

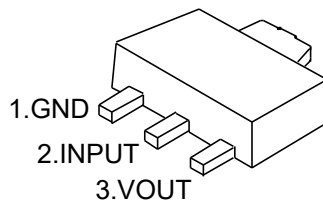
1. Description

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($T_A=25^{\circ}\text{C}$)	79L05~79L15	V_i	-35	V
	79L18~79L24		-40	V
Output current		I_o	0.15	A
High power dissipation		P_D	800	mW
Junction Temperature Range		T_{OPR}	-20 to 120	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 to 150	$^{\circ}\text{C}$



5.1 Electrical Characteristics (79L33)

($V_I = -5.3V$, $I_O = 40mA$, $0 < T_J < 125^\circ C$, $C_1 = 0.33\mu F$, $C_O = 0.1\mu F$, unless otherwise specified) (Note 1)

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



5.2 Electrical Characteristics (79L05)

($V_i = -10V$, $I_o = 40mA$, $0 < T_J < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

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



5.3 Electrical Characteristics (79L06)

($V_i = -12V$, $I_o = 40mA$, $0 < T_j < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

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



5.4 Electrical Characteristics (79L08)

($V_i = -14V$, $I_o = 40mA$, $0 < T_J < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_o	$T_J = 25^\circ C$	-7.92	-8	-8.08	V
Output Voltage (note 2)		$T_J = 25^\circ C$	-7.92	-8	-8.08	V
Load Regulation	ΔV_o	$T_J = 25^\circ C$, $I_o = 1mA \sim 130mA$		15	80	mV
		$T_J = 25^\circ C$, $I_o = 1mA \sim 70mA$		8	40	mV
Line regulation	ΔV_o	$-10.5V \leq V_i \leq -23V$, $T_J = 25^\circ C$		10	175	mV
		$-11V \leq V_i \leq -23V$, $T_J = 25^\circ C$		8	125	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	$-11V \leq V_i \leq -23V$			1.5	mA
	ΔI_q	$1mA \leq V_i \leq 40mA$			0.1	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		49		μV
Temperature coefficient of V_o	$\Delta V_o / \Delta T$	$I_o = 5mA$		0.75		$mV/^\circ C$
Ripple Rejection	RR	$-11V \leq V_i \leq -23V$, $f = 120Hz$, $T_J = 25^\circ C$	36	45		dB
Dropout Voltage	V_d	$T_J = 25^\circ C$		1.7		V



5.5 Electrical Characteristics (79L09)

($V_i = -15V$, $I_o = 40mA$, $0 < T_j < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

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



5.6 Electrical Characteristics (79L12)

($V_i = -19V$, $I_o = 40mA$, $0 < T_j < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_o	$T_j = 25^\circ C$	-11.88	-12	-12.12	V
Output Voltage (note 2)		$T_j = 25^\circ C$	-11.88	-12	-12.12	V
Load Regulation	ΔV_o	$T_j = 25^\circ C$, $I_o = 1mA \sim 130mA$		25	150	mV
		$T_j = 25^\circ C$, $I_o = 1mA \sim 40mA$		12	75	mV
Line regulation	ΔV_o	$-14.5V \leq V_i \leq -27V$, $T_j = 25^\circ C$		25	300	mV
		$-16V \leq V_i \leq -27V$, $T_j = 25^\circ C$		20	250	mV
Quiescent Current	I_q			2	5.5	mA
Quiescent Current Change	ΔI_q	$-16V \leq V_i \leq -27V$			1.5	mA
	ΔI_q	$1mA \leq V_i \leq 40mA$			0.1	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		80		μV
Temperature coefficient of V_o	$\Delta V_o / \Delta T$	$I_o = 5mA$		1		$mV/^\circ C$
Ripple Rejection	RR	$-15V \leq V_i \leq -25V$, $f = 120Hz$, $T_j = 25^\circ C$	36	42		dB
Dropout Voltage	V_d	$T_j = 25^\circ C$		1.7		V



5.7 Electrical Characteristics (79L15)

($V_i=-23V$, $I_o=40mA$, $0<T_J<125^{\circ}C$, $C1=0.33\mu F$, $C_o=0.1\mu F$, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_o	$T_J=25^{\circ}C$	-14.85	-15	-15.15	V
Output Voltage (note 2)		$T_J=25^{\circ}C$	-14.85	-15	-15.15	V
Load Regulation	ΔV_o	$T_J=25^{\circ}C$, $I_o=1mA\sim 130mA$		20	150	mV
		$T_J=25^{\circ}C$, $I_o=1mA\sim 70mA$		25	150	mV
Line regulation	ΔV_o	$-17.5V\leq V_i\leq -30V$, $T_J=25^{\circ}C$		25	150	mV
		$-20V\leq V_i\leq -30V$, $T_J=25^{\circ}C$		15	75	mV
Quiescent Current	I_q			2.2	6	mA
Quiescent Current Change	ΔI_q	$-20V\leq V_i\leq -30V$			1.5	mA
	ΔI_q	$1mA\leq V_i\leq 40mA$			0.1	mA
Output Noise Voltage	V_N	$10Hz\leq f\leq 100kHz$		90		μV
Temperature coefficient of V_o	$\Delta V_o/\Delta T$	$I_o=5mA$		1.3		$mV/^{\circ}C$
Ripple Rejection	RR	$-18.5V\leq V_i\leq -28.5V$, $f=120Hz$, $T_J=25^{\circ}C$	33	39		dB
Dropout Voltage	V_d	$T_J=25^{\circ}C$		1.7		V



5.8 Electrical Characteristics (79L18)

($V_i = -27V$, $I_o = 40mA$, $0 < T_j < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

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



5.9 Electrical Characteristics (79L24)

($V_i = -33V$, $I_o = 40mA$, $0 < T_j < 125^\circ C$, $C_1 = 0.33\mu F$, $C_o = 0.1\mu F$, unless otherwise specified) (Note 1)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Output Voltage	V_o	$T_j = 25^\circ C$	-23.76	-24	-24.24	V
Output Voltage (note 2)		$T_j = 25^\circ C$	-23.76	-24	-24.24	V
Load Regulation	ΔV_o	$T_j = 25^\circ C$, $I_o = 1mA \sim 130mA$		40	200	mV
		$T_j = 25^\circ C$, $I_o = 1mA \sim 40mA$		20	100	mV
Line regulation	ΔV_o	$-27V \leq V_i \leq -38V$, $T_j = 25^\circ C$		160	300	mV
		$-28V \leq V_i \leq -38V$, $T_j = 25^\circ C$		150	250	mV
Quiescent Current	I_q			2.2	6	mA
Quiescent Current Change	ΔI_q	$-21V \leq V_i \leq -38V$			1.5	mA
	ΔI_q	$1mA \leq V_i \leq 40mA$			0.1	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		200		μV
Temperature coefficient of V_o	$\Delta V_o / \Delta T$	$I_o = 5mA$		2		$mV/^\circ C$
Ripple Rejection	RR	$-27V \leq V_i \leq -38V$, $f = 120Hz$, $T_j = 25^\circ C$	30	37		dB
Dropout Voltage	V_d	$T_j = 25^\circ C$		1.7		V

Notes

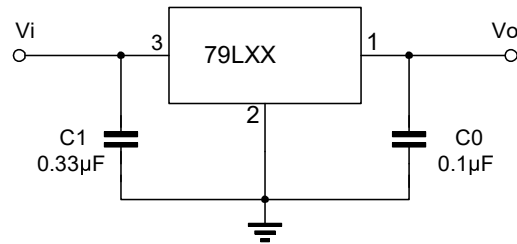
1: The Maximum steady state usable output current and input voltage are very dependent on the heating sinking and/or lead temperature length of the package. The data above represent pulse test conditions with junction temperatures as indicated at the initiation of test.

Note 2: Power dissipation $< 0.75W$.

Note 3: Output voltage of 79Lxx.



6. Typical Application



Note 1: To specify an output voltage, substitute 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

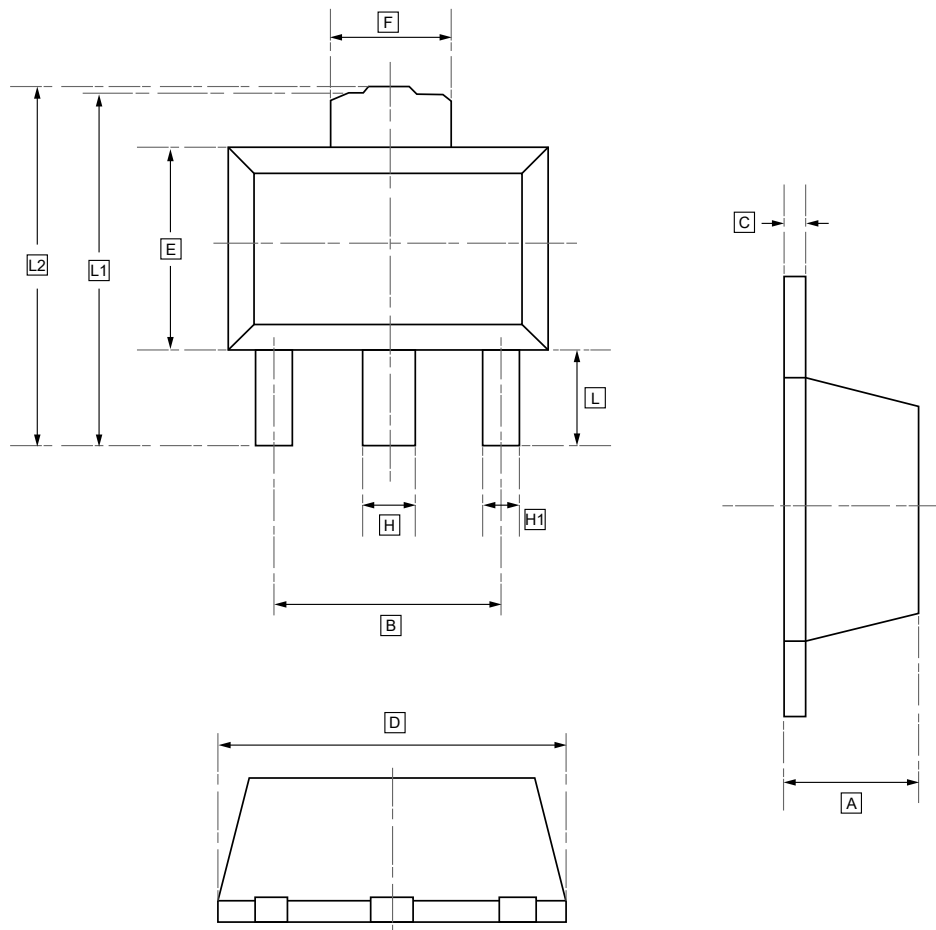


7. Typical characteristic

<p>Figure 1: 79L05/12 Output Voltage vs Ambient Temperature</p>	<p>Figure 2: 79L05/12 Quiescent Current vs Output Current</p>
<p>Figure 3: 79L05 Quiescent Current vs Input</p>	<p>Figure 4: 79L05/12/24 Thermal Shutdown</p>
<p>Figure 5: 79L05/12/24 Output Characteristics</p>	<p>Figure 6: 79L05 Dropout Characteristics</p>



8.SOT-89 Package Outline Dimensions

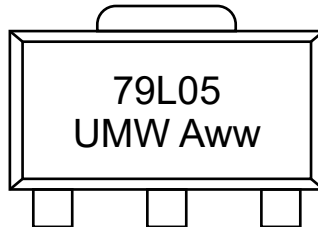


DIMENSIONS (mm are the original dimensions)

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



ww: Batch Code

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



10.Disclaimer

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