

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	L78XX
▶ Overseas	Part Number	L78XX
▶ Equivalent	Part Number	L78XX

EV is the abbreviation of name EVVO

Three-terminal positive voltage regulator

OUTPUT CURRENT TO 1.2A

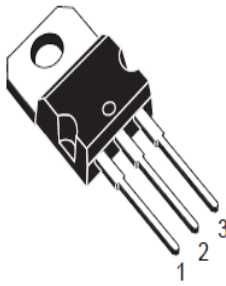
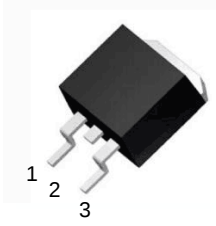
OUTPUT VOLTAGES OF 5; 6; 8; 9; 12V

THERMAL OVERLOAD PROTECTION

SHORT CIRCUIT PROTECTION

OUTPUT TRANSITION SOA PROTECTION

1、 Absolute Maximum Ratings $T_c=25^{\circ}\text{C}$

Symbol	Parameter	Value	UNIT	 	
VI	Input Voltage	35	V		
TOPR	Operating Temperature Range	0 ~ +125	$^{\circ}\text{C}$		
TSTG	Storage Temperature Range	-65 ~ +150	$^{\circ}\text{C}$		

TO-220 **TO-263-3**
 1 Input 2 Gnd 3 Out

2、 Electrical Characteristics ($T_c=25^{\circ}\text{C}$) Of 7805 (refer to the test circuits, $T_J = -55$ to 150°C $V_I = 10\text{V}$, $I_O = 500\text{mA}$, $C_I = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$ unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	VO	$T_J = +25^{\circ}\text{C}$		4.8	5	5.2	V
		$I_O = 5\text{mA to } 1\text{A}$, $P_O \leq 15\text{W}$ $V_I = 8\text{V to } 20\text{V}$		4.75	5	5.25	
Line Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$	$V_I = 7\text{V to } 25\text{V}$			100	mV
			$V_I = 8\text{V to } 12\text{V}$			50	
Load Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $I_O = 5\text{mA to } 1.2\text{A}$				100	mV
		$T_J = +25^{\circ}\text{C}$ $I_O = 250\text{mA to } 750\text{mA}$				50	
Quiescent Current	IQ	$T_J = +25^{\circ}\text{C}$				6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA to } 1\text{A}$				0.5	mA
		$V_I = 8\text{V to } 25\text{V}$				0.8	
Quiescent Current Change	$\Delta V_O/\Delta T$	$I_O = 5\text{mA}$			0.6		mV/ $^{\circ}\text{C}$
Short Circuit Current	ISC	$T_J = +25^{\circ}\text{C}$, $V_I = 35\text{V}$			0.75	1.2	A

- 3、Electrical Characteristics ($T_c=25^{\circ}\text{C}$) Of 7806(refer to the test circuits, $T_J = -55$ to 150°C $V_I = 11\text{V}$,
 $I_O = 500\text{ mA}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$ unless otherwise specified).

Parameter	Symbol	Test Condition	MIN	TYP	MAX	UNIT
Output Voltage	V_O	$T_J = +25^{\circ}\text{C}$	5.75	6	6.25	V
		$I_O = 5\text{mA to } 1\text{A}$, $P_O \leq 15\text{W}$ $V_I = 9\text{V to } 21\text{V}$	5.7	6	6.3	
Line Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$	$V_I = 8\text{V to } 25\text{V}$		100	mV
			$V_I = 9\text{V to } 13\text{V}$		50	
Load Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $I_O = 5\text{mA to } 1.2\text{A}$			100	mV
		$T_J = +25^{\circ}\text{C}$ $I_O = 250\text{mA to } 750\text{mA}$			50	
Quiescent Current	I_Q	$T_J = +25^{\circ}\text{C}$			6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA to } 1\text{A}$			0.5	mA
		$V_I = 9\text{V to } 25\text{V}$			0.8	
Quiescent Current Change	$\Delta V_O/\Delta T$	$I_O = 5\text{mA}$		0.7		mV/ $^{\circ}\text{C}$
Short Circuit Current	I_{SC}	$T_J = +25^{\circ}\text{C}$, $V_I = 35\text{V}$		0.75	1.2	A

4、Electrical Characteristics ($T_c=25^{\circ}\text{C}$) Of 7808(refer to the test circuits, $T_J = -55$ to 150°C $V_I = 14\text{V}$, $I_O = 500\text{ mA}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$ unless otherwise specified)。

Parameter	Symbol	Test Condition		MIN	TYP	MAX	UNIT
Output Voltage	V_O	$T_J = +25^{\circ}\text{C}$		7.7	8	8.3	V
		$I_O = 5\text{mA to } 1\text{A}, P_O \leq 15\text{W}$ $V_I = 11.5\text{V to } 23\text{V}$		7.6	8	8.4	
Line Regulation (Notel)	ΔV_O	$T_J = +25^{\circ}\text{C}$	$V_I = 10.5\text{V to } 25\text{V}$			100	mV
			$V_I = 11\text{V to } 17\text{V}$			50	
Load Regulation (Notel)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $I_O = 5\text{mA to } 1.2\text{A}$				100	mV
		$T_J = +25^{\circ}\text{C}$ $I_O = 250\text{mA to } 750\text{mA}$				50	
Quiescent Current	I_Q	$T_J = +25^{\circ}\text{C}$				6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA to } 1\text{A}$				0.5	mA
		$V_I = 11.5\text{V to } 25\text{V}$				1	
Quiescent Current Change	$\Delta V_O/\Delta T$	$I_O = 5\text{mA}$			1		mV/ $^{\circ}\text{C}$
Short Circuit Current	ISC	$T_J = +25^{\circ}\text{C}, V_I = 35\text{V}$			0.75	1.2	A

5、Electrical Characteristics ($T_c=25^{\circ}\text{C}$) Of 7809(refer to the test circuits, $T_J = -55$ to 150°C $V_I = 15\text{V}$, $I_O = 500\text{ mA}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$ unless otherwise specified)。

Parameter	Symbol	Test Condition	MIN	TYP	MAX	UNIT
Output Voltage	V_O	$T_J = +25^{\circ}\text{C}$	8.64	9	9.36	V
		$I_O = 5\text{mA to } 1\text{A}$, $P_O \leq 15\text{W}$ $V_I = 11.5\text{V to } 26\text{V}$	8.55	9	9.45	
Line Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$	$V_I = 11.5\text{V to } 26\text{V}$		100	mV
			$V_I = 12\text{V to } 18\text{V}$		50	
Load Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $I_O = 5\text{mA to } 1.2\text{A}$			100	mV
		$T_J = +25^{\circ}\text{C}$ $I_O = 250\text{mA to } 750\text{mA}$			50	
Quiescent Current	I_Q	$T_J = +25^{\circ}\text{C}$			6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA to } 1\text{A}$			0.5	mA
		$V_I = 11.5\text{V to } 26\text{V}$			1	
Quiescent Current Change	$\Delta V_O/\Delta T$	$I_O = 5\text{mA}$		1		mV/ $^{\circ}\text{C}$
Short Circuit Current	ISC	$T_J = +25^{\circ}\text{C}$, $V_I = 35\text{V}$		0.75	1.2	A

6、Electrical Characteristics ($T_c=25^{\circ}\text{C}$) Of 7812 (refer to the test circuits, $T_J = -55$ to 150°C $V_I = 19\text{V}$, $I_O = 500\text{ mA}$, $C_I = 0.33\text{ }\mu\text{F}$, $C_O = 0.1\text{ }\mu\text{F}$ unless otherwise specified)。

Parameter	Symbol	Test Condition	MIN	TYP	MAX	UNIT
Output Voltage	V_O	$T_J = +25^{\circ}\text{C}$	11.5	12	12.5	V
		$I_O = 5\text{mA to } 1\text{A}$, $P_O \leq 15\text{W}$ $V_I = 15.5\text{V to } 27\text{V}$	11.4	12	12.6	
Line Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$	$V_I = 14.5\text{V to } 30\text{V}$		100	mV
			$V_I = 16\text{V to } 22\text{V}$		50	
Load Regulation (Note1)	ΔV_O	$T_J = +25^{\circ}\text{C}$ $I_O = 5\text{mA to } 1.2\text{A}$			100	mV
		$T_J = +25^{\circ}\text{C}$ $I_O = 250\text{mA to } 750\text{mA}$			50	
Quiescent Current	I_Q	$T_J = +25^{\circ}\text{C}$			6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA to } 1\text{A}$			0.5	mA
		$V_I = 15\text{V to } 30\text{V}$			1	
Quiescent Current Change	$\Delta V_O/\Delta T$	$I_O = 5\text{mA}$		1.5		mV/ $^{\circ}\text{C}$
Short Circuit Current	ISC	$T_J = +25^{\circ}\text{C}$, $V_I = 35\text{V}$		0.75	1.2	A

7、Typical Characteristics

Figure 1: Dropout Voltage vs Junction Temperature

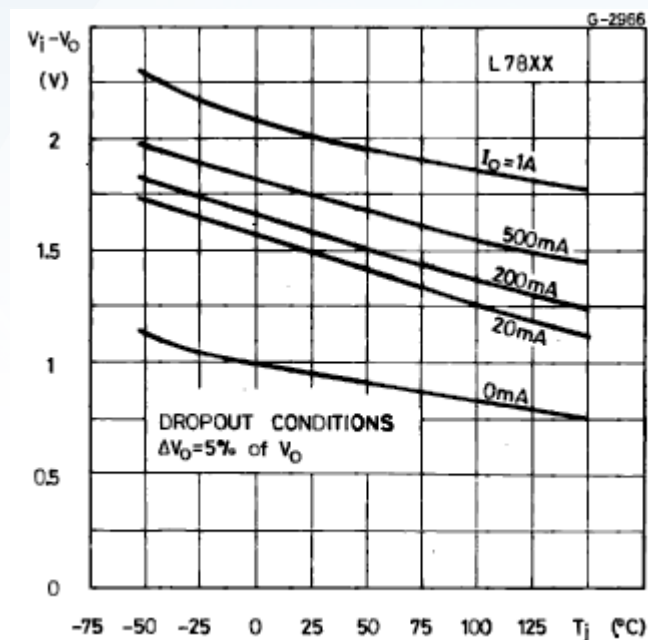


Figure 2: Peak Output Current vs Input/output Differential Voltage

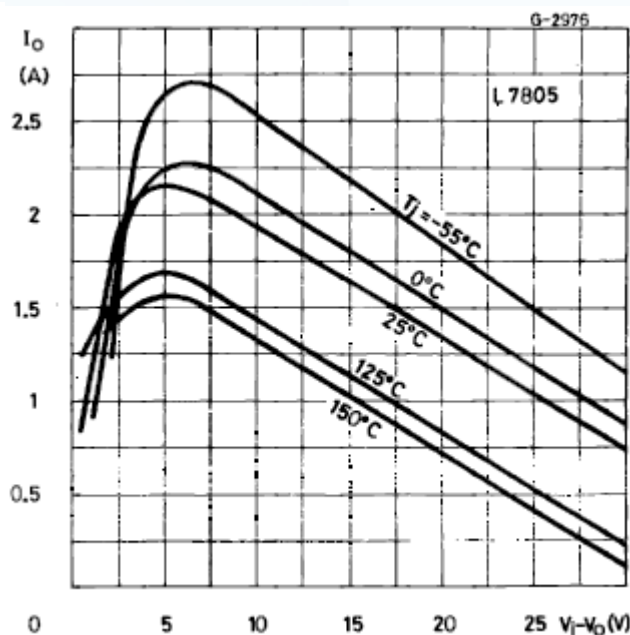


Figure3: Supply Voltage Rejection vs Frequency

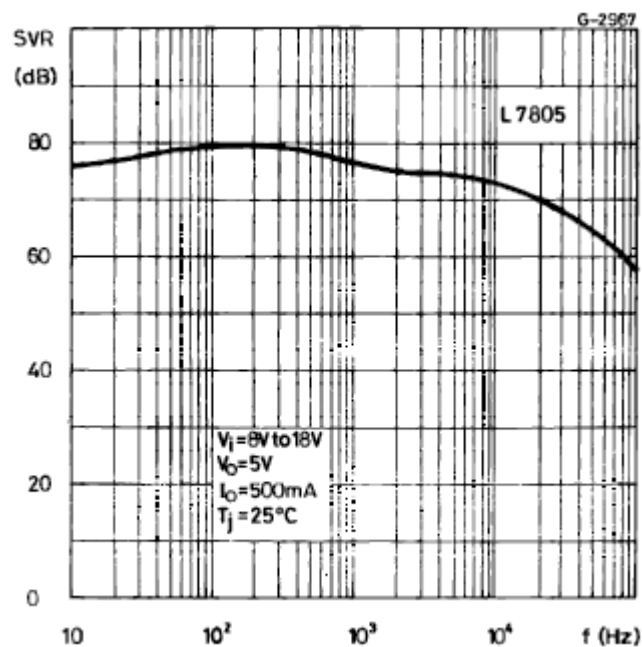


Figure 4: Quiescent Current vs Junction

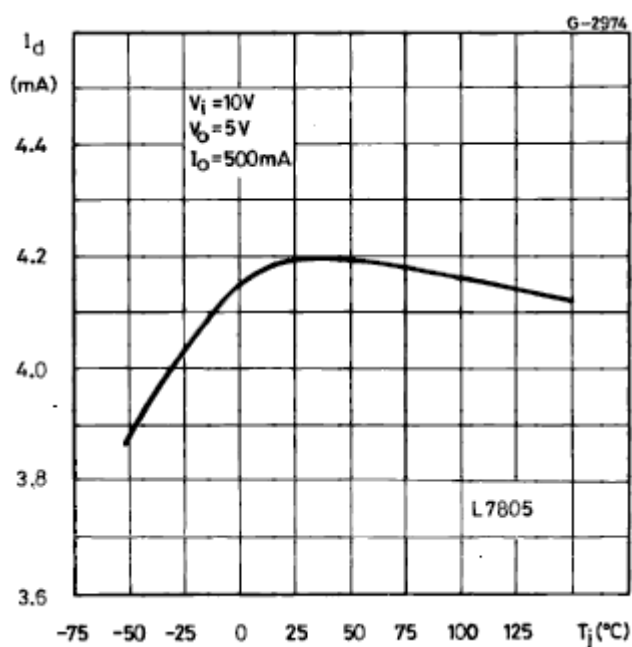


Figure 5: Output Voltage vs Junction Temperature

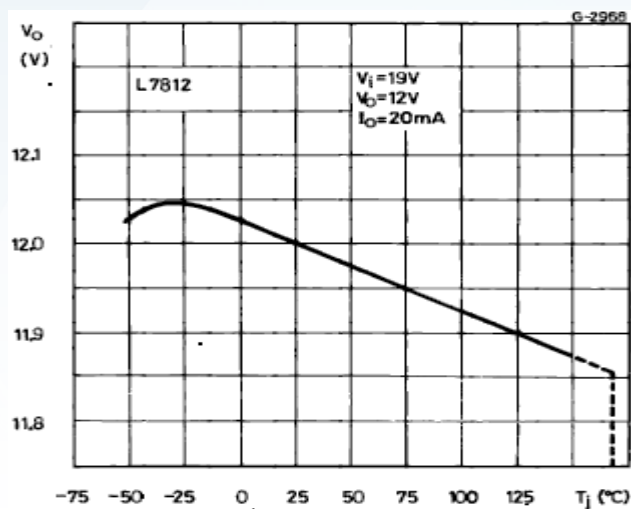


Figure 6: Load Transient Response

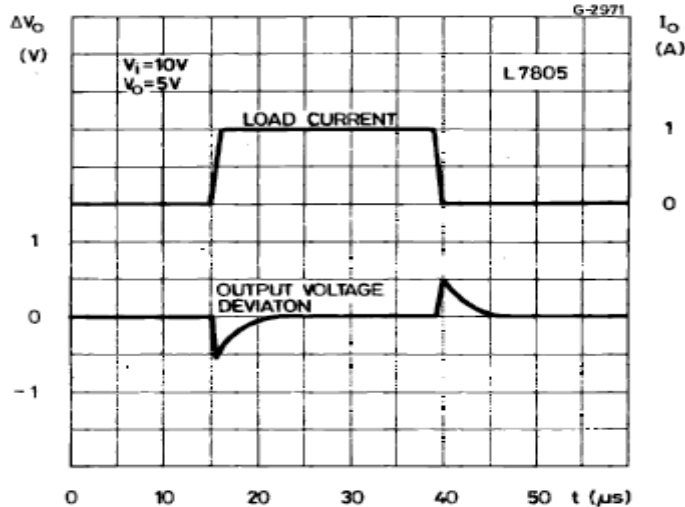


Figure 7: Output Impedance vs Frequency

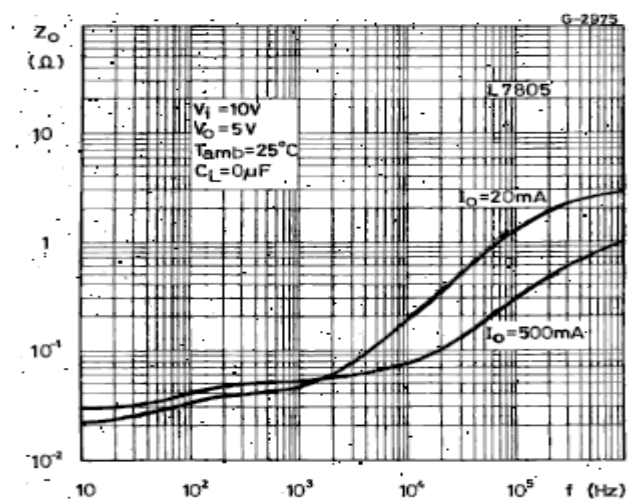


Figure 8: Line Transient Response

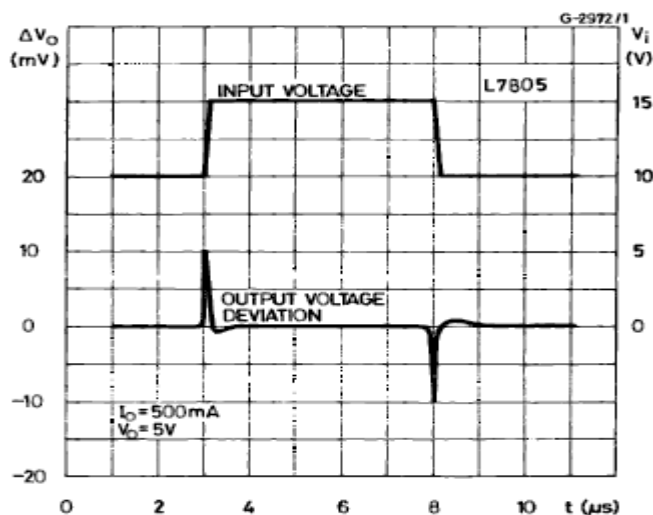
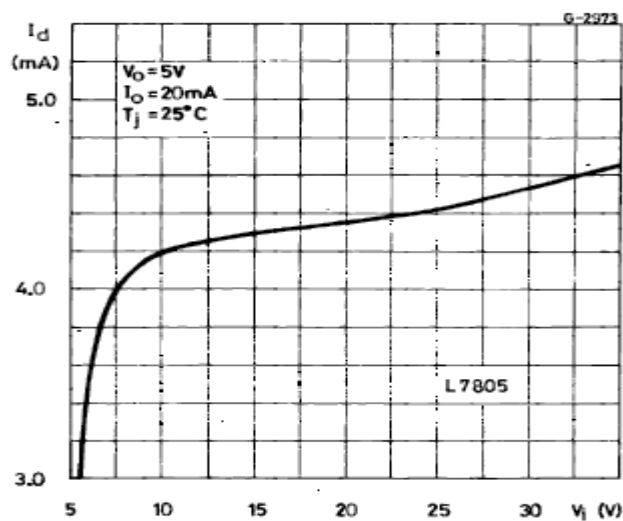


Figure 9: Quiescent Current vs Input Voltage



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