

L7824 Three-terminal positive voltage regulator

FEATURES

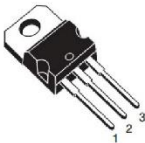
- Output Current up to 1.5A
- Fixed output voltage 24V available
- Thermal overload shutdown protection
- Short circuit current limiting
- Output transistor SOA protection
- RoHS Compliance

APPLICATIONS

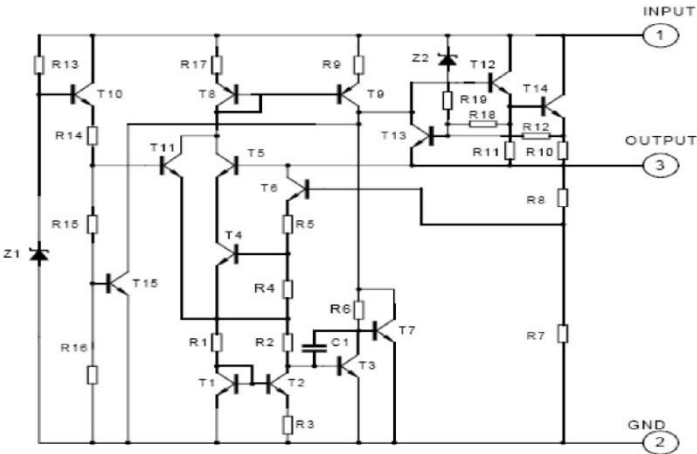
- High-efficiency linear regulator
- Post regulation for switching supply
- Microprocessor power supply
- Mother Board

TO-220

- 1.IN
2.GND
3.OUT



BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	UNIT
Input Voltage	$V_{OUT}=3.3V\sim18V$	V_i	35	V
	$V_{OUT}=20V\sim24V$		40	
Output Current		I_{OUT}	1.5	A
Power Dissipation		P_D	Internally Limited	mW
Junction Temperature		T_j	150	°C
Operating Temperature Range		T_{OPR}	-20 ~ +150	°C
Storage Temperature Range		T_{STG}	-55 ~ +150	°C

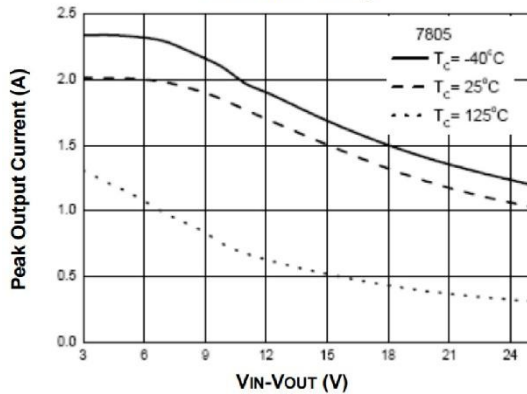
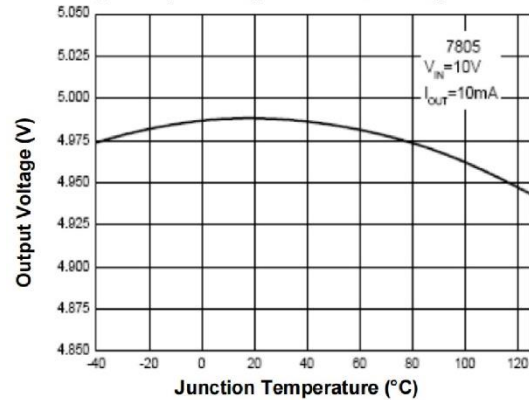
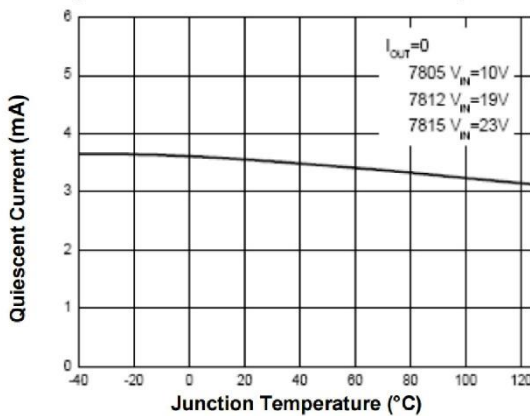
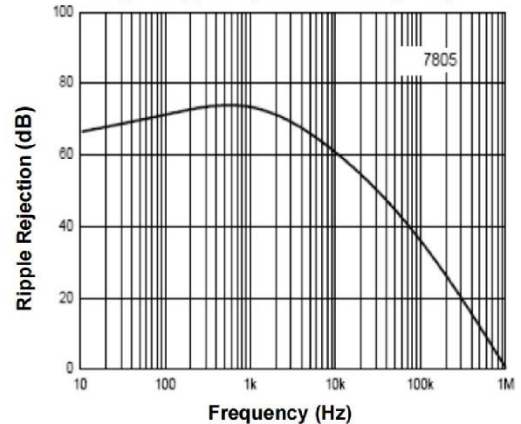
Note: 1. Absolute maximum ratings are stress ratings only and functional device operation is not implied. The device could be damaged beyond absolute maximum ratings.

2. The maximum steady state usable output current are dependent on input voltage, heat sinking, lead length of the package and copper pattern of PCB. The data are showed as electrical characteristics table represents pulse test conditions with junction temperatures specified at the initiation of test.

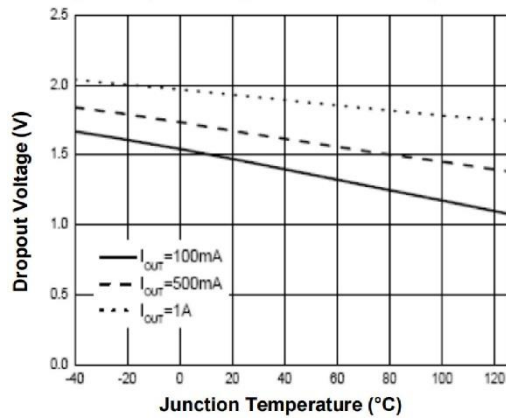
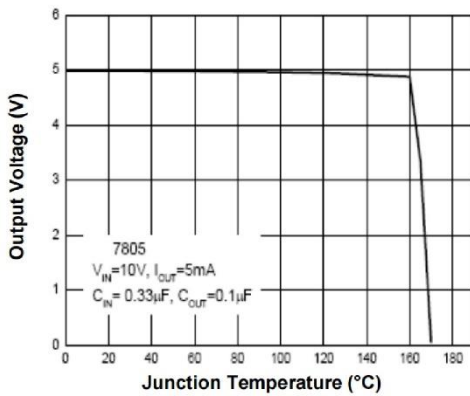
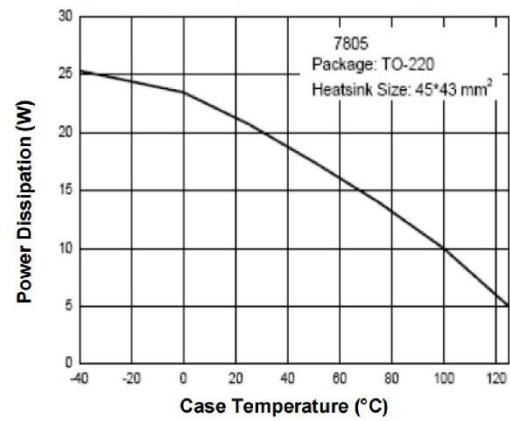
ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}\text{C}$, $P_D \leq 15\text{W}$, unless otherwise specified)

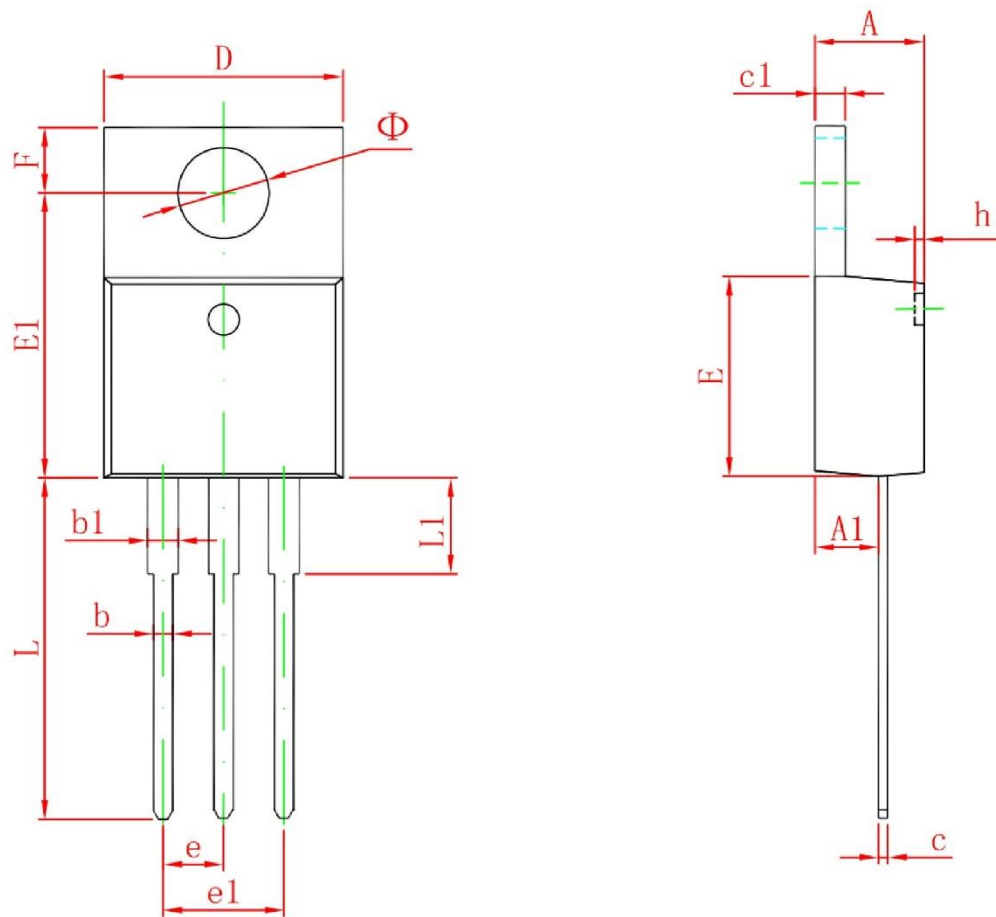
L7824($V_i=33\text{V}$, $I_o=500\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output Voltage	V_O	$I_o=5\text{mA}-1\text{A}$	23.04	24.0	24.96	V
		$27\text{V} \leq V_i \leq 38\text{V}$, $I_o=5\text{mA}-1\text{A}$	22.08		25.20	
Load Regulation	ΔV_O	$I_o=5\text{mA}-1\text{A}$			240	mV
		$I_o=250\text{mA}-750\text{mA}$			120	
Line Regulation	ΔV_O	$27\text{V} \leq V_i \leq 38\text{V}$			240	mV
		$27\text{V} \leq V_i \leq 38\text{V}$, $I_o=1\text{A}$			240	
Quiescent Current	I_Q	$I_o \leq 1\text{A}$			8	mA
Quiescent Current Change	ΔI_Q	$28\text{V} \leq V_i \leq 38\text{V}$			1	mA
		$I_o=5\text{mA}-1\text{A}$			0.5	
Output Noise Voltage	V_N	$10\text{Hz} \leq F \leq 100\text{KHz}$		170		μV
Output Voltage Drift	$\Delta V_O/\Delta T$	$I_o=5\text{mA}$		-2.8		$\text{mV}/^{\circ}\text{C}$
Ripple Rejection	RR	$28\text{V} \leq V_i \leq 38\text{V}$, $F=120\text{Hz}$	50	66		dB
Dropout Voltage	V_D			2.0		V
Short Circuit Current	I_{SC}			250		mA
Peak Current	I_{PK}			1.8		A

TYPICAL CHARACTERISTICS CURVES
Fig.1- Peak Output Current vs. Input/Output Differential Voltage

Fig.2- Output Voltage vs. Junction Temperature

Fig.3- Quiescent Current vs. Junction Temperature

Fig.4- Ripple Rejection vs. Frequency


TYPICAL CHARACTERISTICS CURVES (Continued)

Fig.5- Dropout Voltage vs. Junction Temperature

Fig.7- Thermal Shutdown Protection

Fig.6- Power Dissipation vs. Case Temperature


TO-220-3L Package Outline Dimensions


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

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.