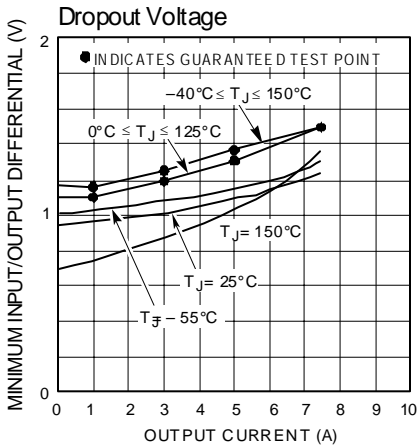
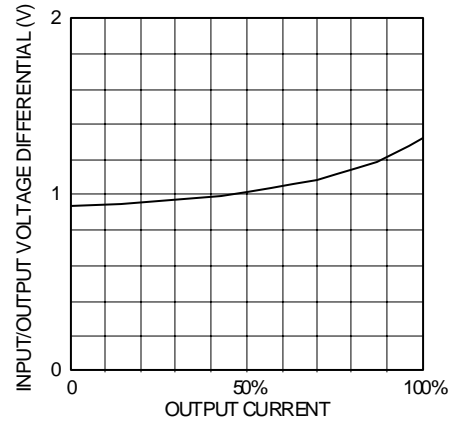
- 1) See thermal regulation specification for changes in output voltage due to heating effects. Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.
- 2) Line and load regulation is guaranteed up to the maximum power dissipation in the package. Input/output differential and the output current determine power dissipation. Guaranteed maximum output power will not be available over the full / input/output voltage range.
- 3) I_{Full} Load is defined as the maximum value of output load current as a function of the input-to-output voltage. I_{Full} Load is equal to 7.5 Amps.

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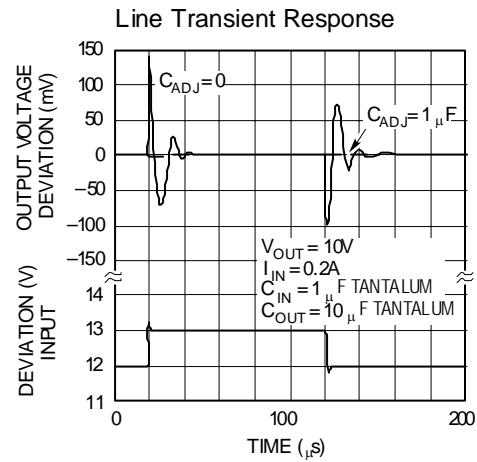
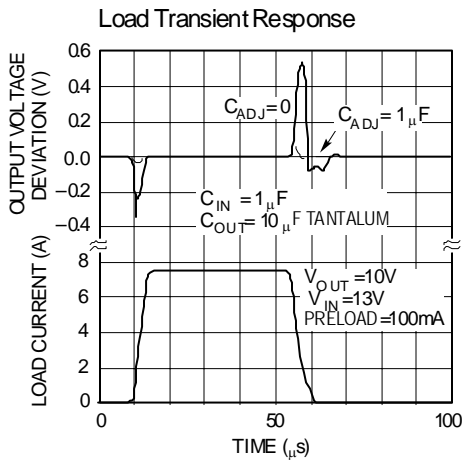
5V, 7.5A Regulator



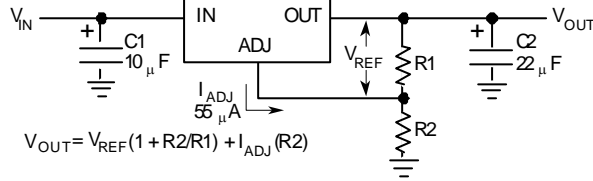
Dropout Voltage vs Output Current



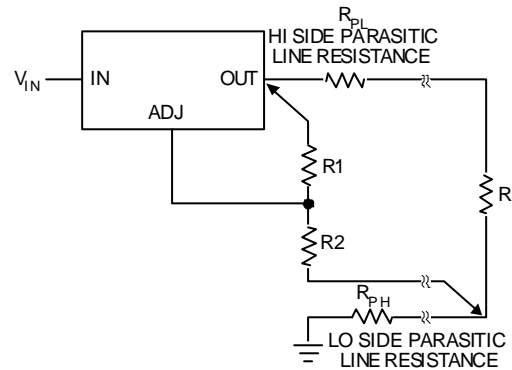
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Adjustable Regulator Configuration or Changing Voltage of Fixed Regulator

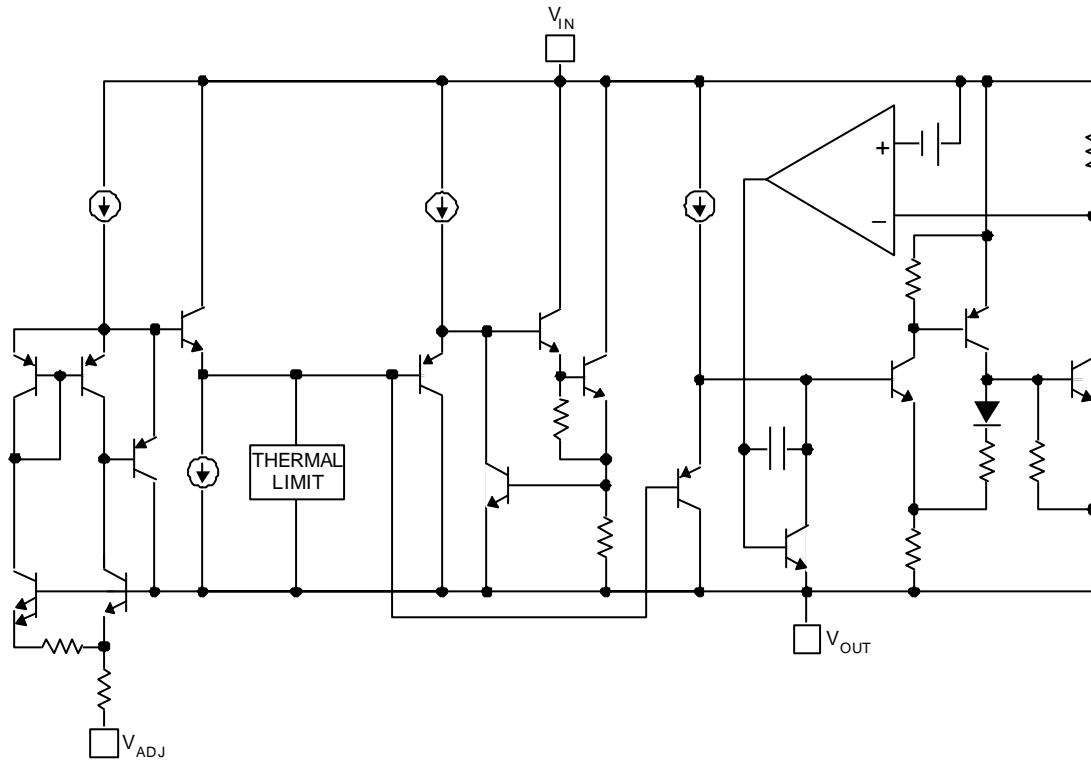


Optional Configuration to Reduce Low Side Parasitic Resistance Effects

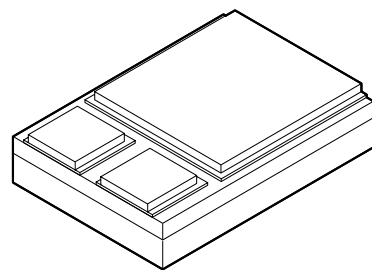
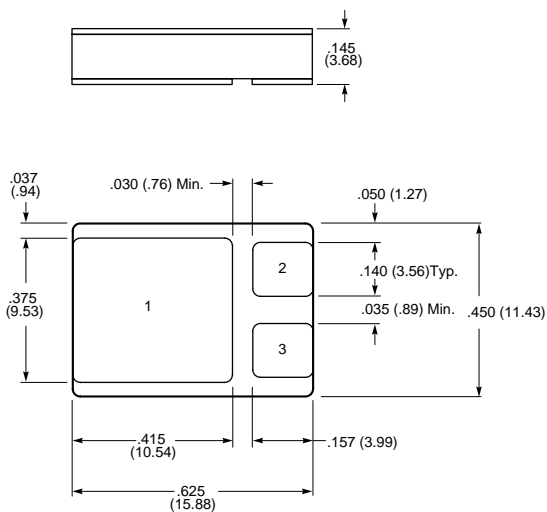


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Block Diagram



MECHANICAL DIMENSIONS: in Inches / mm



LCC-3P

Pad 1 = V_{out} , Pad 2 = Adjust, Pad 3 = V_{in} (Contact factory for other configurations)

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