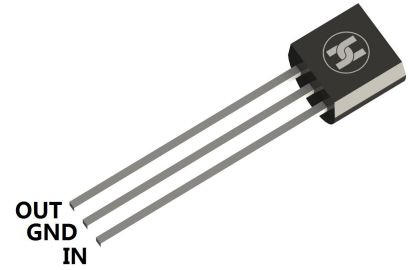


PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

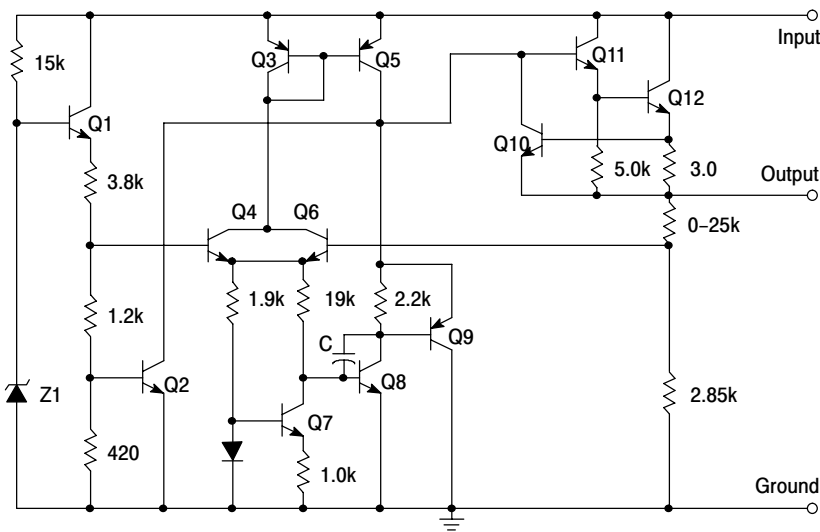
FEATURES

- Maximum Output Current I_o : 0.1 A
- Output Voltage V_o : 3.3; 5; 6; 8; 9; 10; 12; 15; 18; 20; 24V
- Thermal Overload Protection
- Short Circuit Protection
- No External Components Are Required
- Continuous Total Dissipation
 P_D : 0.60 W ($T_a = 25\text{ }^\circ\text{C}$)



TO-92

SCHEMATIC DIAGRAM

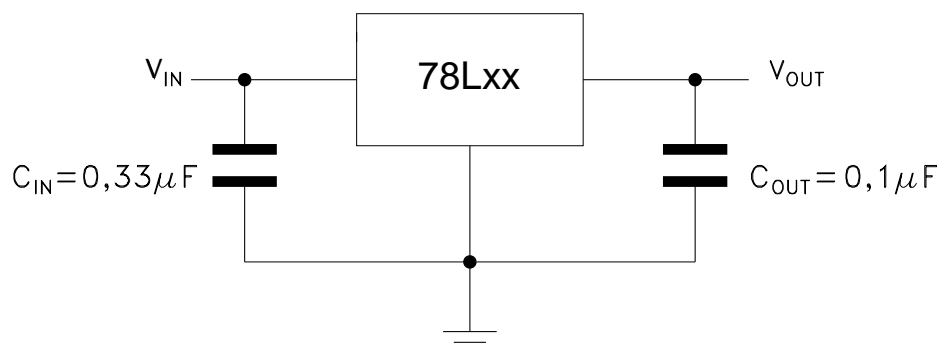


MECHANICAL DATA

- Case: TO -92
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.055 grams (approximate)

MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter		Symbol	Value	Unit
Input Voltage	$V_o = 3.3\text{V to } 9\text{V}$	V_i	30	V
	$V_o = 12\text{V to } 15\text{V}$		35	V
	$V_o = 18\text{V to } 24\text{V}$		40	V
Power Dissipation		P_D	600	mW
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	160	$^\circ\text{C/W}$
Operating Temperature		T_{opr}	-40~+125	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 ~+150	$^\circ\text{C}$

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS
TEST CIRCUIT


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

ELECTRICAL CHARACTERISTICS OF 78L05 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE (Vi=10V, Io=40mA, Ci=0.33uF, Co=0.1uF, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V _O	4.80	5.0	5.20	V	T _J =+25°C
		4.75	5.0	5.25	V	7V≤V _i ≤20V, I _o =1mA~40mA, 0°C≤T _J ≤+125°C
		4.75	5.0	5.25	V	7V≤V _i ≤20V, I _o =1mA~70mA, 0°C≤T _J ≤+125°C
Load Regulation	ΔV _O		15	60	mV	I _o =1mA~100mA, T _J =+25°C
			8	30	mV	I _o =1mA~40mA, T _J =+25°C
Line regulation	ΔV _O		32	150	mV	7V≤V _i ≤20V
			26	100	mV	8V≤V _i ≤20V, T _J =+25°C
Quiescent Current	I _q		3.8	6	mA	T _J =+25°C
Quiescent Current Change	ΔI _q			1.5	mA	8V≤V _i ≤20V, -25°C≤T _J ≤+125°C
				0.1	mA	1mA≤I _i ≤40mA, -25°C≤T _J ≤+125°C
Output Noise Voltage	V _N		42		μV/V _O	10Hz≤f≤100kHz, T _J =+25°C
Ripple Rejection	RR	41	49		dB	8V≤V _i ≤20V, f=120Hz, -25°C≤T _J ≤+125°C
Dropout Voltage	V _d		1.7		V	T _J =+25°C

*Pulse Test

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS
**ELECTRICAL CHARACTERISTICS OF 78L06 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=10V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	5.75	6.0	6.25	V	$T_J=+25^\circ C$
		5.7	6.0	6.3	V	$8V \leq V_i \leq 20V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		5.7	6.0	6.3	V	$8V \leq V_i \leq 20V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		16	80	mV	$I_o=1mA \sim 100mA, T_J=+25^\circ C$
			9	40	mV	$I_o=1mA \sim 40mA, T_J=+25^\circ C$
Line regulation	ΔV_o		35	175	mV	$8V \leq V_i \leq 20V$
			29	125	mV	$9V \leq V_i \leq 20V, T_J=+25^\circ C$
Quiescent Current	I_q		3.9	6	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$9V \leq V_i \leq 20V, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		46		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	40	48		dB	$9V \leq V_i \leq 19V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

**ELECTRICAL CHARACTERISTICS OF 78L08 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=10V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	7.7	8.0	8.3	V	$T_J=+25^\circ C$
		7.6	8.0	8.4	V	$10.5V \leq V_i \leq 23V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		7.6	8.0	8.4	V	$10.5V \leq V_i \leq 23V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		18	80	mV	$I_o=1mA \sim 100mA, T_J=+25^\circ C$
			10	40	mV	$I_o=1mA \sim 40mA, T_J=+25^\circ C$
Line regulation	ΔV_o		42	175	mV	$10.5V \leq V_i \leq 23V$
			36	125	mV	$11V \leq V_i \leq 23V, T_J=+25^\circ C$
Quiescent Current	I_q		4	6	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$11V \leq V_i \leq 23V, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		54		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	37	46		dB	$13V \leq V_i \leq 23V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS
**ELECTRICAL CHARACTERISTICS OF 78L09 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=16V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	8.64	9.0	9.36	V	$T_J=+25^\circ C$
		8.55	9.0	9.45	V	$12V \leq V_i \leq 24V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		8.55	9.0	9.45	V	$12V \leq V_i \leq 24V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		19	90	mV	$I_o=1mA \sim 100mA, T_J=+25^\circ C$
			11	40	mV	$I_o=1mA \sim 40mA, T_J=+25^\circ C$
Line regulation	ΔV_o		45	175	mV	$12V \leq V_i \leq 24V$
			40	125	mV	$13V \leq V_i \leq 24V, T_J=+25^\circ C$
Quiescent Current	I_q		4.1	6.0	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$13V \leq V_i \leq 24V, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N	58			$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR		45		dB	$15V \leq V_i \leq 25V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

**ELECTRICAL CHARACTERISTICS OF 78L10 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=16V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	9.2	10	10.8	V	$T_J=+25^\circ C$
		9	10	11	V	$12.5V \leq V_i \leq 23V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		9	10	11	V	$V_i=16V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		21	80	mV	$I_o=1mA \sim 100mA, T_J=+25^\circ C$
			12	40	mV	$I_o=1mA \sim 40mA, T_J=+25^\circ C$
Line regulation	ΔV_o		50	230	mV	$12.5V \leq V_i \leq 23V, T_J=+25^\circ C$
			45	170	mV	$13V \leq V_i \leq 23V, T_J=+25^\circ C$
Quiescent Current	I_q		4.1	6.0	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$13V \leq V_i \leq 23V, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		60		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	37	45		dB	$14V \leq V_i \leq 23V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS
**ELECTRICAL CHARACTERISTICS OF 78L12 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=19V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	11.5	12	12.5	V	$T_J=+25^\circ C$
		11.4	12	12.6	V	$14V \leq V_i \leq 27V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		11.4	12	12.6	V	$14V \leq V_i \leq 27V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		22	100	mV	$I_o=1mA \sim 100mA, T_J=+25^\circ C$
			13	50	mV	$I_o=1mA \sim 40mA, T_J=+25^\circ C$
Line regulation	ΔV_o		55	250	mV	$14.5V \leq V_i \leq 27V$
			49	200	mV	$16V \leq V_i \leq 27V, T_J=+25^\circ C$
Quiescent Current	I_q		4.3	6.5	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$16V \leq V_i \leq 27V, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		70		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	37	42		dB	$15V \leq V_i \leq 25V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

**ELECTRICAL CHARACTERISTICS OF 78L15 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=23V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	14.4	15	15.6	V	$T_J=+25^\circ C$
		14.25	15	15.75	V	$17.5V \leq V_i \leq 30V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		14.25	15	15.75	V	$V_i=23V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		25	150	mV	$V_i=23V, I_o=1mA \sim 100mA, T_J=25^\circ C$
			15	75	mV	$V_i=23V, I_o=1mA \sim 40mA, T_J=25^\circ C$
Line regulation	ΔV_o		65	300	mV	$17.5V \leq V_i \leq 30V, I_o=40mA, T_J=25^\circ C$
			58	250	mV	$19V \leq V_i \leq 30V, I_o=40mA, T_J=25^\circ C$
Quiescent Current	I_q		4.6	6.5	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$19V \leq V_i \leq 30V, I_o=40mA, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, V_i=23V, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		82		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	34	39		dB	$18.5V \leq V_i \leq 28.5V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS
**ELECTRICAL CHARACTERISTICS OF 78L18 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=26V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	17.3	18	18.7	V	$T_J=+25^\circ C$
		17.1	18	18.9	V	$20.5V \leq V_i \leq 33V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		17.1	18	18.9	V	$V_i=26V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		27	180	mV	$V_i=26V, I_o=1mA \sim 100mA, T_J=25^\circ C$
			19	90	mV	$V_i=26V, I_o=1mA \sim 40mA, T_J=25^\circ C$
Line regulation	ΔV_o		70	360	mV	$20.5V \leq V_i \leq 33V, I_o=40mA, T_J=25^\circ C$
			64	300	mV	$22V \leq V_i \leq 33V, I_o=40mA, T_J=25^\circ C$
Quiescent Current	I_q		4.7	6.5	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$22V \leq V_i \leq 33V, I_o=40mA, 0^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, V_i=26V, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		89		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	32	36		dB	$21.5V \leq V_i \leq 31.5V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

**ELECTRICAL CHARACTERISTICS OF 78L20 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=29V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	18.4	20	21.6	V	$T_J=+25^\circ C$
		18	20	22	V	$24V \leq V_i \leq 33V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		18	20	22	V	$V_i=29V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		29	180	mV	$V_i=29V, I_o=1mA \sim 100mA, T_J=25^\circ C$
			17	90	mV	$V_i=29V, I_o=1mA \sim 40mA, T_J=25^\circ C$
Line regulation	ΔV_o		75	330	mV	$22.5V \leq V_i \leq 34V, I_o=40mA, T_J=25^\circ C$
			70	280	mV	$24V \leq V_i \leq 34V, I_o=40mA, T_J=25^\circ C$
Quiescent Current	I_q		4.7	6.5	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$25V \leq V_i \leq 33V, I_o=40mA, 0^\circ C \leq T_J \leq +125^\circ C$
				0.2	mA	$1mA \leq I_o \leq 40mA, V_i=26V, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		120		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	31	38		dB	$25V \leq V_i \leq 35V, f=120Hz, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS
**ELECTRICAL CHARACTERISTICS OF 78L24 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=33V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	22.1	24	25.9	V	$T_J=+25^\circ C$
		21.6	24	26.4	V	$27V \leq V_i \leq 38V, I_o=1mA \sim 40mA, 0^\circ C \leq T_J \leq +125^\circ C$
		21.6	24	26.4	V	$V_i=33V, I_o=1mA \sim 70mA, 0^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o		29	200	mV	$V_i=33V, I_o=1mA \sim 100mA, T_J=25^\circ C$
			21	100	mV	$V_i=33V, I_o=1mA \sim 40mA, T_J=25^\circ C$
Line regulation	ΔV_o		75	350	mV	$27V \leq V_i \leq 38V, I_o=40mA, T_J=25^\circ C$
			70	300	mV	$28V \leq V_i \leq 38V, I_o=40mA, T_J=25^\circ C$
Quiescent Current	I_q		4.7	6.5	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$28V \leq V_i \leq 38V, I_o=40mA, 0^\circ C \leq T_J \leq +125^\circ C$
				0.2	mA	$1mA \leq I_o \leq 40mA, V_i=33V, 0^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		200		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	30	37		dB	$29V \leq V_i \leq 35V, f=120Hz, I_o=40mA, 0^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

**ELECTRICAL CHARACTERISTICS OF 78L33 AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE
($V_i=8.3V, I_o=40mA, C_i=0.33\mu F, C_o=0.1\mu F$, unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	V_o	3.168	3.3	3.432	V	$T_J=+25^\circ C$
		3.135	3.3	3.465	V	$5.3V \leq V_i \leq 20V, I_o=1mA \sim 40mA, -40^\circ C \leq T_J \leq +125^\circ C$
		3.135	3.3	3.465	V	$V_i=8.3V, I_o=1mA \sim 70mA, -40^\circ C \leq T_J \leq +125^\circ C$
Load Regulation	ΔV_o			60	mV	$V_i=8.3V, I_o=1mA \sim 100mA, T_J=25^\circ C$
				30	mV	$V_i=8.3V, I_o=1mA \sim 40mA, T_J=25^\circ C$
Line regulation	ΔV_o			150	mV	$5.3V \leq V_i \leq 20V, I_o=40mA, T_J=25^\circ C$
				100	mV	$6.3V \leq V_i \leq 20V, I_o=40mA, T_J=25^\circ C$
Quiescent Current	I_q			6	mA	$T_J=+25^\circ C$
Quiescent Current Change	ΔI_q			1.5	mA	$6.3V \leq V_i \leq 20V, I_o=40mA, -40^\circ C \leq T_J \leq +125^\circ C$
				0.1	mA	$1mA \leq I_o \leq 40mA, V_i=8.3V, -40^\circ C \leq T_J \leq +125^\circ C$
Output Noise Voltage	V_N		40		$\mu V/V_o$	$10Hz \leq f \leq 100kHz, T_J=+25^\circ C$
Ripple Rejection	RR	41	49		dB	$6.3V \leq V_i \leq 16.3V, f=120Hz, I_o=40mA, -40^\circ C \leq T_J \leq +125^\circ C$
Dropout Voltage	V_d		1.7		V	$T_J=+25^\circ C$

*Pulse Test

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

Typical Characteristics

Figure 1 : 78L05/12 Output Voltage vs Ambient Temperature

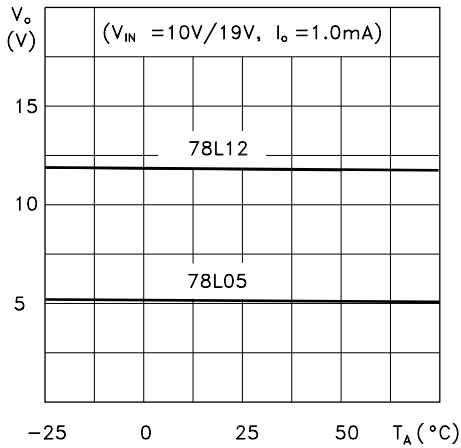


Figure 4 : 78L05/12 Quiescent Current vs Output Current

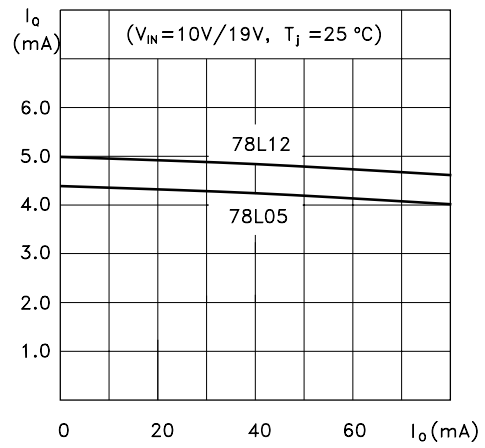


Figure 2 : 78L05/12/24 Load Characteristics

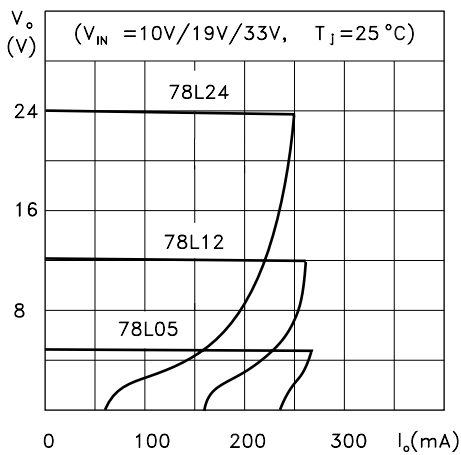


Figure 5 : 78L05 Quiescent Current vs Input Voltage

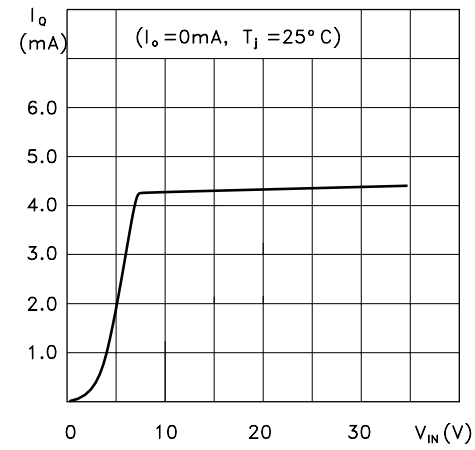


Figure 3 : 78L05/12/24 Thermal Shutdown

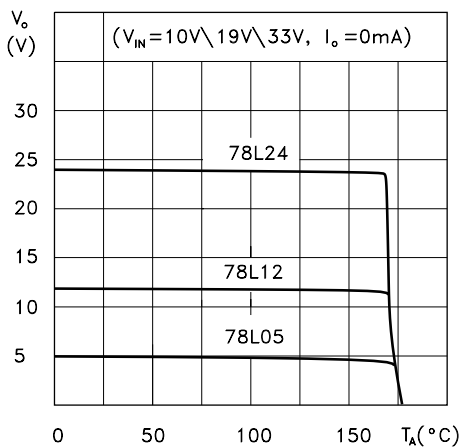
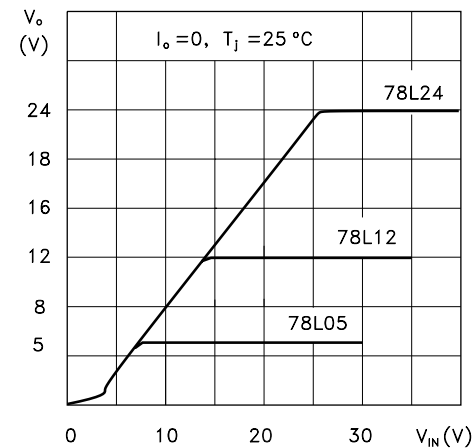


Figure 6 : 78L05/12/24 Output Characteristics



PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

Figure 7 : 78L05/12/24 Ripple Rejection

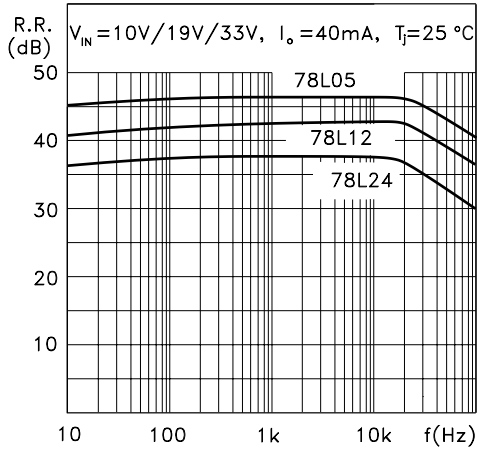


Figure 9 : 78L00 Series Short Circuit Output Current

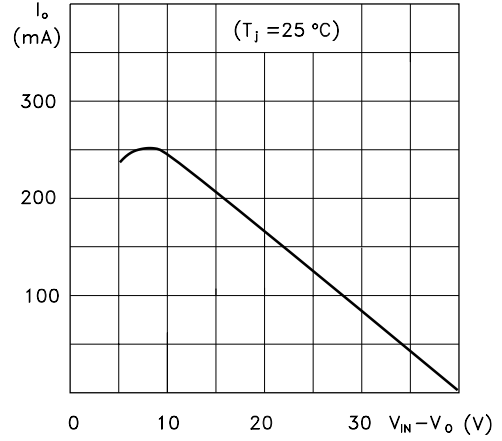
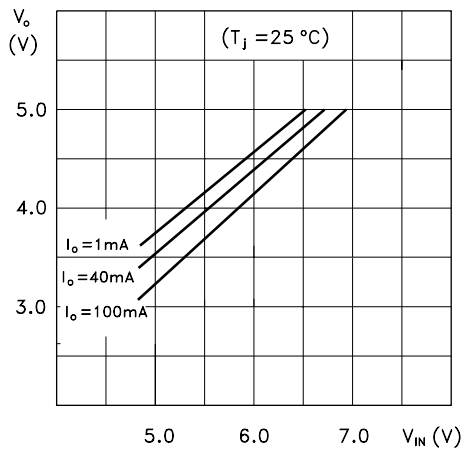


Figure 8 : 78L05 Dropout Characteristics



PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

TYPICAL APPLICATION

Table 10 : High Output Current Short Circuit Protected

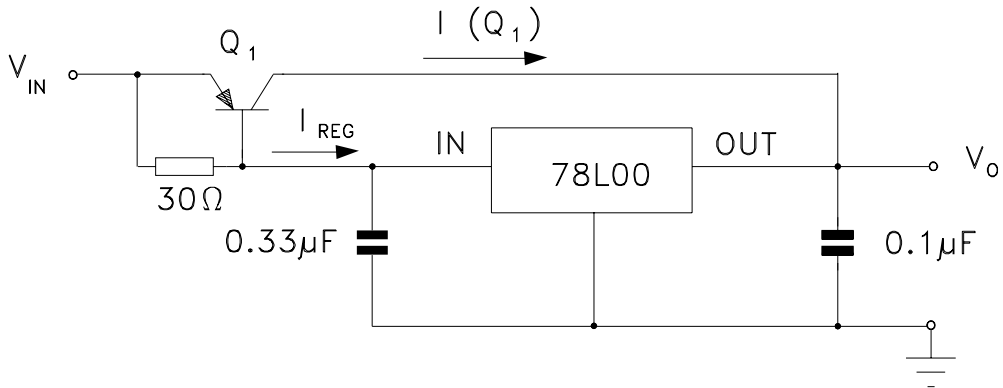


Figure 11 : Edit Boost Circuit

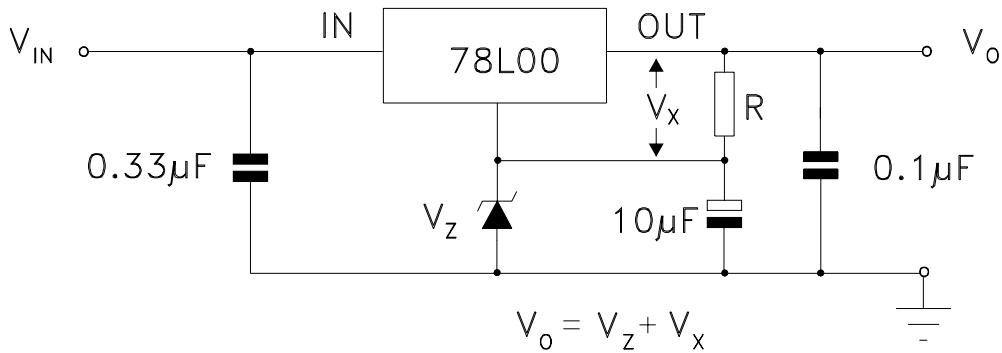


Figure 12 : Current Regulator

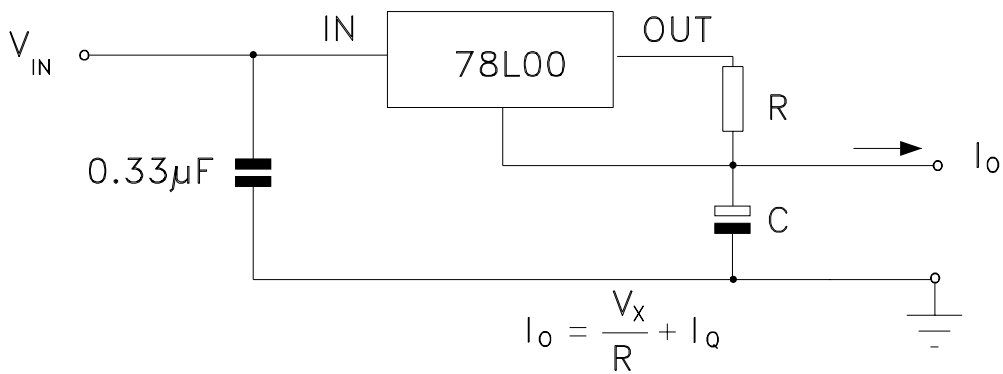
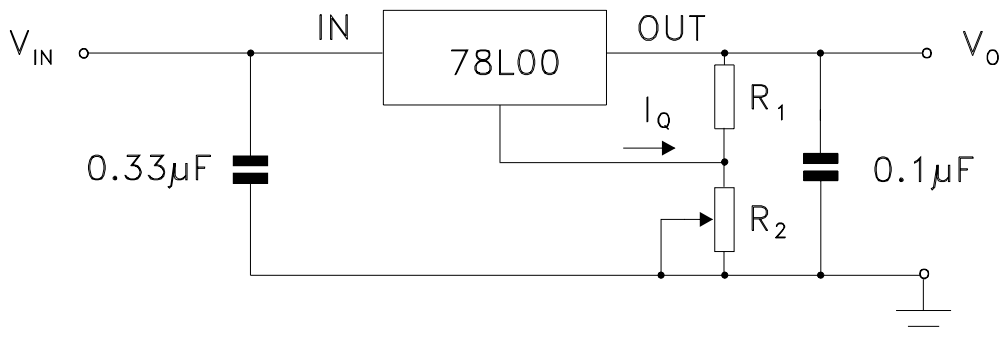
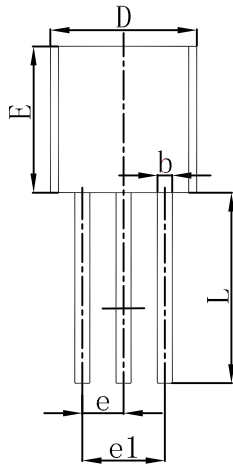
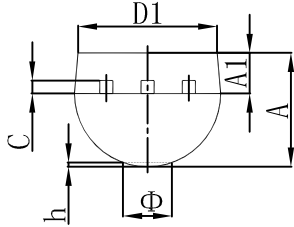


Figure 13 : Adjustable Output Regulator



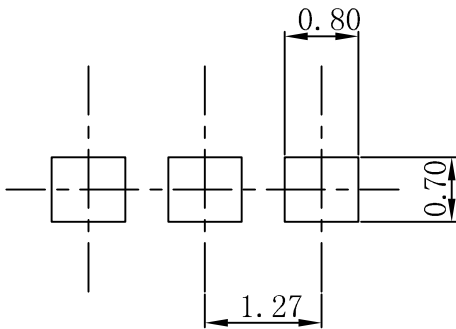
PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

TO-92 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.300	4.700	0.169	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ		1.600		0.063
h	0.000	0.380	0.000	0.015

TO-92 Suggested Pad Layout

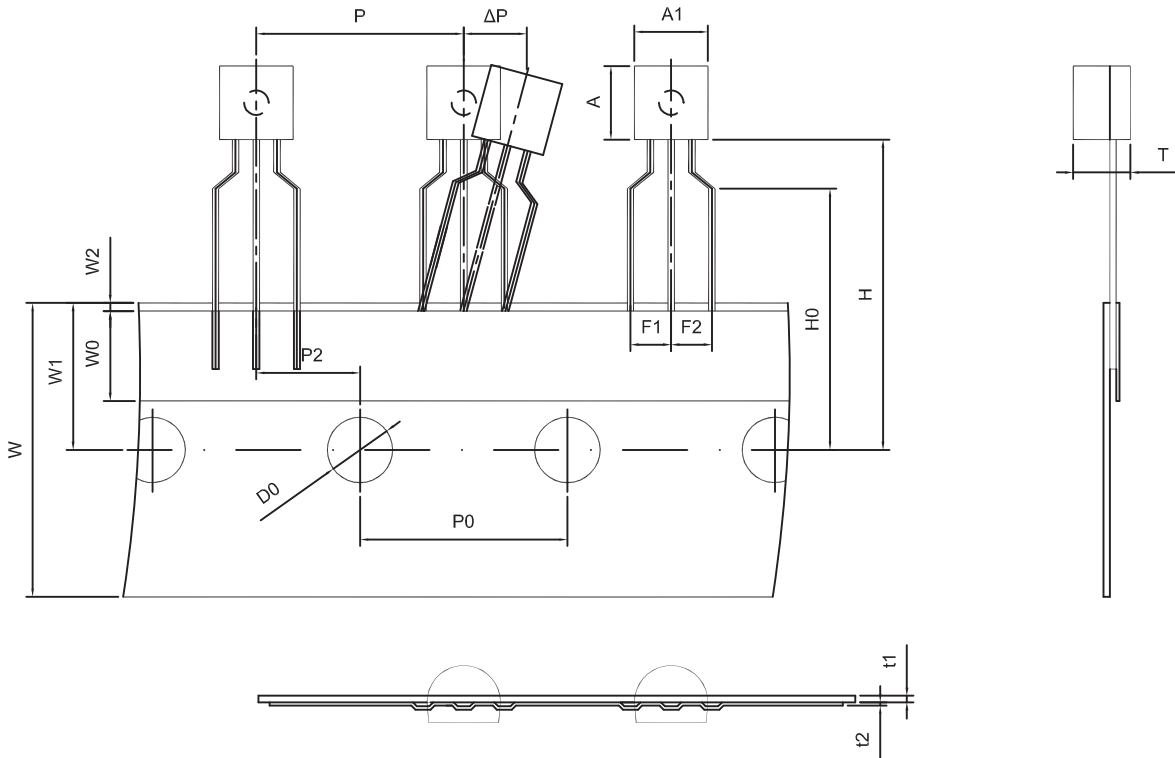


Note:

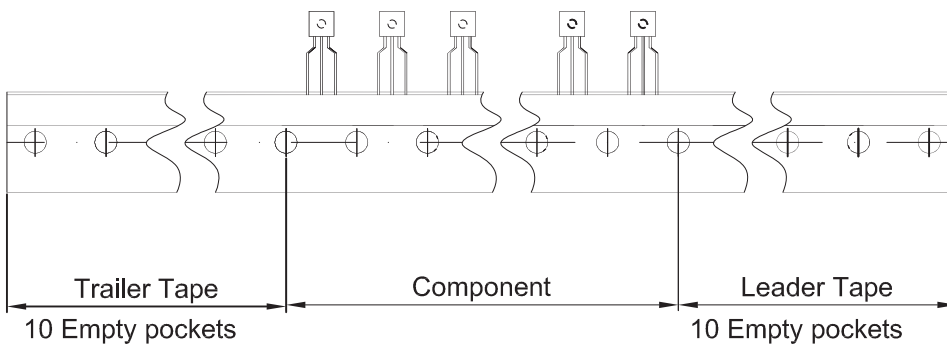
1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

PLASTIC-ENCAPSULATE VOLTAGE REGULATORS

TO-92 Package Taping Dimensions



Dimiensions are in millimeter								
A1	A	T	P	P0	P2	F1	F2	W
4.5	4.5	3.5	12.7	12.7	6.35	2.5	2.5	18.0
W0	W1	W2	H	H0	D0	t1	t2	ΔP
6.0	9.0	1.0 MAX.	19.0	16.0	4.0	0.4	0.2	0



Package	Box	Box Size(mm)	Carton	Carton Size(mm)
TO-92	2000 pcs	333×162×43	20,000 pcs	350×340×250