芯北科技
CHIPNORTH

CN78L05

DC Bipolar Linear Regulator

5V, 100mA

■ Introduction

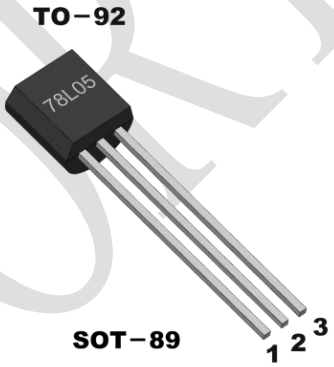
This fixed-voltage monolithic integrated circuit voltage regulator is designed for a wide range of applications. These applications include on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power-pass elements to make high-current voltage regulators. Each of these regulators can deliver up to 100mA of output current. The internal limiting and thermal shutdown features of these regulators make them essentially immune to overload.

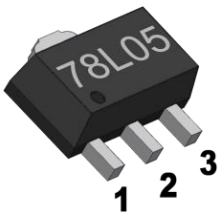
■ Features

- 3-Terminal Regulators
- Output Current Up to 100mA
- No External Components
- Internal Thermal Overload Protection
- Internal Short-Circuit Limiting

■ APPLICATIONS

- Smart Electric Meter
- Switch Power

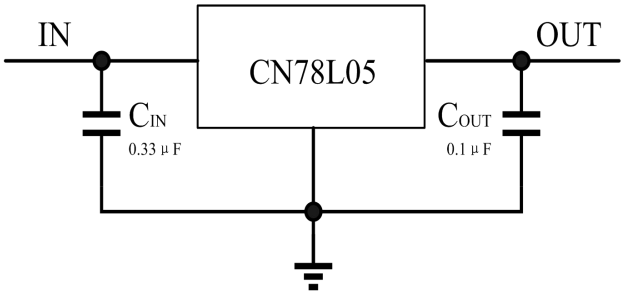




■ Order Information

Part NO.	Package Type	Qty
78L05-PT	TO-92	3000/Tape
78L05-BP	TO-92	1000/Tape
78L05-TR	SOT-89	1000/Tape

■ Typical Application



■ Pin Description

NO.	Name	Function
1	OUT	Output
2	GND	Ground
3	IN	Input

■ Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_I	Input Voltage	36	V
I_O	Output current	100	mA
T_{OP}	Junction	-45~125	℃
T_{STG}	Storage temperature range	-65~150	℃
ESD (HBM)	Human body model	4000	V

■ Thermal Resistance

Symbol	Condition	TO-92	SOT-89	Unit
R_{thJC}	Junction to Case		15	℃/W
R_{thJA}	Junction to Ambient	200	55 (1)	℃/W

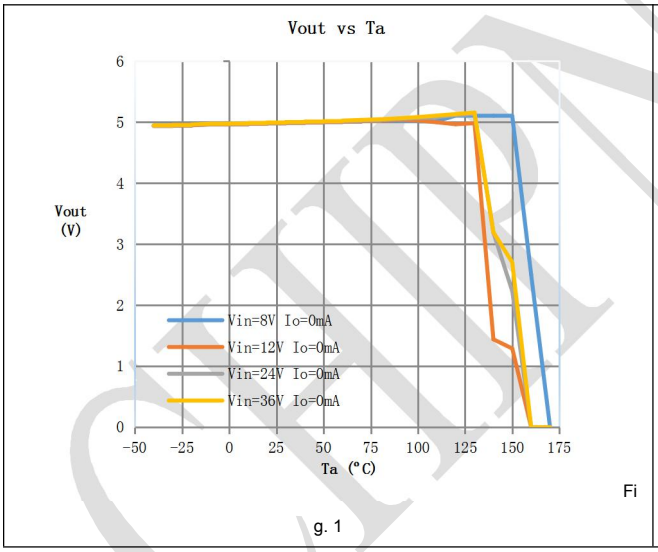
Note (1): There is 6 cm^2 copper foil on PCB.

■ Electrical Characteristics

Test Condition：T_A=25℃, V_{IN}=12V, I_O=50mA, C_{IN}=0.33μF, C_{OUT}=0.1μF，unless otherwise specified。

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
V_O	Output Voltage	5mA≤I_O≤100mA	4.8	5.0	5.2	V
ΔV_O	Linear Regulation	V_I=8~20V	-	-	50	mV
ΔV_O	Load Regulation	I_o=50~100mA	-	50	-	mV
I_Q	Static Current		-	3.0	6.0	mA
I_{PK}	Peak output current			200		mA
$\Delta V_O/\Delta T$	Output Temperature Coefficient	I_o=0mA	-	-1	-	mV/℃
V_D	Dropout voltage	I_o=100mA	-	2	-	V
SVR	Input Ripple	V_I=8-16V，f=120Hz I_O=50mA，T_J=25℃		40		dB

■ Typical Characteristics



g. 1

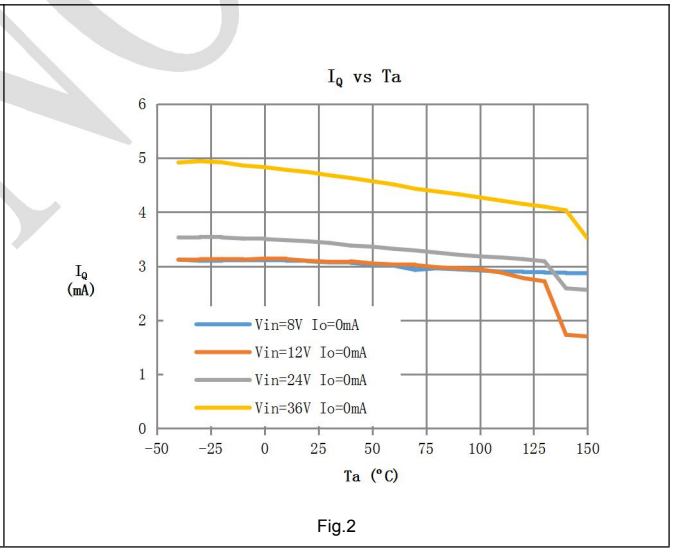


Fig.2

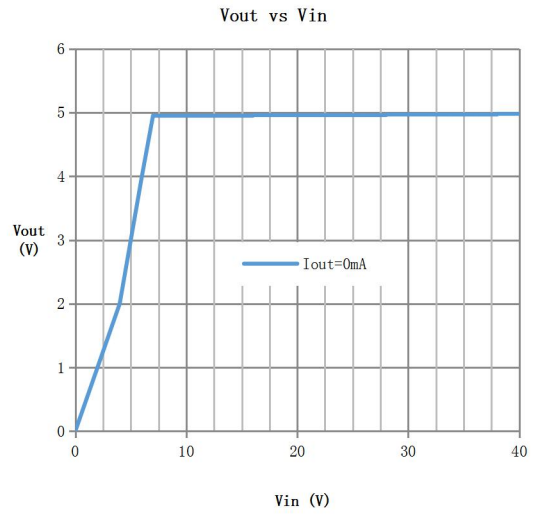


Fig.3

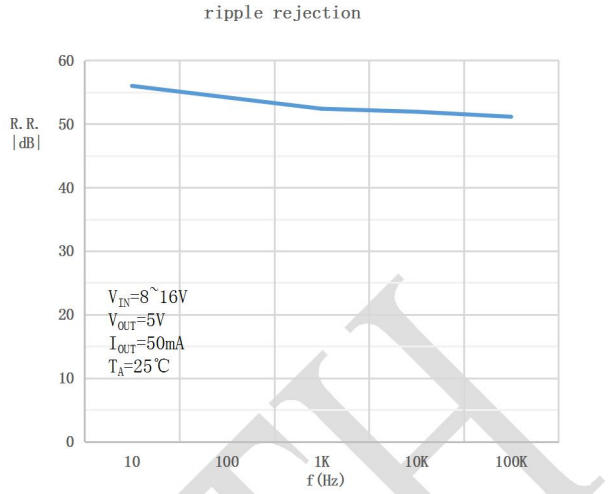


Fig. 4

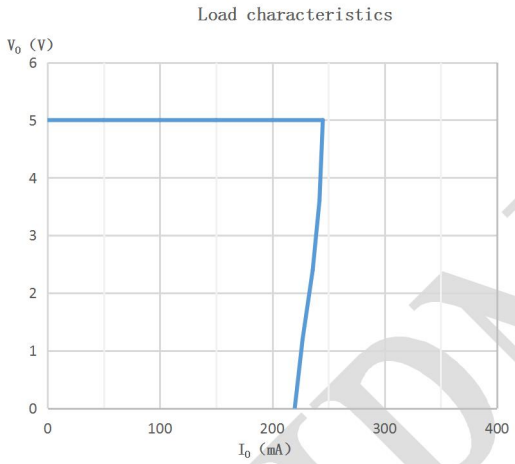


Fig. 5

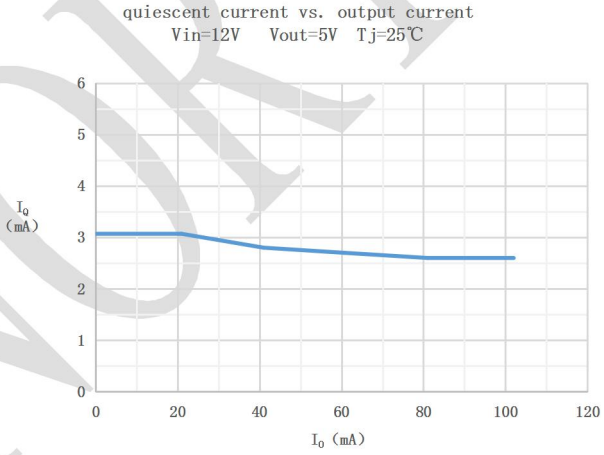
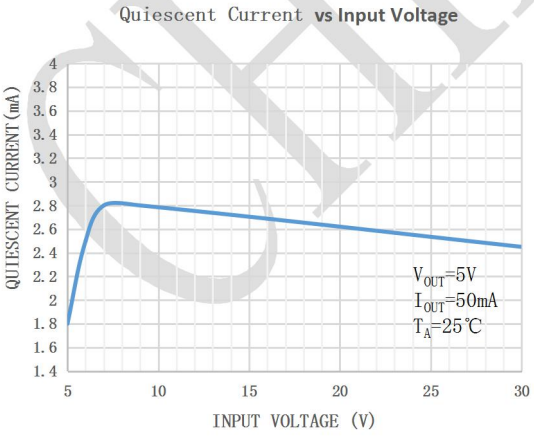


Fig. 6



Fi

g. 7

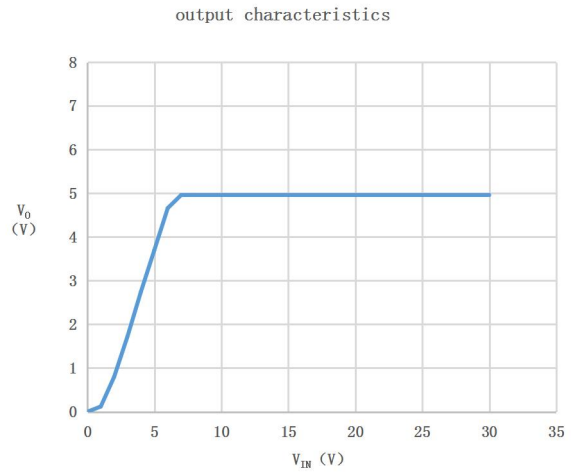


Fig. 8

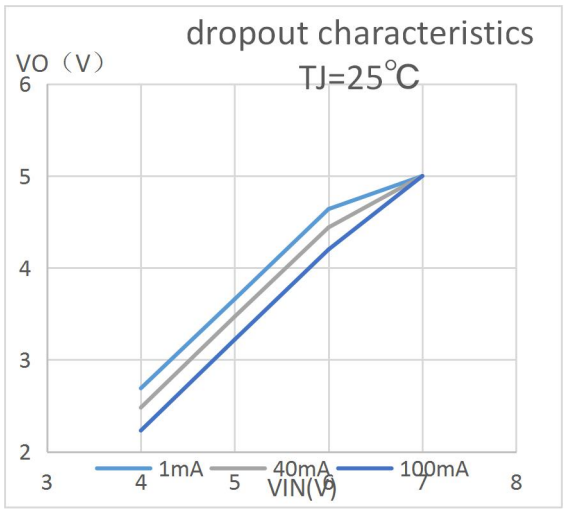


Fig. 9

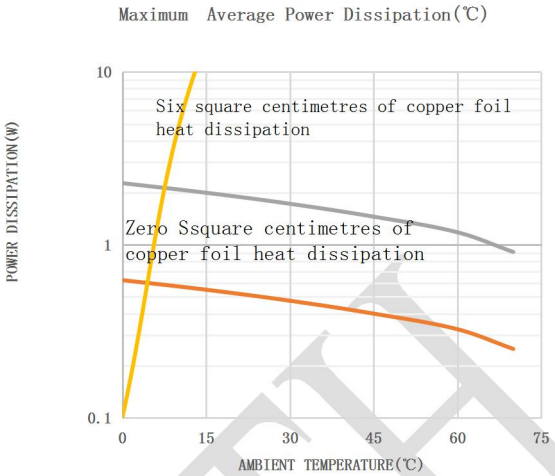


Fig. 10

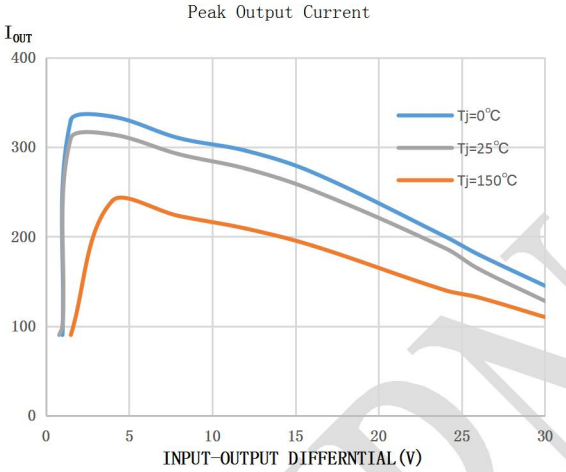
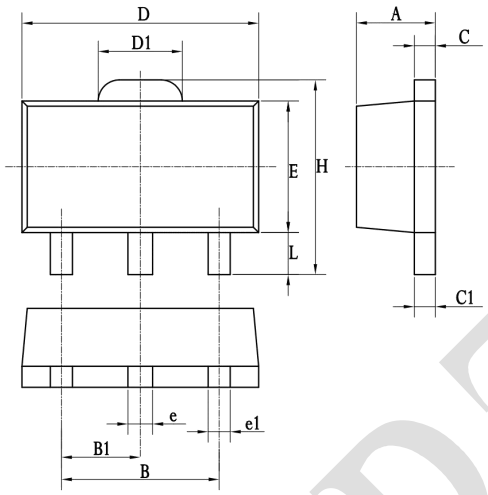


Fig. 11

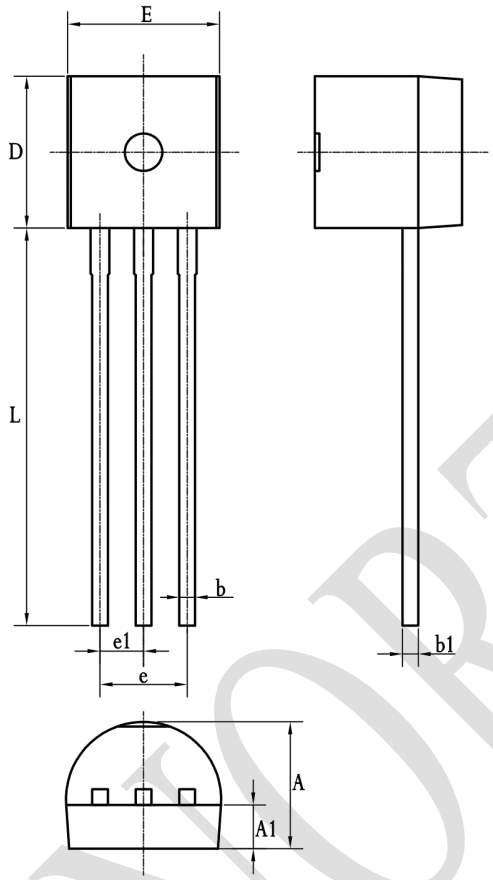
■ Package Information

SOT-89



Symbol	mm			inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.4	1.5	1.6	-	-	-
B	2.8	3	3.2	-	-	-
B1	1.4	1.5	1.6	-	-	-
C	0.3	0.4	0.5	-	-	-
C1	0.3	0.4	0.5	-	-	-
D	4.4	4.5	4.6	-	-	-
D1	1.4	1.6	1.8	-	-	-
E	2.4	2.5	2.6	-	-	-
e	0.37	0.47	0.57	-	-	-
e1	0.22	0.42	0.62	-	-	-
H	-	-	4.25	-	-	-
L	0.8	-	-	-	-	-

SO-92



Symbol	mm			inch		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	3.4	-	4.7	-	-	-
A1	1	-	1.4	-	-	-
b	0.36	-	0.51	-	-	-
b1	0.36	-	0.51	-	-	-
D	4.3	-	4.85	-	-	-
E	4.3	-	4.85	-	-	-
e	2.421.4	-	2.66	-	-	-
e1	1.15	-	1.39	-	-	-
L	-	12.7	-	-	-	-

■ ORDER INFORMATION:

date	Version	Revision notes	Reviser
2020.3.19	V1.0	Initial data compilation	ZhangSongfeng