



ACE7805

3-Terminal 1A Positive Voltage Regulator

Description

The ACE7805 series of three terminal positive regulators are several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut down and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

Features

- Output Current up to 1A
- Output Voltages of 5V;6V;8V;9V;10V;12V;15V;18V;24V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

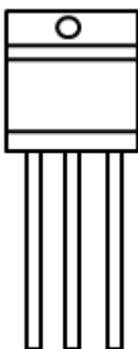
Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Input Voltage ($V_o=5V$ to 18V) ($V_o=24V$)	V_i	35	V
		40	
Thermal Resistance Junction-Air	$R_{\theta JA}$	65	mA
Thermal Resistance Junction-Cases	$R_{\theta JC}$	5	$^{\circ}C$
Operating Temperature Range	T_{opr}	0~125	$^{\circ}C$
Storage Temperature Range	T_{stg}	-65~150	

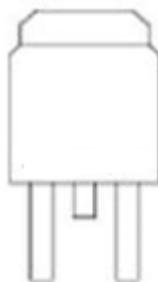
* When tested in free air condition, without heat sinking.

Packaging Type

TO-220



TO-252



1: Input 2: GND 3: Output

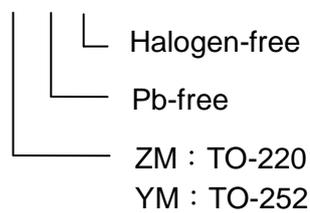


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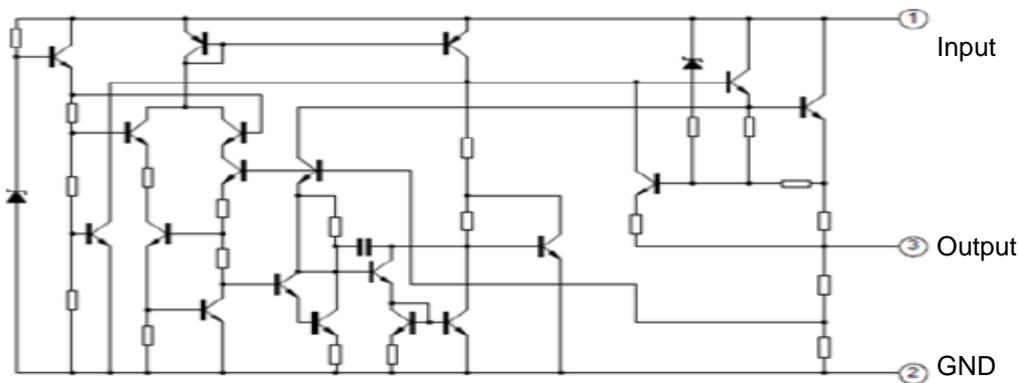
3-Terminal 1A Positive Voltage Regulator

Ordering information

ACE7805 XX + H



Internal Block Diagram



Electrical Characteristics

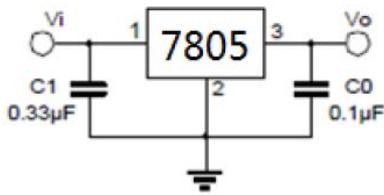
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Output Voltage	Vo	Tj=25°C	4.8	5.0	5.2	V
		5.0mA<Io<1.0A, Po<15W Vi=7.5V to 20V	4.75	5.00	5.25	
Line Regulation	ΔVo	Tj=25°C, Vi=7.5V to 25V		4.0	100	mV
		Tj=25°C, Vi=8V to 12V		1.6	50	
Load Regulation	ΔVo	Tj=25°C, Io=5.0mA to 1.0A		9	100	mV
		Tj=25°C, Io=250mA to 750mA		4	50	
Quiescent Current	IQ	Tj=25°C		5.0	8	mA
Quiescent Current Change	ΔIQ	Io=5mA to 1.0A		0.03	0.5	mA
		Vi=8V to 25V		0.3	0.8	
Output Voltage Drift	ΔVo/ΔT	Io=5mA		0.8		mV/°C
Output Noise Voltage	VN	f=10Hz to 100kHz, Ta=25°C		42		μV
Ripple Rejection	RR	f=120Hz, Vi=8V to 18V	62	73		dB
Dropout Voltage	Vo	Io=1.0A, Tj=25°C		2		V
Output Resistance	Ro	f=1kHz		15		mΩ
Short Circuit Current	Isc	Vi=35V, Ta=25°C		230		mA
Peak Current	Ipk	Tj=25°C		1.4		A



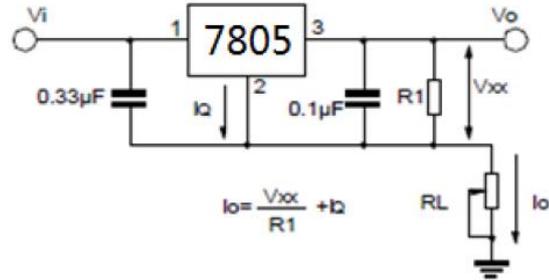
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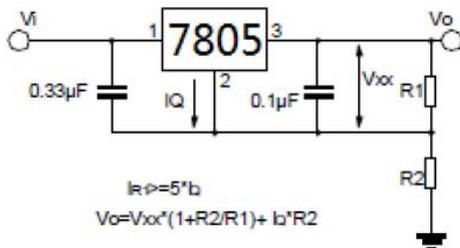
Typical Applications



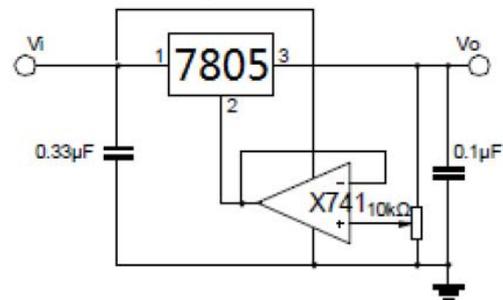
DC Parameters



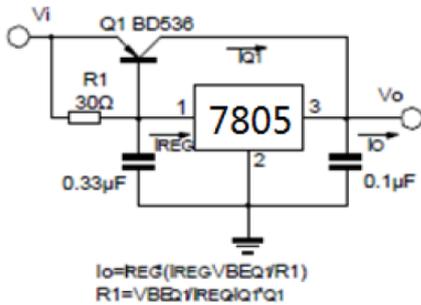
Fixed Output Regulator



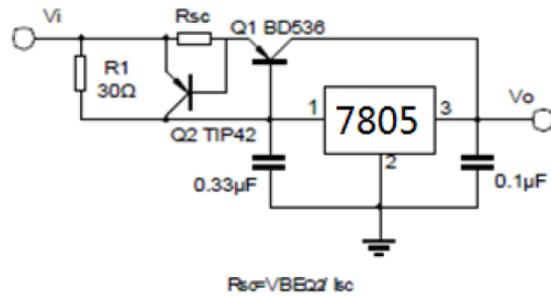
Circuit for Increasing Output Voltage



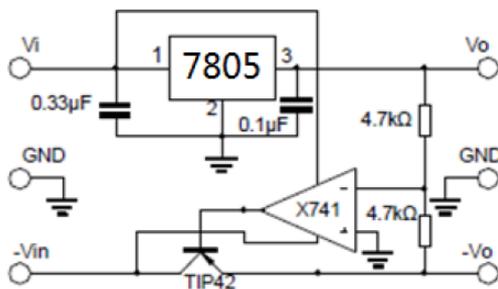
Adjustable Output Regulator



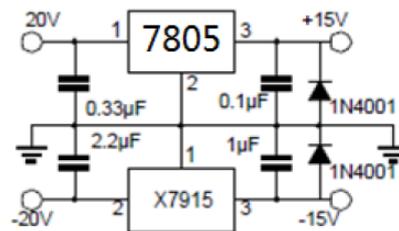
High Current Voltage Regulator



High Output Current with Short Circuit Protection



Tracking Voltage Regulator

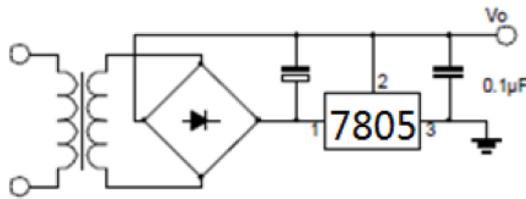


Split Power Supply

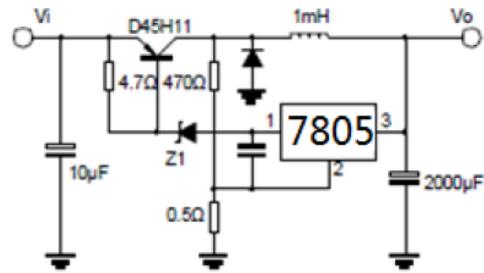


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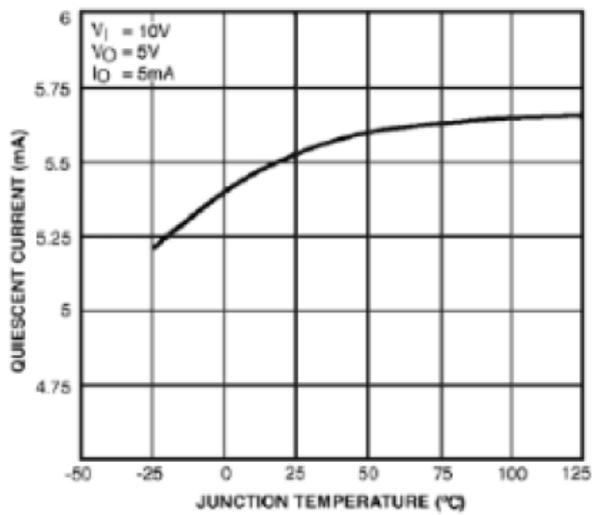


Negative Output Voltage Circuit

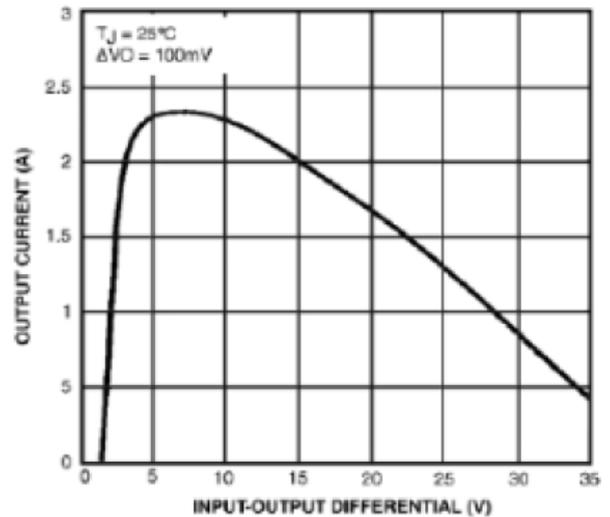


Switching Regulator

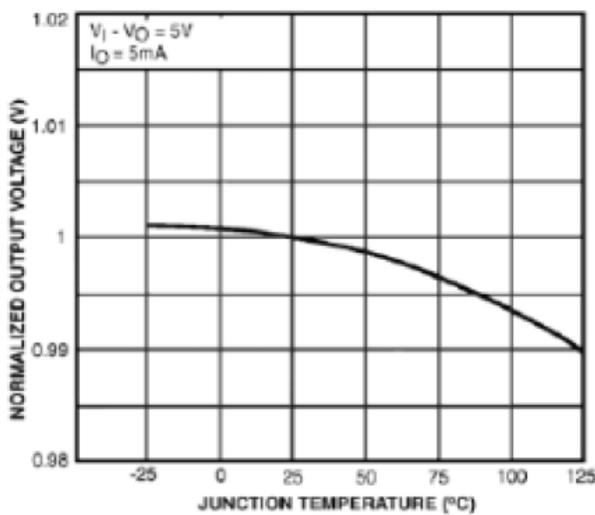
Typical Performance Characteristics



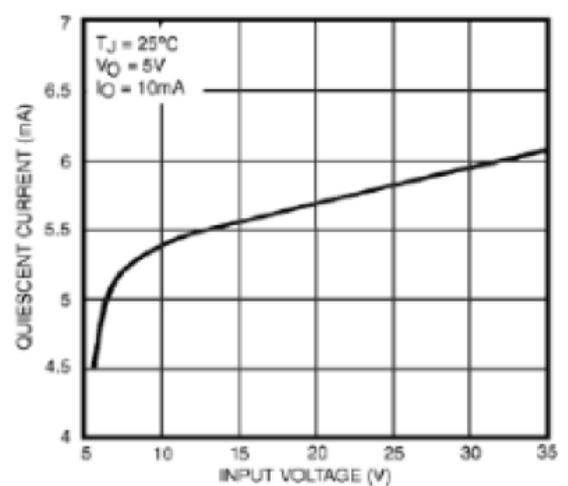
Quiescent Current



Peak Output Current



Output Voltage



Quiescent Current

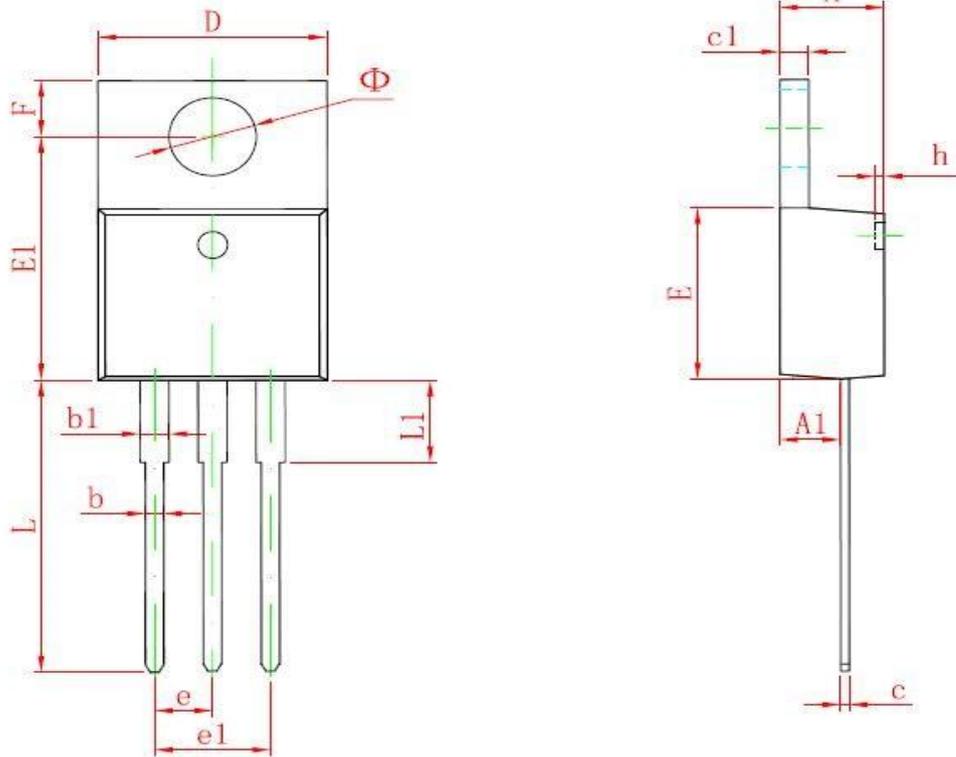


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Packing Information

TO-220



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
Φ	3.735	3.935	0.147	0.155

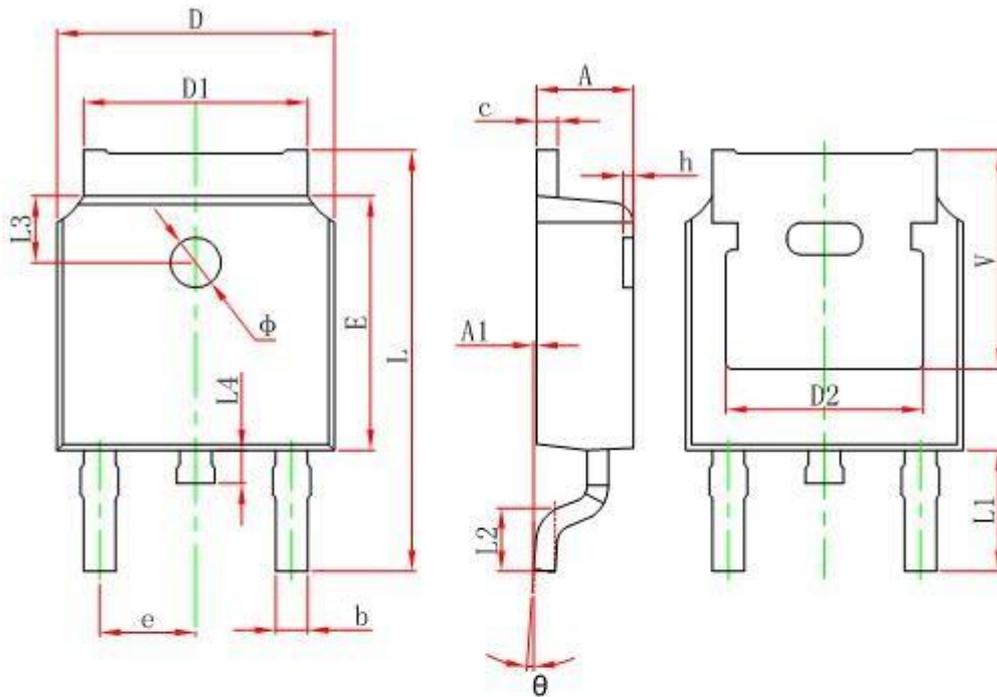


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Packing Information

TO-2525



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
phi	1.100	1.300	0.043	0.051
theta	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	



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Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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