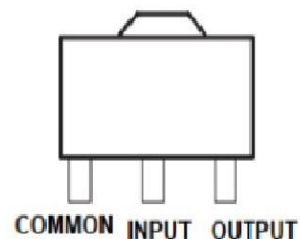


- Three-terminal fixed output voltage regulator 0.5W 0.15A -5V-24V
- Three-terminal negative voltage regulator
- Main purposes:  
The role of regulator and protection for a variety of electrical appliances, electronic equipment, regulator circuit



● 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 ( $T_A=25^{\circ}\text{C}$ ) <sup>**</sup>		$P_D$	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	$\Delta I_Q$	$1\text{mA} \leq I_O \leq 40\text{mA}$	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_O \leq 40\text{mA}$	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$ ,	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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	

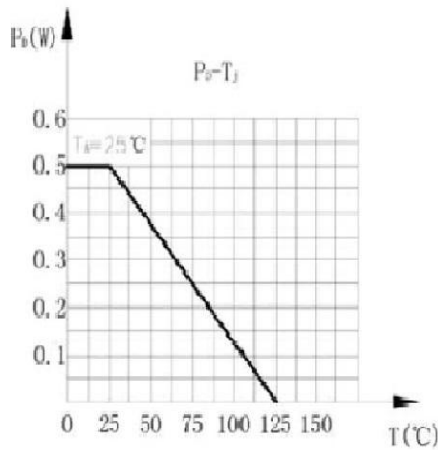
**79L20 Electrical characteristics** (Unless otherwise specified  $0 \leq T_j \leq +125^\circ\text{C}$ ,  $V_i = -29\text{V}$ ,  $I_o = 40\text{mA}$ ,  $C_i = 0.33\mu\text{F}$ ,  $C_o = 0.1\mu\text{F}$ )

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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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	

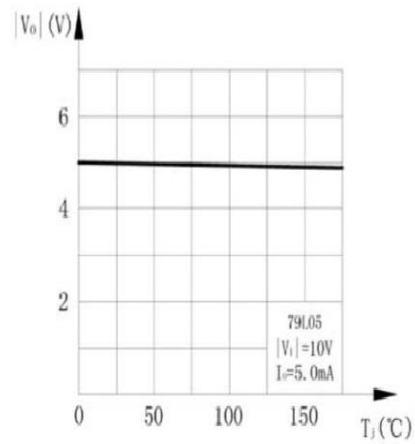
**79L24 Electrical characteristics** (Unless otherwise specified  $0 \leq T_j \leq +125^\circ\text{C}$ ,  $V_i = -33\text{V}$ ,  $I_o = 40\text{mA}$ ,  $C_i = 0.33\mu\text{F}$ ,  $C_o = 0.1\mu\text{F}$ )

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	$\Delta I_Q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	—	—	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

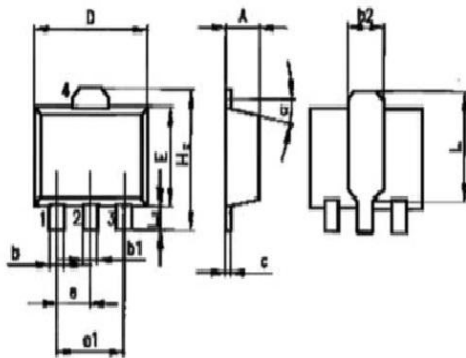


Dissipation of power and temperature curves



The curve of the output voltage and junction temperature

SOT-89 Dimensions



Unit: mm

Size	SOT-89			Size	SOT-89			
	Symbol	min	typ		max	Symbol	min	typ
A			1.5		e		1.5	
b				0.65	e1		3	
b1				0.65	H <sub>E</sub>			4.25
b2			1.6		L	2.6		2.95
c	0.25				L <sub>E</sub>	0.8		1.2
D			4.5		a			10°
E				2.6				