

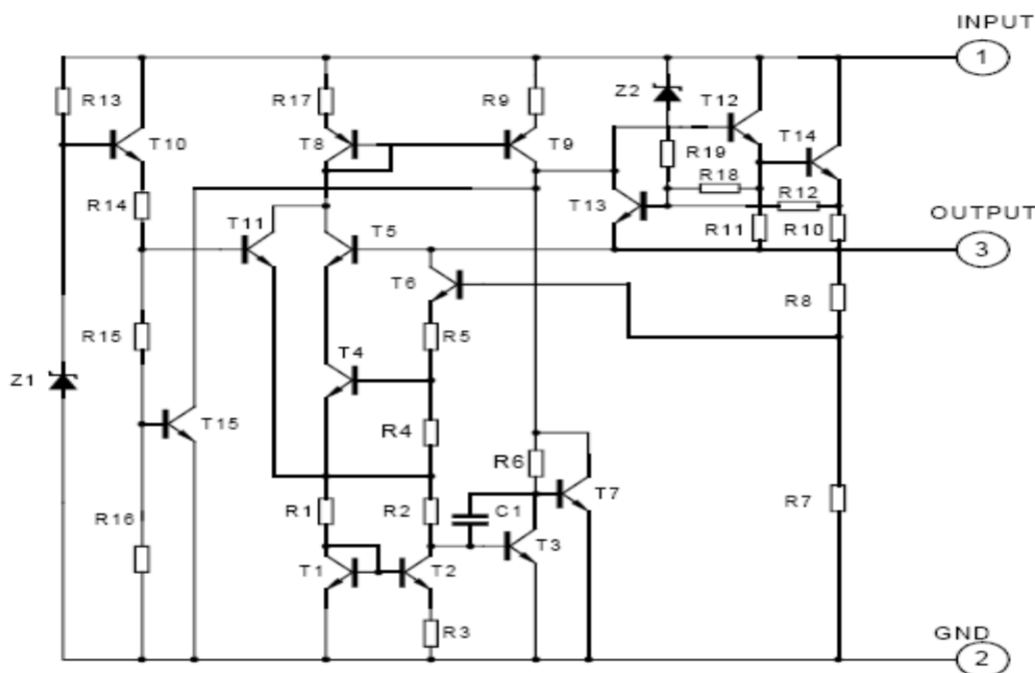
Features

- 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

Block Diagram



Absolute Maximum Ratings

Symbol	Description		Ratings	Unit
V _{IN}	Input Voltage	V _{OUT} =3.3~18V	35	V
		V _{OUT} =20~24V	40	
I _{OUT}	Output Current		1.5	A
P _D	Power Dissipation	TO-220	Internally Limited	mW
T _J	Junction Temperature		150	
T _{OPR}	Operating Temperature Range		-20 ~ 150	° C
T _{STG}	Storage Temperature Range		-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° C, P_D ≤ 15W, unless otherwise specified)

L7824 (V_{IN}=33V, I_{OUT}=0.5A, C₁=0.33μF, C_O=0.1μF)

Symbol	Description	L7824			Unit	Test Conditions
		Min.	Typ.	Max.		
V _{OUT}	Output Voltage	23.04	24.0	24.96	V	I _{OUT} =5mA-1.0A
		22.80	-	25.20	V	27V ≤ V _{IN} ≤ 38V, I _{OUT} =5mA-1.0A
ΔV _{OUT}	Load Regulation	-	-	240	mV	I _{OUT} =5mA-1.0A
		-	-	120	mV	I _{OUT} =0.25A-0.75A
ΔV _{OUT}	Line Regulation	-	-	240	mV	27V ≤ V _{IN} ≤ 38V
		-	-	240	mV	27V ≤ V _{IN} ≤ 38V, I _{OUT} =1.0A
I _Q	Quiescent Current	-	-	8.0	mA	I _{OUT} ≤ 1.0A
ΔI _Q	Quiescent Current Change	-	-	1.0	mA	28V ≤ V _{IN} ≤ 38V
		-	-	0.5	mA	I _{OUT} =5mA-1.0A
e _N	Output Noise Voltage	-	170	-	μV	10Hz ≤ f ≤ 100KHz
ΔV _O /ΔT	Temperature coefficient of V _{OUT}	-	-2.8	-	mV/°C	I _{OUT} =5mA
RR	Ripple Rejection	50	66	-	dB	28V ≤ V _{IN} ≤ 38V, f=120Hz
I _{PEAK}	Peak Output Current	-	1.8	-	A	-
I _{SC}	Short-Circuit Current	-	250	-	mA	V _{IN} =35V
V _D	Dropout Voltage	-	2.0	-	V	-

Typical Characteristics Curves

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

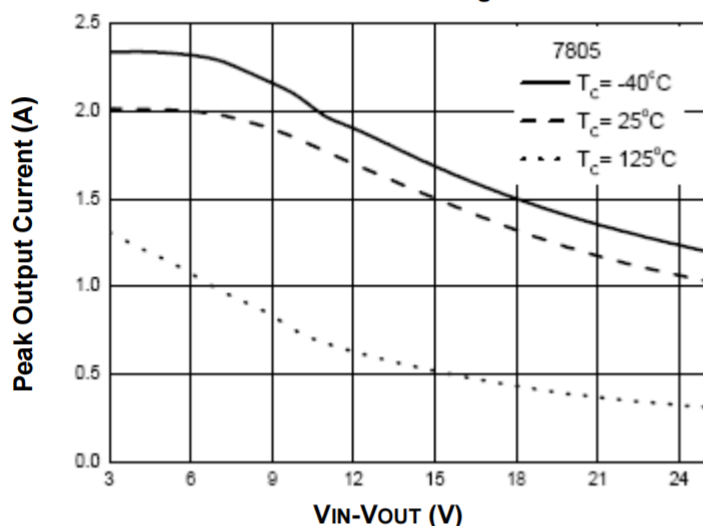


Fig.2- Output Voltage vs. Junction Temperature

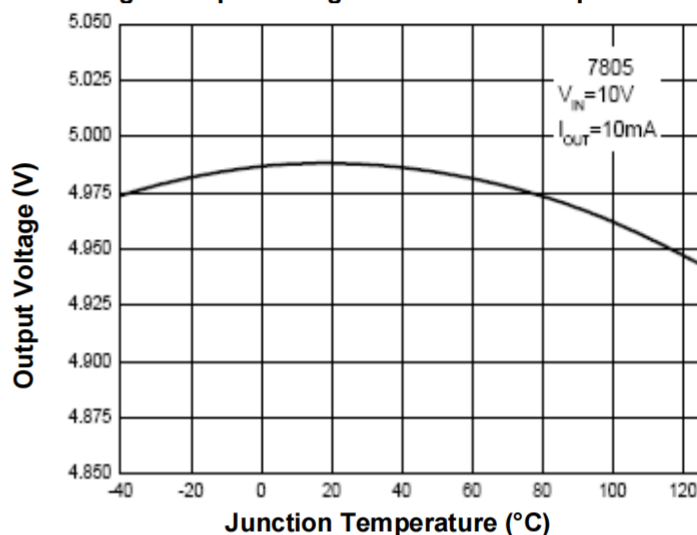


Fig.3- Quiescent Current vs. Junction Temperature

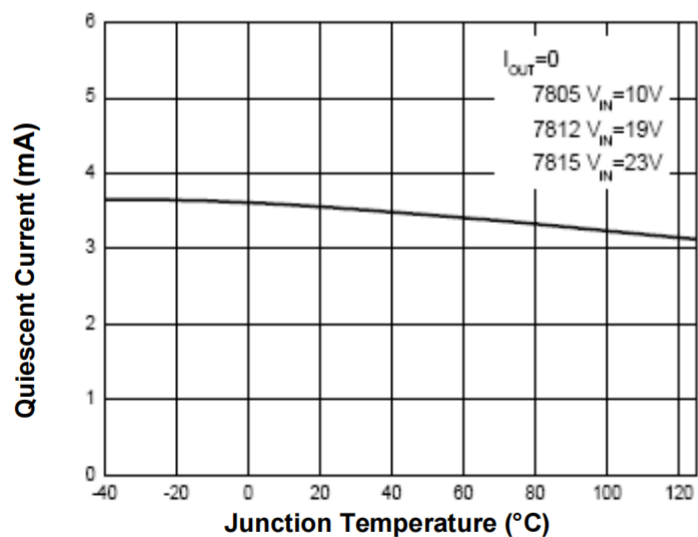
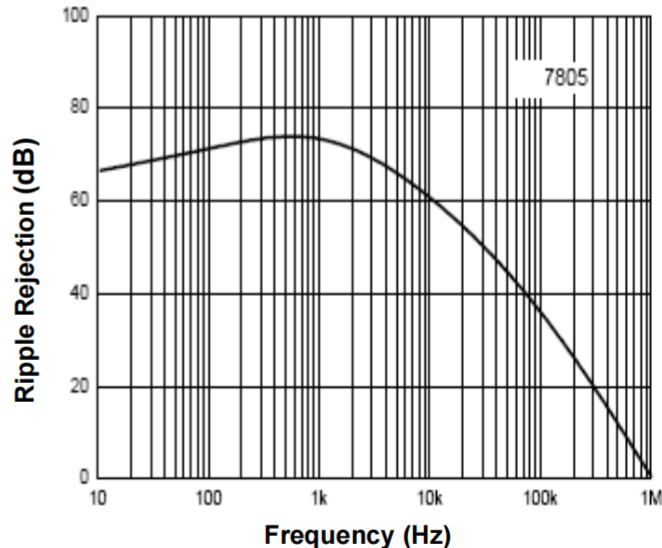


Fig.4- Ripple Rejection vs. Frequency



Typical Characteristics Curves (Continued)

Fig.5- Dropout Voltage vs. Junction Temperature

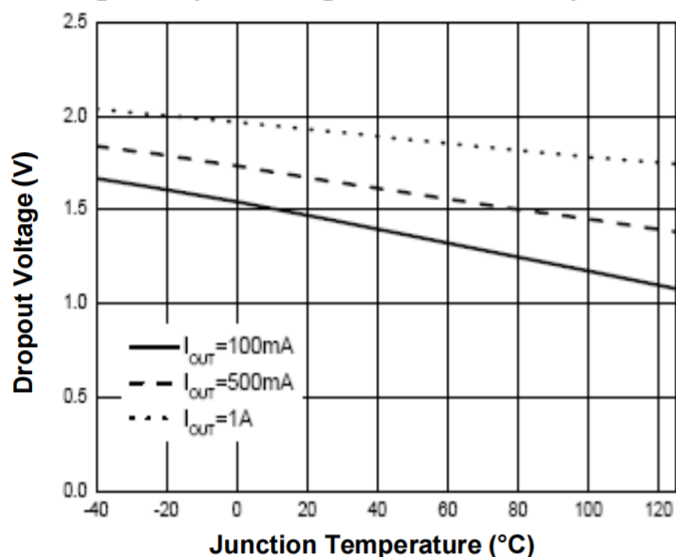


Fig.6- Power Dissipation vs. Case Temperature

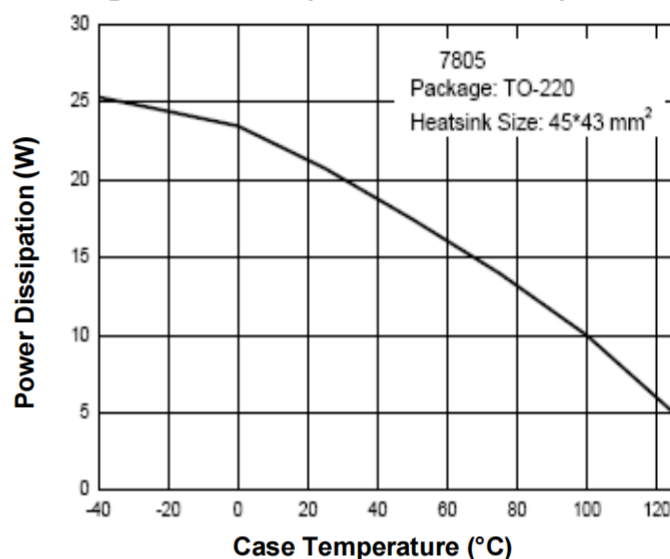


Fig.7- Thermal Shutdown Protection

