



### Description

The SE78L05 is three-terminal positive regulator. The SE78L05 can be used as Zener diode/resistor combination replacement. It offers an effective output impedance improvement of two orders of magnitude, and lower quiescent current. This fixed voltage regulators can provide local or on-card regulation for elimination of noise and distribution problems associated with single point regulation. It is an excellent solution to the stereo power supply on PC main board.

### Features

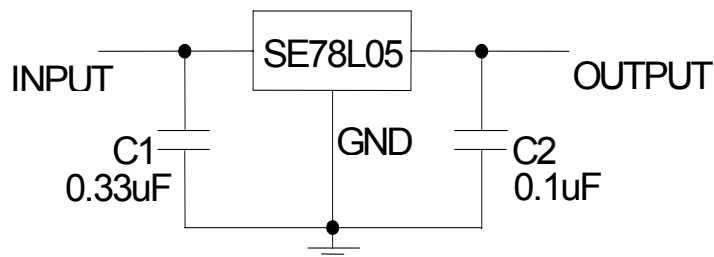
- Output voltage of 5.0V (Typ.)
- Output current up to 150mA (Typ.)
- Minimum external components.
- Output voltage tolerances of  $\pm 4\%$
- ESD rating is 2.7KV (Per MIL-STD-883D).

### Application

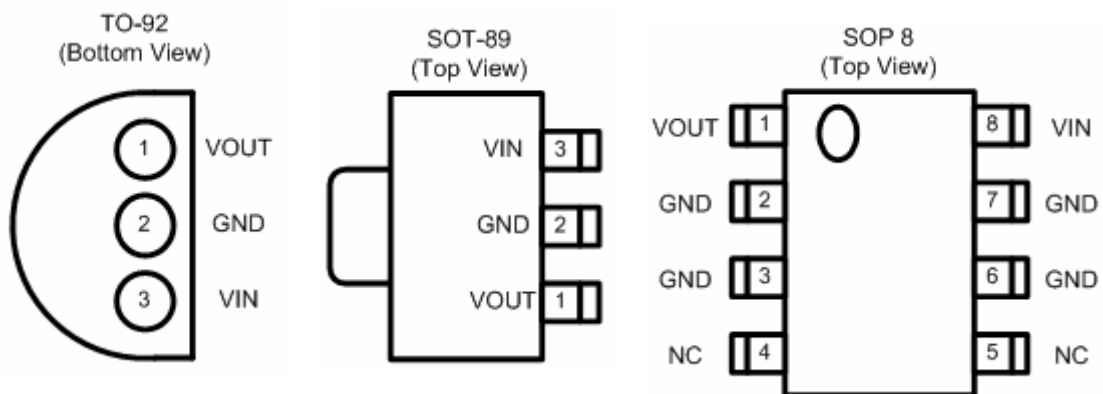
- Sound card on PC main board.
- DVD-ROM, CD-ROM.
- Networking Equipments.

### Application Circuit

#### Fixed Output Regulator



### Pin Configuration





### Absolute Maximum Rating

Parameter	Symbol	Maximum	Units
Power dissipation	P	0.75	W
Input Voltage	V <sub>IN</sub>	18	V
Operating Junction Temperature Range	T <sub>J</sub>	0 to +125	°C
Thermal Resistance	θ <sub>JA</sub>	150 (TO-92)	°C/W
Lead Temperature (Soldering) 10 seconds	T <sub>LEAD</sub>	260	°C
Storage Temperature	T <sub>STG</sub>	-65 to +150	°C
ESD (HBM) Susceptibility	V <sub>ESD</sub>	2.7	KV

### Electrical Characteristics

V<sub>IN</sub> = 10V; I<sub>OUT</sub> = 10mA; C<sub>IN</sub> = 0.33µF; C<sub>OUT</sub> = 0.1µF T<sub>J</sub> = 25°C; unless otherwise specified

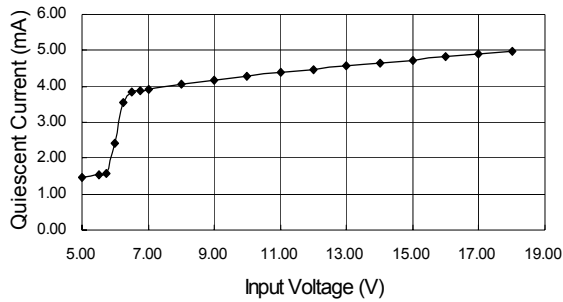
Symbol	Parameter	Conditions	SE78L05			Unit
			Min	Typ	Max	
V <sub>O</sub>	Output Voltage		4.8	5	5.2	V
ΔV <sub>O</sub>	Line Regulation	7V ≤ V <sub>IN</sub> ≤ 18V	--	11	45	mV
ΔV <sub>O</sub>	Load Regulation	1mA ≤ I <sub>O</sub> ≤ 100mA	--	5	50	
I <sub>Q</sub>	Quiescent Current		--	4.3	6	mA
ΔI <sub>Q</sub>	Quiescent Current Change	8V ≤ V <sub>IN</sub> ≤ 18V	--	1.1	--	
		1mA ≤ I <sub>O</sub> ≤ 40mA	--	0.13	--	
ΔV <sub>IN</sub> / ΔV <sub>OUT</sub>	Ripple Rejection	f = 120Hz 8V ≤ V <sub>IN</sub> ≤ 16V	--	62	--	dB
I <sub>PK</sub>	Peak Output Current		--	150	--	mA
ΔV <sub>O</sub> / ΔT	Average Output Voltage Tempco	I <sub>O</sub> = 5mA	--	0.66	--	mV/°C
V <sub>IN</sub> (Min)	Minimum Value of Input Voltage Required to Maintain Line Regulation		--	6.1	6.4	V



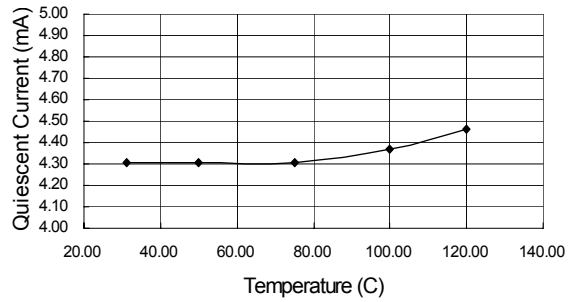
Typical Performance Characteristic

$V_{IN} = 10V$ ,  $I_{OUT} = 40mA$ ,  $C_{IN} = 0.33\mu F$ ,  $C_{OUT} = 0.1\mu F$ ,  $T_J = 25^\circ C$ , unless specified otherwise.

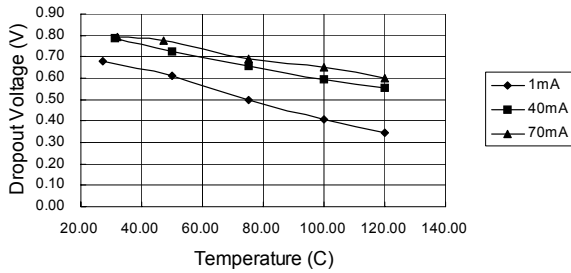
Quiescent Current vs Input Voltage



Quiescent Current vs Temperature

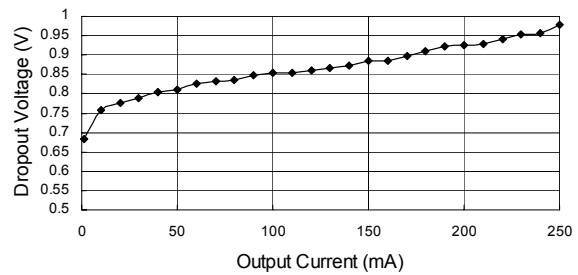


Dropout Voltage vs Temperature

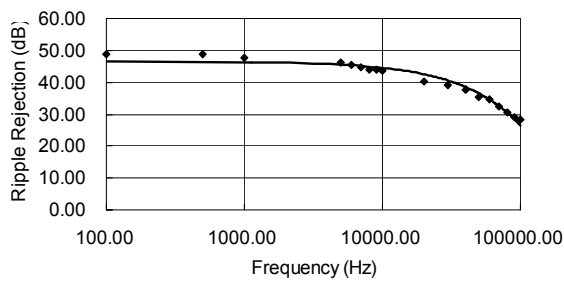


Dropout Condition:  $\Delta V_{OUT} = 2\%$  of  $V_{OUT}$

Dropout Voltage vs Output Current

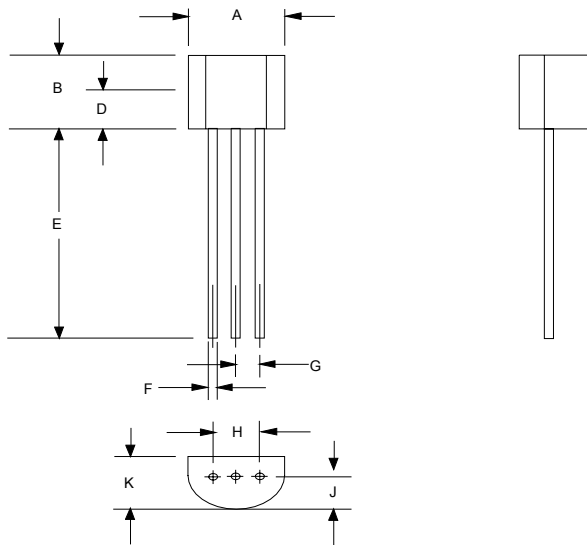


Ripple Rejection



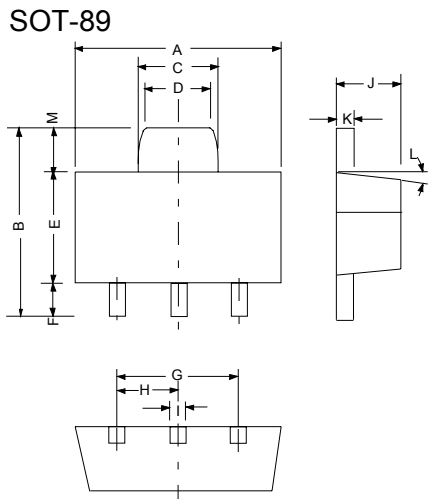


Outline Drawing TO-92



DIMENSIONS				
DIM <sup>N</sup>	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.445	5.207
B	0.170	0.210	4.318	5.334
E	0.500	0.610	12.70	15.50
F	0.016	0.021	0.407	0.533
G	0.045	0.055	1.143	1.397
H	0.095	0.105	2.413	2.667
J	0.080	0.105	2.032	2.667
K	0.125	0.165	3.175	4.191

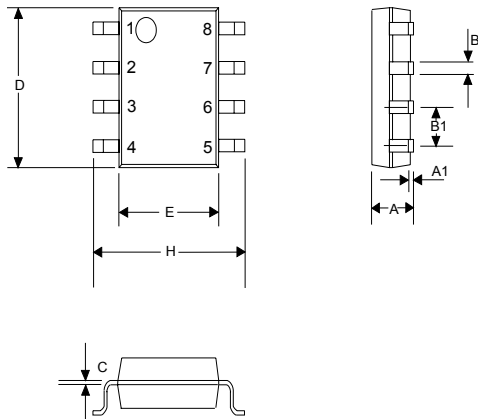
Outline Drawing SOT-89



DIMENSIONS				
DIM <sup>N</sup>	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.173	0.181	4.400	4.600
B	0.159	0.167	4.050	4.250
C	0.067	0.075	1.700	1.900
D	0.051	0.059	1.300	1.500
E	0.094	0.102	2.400	2.600
F	0.035	0.047	0.890	1.200
G	0.118REF		3.00REF	
H	0.059REF		1.50REF	
I	0.016	0.020	0.400	0.520
J	0.055	0.063	1.400	1.600
K	0.014	0.016	0.350	0.410
L	10°TYP		10°TYP	
M	0.028REF		0.70REF	



Outline Drawing SOP8



DIMENSIONS				
DIM <sup>N</sup>	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.0532	0.0688	1.35	1.75
A1	0.0040	0.0098	0.10	0.25
B	0.0130	0.0200	0.33	0.51
B1	0.050 BSC		1.27 BSC	
C	0.0075	0.0098	0.19	0.25
D	0.1890	0.1968	4.80	5.00
H	0.2284	0.2440	5.80	6.20
E	0.1497	0.1574	3.80	4.00

**Customer Support**

Seaward Electronics Incorporated – China

Rm 1605, Building 1, International Pioneering Park, #1 Shangdi Xinxi Rd  
Haidian District, Beijing 100085, China  
Tel: 86-10-8289-5700/01/05  
Fax: 86-10-8289-5706

Seaward Electronics Corporation – Taiwan

2F, #181, Sec. 3, Minguan East Rd,  
Taipei, Taiwan R.O.C  
Tel: 886-2-2712-0307  
Fax: 886-2-2712-0191

Seaward Electronics Incorporated – North America

49 Showers Dr. J126  
Mountain View, CA 94040, USA  
Tel: 1-650-941-5725

Last Updated - 11/5/2004