GOODWORK

L78XX

Plastic-Encapsulate Voltage Regulators

Features

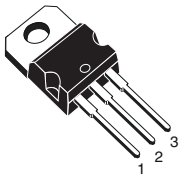
- Output current up to 1.5 A
- Output voltages of 5; 6; 8; 8.5; 9; 12; 15; 18; 24 V
- Thermal overload protection
- Short circuit protection
- Output transition SOA protection
- 2 % output voltage tolerance (A version)
- Guaranteed in extended temperature range (A version)

TO-220

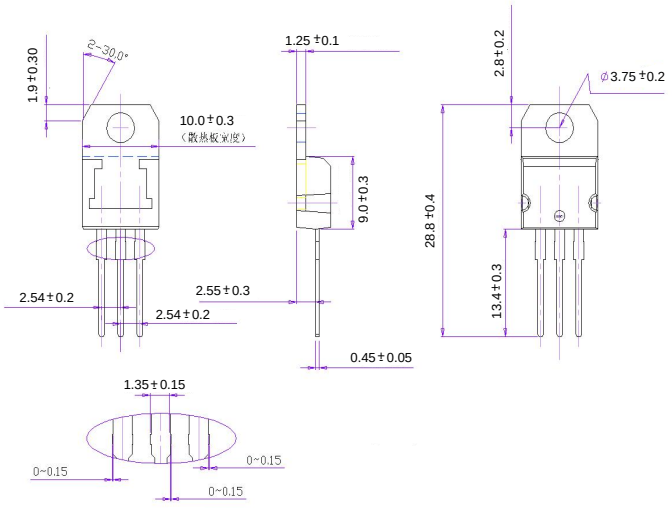
1.IN

2.GND

3.OUT



TO-220



Dimensions in inches and (millimeters)

Absolute Maximum Ratings(Tc＝25℃)

Symbol	Parameter	Value	UNIT
VI	Input Voltage	35	V
TOPR	Operating Temperature Range	0 ～ +125	℃
TSTG	Storage Temperature Range	−65 ～+150	℃

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Electrical Characteristics （Tc＝25℃）Of 7805 (refer to the test circuits,TJ = -55 to 150℃ VI = 10V, IO = 500 mA, CI = 0.33 μ F, CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		4.8	5	5.2	V
		IO = 5mA to 1A, PO ≤ 15W VI = 8V to 20V		4.75	5	5.25	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 7V to 25V			100	mV
			VI = 8V to 12V			50	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				50	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 8V to 25V				0.8	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			0.6		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.75	1.2	A

Electrical Characteristics （Tc＝25℃）Of 7806(refer to the test circuits,TJ = -55 to 150℃ VI = 11V，
IO = 500 mA，CI = 0.33 μ F， CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		5.75	6	6.25	V
		IO = 5mA to 1A, PO ≤ 15W VI = 9V to 21V		5.65	6	6.35	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 8V to 25V			100	mV
			VI = 9V to 13V			50	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				50	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 9V to 25V				0.8	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			0.7		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.75	1.2	A

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Electrical Characteristics （Tc＝25℃）Of 7808(refer to the test circuits, TJ = -55 to 150℃ VI = 14V, IO = 500 mA, CI = 0.33 μ F, CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		7.7	8	8.3	V
		IO = 5mA to 1A, PO ≤ 15W VI = 11.5V to 23V		7.6	8	8.4	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 10.5V to 25V			100	mV
			VI = 11V to 17V			50	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				50	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 11.5V to 25V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.75	1.2	A

Electrical Characteristics （Tc＝25℃）Of 7809(refer to the test circuits, TJ = -55 to 150℃ VI = 15V, IO = 500 mA, CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		8.64	9	9.36	V
		IO = 5mA to 1A, PO ≤ 15W VI = 11.5V to 26V		8.55	9	9.45	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 11.5V to 26V			100	mV
			VI = 12V to 18V			50	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				50	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 11.5V to 26V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.75	1.2	A

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Electrical Characteristics （Tc＝25℃）Of 7812 (refer to the test circuits, TJ = -55 to 150℃ VI = 19V, IO = 500 mA, CI = 0.33 μ F, CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		11.5	12	12.5	V
		IO = 5mA to 1A, PO ≤ 15W VI =15.5V to 27V		11.4	12	12.6	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 14.5V to 30V			100	mV
			VI = 16V to 22V			50	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				50	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 15V to 30V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1.5		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.75	1.2	A

Electrical Characteristics （Tc＝25℃）Of 7815 (refer to the test circuits, TJ = -40 to 150℃ VI = 19V, IO = 500 mA, CI = 0.33 μ F, CO = 0.1 μ F unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	TJ = +25℃		14.4	15	15.6	V
		IO = 5mA to 1A, PO ≤ 15W VI =15.5V to 27V		14.25	15	15.75	
Line Regulation (Note1)	Δ VO	TJ = +25℃	VI = 14.5V to 30V			300	mV
			VI = 16V to 22V			150	
Load Regulation (Note1)	Δ VO	TJ = +25℃ IO = 5mA to 1.2A				100	mV
		TJ = +25℃ IO = 250mA to 750mA				150	
Quiescent Current	IQ	TJ = +25℃				6	mA
Quiescent Current Change	Δ IQ	IO = 5mA to 1A				0.5	mA
		VI = 15V to 30V				1	
Quiescent Current Change	Δ Vo/Δ T	IO = 5mA			1.5		mV/℃
Short Circuit Current	ISC	TJ = +25° C, VI = 35V			0.23		A

RATING AND CHARACTERISTIC CURVES (L78XX)

Figure 1: Dropout Voltage vs Junction Temperature

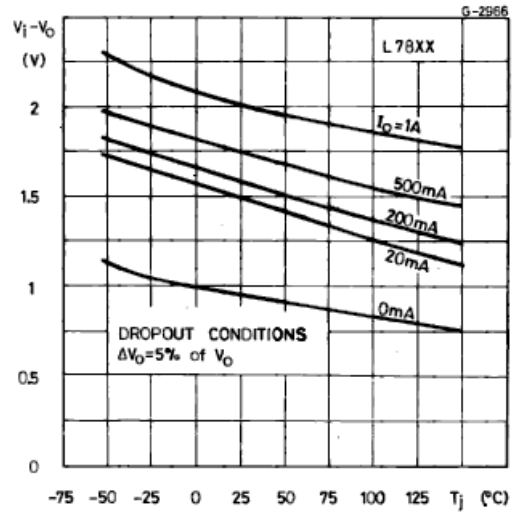

Figure 2: Peak Output Current vs Input/output Differential Voltage

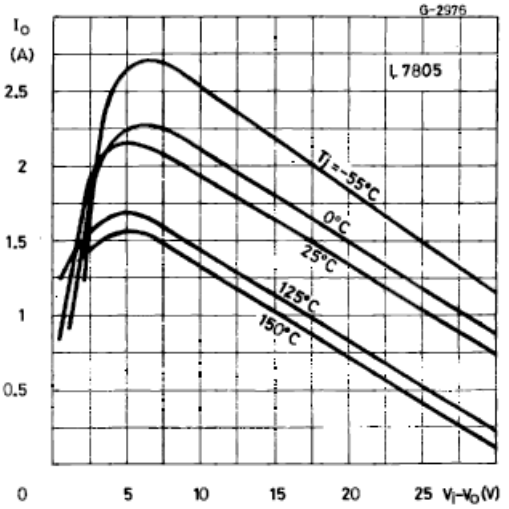

Figure3: Supply Voltage Rejection vs Frequency Temperature

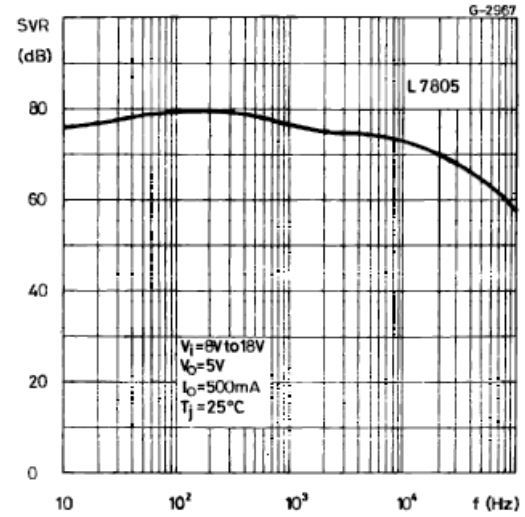

Figure 4: Quiescent Current vs Junction

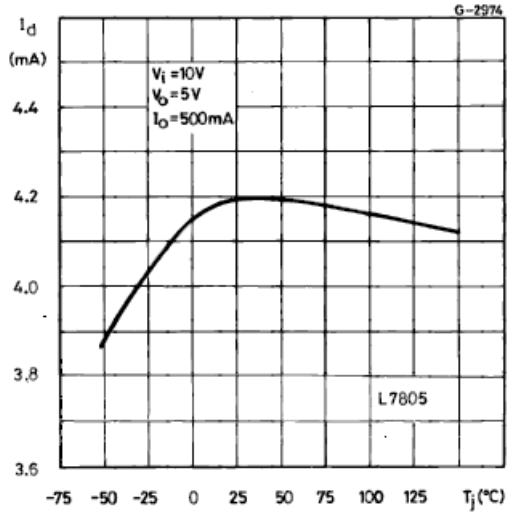

Figure 5: Output Voltage vs Junction Temperature

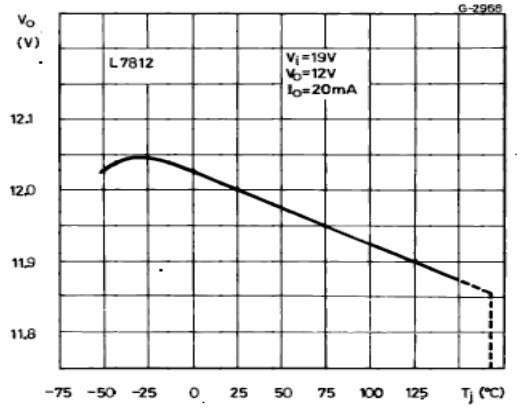

Figure 6: Load Transient Response

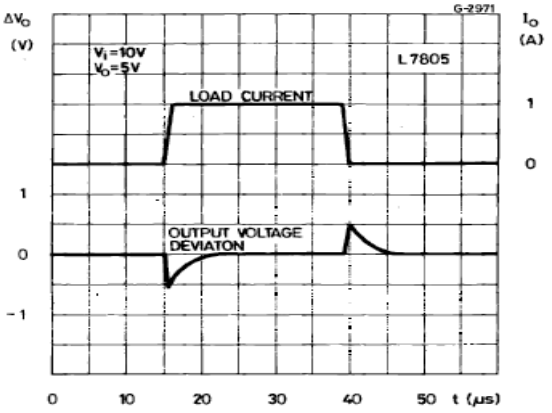

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Figure 7: Output Impedance vs Frequency

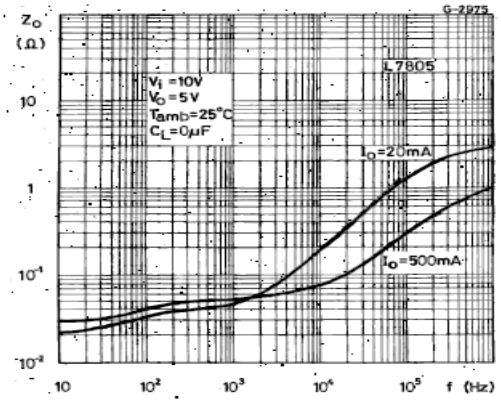

Figure 8: Line Transient Response

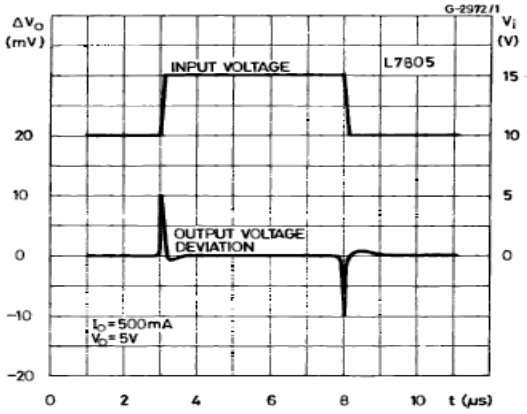

Figure 9: Quiescent Current vs Input Voltage