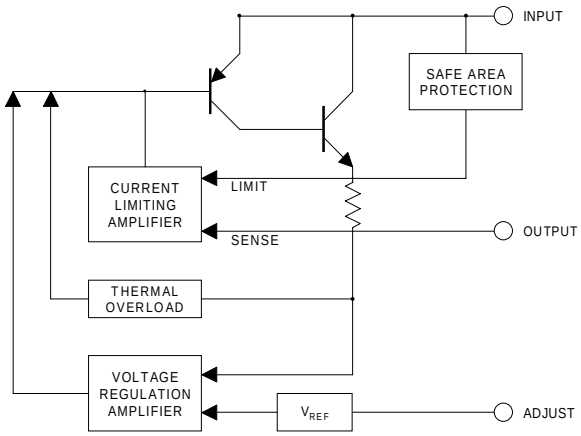
LT1085M

MILITARY VERSION

3 AMP POSITIVE VOLTAGE REGULATOR



FEATURES

- **Low Dropout Performance**
- **Fixed or Adjustable Voltages**
- **Fixed Output Voltages of 3.3V, 5V & 12V**
- **Adjustable Output Voltage Range From 1.2V**
- **Line Regulation 0.015% / V Typical.**
- **Load Regulation 0.01% Typical.**
- **Available in Hermetically Sealed TO–3,SMD1 and TO–257 (isolated & non-isolated) Packages.**
- **Military Temperature Range (–55 to +150°C)**

DEVICE(1)	PACKAGE
LT1085MK–XX	TO–3
LT1085MG–XX	TO–257
LT1085MIG–XX	Isolated TO–257
LT1085MSM–XX	TO–220SM

Note

1) –XX = Voltage Option: 3.3, 5 or 12
–XX = Left blank for Adjustable Option.

DESCRIPTION

The LT1085 voltage regulators are monolithic integrated circuits designed for use in applications requiring a well regulated positive output voltage with low input-output differential voltage.

Features include full power usage of up to 3A load current, internal current limiting and thermal shutdown. Safe area protection on the die is also included, providing protection of the series pass Darlington transistor under most conditions.

The hermetically sealed TO–3 packages are utilised for high reliablitiy and low thermal resistance, whilst the SMD1 package is designed for surface mount applications.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{IN}	Input – Output Voltage Differential			35V
P_D	Power Dissipation			Internally limited *
$R_{\theta JC}$	Thermal Resistance Junction To Case	TO–3	Control	0.93°C / W
		TO–3	Power	3.0°C / W
$R_{\theta JC}$	Thermal Resistance Junction To Case	SMD1	Control	0.79°C / W
		SMD1	Power	4.0°C / W
$R_{\theta JC}$	Thermal Resistance Junction To Case	TO–257	Control	0.79°C / W
		TO–257	Power	4.0°C / W
T_J	Operating Junction Temperature Range		Control	–55 to 150°C
			Power	–55 to 200°C
T_{STG}	Storage Temperature Range			–65 to 150°C
T_{LEAD}	Lead Temperature (for 10 sec.)			300°C

* These ratings are only applicable for power dissipations of 30 Watts over a limited range of $V_{IN} – V_{OUT}$.

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ELECTRICAL CHARACTERISTICS (T_J = 25°C Unless otherwise stated)

	Parameter	Output Voltage	Test Conditions [1,2]		Min.	Typ.	Max.	Unit
V_O [4]	Output Voltage	3.3	$V_{IN} - V_{OUT}$ = 6.3V	I_O = 10mA	3.267	3.3	3.333	V
			I_O = 10mA to 3A	T_J = Over Temp [3]	3.234	3.3	3.366	
		5	$V_{IN} - V_{OUT}$ = 8V	I_O = 10mA	4.95	5	5.05	
			I_O = 10mA to 3A	T_J = Over Temp [3]	4.90	5	5.10	
		12	$V_{IN} - V_{OUT}$ = 15V	I_O = 10mA	11.88	12	12.12	
			I_O = 10mA to 3A	T_J = Over Temp [3]	11.76	12	12.24	
V_{REF} [4]	Reference Voltage	ADJ.	$V_{IN} - V_{OUT} = V_O$ + 3V	I_O = 10mA	1.238	1.25	1.262	V
			I_O = 10mA to 3A	T_J = Over Temp [3]	1.225	1.25	1.270	
$REG_{(LINE)}$ [4]	Line Regulation		$V_{IN} - V_{OUT}$ = 1.5 to 15V	T_J = 25°C		0.015	0.2	%
			I_O = 10mA	T_J = Over Temp [3]		0.035		
			$V_{IN} - V_{OUT}$ = 1.5 to 35V T_J = Over Temp [3]	I_O = 10mA		0.05	0.6	%
$REG_{(LOAD)}$ [4]	Load Regulation		$V_{IN} - V_{OUT}$ = 3V	T_J = 25°C		0.1	0.3	%
			$V_{IN} - V_{OUT}$ = 3V	T_J = Over Temp [3]		0.2	0.4	
V_D	Dropout Voltage		ΔV_{OUT} , ΔV_{REF} = 1%	T_J = Over Temp [3]		1.3	1.5	V
I_{CL}	Current Limit		$V_{IN} - V_{OUT}$ = 5V	T_J = Over Temp [3]	3.2	4.0		A
			$V_{IN} - V_{OUT}$ = 25V	T_J = Over Temp [3]	0.2		0.5	
I_Q	Quiescent Current		$V_{IN} - V_{OUT}$ = 35V	T_J = Over Temp [3]			10	mA
$REG_{(THERM)}$	Thermal Regulation		t_p = 30ms	T_J = 25°C		0.002	0.01	% / W
I_{PIN}	Adjust Pin Current		T_J = 25°C			55		µA
			T_J = Over Temp [3]				120	
ΔI_{PIN}	Adjust Pin Current Change		T_J = Over Temp [3]			0.2	5	µA
T_S	Temperature Stability		$V_{IN} - V_{OUT}$ = 5V T_J = Over Temp [3]	I_O = 0.5A		0.5		%
I_O	Minimum Load Current		$V_{IN} - V_{OUT}$ = 25V T_J = Over Temp [3]	I_O = 0.5A		5	10	mA
V_N	RMS Output Noise [5]		T_J = 25°C			0.003		$\%V_O$
R_A	Ripple Rejection Ratio [6]		$V_{IN} - V_{OUT}$ = 3V T_J = Over Temp [3]	I_O = 3A	60	75		dB

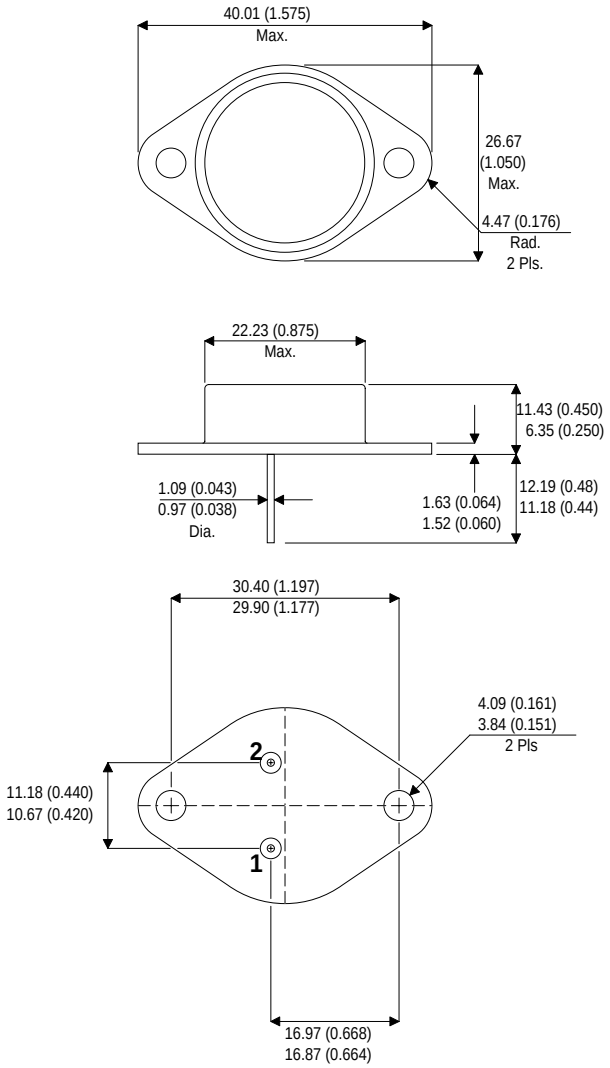
Notes

1. Test Conditions unless otherwise stated: V_{IN} = 1.5 to 35V, or Maximum Input, whichever is less. I_O = 10mA to 3A.
2. These specifications are only applicable for power dissipations of 30 Watts over a limited range of $V_{IN} - V_{OUT}$.
3. Over Temp. = Over specified Junction Temperature Range (See Absolute Maximum Ratings).
4. Low duty cycle pulse test with Kelvin connections required. Changes in output voltage are covered under the specification for thermal regulation.
5. Bandwidth of 10Hz to 10kHz.
6. 120Hz input ripple, 15V = 64dB min. C_{OUT} (C_{ADJ}) = 25µF.

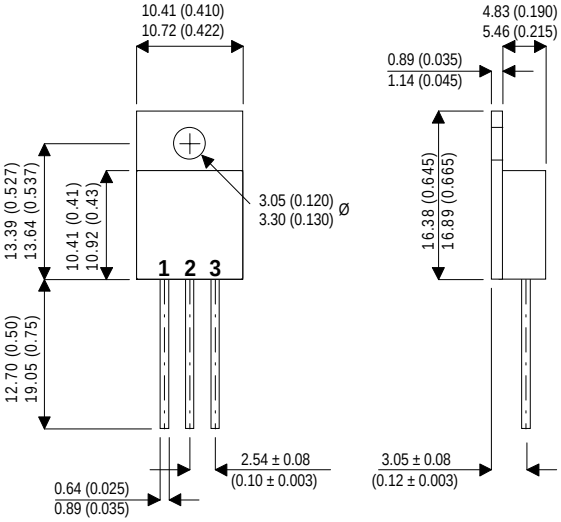
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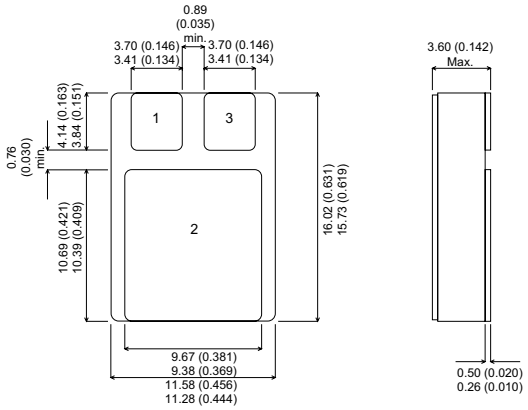
K Package (TO–3)



G & IG Packages (TO–257)



SMD1 PACKAGE



LT1085MK

Pin	Fixed	Adjustable
1	COMMON	ADJUST
2	INPUT	INPUT
Case is OUTPUT		

LT1085MSMD

Pin	Fixed	Adjustable
1	COMMON	ADJUST
2	OUTPUT	OUTPUT
3	INPUT	INPUT

LT1085MG

Pin	Fixed	Adjustable
1	COMMON	ADJUST
2	OUTPUT	OUTPUT
3	INPUT	INPUT
Case is OUTPUT		

LT1085MIG

Pin	Fixed	Adjustable
1	COMMON	ADJUST
2	OUTPUT	OUTPUT
3	INPUT	INPUT
Case is ISOLATED		

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