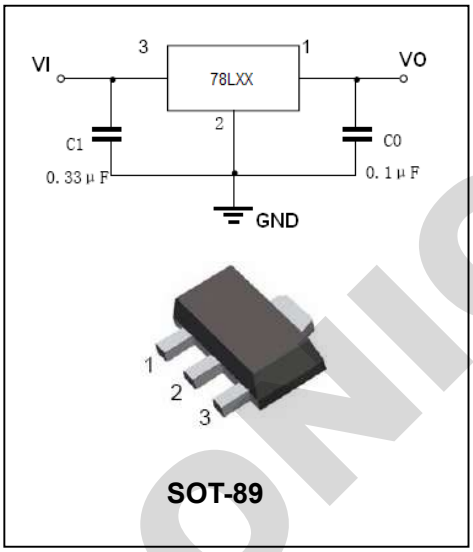
WEJ®

RoHS

FEATURES

- Wide range of available,fixed output voltage.
- Low cost.
- Internal short-circuit current limiting.
- Internal thermal overload protection.
- No extermal components required.
- Complementary negative regulators offered (BL79LXX series).

Pb Lead-free



APPLICATIONS

- Three-terminal positive voltage regulator.

ORDERING INFORMATION

Type No.	Marking	Package Code
78L05	78L05	SOT-89

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	**Parameter**	**Value**	**Units**
V_I	Input voltage(3.3V-9V) (10V-15V) (18V-24V)	30 35 40	V
I_{CM}	Maximum output current	100	mA
$R_{th\ j\text{-}c}$	Thermal Resistance, Junction to Case	250	℃/W
P_D	Power dissipation	500	mW
T_{OPR}	Operating junction temperature	-25 to +125	℃
T_J, T_{STG}	Storage temperature range	-65 to +150	℃

Three-Terminal Low Current Positive Voltage Regulators

ELECTRICAL CHARACTERISTICS (refer to the test circuits, TJ = 0 to 125°C, VI= 8.3V,IO = 40mA, CI = 0.33 μF, CO = 0.1 μF unless otherwise specified)

Parameter	Symbol	Test conditions	78L33			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ 5.3V≤V_i≤20V,I_O=1mA-40mA V_1=8.3V,I_O=1mA-70mA	3.036 2.97 2.97	3.3	3.564 3.63 3.63	V
Load regulation	Reg_{load}	T_j=25℃, I_O=1mA-100mA T_j=25℃, I_O=1mA-40mA			60 30	mV
Line regulation	Reg_{line}	5.3V≤V_i≤20V, T_j=25℃ 6.3V≤V_i≤20V, T_j=25℃			150 100	mV
Quiescent Current	Id	T_j=25℃ T_j=125℃			6.0 5.5	mA
Quiescent Current Change	DId	6.3V≤V_i≤20V 1mA≤I_O≤40mA			1.5 0.2	mA
Output noise voltage	eN	10Hz ≤f≤100KHz		40		μV
Supply Voltage Rejection	SVR	I_O=40mA,6.3V≤V_i≤16.3V f=120Hz,T_j=25℃	41	49		dB
Dropout Voltage	Vd			1.7		V

ELECTRICAL CHARACTERISTICS

(V_{IN}=10V,I_O=40mA,0℃<T_j<125℃,C_I=0.33μF,C_O=0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	78L05			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ 7V≤V_i≤20V,I_O=1mA-40mA V_1=10V,I_O=1mA-70mA	4.8 4.75 4.75	5.0	5.2 5.25 5.25	V
Load regulation	Reg_{load}	T_j=25℃, I_O=1mA-100mA T_j=25℃, I_O=1mA-40mA		11 5	60 30	mV
Line regulation	Reg_{line}	7V≤V_i≤20V, T_j=25℃ 8V≤V_i≤20V, T_j=25℃		55 45	150 100	mV
Input Bias Current	I_{IB}	T_j=25℃ T_j=125℃		3.8	6.0 5.5	mA
Input Bias Current Change	$\triangle I_{IB}$	8V≤V_i≤20V 1mA≤I_O≤40mA			1.5 0.1	mA
Output noise voltage	V_N	10Hz ≤f≤100KHz		40		μV
Ripple rejection	RR	I_O=40mA,8V≤V_i≤18V,f=120Hz ,T_j=25℃	41	49		dB
Dropout voltage	V_I-V_O	T_j=25℃		1.7		V

Three-Terminal Low Current Positive Voltage Regulators

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Figure 1. Dropout Characteristics

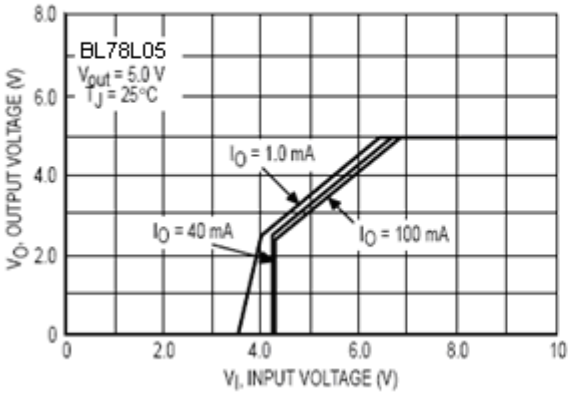


Figure 2. Dropout Voltage versus Junction Temperature

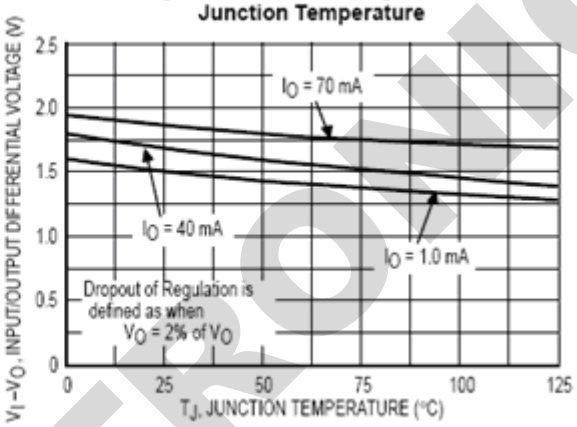


Figure 3. Input Bias Current versus Ambient Temperature

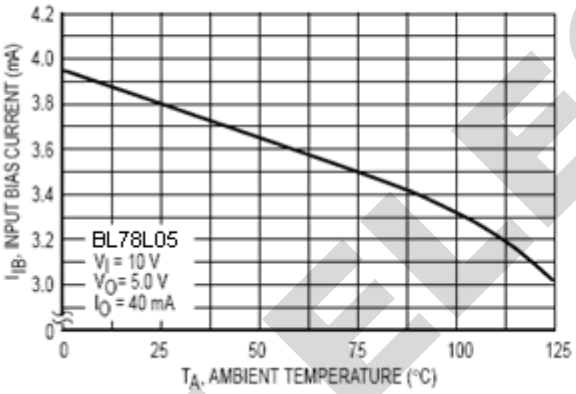
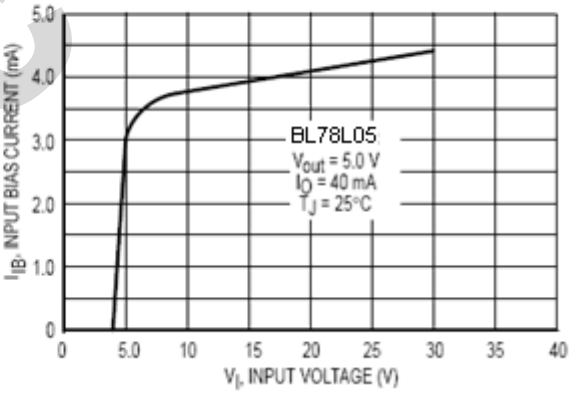


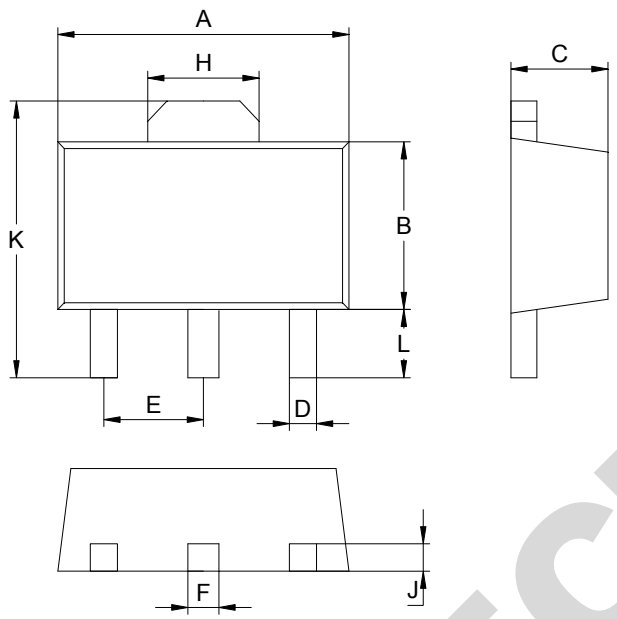
Figure 4. Input Bias Current versus Input Voltage



Three-Terminal Low Current Positive Voltage Regulators

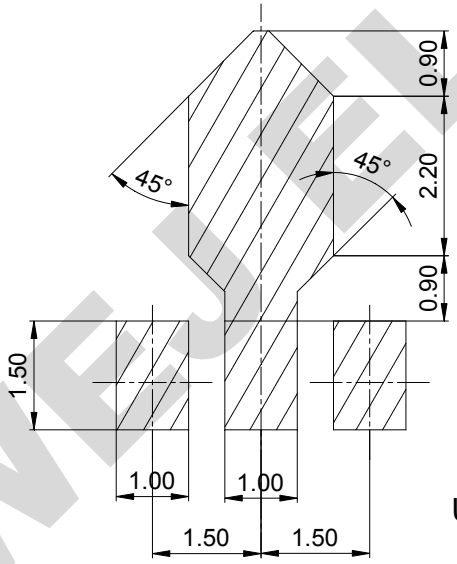
PACKAGE OUTLINE

Plastic surface mounted package SOT-89



SOT-89		
Dim	Min	Max
A	4.30	4.70
B	2.25	2.65
C	1.50 Typical	
D	0.40 Typical	
E	1.40	1.60
F	0.48 Typical	
H	1.60	1.80
J	0.40 Typical	
L	0.90	1.10
K	3.95	4.35
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit:mm

PACKAGE INFORMATION

Device	Package	Shipping
78L05	SOT-89	1000/Tape&Reel