UMW 79Lxx-150

Linear Integrated Circuit

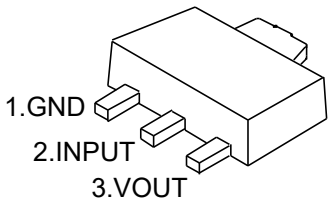
1.Description

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

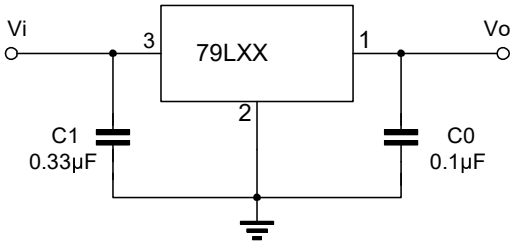
Notes

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

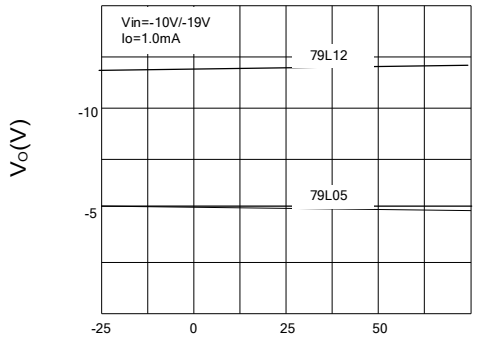


Figure 1: 79L05/12 Output Voltage vs Ambient Temperature

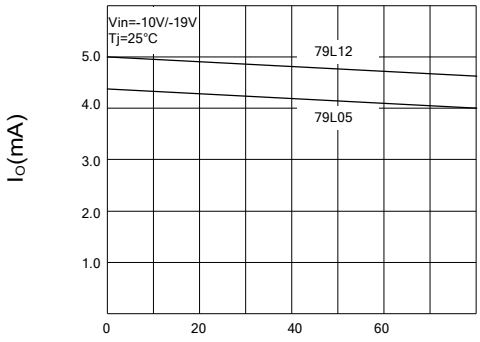


Figure 2: 79L05/12 Quiescent Curent vs Output Current

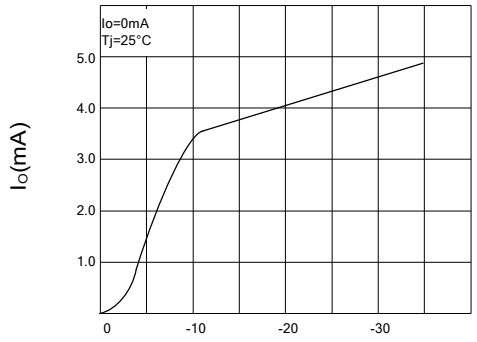


Figure 3: 79L05 Quiescent Current vs Input

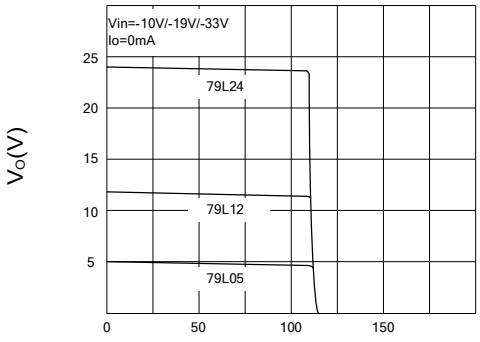


Figure 4: 79L05/12/24 Thermal Shutdown

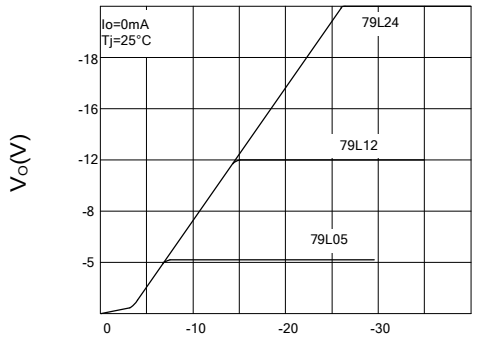


Figure 5: 79L05/12/24 Output Characteristics

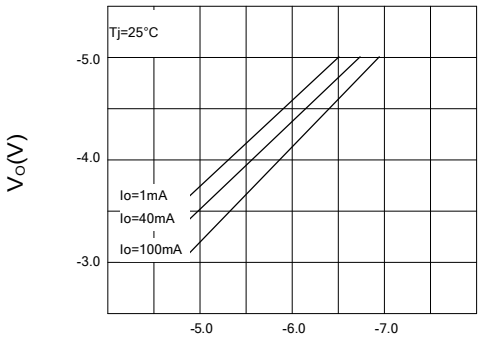
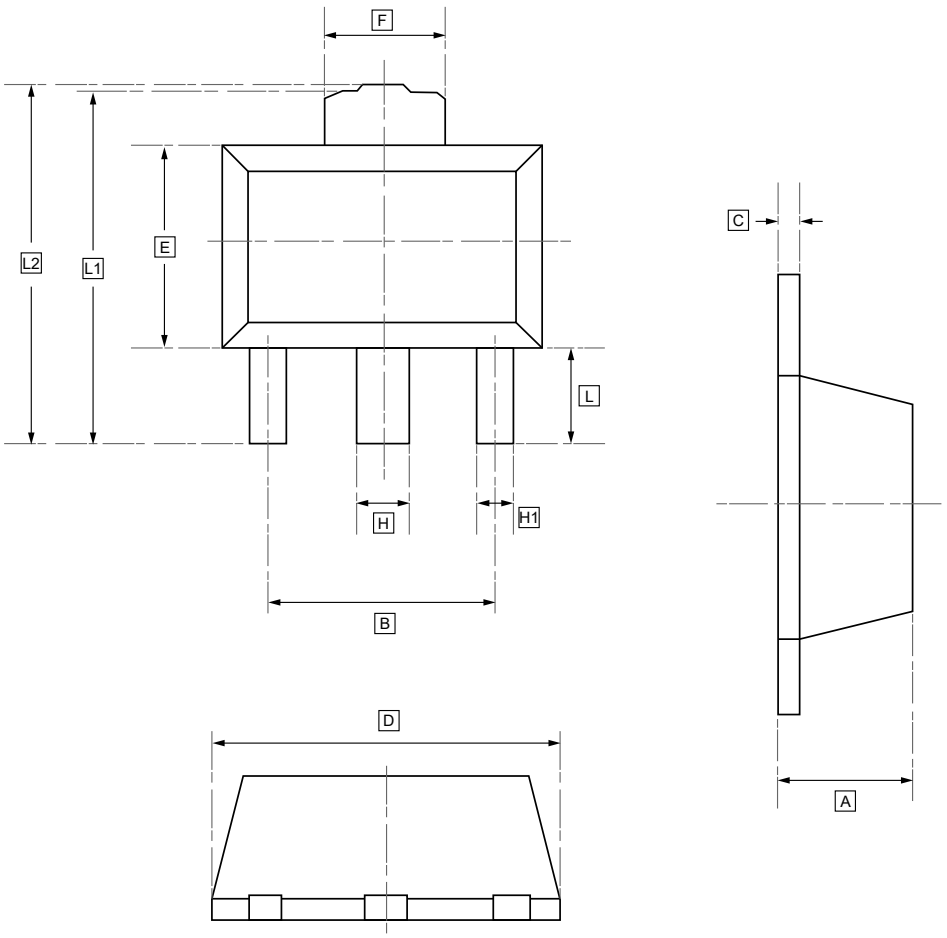


Figure 6: 79L05 Dropout Characteristics

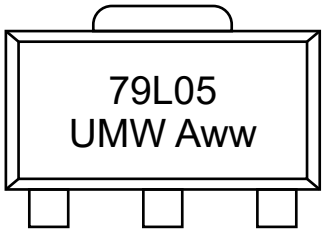
8.SOT-89 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	F	H	H1	L	L1	L2
Min	1.40	2.90	0.330	4.40	2.30	1.60	0.40	0.320	0.900	3.900	4.100
Max	1.60	3.10	0.430	4.60	2.60	1.80	0.580	0.520	1.200	4.300	4.350

9.Ordering Information



ww: Batch Code

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

10.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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