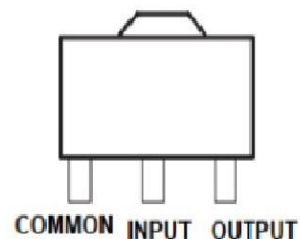


- Three-terminal fixed output voltage regulator 0.5W 0.15A -5V-24V
- Three-terminal negative voltage regulator
- Main purposes:
The role of regulator and protection for a variety of electrical appliances, electronic equipment, regulator circuit



● Maximum Ratings

Parameter		Symbol	Ratings	Unit
Input voltage ($T_A=25^\circ\text{C}$)	79L05~79L15	V_I	-35	V
	79L18~79L24		-40	
Output current		I_O	0.15	A
Total power dissipation ($T_A=25^\circ\text{C}$) ^{**}		P_D	0.5	W
Work (tube shell) temperature		T_{OP}	-40~85	$^\circ\text{C}$
Storage temperature		T_{stg}	-55~150	$^\circ\text{C}$

Note: Devices installed in good thermal environment

79L05 Electrical characteristics (Unless otherwise specified $0 \leq T_J \leq +125^\circ\text{C}$, $V_I = -10\text{V}$, $I_O = 40\text{mA}$, $C_I = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	MAX	Unit	
Output Voltage	V_O	$T_J = 25^\circ\text{C}$	-4.8	-5	-5.2	V	
		$1\text{mA} \leq I_O \leq 40\text{mA}$, $-7\text{V} \leq V_I \leq -20\text{V}$	-4.75	-5	-5.25		
Voltage Regulation	S_V	$T_J = 25^\circ\text{C}$	$-7\text{V} \leq V_I \leq -20\text{V}$	—	—	150	mV
			$-8\text{V} \leq V_I \leq -20\text{V}$	—	—	100	
Current Regulation	S_I	$T_J = 25^\circ\text{C}$, $1\text{mA} \leq I_O \leq 100\text{mA}$	—	—	60	mV	
Quiescent Current	I_Q	$T_J = 25^\circ\text{C}$	—	—	6	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_O \leq 40\text{mA}$	—	—	0.1	mA	
		$-8\text{V} \leq V_I \leq -20\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_I - V_O $	$T_J = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-8\text{V} \leq V_I \leq -18\text{V}$; $f = 120\text{Hz}$	—	49	—	dB	

79L06 Electrical characteristics (Unless otherwise specified $0 \leq T_J \leq +125^\circ\text{C}$, $V_I = -11\text{V}$, $I_O = 40\text{mA}$, $C_I = 0.33\mu\text{F}$, $C_O = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_O	$T_J = 25^\circ\text{C}$	-5.76	-6	-6.24	V	
		$1\text{mA} \leq I_O \leq 40\text{mA}$, $-8.1\text{V} \leq V_I \leq -21\text{V}$	-5.7	-6	-6.3		
Voltage Regulation	S_V	$T_J = 25^\circ\text{C}$	$-8.1\text{V} \leq V_I \leq -21\text{V}$	—	—	150	mV
			$-9\text{V} \leq V_I \leq -21\text{V}$	—	—	110	
Current Regulation	S_I	$T_J = 25^\circ\text{C}$, $1\text{mA} \leq I_O \leq 100\text{mA}$	—	—	70	mV	
Quiescent Current	I_Q	$T_J = 25^\circ\text{C}$	—	—	6	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_O \leq 40\text{mA}$	—	—	0.1	mA	
		$-9\text{V} \leq V_I \leq -20\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_I - V_O $	$T_J = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-9\text{V} \leq V_I \leq -19\text{V}$; $f = 120\text{Hz}$	—	47	—	dB	

79L08 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -14\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-7.7	-8	-8.3	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-10.5\text{V} \leq V_i \leq -23\text{V}$	-7.6	-8	-8.4		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-10.5\text{V} \leq V_i \leq -23\text{V}$	—	—	175	mV
			$-11\text{V} \leq V_i \leq -23\text{V}$	—	—	125	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	80	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$,	—	—	0.1	mA	
		$-11\text{V} \leq V_i \leq -23\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-12\text{V} \leq V_i \leq -23\text{V}$; $f = 120\text{Hz}$	—	45	—	dB	

79L09 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -15\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-8.64	-9	-9.36	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-11.4\text{V} \leq V_i \leq -24\text{V}$	-8.55	-9	-9.45		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-11.4\text{V} \leq V_i \leq -24\text{V}$	—	—	200	mV
			$-12\text{V} \leq V_i \leq -24\text{V}$	—	—	160	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	90	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-12\text{V} \leq V_i \leq -24\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-12\text{V} \leq V_i \leq -24\text{V}$; $f = 120\text{Hz}$	—	44	—	dB	

79L10 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -16\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-9.6	-10	-10.4	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-12.5\text{V} \leq V_i \leq -25\text{V}$	-9.5	-10	-10.5		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-12.5\text{V} \leq V_i \leq -25\text{V}$	—	—	230	mV
			$-13\text{V} \leq V_i \leq -25\text{V}$	—	—	170	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	90	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-13\text{V} \leq V_i \leq -25\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-13\text{V} \leq V_i \leq -24\text{V}$; $f = 120\text{Hz}$	—	43	—	dB	

79L12 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -19\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-11.5	-12	-12.5	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-14.5\text{V} \leq V_i \leq -27\text{V}$	-11.4	-12	-12.6		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-14.5\text{V} \leq V_i \leq -27\text{V}$	—	—	250	mV
			$-16\text{V} \leq V_i \leq -27\text{V}$	—	—	200	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	100	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-16\text{V} \leq V_i \leq -27\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-15\text{V} \leq V_i \leq -25\text{V}$; $f = 120\text{Hz}$	—	42	—	dB	

79L15 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -23\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-14.4	-15	-15.6	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-17.5\text{V} \leq V_i \leq -30\text{V}$	-14.25	-15	-15.75		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-17.5\text{V} \leq V_i \leq -30\text{V}$	—	—	300	mV
			$-20\text{V} \leq V_i \leq -30\text{V}$	—	—	250	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	150	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-20\text{V} \leq V_i \leq -30\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-18.5\text{V} \leq V_i \leq -28.5\text{V}$; $f = 120\text{Hz}$	—	39	—	dB	

79L18 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -27\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-17.3	-18	-18.7	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-20.7\text{V} \leq V_i \leq -33\text{V}$	-17.1	-18	-18.9		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-20.7\text{V} \leq V_i \leq -33\text{V}$	—	—	325	mV
			$-21\text{V} \leq V_i \leq -33\text{V}$	—	—	275	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	170	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-21\text{V} \leq V_i \leq -33\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	Srip	$-23\text{V} \leq V_i \leq -33\text{V}$; $f = 120\text{Hz}$	—	48	—	dB	

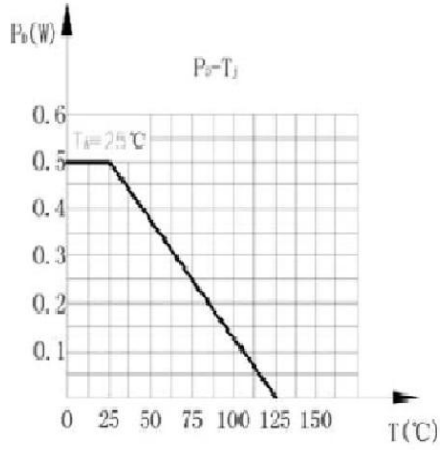
79L20 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -29\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-19.2	-20	-20.8	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-23.5\text{V} \leq V_i \leq -35\text{V}$	-19.0	-20	-21.0		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-23.5\text{V} \leq V_i \leq -35\text{V}$	—	—	330	mV
			$-24\text{V} \leq V_i \leq -35\text{V}$	—	—	285	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	180	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-24\text{V} \leq V_i \leq -35\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	S_{rip}	$-27\text{V} \leq V_i \leq -35\text{V}$; $f = 120\text{Hz}$	—	37	—	dB	

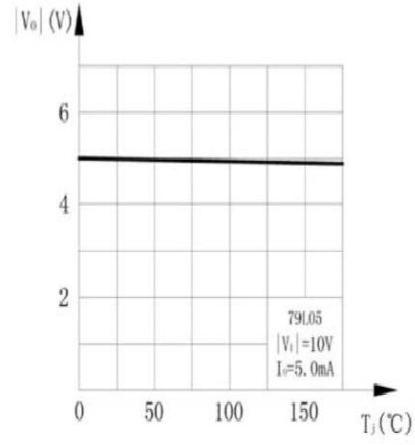
79L24 Electrical characteristics (Unless otherwise specified $0 \leq T_j \leq +125^\circ\text{C}$, $V_i = -33\text{V}$, $I_o = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$)

Parameter name	Symbol	Test Condition	Min	Typ	Max	Unit	
Output Voltage	V_o	$T_j = 25^\circ\text{C}$	-23.0	-24	-25.0	V	
		$1\text{mA} \leq I_o \leq 40\text{mA}$, $-27\text{V} \leq V_i \leq -38\text{V}$	-22.8	-24	-25.2		
Voltage Regulation	S_v	$T_j = 25^\circ\text{C}$	$-27\text{V} \leq V_i \leq -38\text{V}$	—	—	350	mV
			$-28\text{V} \leq V_i \leq -38\text{V}$	—	—	300	
Current Regulation	S_i	$T_j = 25^\circ\text{C}$, $1\text{mA} \leq I_o \leq 100\text{mA}$	—	—	200	mV	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$	—	—	6.5	mA	
Quiescent Current Change	ΔI_Q	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	0.1	mA	
		$-28\text{V} \leq V_i \leq -38\text{V}$	—	—	1.5		
Input - output differential pressure	$ V_i - V_o $	$T_j = 25^\circ\text{C}$	—	1.7	—	V	
Ripple Rejection Ratio	S_{rip}	$-29\text{V} \leq V_i \leq -35\text{V}$; $f = 120\text{Hz}$	—	47	—	dB	

Typical Characteristics

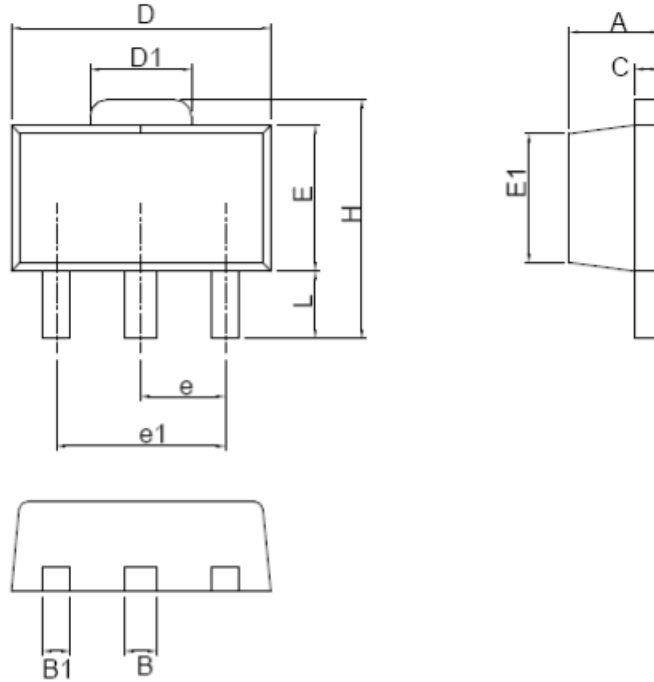


Dissipation of power and temperature curves



The curve of the output voltage and junction temperature

SOT-89



SYMBOL	SOT-89			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	1.40	1.60	0.055	0.063
B	0.44	0.56	0.017	0.022
B1	0.36	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.62	1.83	0.064	0.072
E	2.29	2.60	0.090	0.102
E1	2.13	2.29	0.084	0.090
e	1.50 BSC		0.059 BSC	
e1	3.00 BSC		0.118 BSC	
H	3.94	4.25	0.155	0.167
L	0.89	1.20	0.035	0.047