UMW 79Lxx-150

Linear Integrated Circuit

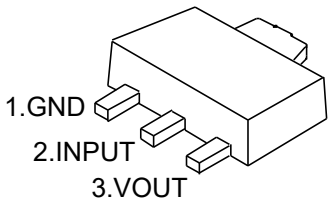
1.Description

The 79Lxx-150 series of fixed voltage monolithic integrated circuit voltage regulators are suitable for applications that required supply up to 150mA.

2.Features

- Maximum output current of 150mA
- Output voltage of -5V,-6V,-8V,-9V,-10V -12V,-15V,-18V and -24V
- Thermal overload protection
- Short circuit current limiting
- Output voltage accuracy：1%

3.Pinning Information



SOT-89

4.Absolute Maximum Ratings

Characteristics		Symbol	Value	Units
Input voltage(T_A=25°C)	79L05~79L15	V_I	-35	V
	79L18~79L24		-40	V
Qutput current		I_O	0.15	A
High power dissipation		P_D	800	mW
Junction Temperature Range		T_{OPR}	-20 to 120	°C
Storage Temperature Range		T_{STG}	-55 to 150	°C

5.1 Electrical Characteristics (79L33)

(V_I=-5.3V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-3.267	-3.3	-3.333	V
Output Voltage (note 2)		T_J=25°C	-3.267		-3.333	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		10	60	mV
		T_J=25°C, I_O=1mA~70mA		7	30	mV
Line regulation	ΔV_O	-5.3V≤V_I≤-20V, T_J=25°C		7	150	mV
		-6.3V≤V_I≤-20V, T_J=25°C		4	100	mV
Quiescent Current	I_q	T_J=25°C		2	5.5	mA
Quiescent Current Change	ΔI_q	-6.3V≤V_I≤-20V			1.5	mA
	ΔI_q	1mA≤I_O≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100kHz, T_J=25°C		40		μV
Temperature coefficient of V_O	$\Delta V_O/\Delta T$	I_O=5mA		0.45		mV/°C
Ripple Rejection	RR	-6.3V ≤V_I≤-16.3V,f=120Hz,T_J=25°C	40	49		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.2 Electrical Characteristics (79L05)

(V_I=-10V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-4.95	-5	-5.05	V
Output Voltage (note 2)		T_J=25°C	-4.95	-5	-5.05	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		11	60	mV
		T_J=25°C, I_O=1mA~40mA		5	30	mV
Line regulation	ΔV_O	-7V≤V_I≤-20V, T_J=25°C		8	150	mV
		-8V≤V_I≤-20V, T_J=25°C		6	100	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	-8V≤V_I≤-20V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100kHz		40		μV
Temperature coefficient of V_O	$\Delta V_O/\Delta T$	I_O=5mA		0.65		mV/°C
Ripple Rejection	RR	-8V ≤V_I≤-20V, f=120Hz, T_J=25°C	40	49		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.3 Electrical Characteristics (79L06)

(V_I=-12V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-5.94	-6	-6.06	V
Output Voltage (note 2)		T_J=25°C	-5.94	-6	-6.06	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		12.8	80	mV
		T_J=25°C, I_O=1mA~70mA		5.8	40	mV
Line regulation	ΔV_O	-8.5V≤V_I≤-20V, T_J=25°C		64	175	mV
		-9V≤V_I≤-20V, T_J=25°C		54	125	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	-9V≤V_I≤-20V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100kHz		49		μV
Temperature coefficient of V_O	$\Delta V_O/\Delta T$	I_O=5mA		0.75		mV/°C
Ripple Rejection	RR	-10V≤V_I≤-20V, f=120Hz, T_J=25°C	38	46		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.4 Electrical Characteristics (79L08)

(V_I=-14V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-7.92	-8	-8.08	V
Output Voltage (note 2)		T_J=25°C	-7.92	-8	-8.08	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		15	80	mV
		T_J=25°C, I_O=1mA~70mA		8	40	mV
Line regulation	ΔV_O	-10.5V≤V_I≤-23V, T_J=25°C		10	175	mV
		-11V≤V_I≤-23V, T_J=25°C		8	125	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	-11V≤V_I≤-23V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100kHz		49		μV
Temperature coefficient of V_O	ΔV_O/ ΔT	I_O=5mA		0.75		mV/°C
Ripple Rejection	RR	-11V≤V_I≤-23V, f=120Hz, T_J=25°C	36	45		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.5 Electrical Characteristics (79L09)

(V_I=-15V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-8.91	-9	-9.09	V
Output Voltage (note 2)		T_J=25°C	-8.91	-9	-9.09	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		20	90	mV
		T_J=25°C, I_O=1mA~40mA		10	45	mV
Line regulation	ΔV_O	-11.5V≤V_I≤-24V, T_J=25°C		90	200	mV
		-13V≤V_I≤-24V, T_J=25°C		100	150	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	-13V≤V_I≤-24V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100kHz		49		μV
Temperature coefficient of V_O	$\Delta V_O/\Delta T$	I_O=5mA		0.75		mV/°C
Ripple Rejection	RR	-12V≤V_I≤-23V, f=120Hz, T_J=25°C	36	44		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.6 Electrical Characteristics (79L12)

(V_I=-19V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-11.88	-12	-12.12	V
Output Voltage (note 2)		T_J=25°C	-11.88	-12	-12.12	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		25	150	mV
		T_J=25°C, I_O=1mA~40mA		12	75	mV
Line regulation	ΔV_O	-14.5V≤V_I≤-27V, T_J=25°C		25	300	mV
		-16V≤V_I≤-27V, T_J=25°C		20	250	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	-16V≤V_I≤-27V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz ≤f≤100kHz		80		μV
Temperature coefficient of V_O	ΔV_O/ ΔT	I_O=5mA		1		mV/°C
Ripple Rejection	RR	-15V≤V_I≤-25V, f=120Hz, T_J=25°C	36	42		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.7 Electrical Characteristics (79L15)

(V_I=-23V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-14.85	-15	-15.15	V
Output Voltage (note 2)		T_J=25°C	-14.85	-15	-15.15	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		20	150	mV
		T_J=25°C, I_O=1mA~70mA		25	150	mV
Line regulation	ΔV_O	-17.5V≤V_I≤-30V, T_J=25°C		25	150	mV
		-20V≤V_I≤-30V, T_J=25°C		15	75	mV
Quiescent Current	I_q			2.2	6	mA
Quiescent Current Change	ΔI_q	-20V≤V_I≤-30V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz ≤f≤100kHz		90		μV
Temperature coefficient of V_O	ΔV_O/ ΔT	I_O=5mA		1.3		mV/°C
Ripple Rejection	RR	-18.5V≤V_I≤-28.5V, f=120Hz,T_J=25°C	33	39		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.8 Electrical Characteristics (79L18)

(V_I=-27V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-17.82	-18	-18.18	V
Output Voltage (note 2)		T_J=25°C	-17.82	-18	-18.18	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		30	170	mV
		T_J=25°C, I_O=1mA~40mA		15	85	mV
Line regulation	ΔV_O	-21V≤V_I≤-33V, T_J=25°C		145	300	mV
		-22V≤V_I≤-33V, T_J=25°C		135	250	mV
Quiescent Current	I_q			2.2	6	mA
Quiescent Current Change	ΔI_q	-21V≤V_I≤-33V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz ≤f≤100kHz		150		μV
Temperature coefficient of V_O	$\Delta V_O/\Delta T$	I_O=5mA		1.8		mV/°C
Ripple Rejection	RR	-23V≤V_I≤-33V, f=120Hz, T_J=25°C	32	38		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

5.9 Electrical Characteristics (79L24)

(V_I=-33V, I_O=40mA, 0<T_J<125°C, C1=0.33μF, C_O=0.1μF, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_O	T_J=25°C	-23.76	-24	-24.24	V
Output Voltage (note 2)		T_J=25°C	-23.76	-24	-24.24	V
Load Regulation	ΔV_O	T_J=25°C, I_O=1mA~130mA		40	200	mV
		T_J=25°C, I_O=1mA~40mA		20	100	mV
Line regulation	ΔV_O	-27V≤V_I≤-38V, T_J=25°C		160	300	mV
		-28V≤V_I≤-38V, T_J=25°C		150	250	mV
Quiescent Current	I_q			2.2	6	mA
Quiescent Current Change	ΔI_q	-21V≤V_I≤-38V			1.5	mA
	ΔI_q	1mA≤V_I≤40mA			0.1	mA
Output Noise Voltage	V_N	10Hz ≤f≤100kHz		200		μV
Temperature coefficient of V_O	ΔV_O/ ΔT	I_O=5mA		2		mV/°C
Ripple Rejection	RR	-27V≤V_I≤-38V, f=120Hz, T_J=25°C	30	37		dB
Dropout Voltage	V_d	T_J=25°C		1.7		V

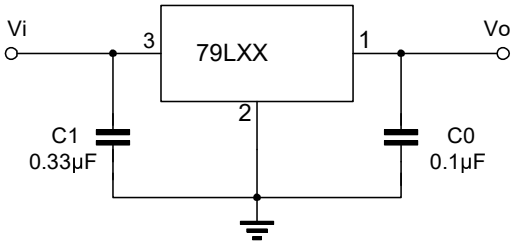
Notes

1: The Maximum steady state usable output current and input voltage are very dependent on the heating sinking and/or lead temperature length of the package.The date above respresent pulse test conditions with junction temperatures as indicated at the initiation of test.

Note 2:Power dissipation<0.75W.

Note 3:Output voltage of 79Lxx.

6.Typical Application



Note 1: To specify an output voltage,substitue voltage value for "XX".

Note 2: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators

7.Typical characteristic

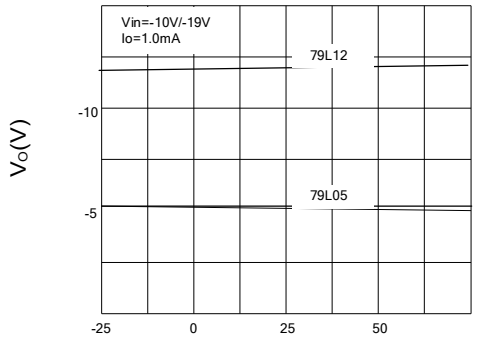


Figure 1: 79L05/12 Output Voltage vs Ambient Temperature

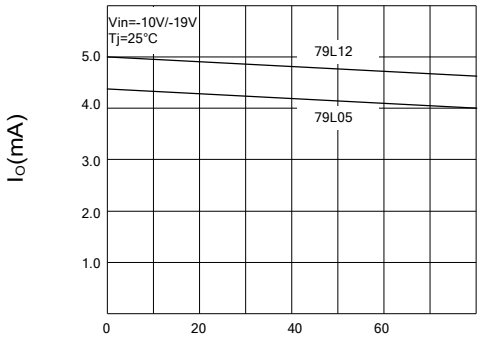


Figure 2: 79L05/12 Quiescent Curent vs Output Current

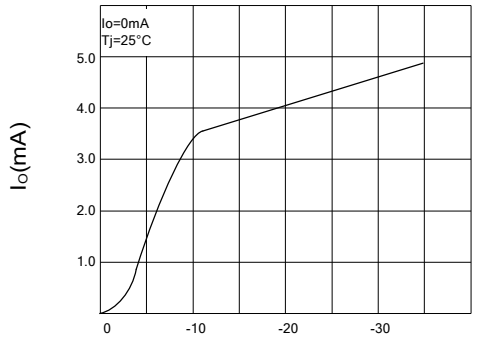


Figure 3: 79L05 Quiescent Current vs Input

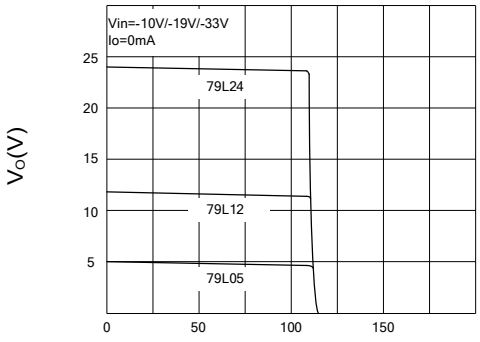


Figure 4: 79L05/12/24 Thermal Shutdown

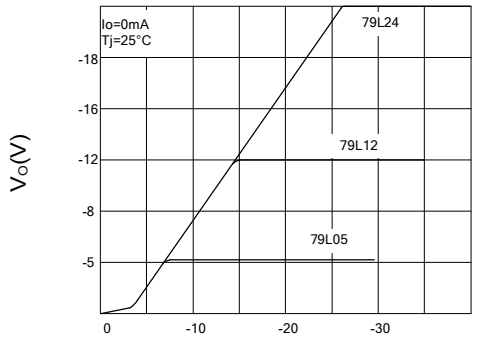


Figure 5: 79L05/12/24 Output Characteristics

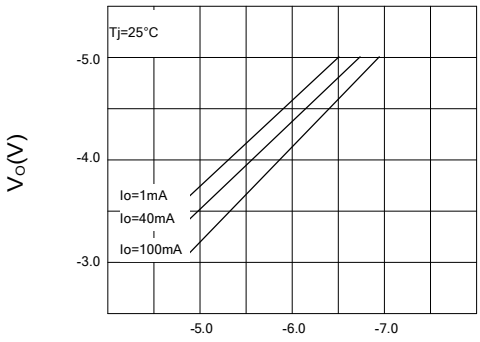
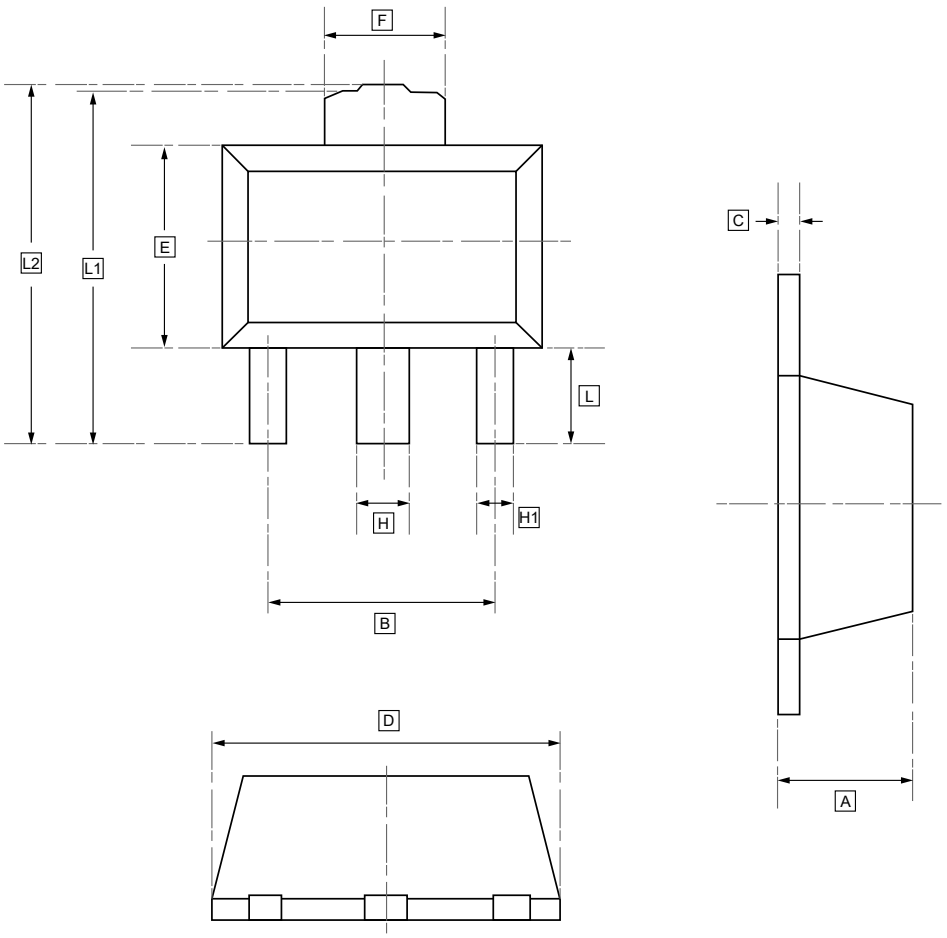


Figure 6: 79L05 Dropout Characteristics

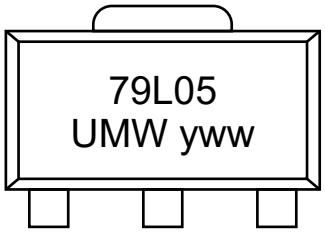
8.SOT-89 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	F	H	H1	L	L1	L2
Min	1.450	2.950	0.330	4.450	2.450	1.650	0.450	0.370	0.900	4.100	4.100
Max	1.550	3.050	0.430	4.550	2.550	1.750	0.580	0.480	1.000	4.300	4.350

9.Ordering Information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW 79Lxx-150	SOT-89	1000	Tape and reel

10.Disclaimer

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