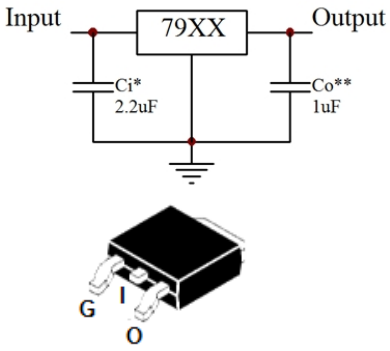
79XX

Three-terminal voltage regulator

FEATURES

- Some kinds output voltage series
- Superior ripple rejection ratio for audio frequency
- Large maximum power dissipation: 1W
- Over curren t and over temperature protection
- Output Current Up to 0.8 A



To-252

APPLICATIONS

- Three-terminal Negative Fixed Voltage Regulators

Ordering Information

Part Number	Package	Shipping	Marking Code
7905	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7905
7906	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7906
7908	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7908
7909	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7909
7910	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7910
7912	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7912
7915	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	7915

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
V_I	Input voltage	-35	V
P_D	Power dissipation	1	W
T_{OPR}	Operating junction temperature	-40 to +125	℃
T_{STG}	Storage temperature range	-55to +150	℃

ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test conditions	7905			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-10V ,1.0 mA ≤I_O≤70mA	-4.8 -4.75	-5.0	-5.2 -5.25	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 100 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 40 mA		16 11 5.0	 60 30	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -20V≤V_i≤-7V T_j=25℃, -20V≤V_i≤-8V		55 45	150 100	mV
Quiescent current	I_Q	T_j=25℃		-2.0	-4.0	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -20V≤V_i≤-8V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3		V
Output short circuit current	I_{OS}	T_j=25℃		300		mA

ELECTRICAL CHARACTERISTICS

(V_{IN} = –11 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33μF, C_L = 0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	7906			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-10V ,1.0 mA ≤I_O≤70mA	-5.76 -5.70	-6.0	-6.24 -6.30	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA		17.5 12 5.5	 70 35	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -21V≤V_i≤-8.1V T_j=25℃, -21V≤V_i≤-9.0V		50 45	150 110	mV
Quiescent current	I_Q	T_j=25℃		-2.0	-4.0	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -21V≤V_i≤-9.0V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3	_	V
Output short circuit current	I_{OS}	T_j=25℃		300		mA

ELECTRICAL CHARACTERISTICS

(V_{IN} = –14 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33μF, C_L = 0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	7908			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-14V ,1.0 mA ≤I_O≤70mA	-7.68 -7.60	-8.0	-8.32 -8.40	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA		22 15 7.0	 80 40	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -23V≤V_i≤-10.5V T_j=25℃, -23V≤V_i≤-11V		65 55	175 125	mV
Quiescent current	I_Q	T_j=25℃		-2.0	-4.0	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -23V≤V_i≤-11V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3		V
Output short circuit current	I_{OS}	T_j=25℃		270		mA

ELECTRICAL CHARACTERISTICS

(V_{IN} = –15 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33μF, C_L = 0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	7909			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-15V ,1.0 mA ≤I_O≤70mA	-8.64 -8.55	-9.0	-9.36 -9.45	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA		24.5 17 8.0	 90 45	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -24V≤V_i≤-11.4V T_j=25℃, -24V≤V_i≤-12V		80 70	200 160	mV
Quiescent current	I_Q	T_j=25℃		-2.6	-4.6	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -24V≤V_i≤-12V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3		V
Output short circuit current	I_{OS}	T_j=25℃		270		mA

ELECTRICAL CHARACTERISTICS

(V_{IN} = –16 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33μF, C_L = 0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	7910			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-16V ,1.0 mA ≤I_O≤70mA	-9.6 -9.50	-10	-10.4 -10.5	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA		26 18 8.5	 90 45	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -25V≤V_i≤-12.5V T_j=25℃, -25V≤V_i≤-13V		80 70	230 170	mV
Quiescent current	I_Q	T_j=25℃		-2.6	-4.6	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -25V≤V_i≤-13V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3		V
Output short circuit current	I_{OS}	T_j=25℃		260		mA

ELECTRICAL CHARACTERISTICS

(V_{IN} = –19 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33μF, C_L = 0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions	7912			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-19V ,1.0 mA ≤I_O≤70mA	-11.52 -11.40	-12	-12.48 -12.60	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 100 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 100 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 100 mA		28.5 20 10	 100 50	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -27V≤V_i≤-14.5V T_j=25℃, -27V≤V_i≤-16V		120 100	250 200	mV
Quiescent current	I_Q	T_j=25℃		-2.6	-4.6	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -27V≤V_i≤-16V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3		V
Output short circuit current	I_{OS}	T_j=25℃		250		mA

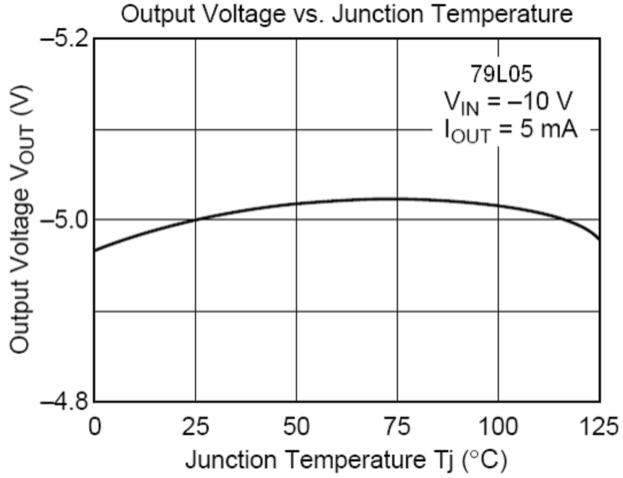
ELECTRICAL CHARACTERISTICS

(V_{IN} = –23 V, I_{OUT} = 40 mA, 0°C ≤ Tj ≤ 125°C, C_{IN} = 0.33μF, C_L = 0.1μF,unless otherwise specified)

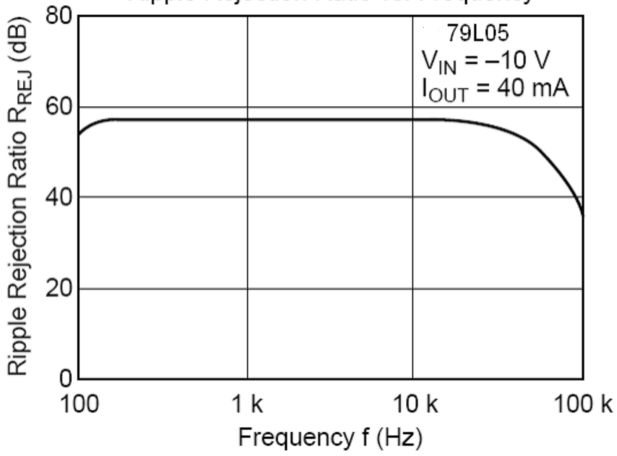
Parameter	Symbol	Test conditions	7915			UNIT
			MIN	TYP	MAX	
Output voltage	V_O	T_j=25℃ V_{IN}=-23V ,1.0 mA ≤I_O≤70mA	-14.4 -14.25	-15	-15.6 -15.75	V
Load regulation	ΔV_{OLOAD}	T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA T_j=25℃, 1.0 mA ≤ I_{OUT} ≤ 150 mA		36 25 12	 150 75	mV
Line regulation	ΔV_{OLINE}	T_j=25℃, -30V≤V_i≤-17.5V T_j=25℃, -30V≤V_i≤-20V		130 110	300 250	mV
Quiescent current	I_Q	T_j=25℃		-2.6	-4.6	mA
Quiescent current change	$\triangle I_Q$	T_j=25℃, -30V≤V_i≤-20V 1.0mA≤I_O≤40mA			1.5 1.0	mA
Voltage drop	V_{DROP}	T_j=25℃		1.3		V
Output short circuit current	I_{OS}	T_j=25℃		240		mA

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

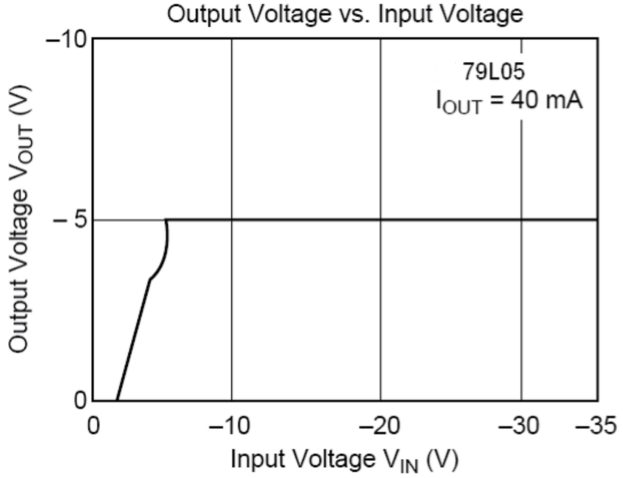
Output Voltage vs. Junction Temperature



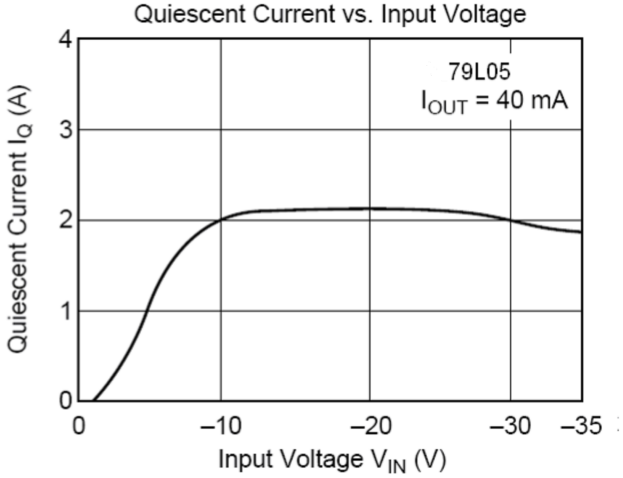
Ripple Rejection Ratio vs. Frequency



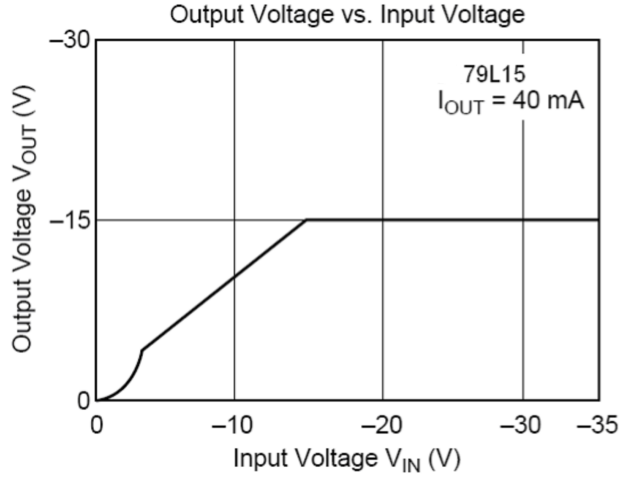
Output Voltage vs. Input Voltage



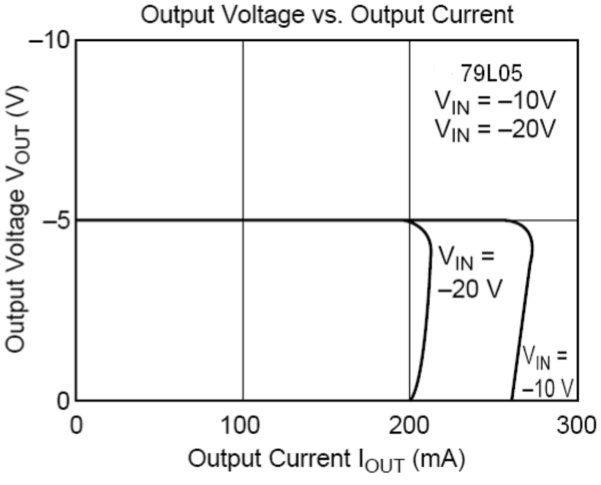
Quiescent Current vs. Input Voltage



Output Voltage vs. Input Voltage

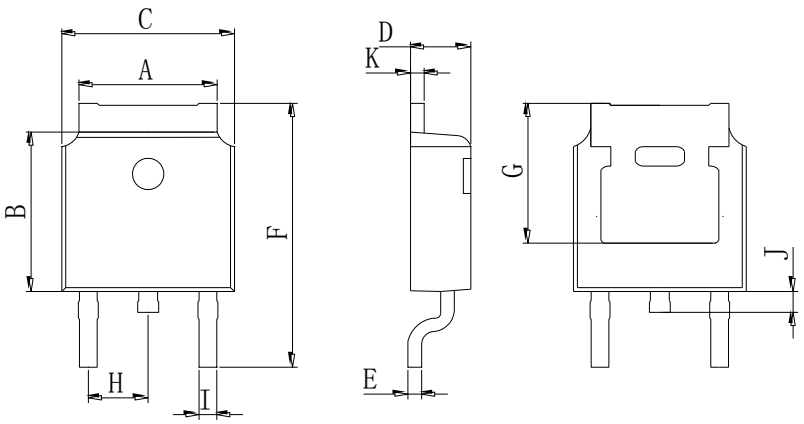


Output Voltage vs. Output Current



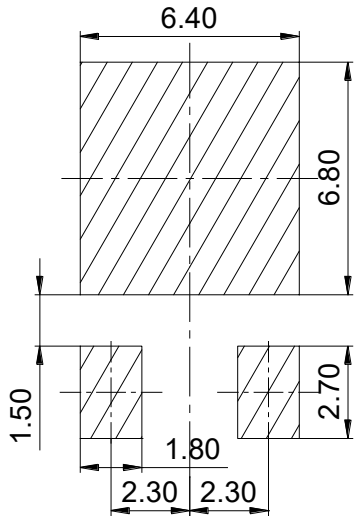
PACKAGE OUTLINE

Plastic surface mounted package TO-252



TO-252		
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.7
K	0.40	0.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit: mm