

Three Terminal, Fixed Voltage, 1.5 Amp Precision Negative Regulators In Hermetic JEDEC TO-257AA Package

- Isolated Hermetic Package, JEDEC TO-257AA Outline
- Output Voltages: -5V, -12V, -15V
- Output Voltages Set Internally To $\pm 2\%$
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Standard Off-The-Shelf

These three terminal negative regulators are supplied in a hermetically sealed metal package whose outline is similar to the industry standard TO-220 plastic package. All protective features are designed into the circuit, including thermal shutdown, current limiting and safe-area control. With heat sinking, they can deliver over 1.5 amps of output current. These units feature internally trimmed output voltages to 2% of nominal voltage. Standard voltages are -5V, -12V, and -15V. However, other voltages are available up to -24 volts. These units are ideally suited for Military applications where a hermetically sealed package is required.

Input Voltage	-35 V
Operating Junction Temperature Range	- 55°C to + 150°C
Storage Temperature Range	- 65°C to + 150°C
Typical Power/Thermal Characteristics:	
Rated Power @ 25° C	T_C 17.5W
	T_A 3 W
Thermal Resistance	
	q_{JC} 4.2°C/W
	q_{JA} 42°C/W

COM7900T Series

ELECTRICAL CHARACTERISTICS -5 Volt $V_{IN} = -10V, I_O = 500mA, -55^{\circ}C \quad T_A = 125^{\circ}C$ (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-4.9	-5.1	V
		$V_{IN} = -7.5V$ to $-20V$	• -4.8	-5.2	V
Line Regulation (Note 1)	V_{RLINE}	$V_{IN} = -7.5V$ to $-20V$	•	12	mV
			•	25	mV
		$V_{IN} = -8.0V$ to $-12V$	•	5	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	20	mV
			•	25	mV
		$I_O = 250mA$ to $750mA$	•	15	mV
Standby Current Drain	I_{SCD}		•	30	mV
			•	2.5	mV
Standby Current Drain Change With Line	$D I_{SCD}$ (Line)	$V_{IN} = -7.0V$ to $-20V$	•	0.4	mV
Standby Current Drain Change With Load	$D I_{SCD}$ (Load)	$I_O = 5mA$ to $1000mA$	•	0.4	mV
Dropout Voltage	V_{DO}	$DV_{OUT} = 100mV, I_O = 1.0A$	•	2.5	V
Peak Output Current	I_{PK}	$T_A = 25^{\circ}C$	1.5	3.3	A
Short Circuit Current (Note 2)	I_{SC}	$V_{IN} = -35V$	•	1.2	A
Ripple Rejection	DV_{IN}	$f = 120Hz, DV_{IN} = -10V$	63		dB
	DV_{OUT}	(Note 3)	• 60		dB
Output Noise Voltage (Note 3)	N_O	$T_A = 25^{\circ}C, f = 10Hz$ to $100kHz$		40	$\mu V/V$ RMS
Long Term Stability (Note 3)	$\frac{DV_{OUT}}{Dt}$	$T_A = 25^{\circ}C, t = 1000hrs.$		75	mV

ELECTRICAL CHARACTERISTICS -12 Volt $V_{IN} = -19V, I_O = 500mA, -55^{\circ}C \quad T_A = 125^{\circ}C$ (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-11.76	-12.24	V
		$V_{IN} = -14.5V$ to $-27V$	• -11.6	-12.4	V
Line Regulation (Note 1)	V_{RLINE}	$V_{IN} = -14.5V$ to $-27V$	•	20	mV
			•	50	mV
		$V_{IN} = -16V$ to $-22V$	•	10	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	32	mV
			•	60	mV
		$I_O = 250mA$ to $750mA$	•	16	mV
Standby Current Drain	I_{SCD}		•	30	mV
			•	3.5	mV
Standby Current Drain Change With Line	$D I_{SCD}$ (Line)	$V_{IN} = -14.5V$ to $-27V$	•	0.8	mV
Standby Current Drain Change With Load	$D I_{SCD}$ (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mV
Dropout Voltage	V_{DO}	$DV_{OUT} = 100mV, I_O = 1.0A$	•	1.8	V
Peak Output Current	I_{PK}	$T_A = 25^{\circ}C, I_O = 5mA$ to $1A$	1.5	3.3	A
Short Circuit Current (Note 2)	I_{SC}	$V_{IN} = -35V$	•	1.2	A
Ripple Rejection	DV_{IN}	$f = 120Hz, DV_{IN} = -10V$	56		dB
	DV_{OUT}	(Note 3)	• 53		dB
Output Noise Voltage (Note 3)	N_O	$T_A = 25^{\circ}C, f = 10Hz$ to $100kHz$		40	$\mu V/V$ RMS
Long Term Stability (Note 3)	$\frac{DV_{OUT}}{Dt}$	$T_A = 25^{\circ}C, t = 1000hrs.$		120	mV

Notes:

- Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
- Short Circuit protection is only assured up to $V_{IN} = -35V$.
- If not tested, shall be guaranteed to the specified limits.

The • denotes the specifications which apply over the full operating temperature range.

COM7900T Series

ELECTRICAL CHARACTERISTICS -15 Volt $V_{IN} = -23V$, $I_O = 500mA$, $-55^{\circ}C$ T_A $125^{\circ}C$ (unless otherwise specified)

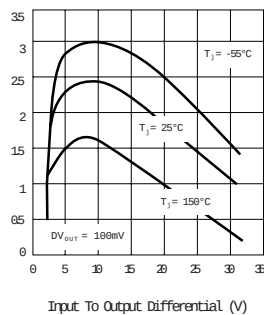
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-14.7	-15.3	V
		$V_{IN} = -17.5V$ to $-30V$	• -14.5	-15.5	V
Line Regulation (Note 1)	V_{RLINE}	$V_{IN} = -17.5V$ to $-30V$	•	25	mV
			•	50	mV
		$V_{IN} = -20V$ to $-28V$	•	15	mV
			•	25	mV
Load Regulation (Note 1)	V_{RLoad}	$I_O = 5mA$ to $1.5A$	•	35	mV
			•	75	mV
		$I_O = 250mA$ to $750mA$	•	21	mV
Standby Current Drain	I_{SCD}		•	6.0	mA
			•	6.5	mA
Standby Current Drain Change With Line	$D I_{SCD}$ (Line)	$V_{IN} = -17.5V$ to $-30V$	•	0.8	mA
Standby Current Drain Change With Load	$D I_{SCD}$ (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mA
Dropout Voltage	V_{DO}	$DV_{OUT} = 100mV$, $I_O = 1.0A$	•	2.5	V
Peak Output Current	$I_{O(pk)}$	$T_A = 25^{\circ}C$	1.5	3.3	A
Short Circuit Current (Note 2)	I_{OS}	$V_{IN} = -30V$	•	1.2	A
			•	2.8	A
Ripple Rejection	DV_{IN}	$f = 120Hz$, $DV_{IN} = -10V$	53		dB
	DV_{OUT}	(Note 3)	• 50		dB
Output Noise Voltage (Note 3)	N_O	$T_A = 25^{\circ}C$, $f = 10Hz$ to $100kHz$		40	$\mu V/V$ RMS
Long Term Stability (Note 3)	$\frac{DV_{OUT}}{Dt}$	$T_A = 25^{\circ}C$, $t = 1000hrs.$		150	mV

Notes:

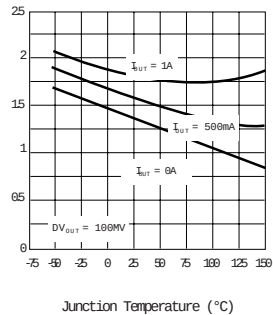
- 1 Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
 - 2 Short Circuit protection is only assured up to $V_{IN} = -30V$.
 - 3 If not tested, shall be guaranteed to the specified limits.
- The • denotes the specifications which apply over the full operating temperature range.

TYPICAL PERFORMANCE CHARACTERISTICS

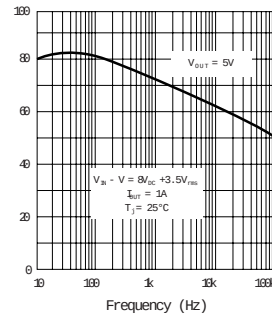
PEAK OUTPUT CURRENT



DROPOUT VOLTAGE



RIPPLE REJECTION

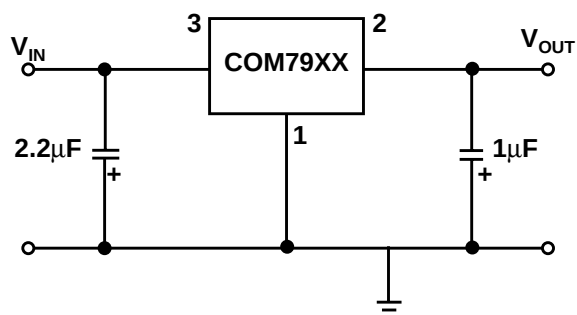


TYPICAL APPLICATIONS

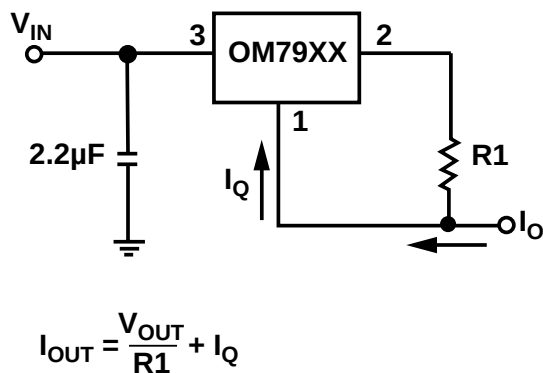
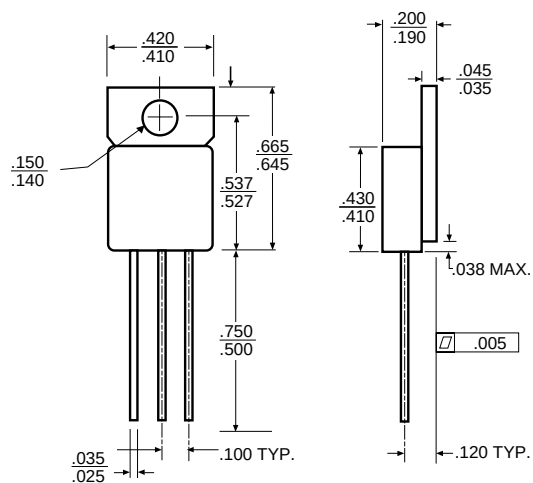
Input bypass capacitors are recommended for stable operation of the OM7900 series of regulators over the input voltage and output current ranges. Output bypass capacitors will improve the transient response of the regulator.

The bypass capacitors, (2.2 μ F on the input, 1 μ F on the output) should be ceramic or solid tantalum which have good high frequency characteristics. If aluminum electrolytics are used, their values should be 10 μ F or larger. The bypass capacitors should be mounted with the shortest leads, and if possible, directly across the regulator terminals.

Fixed Output Regulator



Basic Current Regulator

MECHANICAL OUTLINE
T0-257AA

Note:

- Case is metal/hermetically sealed
- Isolated Tab/Glass Feedthroughs

PIN CONNECTION

COM79XXT
Isolated
Front View
Pin 1: Ground
Pin 2: Input
Pin 3: Output
Tab: Isolated

