

Three-terminal voltage regulator

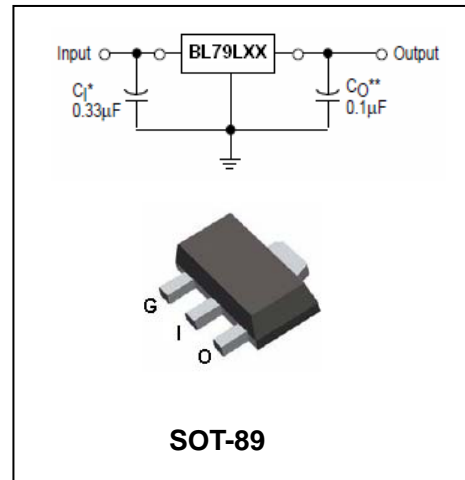
BL79LXX

FEATURES

- Some kinds output voltage series
- Superior ripple rejection ratio for audio frequency
- Large maximum power dissipation: 800 mW
- Over current and over temperature protection



Lead-free



APPLICATIONS

- Three-terminal Negative Fixed Voltage Regulators

ORDERING INFORMATION

Type No.	Marking	Package Code
BL79LXX	79LXX	SOT-89

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_I	Input voltage	-35	V
P_D	Power dissipation	800 NOTE2	mW
T_{opr}	Operating ambient temperature	0 to +150	°C
T_j, T_{stg}	Junction and Storage Temperature	-65 to +150	°C

Notes: 1. $T_a \leq 25^\circ\text{C}$, If $T_a > 25^\circ\text{C}$, derate by 6.4 mW/°C

2. 15 mm * 25 mm * 0.7 mm glass epoxy board, $T_a \leq 25^\circ\text{C}$

Three-terminal voltage regulator

BL79LXX

ELECTRICAL CHARACTERISTICS

($V_{IN}=-10V, I_O=40mA, 0^{\circ}C < T_j < 125^{\circ}C, C_{IN}=0.33\mu F, C_L=0.1\mu F$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L05			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j=25^{\circ}C$ $V_{IN}=-10V, 1.0mA \leq I_O \leq 70mA$	-4.8 -4.75	-5.0	-5.2 -5.25	V
Load regulation	ΔV_{OLOAD}	$T_j=25^{\circ}C, 1.0mA \leq I_{OUT} \leq 150mA$ $T_j=25^{\circ}C, 1.0mA \leq I_{OUT} \leq 100mA$ $T_j=25^{\circ}C, 1.0mA \leq I_{OUT} \leq 40mA$		16 11 5.0	60 30	mV
Line regulation	ΔV_{OLINE}	$T_j=25^{\circ}C, -20V \leq V_i \leq -7V$ $T_j=25^{\circ}C, -20V \leq V_i \leq -8V$		55 45	150 100	mV
Quiescent current	I_Q	$T_j=25^{\circ}C$		-2.0	-4.0	mA
Quiescent current change	ΔI_Q	$T_j=25^{\circ}C, -20V \leq V_i \leq -8V$ $1.0mA \leq I_O \leq 40mA$			1.5 1.0	mA
Voltage drop	V_{DROP}	$T_j=25^{\circ}C$		1.3		V
Output short circuit current	I_{OS}	$T_j=25^{\circ}C$		300		mA

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ELECTRICAL CHARACTERISTICS

($V_{IN} = -11\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^{\circ}\text{C} \leq T_j \leq 125^{\circ}\text{C}$, $C_{IN} = 0.33\mu\text{F}$, $C_L = 0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L06			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j = 25^{\circ}\text{C}$	-5.76	-6.0	-6.24	V
		$V_{IN} = -10\text{V}$, $1.0\text{ mA} \leq I_O \leq 70\text{mA}$	-5.70		-6.30	
Load regulation	ΔV_{OLOAD}	$T_j = 25^{\circ}\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		17.5		mV
		$T_j = 25^{\circ}\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		12	70	
		$T_j = 25^{\circ}\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		5.5	35	
Line regulation	ΔV_{OLINE}	$T_j = 25^{\circ}\text{C}$, $-21\text{V} \leq V_i \leq -8.1\text{V}$		50	150	mV
		$T_j = 25^{\circ}\text{C}$, $-21\text{V} \leq V_i \leq -9.0\text{V}$		45	110	
Quiescent current	I_Q	$T_j = 25^{\circ}\text{C}$		-2.0	-4.0	mA
Quiescent current change	ΔI_Q	$T_j = 25^{\circ}\text{C}$, $-21\text{V} \leq V_i \leq -9.0\text{V}$			1.5	mA
		$1.0\text{ mA} \leq I_O \leq 40\text{ mA}$			1.0	
Voltage drop	V_{DROP}	$T_j = 25^{\circ}\text{C}$		1.3	—	V
Output short circuit current	I_{OS}	$T_j = 25^{\circ}\text{C}$		300		mA

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ELECTRICAL CHARACTERISTICS

($V_{IN} = -14\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\mu\text{F}$, $C_L = 0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L08			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j = 25^\circ\text{C}$ $V_{IN} = -14\text{V}$, $1.0\text{ mA} \leq I_O \leq 70\text{mA}$	-7.68 -7.60	-8.0	-8.32 -8.40	V
Load regulation	ΔV_{OLOAD}	$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		22		mV
		$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		15	80	
		$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		7.0	40	
Line regulation	ΔV_{OLINE}	$T_j = 25^\circ\text{C}$, $-23\text{V} \leq V_i \leq -10.5\text{V}$		65	175	mV
		$T_j = 25^\circ\text{C}$, $-23\text{V} \leq V_i \leq -11\text{V}$		55	125	
Quiescent current	I_Q	$T_j = 25^\circ\text{C}$		-2.0	-4.0	mA
Quiescent current change	ΔI_Q	$T_j = 25^\circ\text{C}$, $-23\text{V} \leq V_i \leq -11\text{V}$ $1.0\text{mA} \leq I_O \leq 40\text{mA}$			1.5 1.0	mA
Voltage drop	V_{DROP}	$T_j = 25^\circ\text{C}$		1.3		V
Output short circuit current	I_{OS}	$T_j = 25^\circ\text{C}$		270		mA

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ELECTRICAL CHARACTERISTICS

($V_{IN} = -15\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\mu\text{F}$, $C_L = 0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L09			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j = 25^\circ\text{C}$ $V_{IN} = -15\text{ V}$, $1.0\text{ mA} \leq I_O \leq 70\text{ mA}$	-8.64 -8.55	-9.0	-9.36 -9.45	V
Load regulation	ΔV_{OLOAD}	$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		24.5		mV
		$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		17	90	
		$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		8.0	45	
Line regulation	ΔV_{OLINE}	$T_j = 25^\circ\text{C}$, $-24\text{ V} \leq V_i \leq -11.4\text{ V}$		80	200	mV
		$T_j = 25^\circ\text{C}$, $-24\text{ V} \leq V_i \leq -12\text{ V}$		70	160	
Quiescent current	I_Q	$T_j = 25^\circ\text{C}$		-2.6	4.6	mA
Quiescent current change	ΔI_Q	$T_j = 25^\circ\text{C}$, $-24\text{ V} \leq V_i \leq -12\text{ V}$ $1.0\text{ mA} \leq I_O \leq 40\text{ mA}$			1.5 1.0	mA
Voltage drop	V_{DROP}	$T_j = 25^\circ\text{C}$		1.3		V
Output short circuit current	I_{OS}	$T_j = 25^\circ\text{C}$		270		mA

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ELECTRICAL CHARACTERISTICS

($V_{IN} = -16\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\mu\text{F}$, $C_L = 0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L10			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j = 25^\circ\text{C}$ $V_{IN} = -16\text{ V}$, $1.0\text{ mA} \leq I_{O} \leq 70\text{ mA}$	-9.6 -9.50	-10	-10.4 -10.5	V
Load regulation	ΔV_{OLOAD}	$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$ $T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$ $T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		26 18 8.5	90 45	mV
Line regulation	ΔV_{OLINE}	$T_j = 25^\circ\text{C}$, $-25\text{ V} \leq V_i \leq -12.5\text{ V}$ $T_j = 25^\circ\text{C}$, $-25\text{ V} \leq V_i \leq -13\text{ V}$		80 70	230 170	mV
Quiescent current	I_Q	$T_j = 25^\circ\text{C}$		-2.6	-4.6	mA
Quiescent current change	ΔI_Q	$T_j = 25^\circ\text{C}$, $-25\text{ V} \leq V_i \leq -13\text{ V}$ $1.0\text{ mA} \leq I_O \leq 40\text{ mA}$			1.5 1.0	mA
Voltage drop	V_{DROP}	$T_j = 25^\circ\text{C}$		1.3		V
Output short circuit current	I_{OS}	$T_j = 25^\circ\text{C}$		260		mA

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ELECTRICAL CHARACTERISTICS

($V_{IN} = -19\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\mu\text{F}$, $C_L = 0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L12			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j = 25^\circ\text{C}$ $V_{IN} = -19\text{ V}$, $1.0\text{ mA} \leq I_{O} \leq 70\text{ mA}$	-11.52 -11.40	-12	-12.48 -12.60	V
Load regulation	ΔV_{OLOAD}	$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$ $T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$ $T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 100\text{ mA}$		28.5 20 10	100 50	mV
Line regulation	ΔV_{OLINE}	$T_j = 25^\circ\text{C}$, $-27\text{ V} \leq V_i \leq -14.5\text{ V}$ $T_j = 25^\circ\text{C}$, $-27\text{ V} \leq V_i \leq -16\text{ V}$		120 100	250 200	mV
Quiescent current	I_Q	$T_j = 25^\circ\text{C}$		-2.6	-4.6	mA
Quiescent current change	ΔI_Q	$T_j = 25^\circ\text{C}$, $-27\text{ V} \leq V_i \leq -16\text{ V}$ $1.0\text{ mA} \leq I_O \leq 40\text{ mA}$			1.5 1.0	mA
Voltage drop	V_{DROP}	$T_j = 25^\circ\text{C}$		1.3		V
Output short circuit current	I_{OS}	$T_j = 25^\circ\text{C}$		250		mA

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ELECTRICAL CHARACTERISTICS

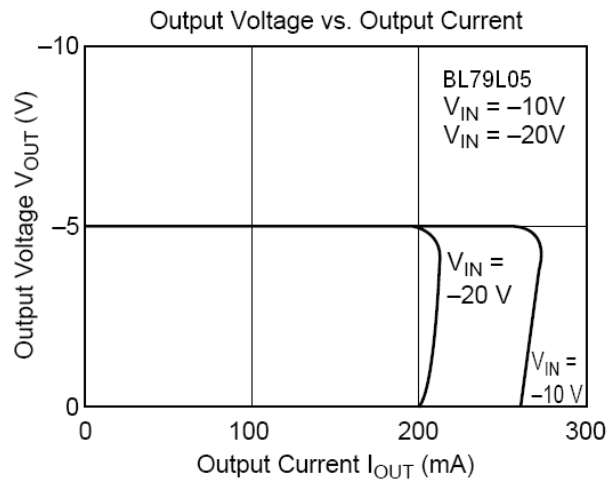
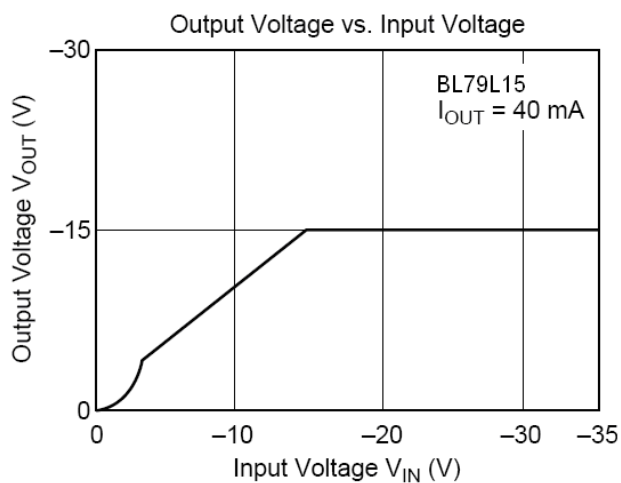
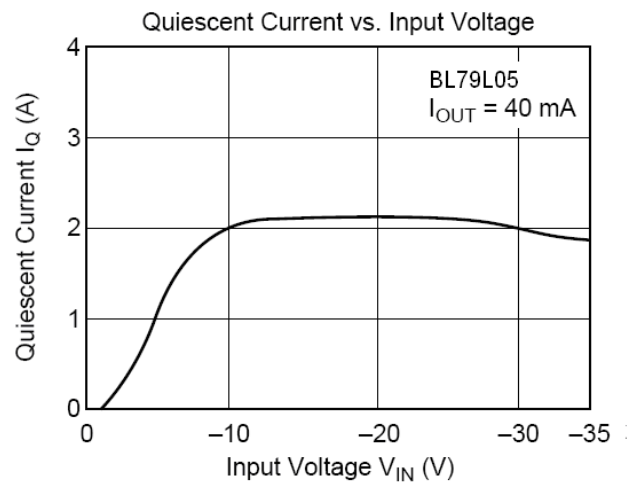
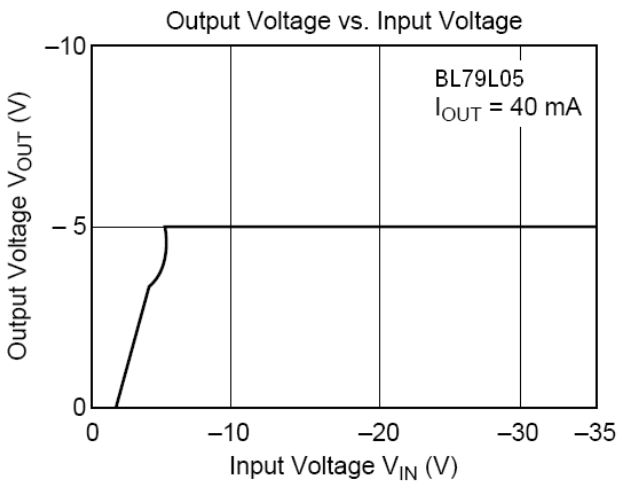
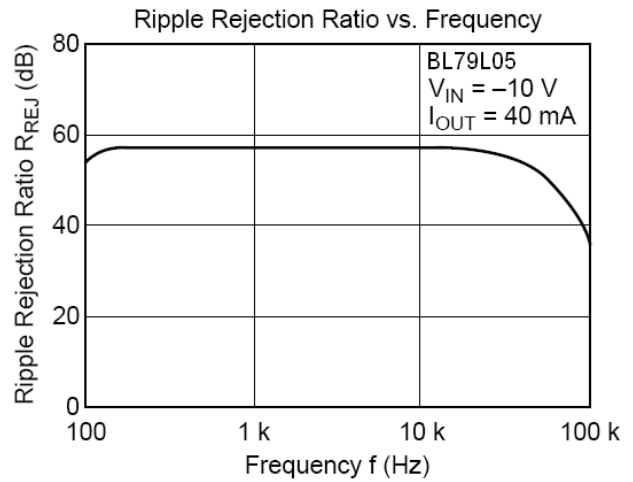
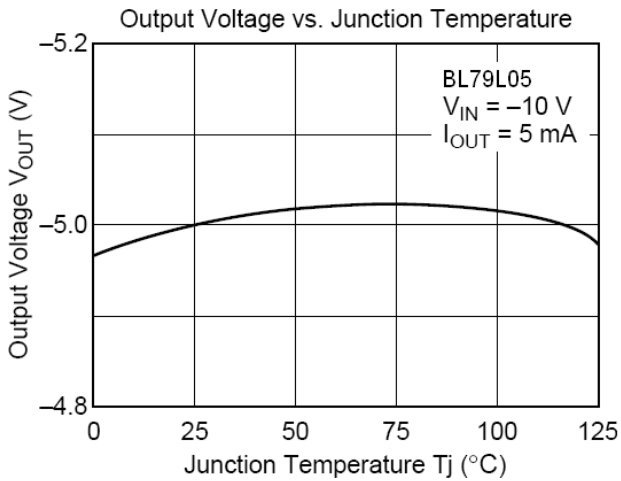
($V_{IN} = -23\text{ V}$, $I_{OUT} = 40\text{ mA}$, $0^\circ\text{C} \leq T_j \leq 125^\circ\text{C}$, $C_{IN} = 0.33\mu\text{F}$, $C_L = 0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	BL79L15			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	$T_j = 25^\circ\text{C}$ $V_{IN} = -23\text{ V}$, $1.0\text{ mA} \leq I_{O} \leq 70\text{ mA}$	-14.4 -14.25	-15	-15.6 -15.75	V
Load regulation	ΔV_{OLOAD}	$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		36		mV
		$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		25	150	
		$T_j = 25^\circ\text{C}$, $1.0\text{ mA} \leq I_{OUT} \leq 150\text{ mA}$		12	75	
Line regulation	ΔV_{OLINE}	$T_j = 25^\circ\text{C}$, $-30\text{ V} \leq V_i \leq -17.5\text{ V}$		130	300	mV
		$T_j = 25^\circ\text{C}$, $-30\text{ V} \leq V_i \leq -20\text{ V}$		110	250	
Quiescent current	I_Q	$T_j = 25^\circ\text{C}$		-2.6	-4.6	mA
Quiescent current change	ΔI_Q	$T_j = 25^\circ\text{C}$, $-30\text{ V} \leq V_i \leq -20\text{ V}$ $1.0\text{ mA} \leq I_O \leq 40\text{ mA}$			1.5	mA
					1.0	
Voltage drop	V_{DROP}	$T_j = 25^\circ\text{C}$		1.3		V
Output short circuit current	I_{OS}	$T_j = 25^\circ\text{C}$		240		mA

Three-terminal voltage regulator

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TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



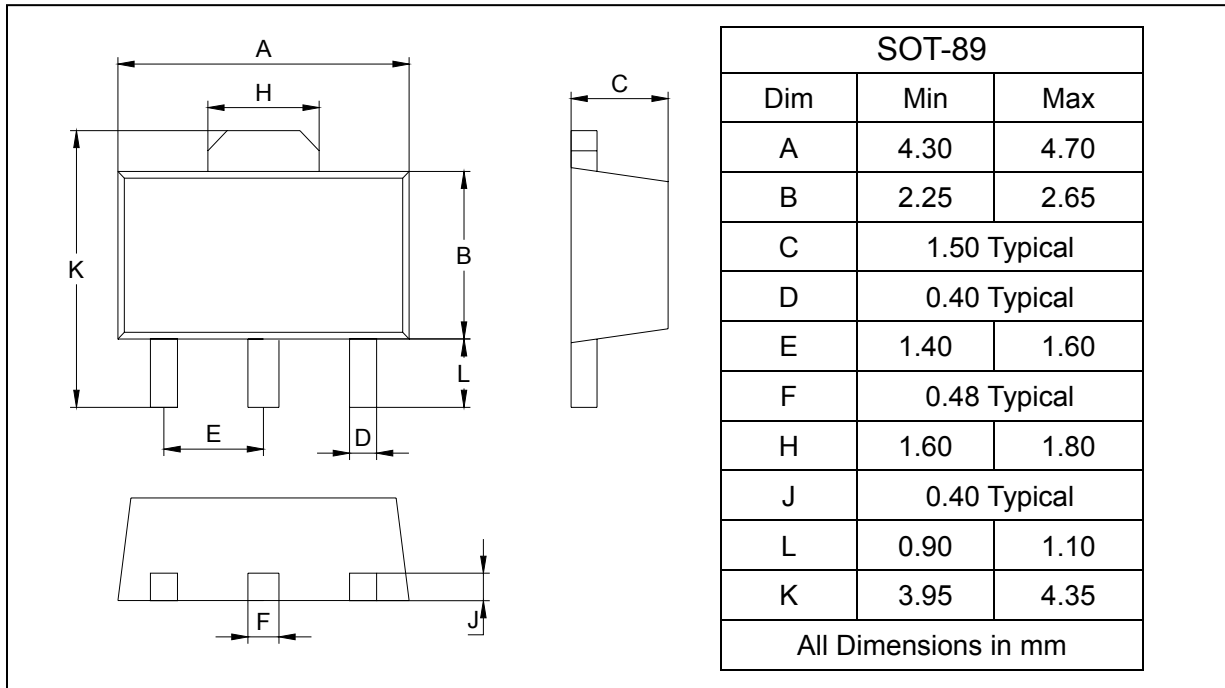
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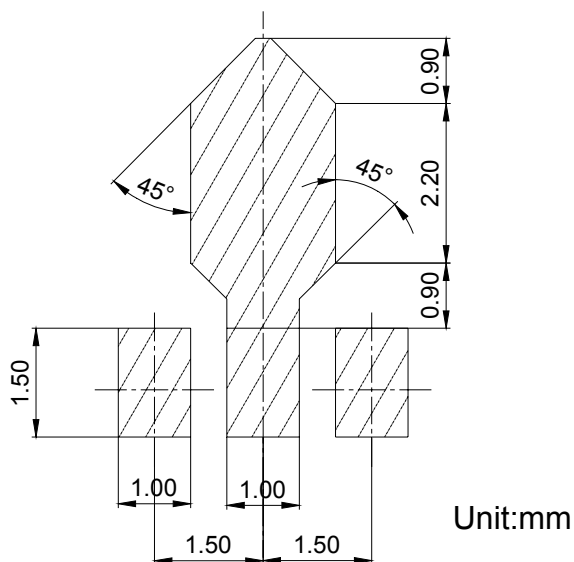
PACKAGE OUTLIN

Plastic surface mounted package

SOT-89



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
BL79LXX	SOT-89	1000/Tape&Reel