Description

The PJ78L05 is three-terminal positive regulator. The PJ78L05 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

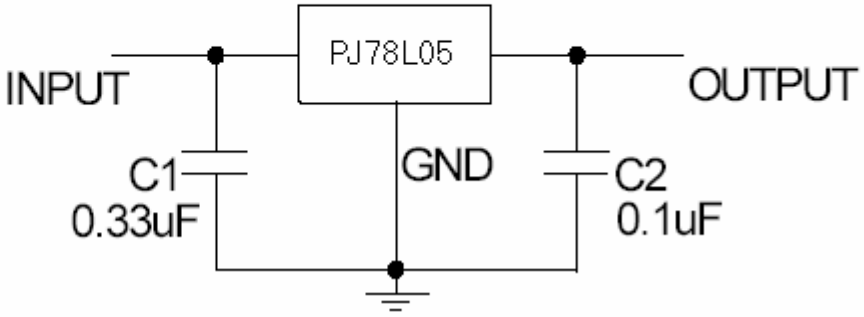
- Output voltage of 5.0V (Typ.)
- Output current up to 150mA (Typ.)
- Minimum external components.
- Output voltage tolerances of ±4%
- ESD rating is 2.7KV (Per MIL-STD-883D).

Application

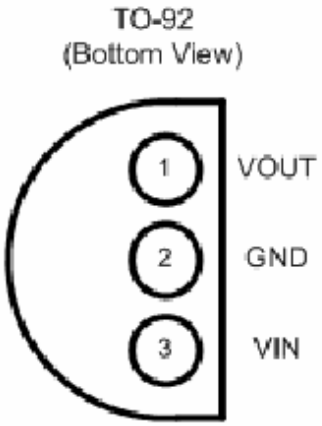
- Sound card on PC main board.
- DVD-ROM, CD-ROM.
- Networking Equipments.

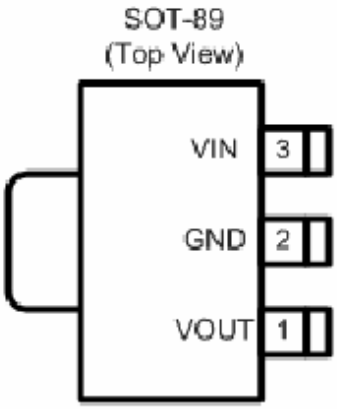
Application Circuit

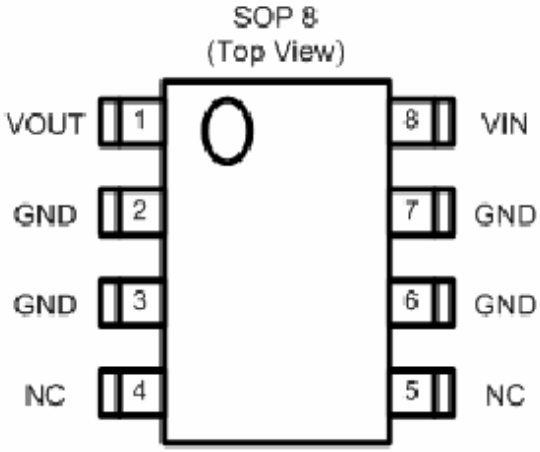
Fixed Output Regulator



Pin Configuration







Absolute Maximum Rating

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

Electrical Characteristics

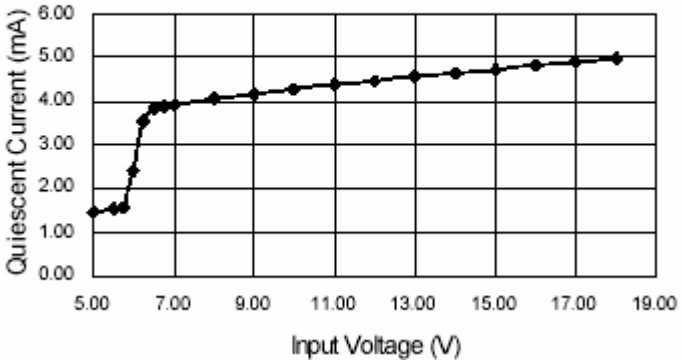
V_{IN} = 10V; I_{OUT} = 10mA; C_{IN} = 0.33μF; C_{OUT} = 0.1μF T_J = 25°C; unless otherwise specified

Symbol	Parameter	Conditions	PJ78L05			Unit
			Min	Typ	Max	
V_O	Output Voltage		4.8	5	5.2	V
ΔV_O	Line Regulation	7V ≤ V_{IN} ≤ 18V	--	11	45	mV
ΔV_O	Load Regulation	1mA ≤ I_O ≤ 100mA	--	5	50	
I_Q	Quiescent Current		--	4.3	6	mA
ΔI_Q	Quiescent Current Change	8V ≤ V_{IN} ≤ 18V	--	1.1	--	
		1mA ≤ I_O ≤ 40mA	--	0.13	--	
ΔV_{IN} /ΔV_{OUT}	Ripple Rejection	f =120Hz 8V ≤ V_{IN} ≤ 16V	--	52	--	dB
I_{PK}	Peak Output Current		--	150	--	mA
$\Delta V_O/\Delta T$	Average Output Voltage Tempco	I_O = 5mA	--	0.66	--	mV/°C
V_{IN} (Min)	Minimum Value of Input Voltage Required to Maintain Line Regulation		--	6.1	6.4	V

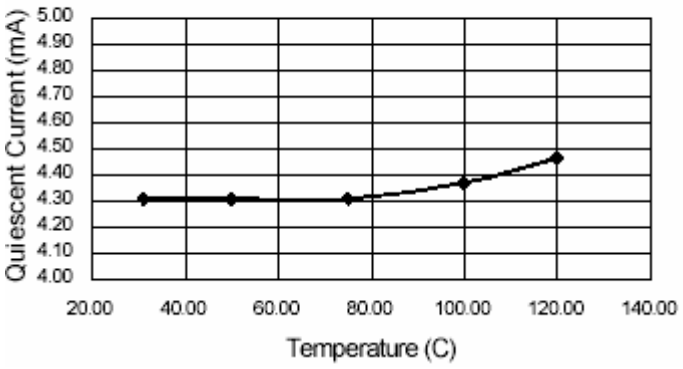
Typical Performance Characteristic

V_{IN} = 10V, I_{OUT} = 40mA, C_{IN} = 0.33μF, C_{OUT} = 0.1μF, T_J = 25°C, unless specified otherwise.

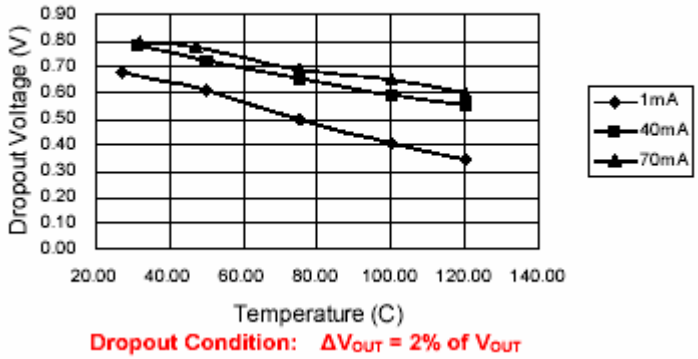
Quiescent Current vs Input Voltage



Quiescent Current vs Temperature

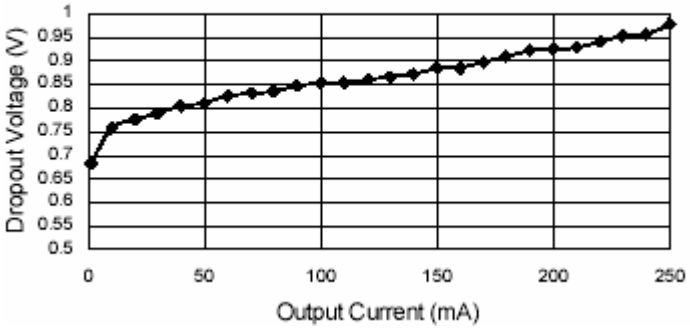


Dropout Voltage vs Temperature

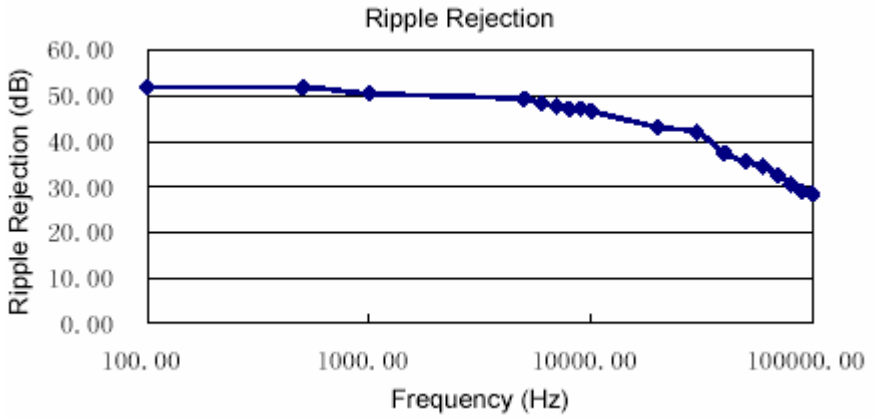


Dropout Condition: ΔV_{OUT} = 2% of V_{OUT}

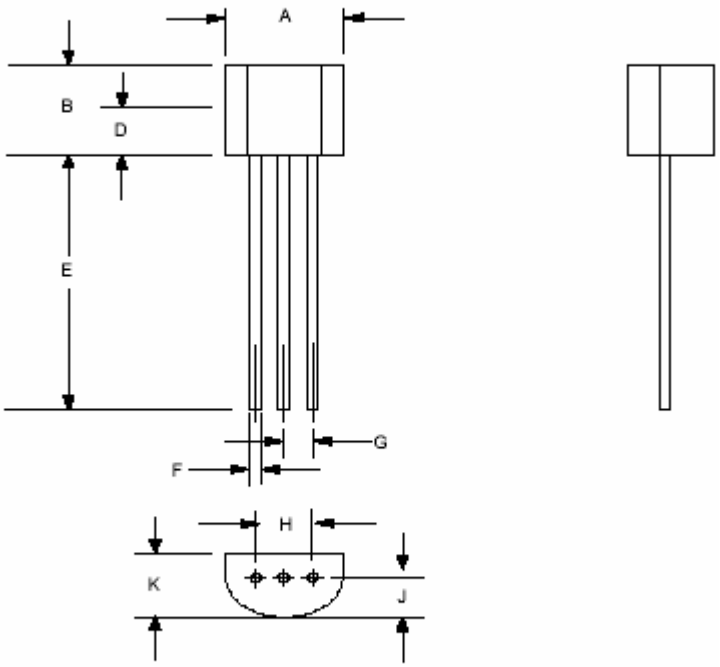
Dropout Voltage vs Output Current



Ripple Rejection

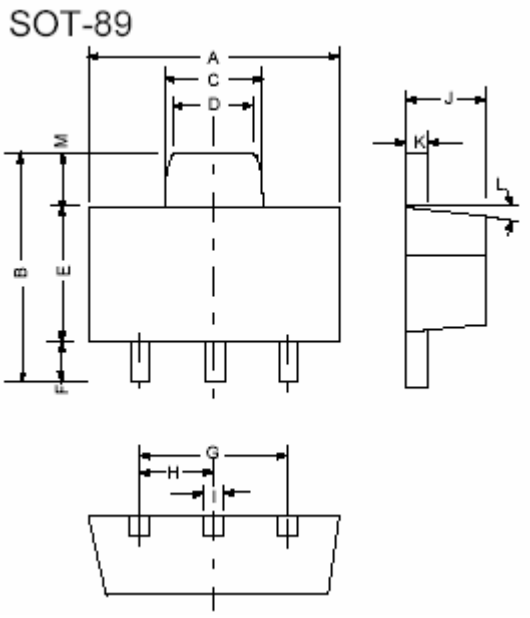


Outline Drawing TO-92



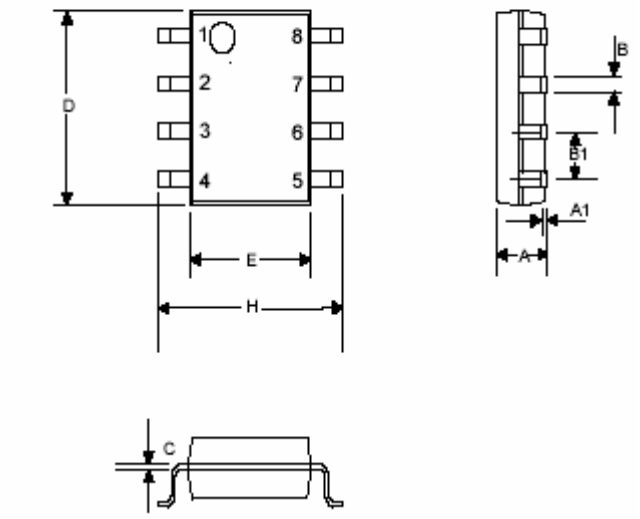
DIMENSIONS				
DIM[N]	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.445	5.207
B	0.170	0.210	4.318	5.334
E	0.500	0.610	12.70	15.50
F	0.016	0.021	0.407	0.533
G	0.045	0.055	1.143	1.397
H	0.095	0.105	2.413	2.667
J	0.080	0.105	2.032	2.667
K	0.125	0.165	3.175	4.191

Outline Drawing SOT-89



DIMENSIONS				
DIM[N]	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	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