

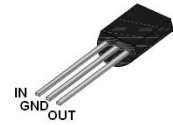
TS78L05

3-Terminal 100mA Positive Voltage Regulator

DRAWING

Features

- ◆ Output Current up to 100A
- ◆ Output Voltages of 5V
- ◆ Thermal Overload protection
- ◆ Short Circuit protection
- ◆ Output Transistor Safe Operating Area Protection
- ◆ TO-92 Package



General Description

The TS78L05 series of three-terminal positive regulator are Available in the TO-92 Package and with several fixed output voltage ,marking Them useful in a wide range of applications. Each type Employs internal current limiting, thermal shut down and Safe operating area protection, marking it provided, They can deliver over 100mA output current.

Absolute Maximum Ratings

Parameter	Symbol	Value		Units
		Min	Max	
Output Voltage			35	V
Output Current	I_o		100	mA
Operating temperature	T_{amb}	-20	80	°C
Storage Temperature Range	T_{stg}	-40	150	°C

Thermal Characteristics

Symbol	Parameter	Typ	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case			°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient		200	°C/W

Electrical Characteristics

TS78L05

Parameter	Symbol	Conditions	Specification values			Unit
			Min	Typ	Max	
Output Voltage	VO	Tj=25°C	4.6	5	5.4	V
Output Voltage	VO	VI=7~20V, IO=1mA~40mA	4.5		5.5	V
		VI=10V, IO=1mA~70mA	4.5		5.5	
Line Regulation	REGV	VI=8.5~20V Tj=25°C			200	mV
		VI=9~20V Tj=25°C			150	
Load Regulation	REGL	IO=1mA~100mA Tj=25°C			60	mV
		IO=1mA~40mA Tj=25°C			30	
Quiescent Current	Iq	Tj=25°C			6	mA
		Tj=125°C			5.5	
Quiescent Current Change	ΔIq	IO = 1 to 40 mA			0.2	mA
		VI= 6.3 to 20 V			1.5	
Output Noise Voltage	VNO	f=10Hz~100kHz Tj=25°C		40		uV
Ripple Rejection	SVR	VI=6.3~16.3V, IO=40mA f=120Hz Tj=25°C	41	49		dB
Dropout Voltage	Vd			1.7		V

Typical Characteristics

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

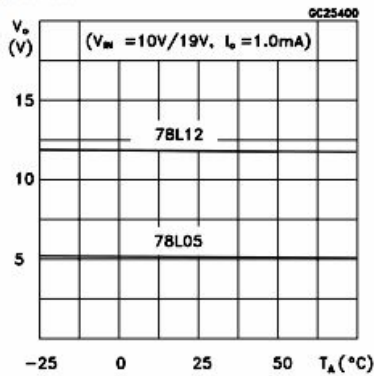


Figure 4 : 78L05/12 Quiescent Current vs Output Current

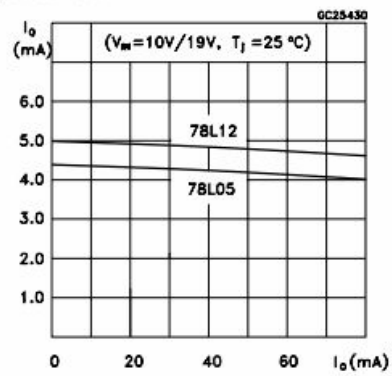


Figure 2 : 78L05/12/24 Load Characteristics

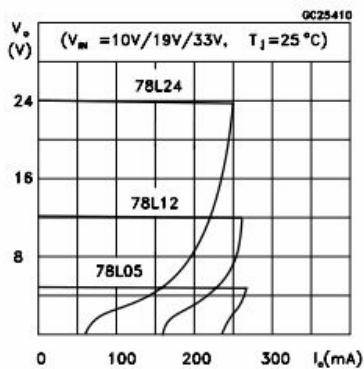


Figure 5 : 78L05 Quiescent Current vs Input Voltage

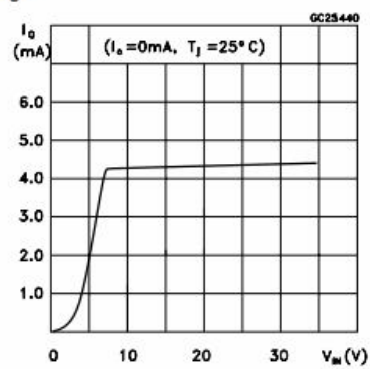


Figure 3 : 78L05/12/24 Thermal Shutdown

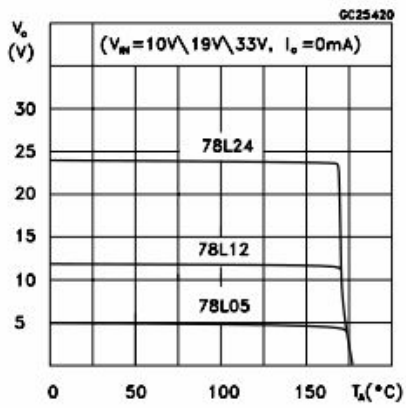


Figure 6 : 78L05/12/24 Output Characteristics

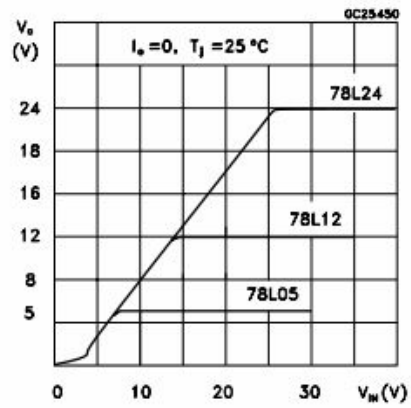


Figure 7 : 78L05/12/24 Ripple Rejection

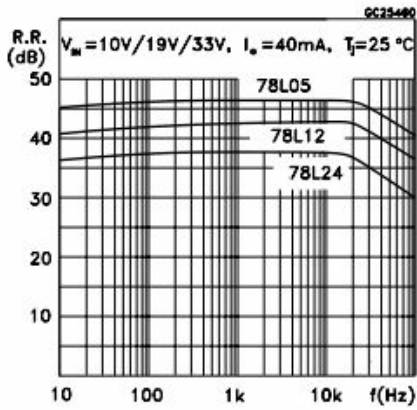


Figure 9 : 78L00 Series Short Circuit Output Current

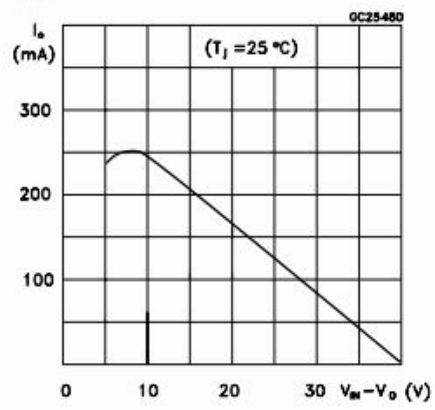
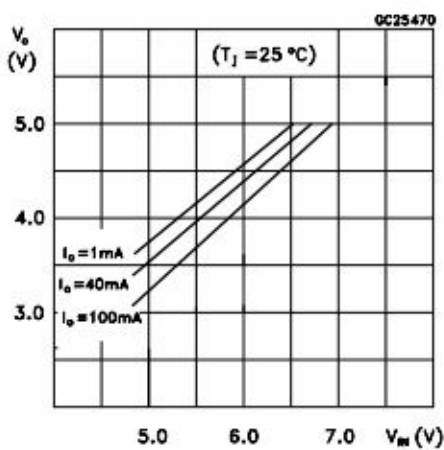
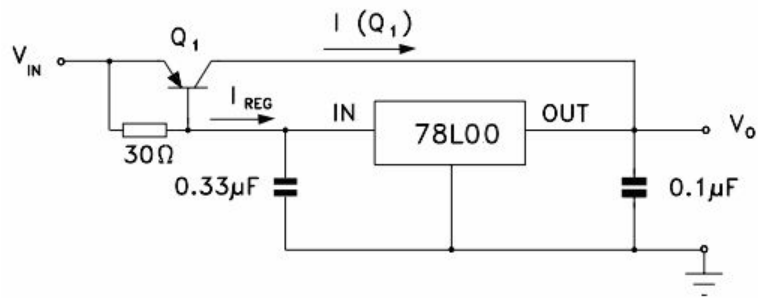


Figure 8 : 78L05 Dropout Characteristics

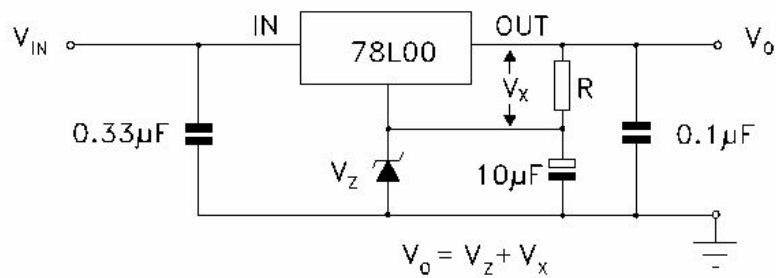


Test Circuit

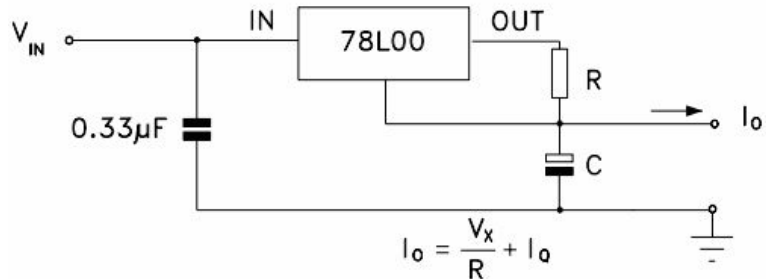
High Output Current Short Circuit Protected



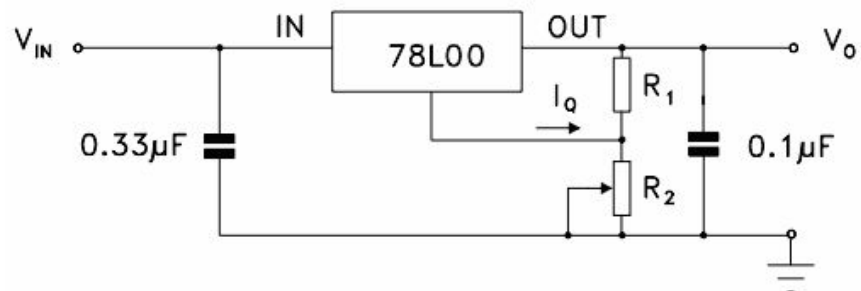
Edit Boost Circuit



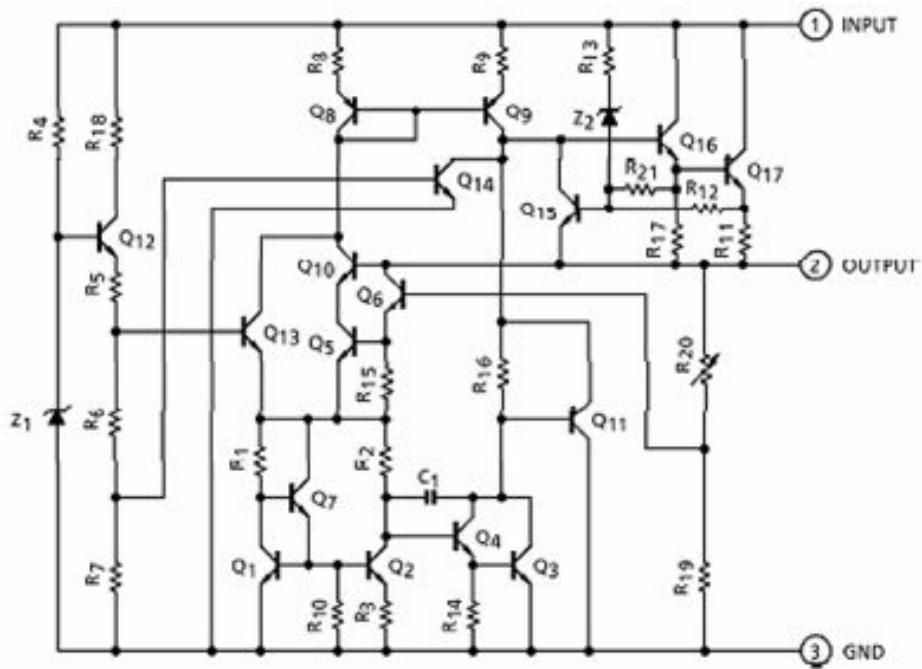
Current Regulator



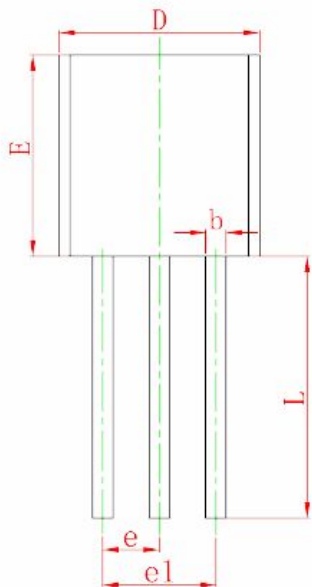
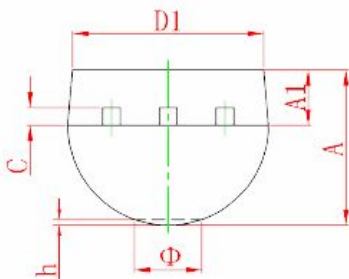
Adjustable Output Regulator



Schematic Diagram



Mechanical 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	4.400	4.700	0.173	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