- **Three-terminal negative voltage regulator**

- Main purposes:
  The role of regulator and protection for a variety of electrical appliances, electronic equipment, regulator circuit

Three-terminal fixed output voltage regulator

0.5W、0.15A、-5V～-24V

SOT-89

- Maximum Ratings

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

Note:Devices installed in good thermal environment

79L05 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃, V_I=-10V, I_0=40mA, C_I=0.33μF, C_0=0.1μF)

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

79L06 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃, V_I=-11V, I_0=40mA, C_I=0.33μF, C_0=0.1μF)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	T_J=25℃		-5.76	-6	-6.24	V
		1mA≤I_O≤40mA, -8.1V≤V_I≤-21V		-5.7	-6	-6.3	
Voltage Regulation	S_V	T_J=25℃	-8.1V≤V_I≤-21V	—	—	150	mV
			-9V≤V_I≤-21V	—	—	110	
Current Regulation	S_I	T_J=25℃, 1mA≤I0≤100mA		—	—	70	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6	mA
Quiescent Current Change	$\triangle I_Q$	1mA≤I_O≤40mA		—	—	0.1	mA
		-9V≤V_I≤-20V		—	—	1.5	
Input - output differential pressure	$|V_I- V_O|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-9V≤V_I≤-19V; f=120Hz		—	47	—	dB

79L08 Electrical characteristics (Unless otherwise specified $0{\leq}T_J{\leq}+125℃$，$V_I{=}-14V$，$I_o{=}40mA$，$C_i{=}0.33{\mu}F$，$C_o{=}0.1{\mu}F$)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	$T_J{=}25℃$		-7.7	-8	-8.3	V
		$1mA{\leq}I_O{\leq}40mA$，$-10.5V{\leq}V_I{\leq}-23V$		-7.6	-8	-8.4	
Voltage Regulation	S_V	$T_J{=}25℃$	$-10.5V{\leq}V_I{\leq}-23V$	—	—	175	mV
			$-11V{\leq}V_I{\leq}-23V$	—	—	125	
Current Regulation	S_I	$T_J{=}25℃$，$1mA{\leq}I_O{\leq}100mA$		—	—	80	mV
Quiescent Current	I_Q	$T_J{=}25℃$		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	$1mA{\leq}I_O{\leq}40mA$，		—	—	0.1	mA
		$-11V{\leq}V_I{\leq}-23V$		—	—	1.5	
Input－output differential pressure	$|V_I\text{-} V_O|$	$T_J{=}25℃$		—	1.7	—	V
Ripple Rejection Ratio	Srip	$-12V{\leq}V_I{\leq}-23V$；$f{=}120Hz$		—	45	—	dB

79L09 Electrical characteristics (Unless otherwise specified $0{\leq}T_J{\leq}+125℃$，$V_I{=}-15V$，$I_o{=}40mA$，$C_i{=}0.33{\mu}F$，$C_o{=}0.1{\mu}F$)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	$T_J{=}25℃$		-8.64	-9	-9.36	V
		$1mA{\leq}I_O{\leq}40mA$，$-11.4V{\leq}V_I{\leq}-24V$		-8.55	-9	-9.45	
Voltage Regulation	S_V	$T_J{=}25℃$	$-11.4V{\leq}V_I{\leq}-24V$	—	—	200	mV
			$-12V{\leq}V_I{\leq}-24V$	—	—	160	
Current Regulation	S_I	$T_J{=}25℃$，$1mA{\leq}I_O{\leq}100mA$		—	—	90	mV
Quiescent Current	I_Q	$T_J{=}25℃$		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	$1mA{\leq}I_O{\leq}40mA$		—	—	0.1	mA
		$-12V{\leq}V_I{\leq}-24V$		—	—	1.5	
Input－output differential pressure	$|V_I\text{-} V_O|$	$T_J{=}25℃$		—	1.7	—	V
Ripple Rejection Ratio	Srip	$-12V{\leq}V_I{\leq}-24V$；$f{=}120Hz$		—	44	—	dB

79L10 Electrical characteristics (Unless otherwise specified $0{\leq}T_J{\leq}+125℃$，$V_I{=}-16V$，$I_o{=}40mA$，$C_i{=}0.33{\mu}F$，$C_o{=}0.1{\mu}F$)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	$T_J{=}25℃$		-9.6	-10	-10.4	V
		$1mA{\leq}I_O{\leq}40mA$，$-12.5V{\leq}V_I{\leq}-25V$		-9.5	-10	-10.5	
Voltage Regulation	S_V	$T_J{=}25℃$	$-12.5V{\leq}V_I{\leq}-25V$	—	—	230	mV
			$-13V{\leq}V_I{\leq}-25V$	—	—	170	
Current Regulation	S_I	$T_J{=}25℃$，$1mA{\leq}I_O{\leq}100mA$		—	—	90	mV
Quiescent Current	I_Q	$T_J{=}25℃$		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	$1mA{\leq}I_O{\leq}40mA$		—	—	0.1	mA
		$-13V{\leq}V_I{\leq}-25V$		—	—	1.5	
Input－output differential pressure	$|V_I\text{-} V_O|$	$T_J{=}25℃$		—	1.7	—	V
Ripple Rejection Ratio	Srip	$-13V{\leq}V_I{\leq}-24V$；$f{=}120Hz$		—	43	—	dB

79L12 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃, V_I=−19V, I_o=40mA, C_I=0.33μF, C_o=0.1μF)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	T_J=25℃		-11.5	-12	-12.5	V
		1mA≤I_O≤40mA, -14.5V≤V_I≤-27V		-11.4	-12	-12.6	
Voltage Regulation	S_V	T_J=25℃	-14.5V≤V_I≤-27V	—	—	250	mV
			-16V≤V_I≤-27V	—	—	200	
Current Regulation	S_I	T_J=25℃, 1mA≤I_O≤100mA		—	—	100	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	1mA≤I_O≤40mA		—	—	0.1	mA
		-16V≤V_I≤-27V		—	—	1.5	
Input – output differential pressure	$\|V_I - V_O\|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-15V≤V_I≤-25V; f=120Hz		—	42	—	dB

79L15 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃, V_I=−23V, I_o=40mA, C_I=0.33μF, C_o=0.1μF)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	T_J=25℃		-14.4	-15	-15.6	V
		1mA≤I_O≤40mA, -17.5V≤V_I≤-30V		-14.25	-15	-15.75	
Voltage Regulation	S_V	T_J=25℃	-17.5V≤V_I≤-30V	—	—	300	mV
			-20V≤V_I≤-30V	—	—	250	
Current Regulation	S_I	T_J=25℃, 1mA≤I_O≤100mA		—	—	150	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	1mA≤I_O≤40mA		—	—	0.1	mA
		-20V≤V_I≤-30V		—	—	1.5	
Input – output differential pressure	$\|V_I - V_O\|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-18.5V≤V_I≤-28.5V; f=120Hz		—	39	—	dB

79L18 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃, V_I=−27V, I_o=40mA, C_I=0.33μF, C_o=0.1μF)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	T_J=25℃		-17.3	-18	-18.7	V
		1mA≤I_O≤40mA, -20.7V≤V_I≤-33V		-17.1	-18	-18.9	
Voltage Regulation	S_V	T_J=25℃	-20.7V≤V_I≤-33V	—	—	325	mV
			-21V≤V_I≤-33V	—	—	275	
Current Regulation	S_I	T_J=25℃, 1mA≤I_O≤100mA		—	—	170	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	1mA≤I_O≤40mA		—	—	0.1	mA
		-21V≤V_I≤-33V		—	—	1.5	
Input – output differential pressure	$\|V_I - V_O\|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-23V≤V_I≤-33V; f=120Hz		—	48	—	dB

79L20 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃，V_I=−29V，I_o=40mA，C_i=0.33μF，C_o=0.1μF)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	T_J=25℃		-19.2	-20	-20.8	V
		1mA≤I_O≤40mA，-23.5V≤V_I≤-35V		-19.0	-20	-21.0	
Voltage Regulation	S_V	T_J=25℃	-23.5V≤V_I≤-35V	—	—	330	mV
			-24V≤V_I≤-35V	—	—	285	
Current Regulation	S_I	T_J=25℃，1mA≤I_O≤100mA		—	—	180	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	1mA≤I_O≤40mA		—	—	0.1	mA
		-24V≤V_I≤-35V		—	—	1.5	
Input－output differential pressure	$|V_I- V_O|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-27V≤V_I≤-35V；f=120Hz		—	37	—	dB

79L24 Electrical characteristics (Unless otherwise specified 0≤T_J≤+125℃，V_I=−33V，I_o=40mA，C_i=0.33μF，C_o=0.1μF)

Parameter name	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_O	T_J=25℃		-23.0	-24	-25.0	V
		1mA≤I_O≤40mA，-27V≤V_I≤-38V		-22.8	-24	-25.2	
Voltage Regulation	S_V	T_J=25℃	-27V≤V_I≤-38V	—	—	350	mV
			-28V≤V_I≤-38V	—	—	300	
Current Regulation	S_I	T_J=25℃，1mA≤I_O≤100mA		—	—	200	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6.5	mA
Quiescent Current Change	$\triangle I_Q$	1mA≤I_O≤40mA		—	—	0.1	mA
		-28V≤V_I≤-38V		—	—	1.5	
Input－output differential pressure	$|V_I- V_O|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-29V≤V_I≤-35V；f=120Hz		—	47	—	dB

SOT-89 Dimensions
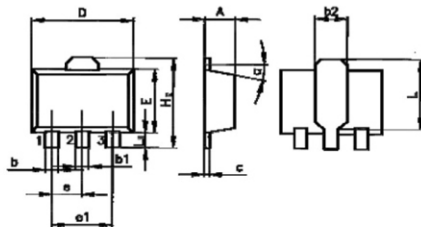
Unit：mm

Size Symbol	SOT-89 min	typ	max	Size Symbol	SOT-89 min	typ	max
A		1.5		e		1.5	
b			0.65	e1		3	
b1			0.65	H_E			4.25
b2		1.6		L	2.6		2.95
c	0.25			L_E	0.8		1.2
D		4.5		α			10°
E			2.6				

1 GND   2 IN   3 OUT
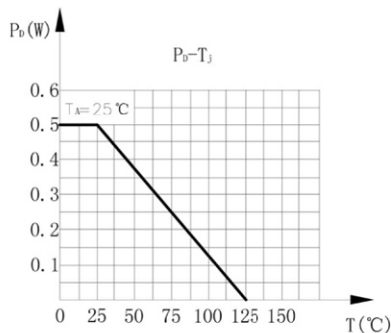
Dissipation of power and temperature curves
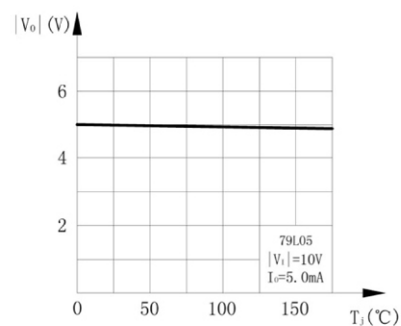
The curve of the output voltage and junction temperature

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