

3A L.D.O. VOLTAGE REGULATOR

DESCRIPTION

The LM1085 is a low dropout three terminal regulator with 3A output current capability. The output voltage is adjustable with the use of a resistor divider. Dropout is guaranteed at a maximum of 500 mV at maximum output current. It's low dropout voltage and fast transient response make it ideal for low voltage microprocessor applications. Internal current and thermal limiting provides protection against any overload condition that would create excessive junction temperature.

FEATURES

- Low Dropout Voltage 500mV at 3A Output Current
- Fast Transient Response
- 0.015% Line Regulation
- 0.1% Load Regulation
- Internal Thermal and Current Limiting
- Adjustable or Fixed Output Voltage (1.5V、2.5V、3.0V、3.3V、5.0V)
- Surface Mount Package TO-220 & TO-263 (S2 Package)
- 100% Thermal Limit Burn-in

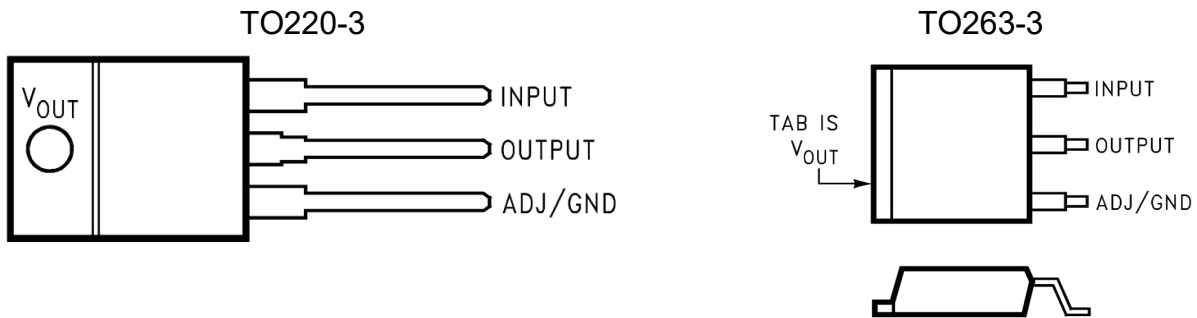
APPLICATIONS

- Battery Charger
- Adjustable Power Supplies
- Constant Current Regulators
- Portable Instrumentation
- High Efficiency Linear Power Supplies
- High Efficiency "Green" Computer Systems
- SMPS Post-Regulator
- Power PC Supplies
- Powering VGA & Sound Card

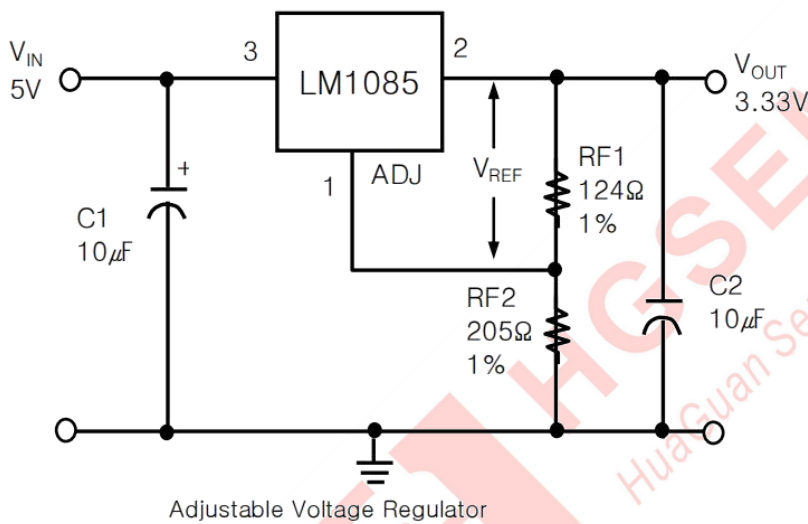
ORDERING INFORMATION

DEVICE	Package Type	MARKING	Packing	Packing Qty
LM1085T-1.5	TO220-3	LM1085-1.5	TUBE	1000pcs/box
LM1085T-2.5	TO220-3	LM1085-2.5	TUBE	1000pcs/box
LM1085T-3.0	TO220-3	LM1085-3.0	TUBE	1000pcs/box
LM1085T-3.3	TO220-3	LM1085-3.3	TUBE	1000pcs/box
LM1085T-5.0	TO220-3	LM1085-5.0	TUBE	1000pcs/box
LM1085S-1.5/TR	TO263-3	LM1085-1.5	REEL	500pcs/reel
LM1085S-2.5/TR	TO263-3	LM1085-2.5	REEL	500pcs/reel
LM1085S-3.0/TR	TO263-3	LM1085-3.0	REEL	500pcs/reel
LM1085S-3.3/TR	TO263-3	LM1085-3.3	REEL	500pcs/reel
LM1085S-5.0/TR	TO263-3	LM1085-5.0	REEL	500pcs/reel

Pin Configuration and Functions



TEST & TYPICAL APPLICATION CIRCUIT



$$V_{REF} = V_{OUT} - V_{ADJ} = 1.25V(\text{Typ.})$$

$$V_{OUT} = V_{REF} \times (1 + RF2/RF1) + I_{ADJ} \times RF2$$

$$I_{ADJ} = 55\mu A(\text{Typ.})$$

- (1) C1 Needed if device is far away from filter capacitors.
- (2) C2 Required for stability

ABSOLUTE MAXIMUM RATINGS

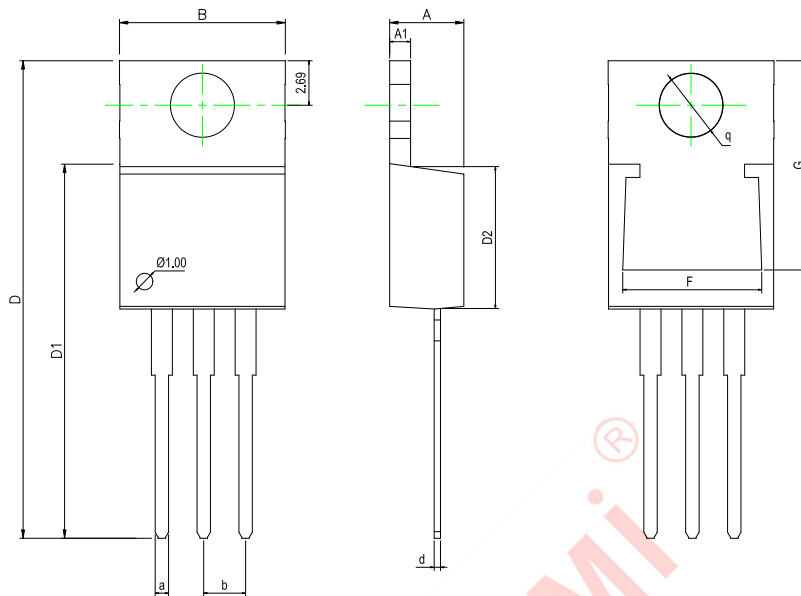
CHARACTERISTIC	SYMBOL	VALUE	UNIT
Supply Voltage	Vin	7	V
Operating Junction Temperature Range	Topr	0~125	°C
Storage Temperature Range	Tstg	-65~150	°C
Thermal Resistance Junction to Case TO-263	Tjc	3	C/W
Thermal Resistance Junction to Ambient TO-263	Tja	60	C/W
Lead Temperature (Soldering) 10 sec.	Tsol	300	°C
Maximum Output Current	I _{max}	3	A

ELECTRICAL CHARACTERISTICS $I_{OUT}=100\text{ mA}$, $T_A=25^\circ\text{C}$, unless otherwise specified

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
1.5V Version					
Output Voltage	$0 < I_{OUT} < 3A$, $2.75V < V_{IN} < 10V$	1.485	1.5	1.515	V
2.5V Version					
Output Voltage	$0 < I_{OUT} < 3A$, $3.5V < V_{IN} < 10V$	2.475	2.5	2.525	V
3.0V Version					
Output Voltage	$0 < I_{OUT} < 3A$, $4.5V < V_{IN} < 10V$	2.97	3	3.03	V
3.3V Version					
Output Voltage	$0 < I_{OUT} < 3A$, $4.75V < V_{IN} < 10V$	3.267	3.3	3.333	V
5.0V Version					
Output Voltage	$0 \leq I_{OUT} \leq 3A$, $5.5V \leq V_{IN} < 10V$	4.95	5	5.05	V
All Voltage Options					
Reference Voltage (V_{REF})	$V_{IN} \leq 7V, P \leq P_{MAX}$	1.238	1.25	1.263	V
	$1.5V \leq (V_{IN} - V_{OUT}) \leq 5.75V$, $10\text{ mA} \leq I_{OUT} \leq 3A$	1.225	1.25	1.27	
Min. Load Current(Note 3)	$1.5V \leq (V_{IN} - V_{OUT}) \leq 5.75V$		5	10	mA
Line Regulation ($\Delta V_{REF}(V_{IN})$)	$2.75V \leq V_{IN} \leq 7V$, $I_{OUT}=10\text{ mA}$, $T_J=25^\circ\text{C}$		0.005	0.02	%
Load Regulation ($\Delta V_{REF}(V_{OUT})$)	$10\text{ mA} \leq I_{OUT} \leq 3A$, $(V_{IN} - V_{OUT})=3V$, $T_J=25^\circ\text{C}$		0.05	0.3	%
Dropout Voltage	$\Delta V_{REF}=1\%$, $I_{OUT}=3A$		1.1	1.2	V
Current Limit $I_{OUT}(MAX)$	$V_{IN} - V_{OUT}=3V$	3.2	4.0		A
	$1.4V \leq (V_{IN} - V_{OUT})$ Adjustable Only				
Long Term Stability	$T_A=125^\circ\text{C}$, 1000Hrs		0.3	1	%
Thermal Regulation ($\Delta V_{OUT}(Pwr)$)	$T_A=25^\circ\text{C}$, 30 ms pulse		0.01	0.02	%/W
Output Noise, RMS	10Hz to 10KHz $T_A=25^\circ\text{C}$	0.003			%/Vo
Thermal Resistance	Junction to Tab			3	$^\circ\text{C}/\text{W}$
	Junction to Ambient			60	

Physical Dimensions

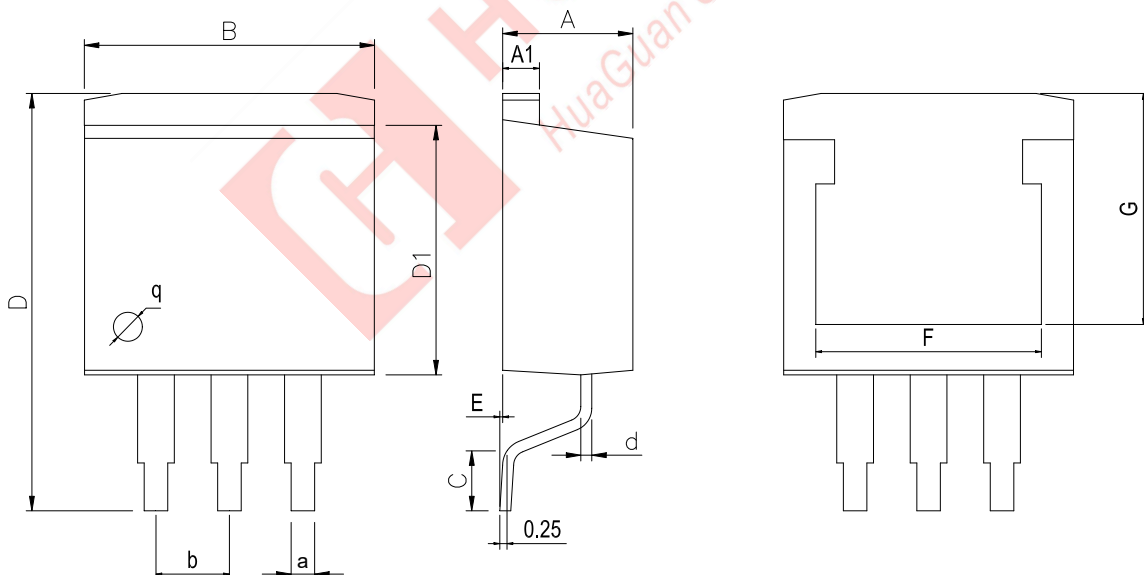
TO220-3



Dimensions In Millimeters(TO220-3)

Symbol:	A	A1	B	D	D1	D2	F	G	a	d	b	q
Min:	4.45	1.22	10	13.7	22.42	8.50	8.30	12.55	0.71	0.33	2.54	3.80
Max:	4.62	1.32	10.4	14.6	22.62	9.10	8.55	12.75	0.97	0.42	BSC	TYP

TO263-3



Dimensions In Millimeters(TO263-3)

Symbol:	A	A1	B	C	D	D1	E	F	G	a	b
Min:	4.45	1.22	10	1.89	13.7	8.38	0	8.332	7.70	0.71	2.54BSC
Max:	4.62	1.32	10.4	2.19	14.6	8.89	0.305	8.552	8.10	0.97	

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