- Three-terminal negative voltage regulator

- Main purposes:
  The role of regulator and protection for a variety of electrical appliances, electronic equipment, regulator circuit
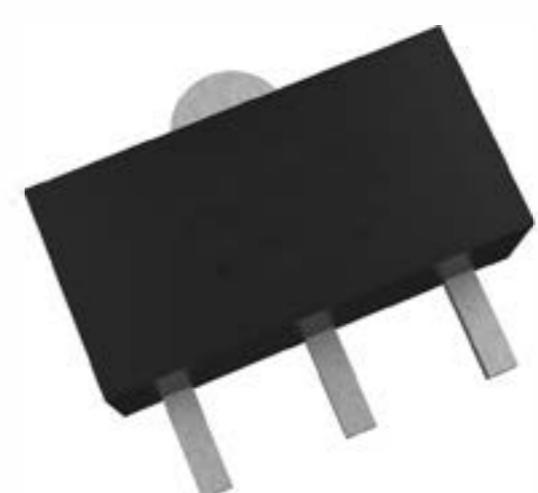
Three-terminal fixed output voltage regulator

0.5W、0.15A、-5V～-24V

SOT-89P

- 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 $0 \leq T_J \leq +125℃$，V_I=-10V，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℃		-4.8	-5	-5.2	V
		$1mA \leq I_O \leq 40mA$，$-7V \leq V_I \leq -20V$		-4.75	-5	-5.25	
Voltage Regulation	S_V	T_J=25℃	$-7V \leq V_I \leq -20V$	—	—	150	mV
			$-8V \leq V_I \leq -20V$	—	—	100	
Current Regulation	S_I	T_J=25℃，$1mA \leq I_O \leq 100mA$		—	—	60	mV
Quiescent Current	IQ	T_J=25℃		—	—	6	mA
Quiescent Current Change	$\triangle I_Q$	$1mA \leq I_O \leq 40mA$		—	—	0.1	mA
		$-8V \leq V_I \leq -20V$		—	—	1.5	
Input - output differential pressure	$|V_I - V_O|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	$-8V \leq V_I \leq -18V$；f=120Hz		—	49	—	dB

79L06 Electrical characteristics (Unless otherwise specified $0 \leq T_J \leq +125℃$，V_I=-11V，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℃		-5.76	-6	-6.24	V
		$1mA \leq I_O \leq 40mA$，$-8.1V \leq V_I \leq -21V$		-5.7	-6	-6.3	
Voltage Regulation	S_V	T_J=25℃	$-8.1V \leq V_I \leq -21V$	—	—	150	mV
			$-9V \leq V_I \leq -21V$	—	—	110	
Current Regulation	S_I	T_J=25℃，$1mA \leq I_O \leq 100mA$		—	—	70	mV
Quiescent Current	I_Q	T_J=25℃		—	—	6	mA
Quiescent Current Change	$\triangle I_Q$	$1mA \leq I_O \leq 40mA$		—	—	0.1	mA
		$-9V \leq V_I \leq -20V$		—	—	1.5	
Input - output differential pressure	$|V_I - V_O|$	T_J=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	$-9V \leq V_I \leq -19V$；f=120Hz		—	47	—	dB

79L08 Electrical characteristics (Unless otherwise specified 0≤T$_J$≤+125℃，V$_I$=−14V，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℃		-7.7	-8	-8.3	V
		1mA≤I$_O$≤40mA，-10.5V≤V$_I$≤-23V		-7.6	-8	-8.4	
Voltage Regulation	S$_V$	T$_J$=25℃	-10.5V≤V$_I$≤-23V	—	—	175	mV
			-11V≤V$_I$≤-23V	—	—	125	
Current Regulation	S$_I$	T$_J$=25℃，1mA≤I$_O$≤100mA		—	—	80	mV
Quiescent Current	I$_Q$	T$_J$=25℃		—	—	6.5	mA
Quiescent Current Change	△I$_Q$	1mA≤I$_O$≤40mA，		—	—	0.1	mA
		-11V≤V$_I$≤-23V		—	—	1.5	
Input - output differential pressure	|V$_I$- V$_O$|	T$_J$=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-12V≤V$_I$≤-23V；f=120Hz		—	45	—	dB

79L09 Electrical characteristics (Unless otherwise specified 0≤T$_J$≤+125℃，V$_I$=−15V，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℃		-8.64	-9	-9.36	V
		1mA≤I$_O$≤40mA，-11.4V≤V$_I$≤-24V		-8.55	-9	-9.45	
Voltage Regulation	S$_V$	T$_J$=25℃	-11.4V≤V$_I$≤-24V	—	—	200	mV
			-12V≤V$_I$≤-24V	—	—	160	
Current Regulation	S$_I$	T$_J$=25℃，1mA≤I$_O$≤100mA		—	—	90	mV
Quiescent Current	I$_Q$	T$_J$=25℃		—	—	6.5	mA
Quiescent Current Change	△I$_Q$	1mA≤I$_O$≤40mA		—	—	0.1	mA
		-12V≤V$_I$≤-24V		—	—	1.5	
Input - output differential pressure	|V$_I$- V$_O$|	T$_J$=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-12V≤V$_I$≤-24V；f=120Hz		—	44	—	dB

79L10 Electrical characteristics (Unless otherwise specified 0≤T$_J$≤+125℃，V$_I$=−16V，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℃		-9.6	-10	-10.4	V
		1mA≤I$_O$≤40mA，-12.5V≤V$_I$≤-25V		-9.5	-10	-10.5	
Voltage Regulation	S$_V$	T$_J$=25℃	-12.5V≤V$_I$≤-25V	—	—	230	mV
			-13V≤V$_I$≤-25V	—	—	170	
Current Regulation	S$_I$	T$_J$=25℃，1mA≤I$_O$≤100mA		—	—	90	mV
Quiescent Current	I$_Q$	T$_J$=25℃		—	—	6.5	mA
Quiescent Current Change	△I$_Q$	1mA≤I$_O$≤40mA		—	—	0.1	mA
		-13V≤V$_I$≤-25V		—	—	1.5	
Input - output differential pressure	|V$_I$- V$_O$|	T$_J$=25℃		—	1.7	—	V
Ripple Rejection Ratio	Srip	-13V≤V$_I$≤-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	△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	△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	△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-89P Dimensions

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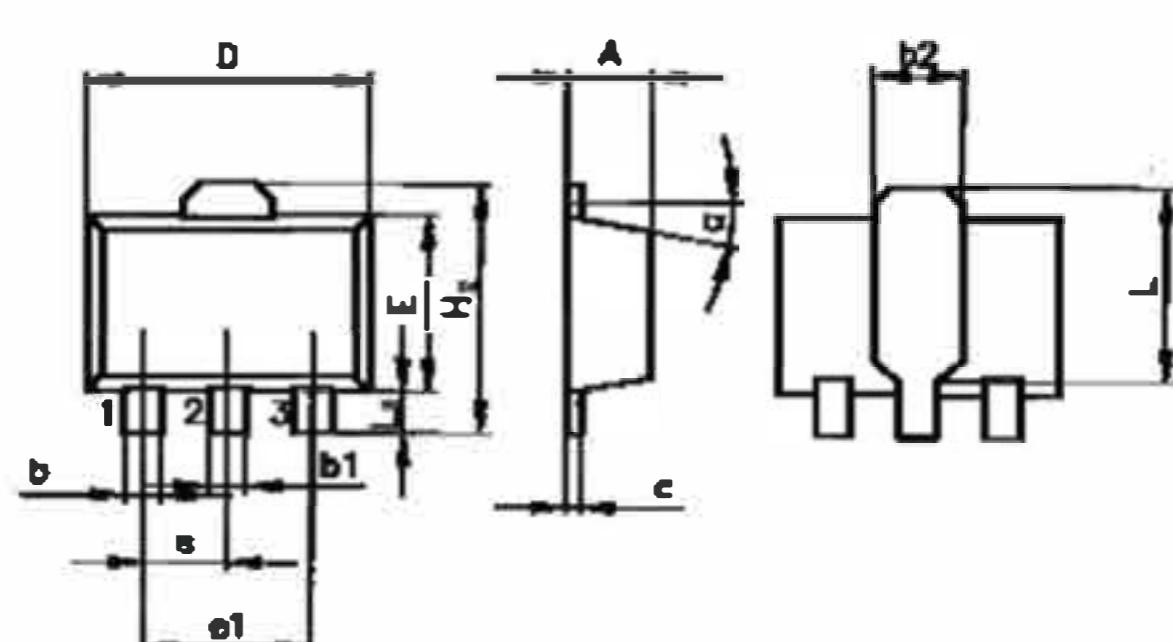
Size Symbol	SOT-89P			Size Symbol	SOT-89P		
	min	typ	max		min	typ	max
A		1.5		e		1.5	
b			0.65	e1		3	
b1			0.65	H_E			4.25
b2		1.6		L	2.6		2.95
c	0.25			L_E	0.8		1.2
D		4.5		α			10°
E			2.6				

1 GND　2 IN　3 OUT
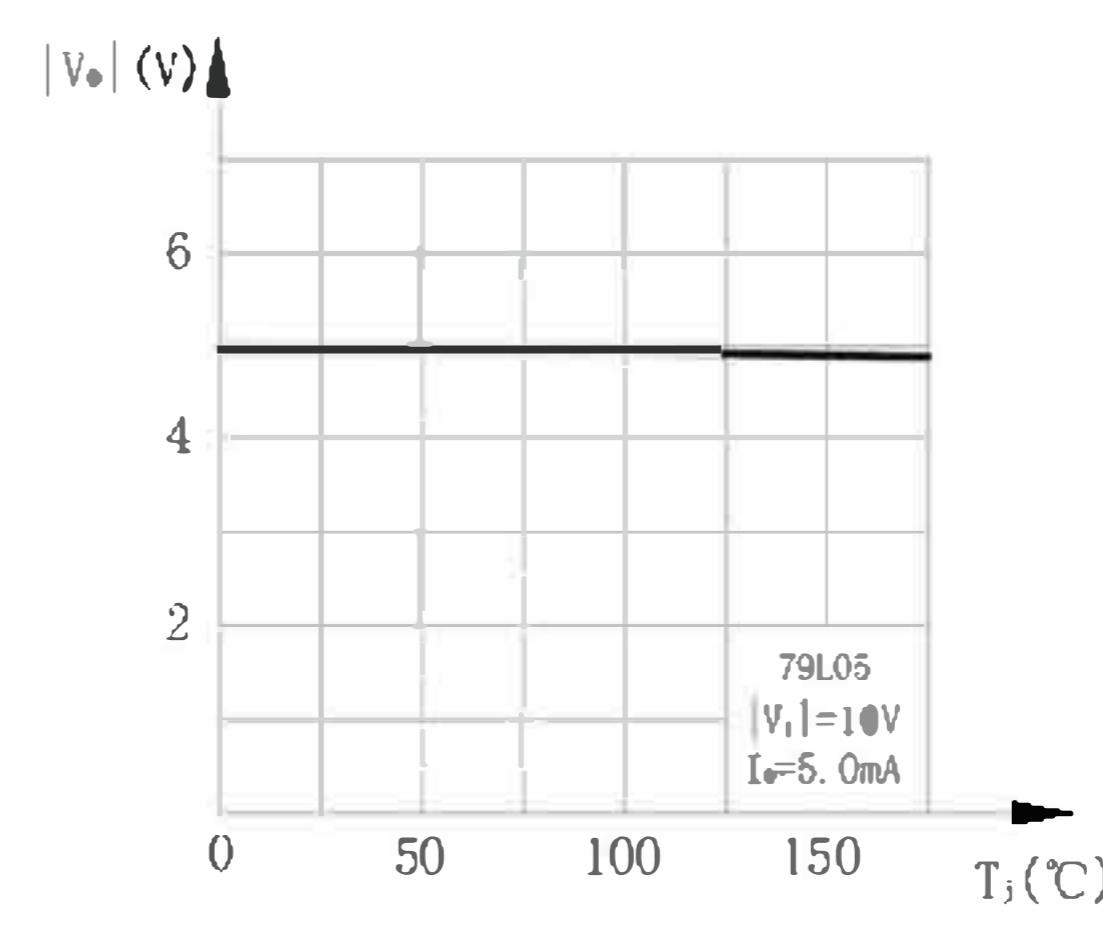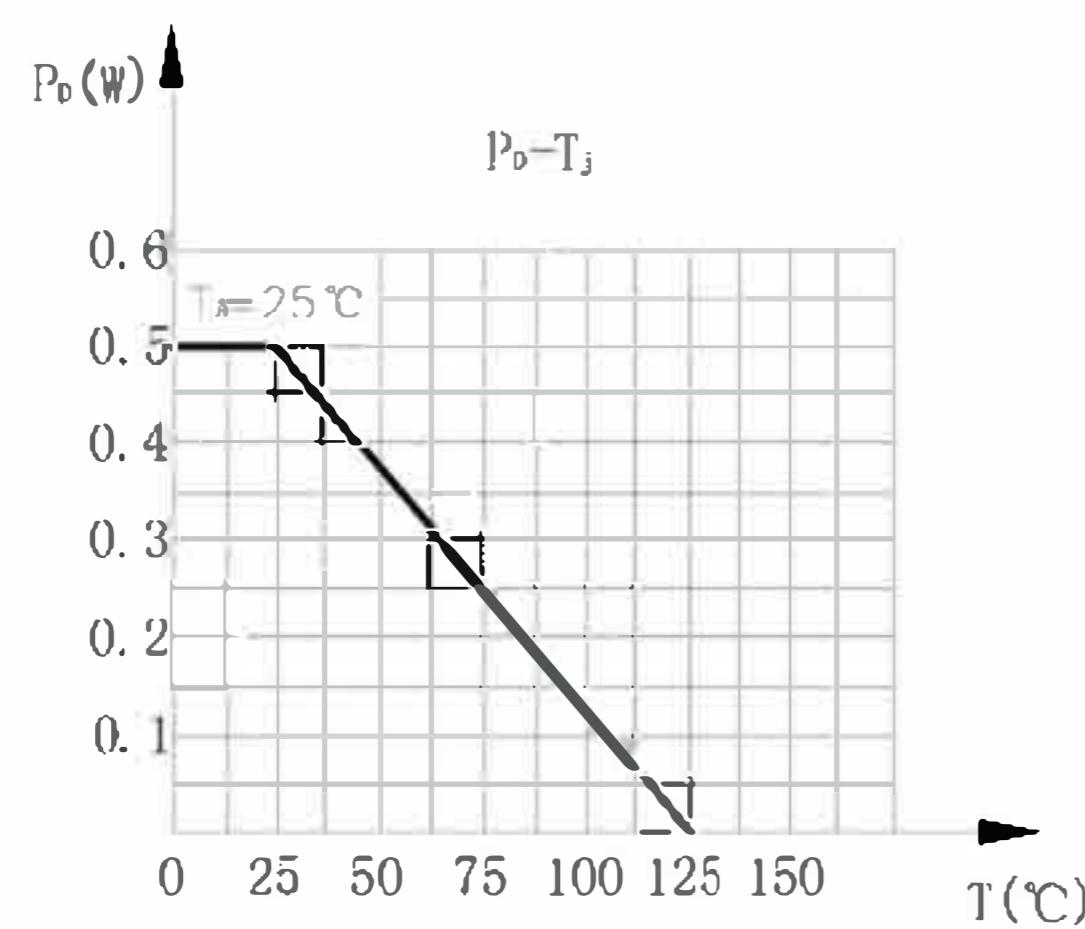
Dissipation of power and temperature curves

The curve of the output voltage and junction temperature