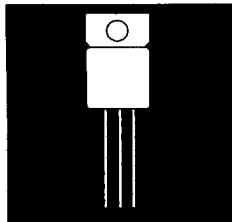


ISOLATED HERMETIC FIXED VOLTAGE NEGATIVE REGULATORS APPROVED TO DESC DRAWINGS



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

FEATURES

- Isolated Hermetic Package, JEDEC TO-257AA Outline
- Output Voltages: -5V, -12V, -15V
- Output Voltages Set Internally to $\pm 1\%$
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Product Is Also Available In Non-Isolated Package
- Similar To Industry Standards 7905, 7912, 7915

DESCRIPTION

These three terminal negative regulators are supplied in a hermetically sealed metall 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 $\pm 1\%$ of nominal voltage. Standard voltages are -5V, -12V, -15V. These units are ideally suited for Military applications where a hermetically sealed package is required.

PART NUMBER DESIGNATOR

Standard Military Drawing Number	Omnirel Part Number
5962-8874601 UX	OM1905STM
5962-8874601 TX	OM1905NTM
5962-8874701 UX	OM1912STM
5962-8874701 TX	OM1912NTM
5962-8874801 UX	OM1915STM
5962-8874801 TX	OM1915NTM

"U" = Isolated

"T" = Non-Isolated

3.3

ABSOLUTE MAXIMUM RATINGS @ 25°C

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 15W
 T_A 3W
 Thermal Resistance θ_{JC} (Case U) 4.2°C/W
 θ_{JC} (Case T) 3.5°C/W
 θ_{JA} 42°C/W

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

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^\circ C$	-4.95	-5.05	V
		$V_{IN} = -7.5V$ to $-20V$ $I_O = 5mA$ to $1.0A$, $P \leq 15W$	• -4.85	-5.15	V
Line Regulation (Note 1) (Note 4)	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 $1.5A$ mp	•	20	mV
			•	25	mV
		$I_O = 250mA$ to $750mA$	•	15	mV
Standby Current Drain	I_{SCD}		•	30	mV
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = -7.0V$ to $-20V$	•	2.5	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to $1000mA$	•	3.0	mA
Dropout Voltage	V_{DO}	$\Delta V_{OUT} = 100mV$, $I_O = 1.0A$	•	0.4	mA
Peak Output Current	$I_{O(pk)}$	$T_A = 25^\circ C$		2.5	V
Short Circuit Current (Note 2)	I_{DS}	$V_{IN} = -35V$	•	1.5	A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz$, $\Delta V_{IN} = -10V$		1.2	A
		(Note 3)	• 60	2.8	A
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)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^\circ C$, $t = 1000hrs.$		75	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.

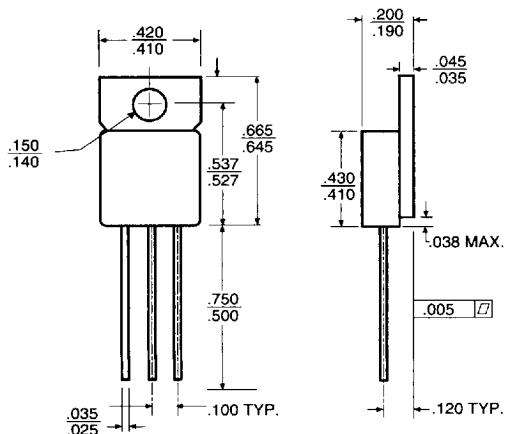
The • denotes the specifications which apply over the full operating temperature range.

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

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-11.88	-12.12	V
		$V_{IN} = -14.5V$ to $-27V$ $I_O = 5mA$ to $1.0A$, $P \leq 15W$	• -11.64	-12.36	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -14.5V$ to $-27V$	•	20 50	mV mV
		$V_{IN} = -16V$ to $-22V$	•	10 30	mV mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	32 60	mV mV
		$I_O = 250mA$ to $750mA$	•	16 30	mV mV
Standby Current Drain	I_{SCD}		•	3.5 4.0	mA mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = -14.5V$ to $-27V$	•	0.8	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mA
Dropout Voltage	V_{DO}	$\Delta V_{OUT} = 100mV$, $I_O = 1.0A$	•	1.8	V
Peak Output Current	$I_{O(pk)}$	$T_A = 25^{\circ}C$, $I_O = 5mA$ to $1A$	1.5	3.3	A
Short Circuit Current (Note 2)	I_{DS}	$V_{IN} = -35V$	•	1.2 2.8	A A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz$, $\Delta V_{IN} = -10V$	56		dB
		(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)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^{\circ}C$, $t = 1000hrs.$		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.
- Minimum load current for full line regulation = 5 mA.

MECHANICAL OUTLINE**CONNECTION DIAGRAM****Case U**

- 1 Ground
- 2 Input
- 3 Output
- 4 No Connection

Case T

- 1 Ground
- 2 Input
- 3 Output
- 4 Input

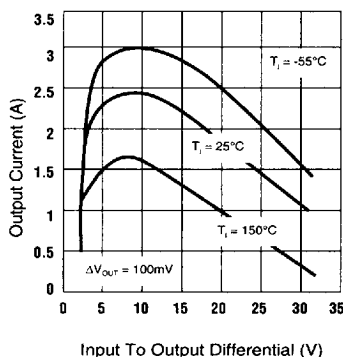
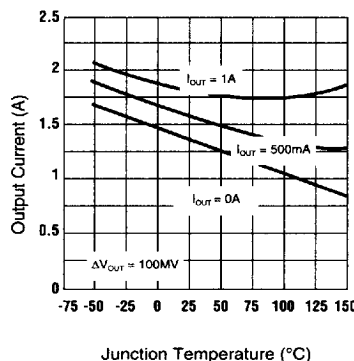
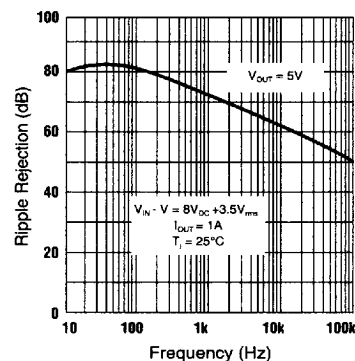
3.3

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-14.85	-15.15	V
		$V_{IN} = -17.5V$ to $-30V$ $I_O = 5mA$ to $1.0 A$, $P \leq 15 W$	• -14.55	-15.45	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -17.5V$ to $-30V$	•	25	mV
			•	50	mV
		$V_{IN} = -20V$ to $-26V$	•	15	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5 Amp$	•	35	mV
			•	75	mV
		$I_O = 250mA$ to $750 mA$	•	21	mV
Standby Current Drain	I_{SCD}		•	6.0	mA
			•	6.5	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = -17.5V$ to $-30V$	•	0.8	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to $1000 mA$	•	0.5	mA
Dropout Voltage	V_{DO}	$\Delta V_{OUT} = 100mV$, $I_O = 1.0A$	•	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_{DS}	$V_{IN} = -35V$	•	1.2	A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120 Hz$, $\Delta V_{IN} = -10V$	53		dB
		(Note 3)	• 50		dB
Output Noise Voltage (Note 3)	N_O	$T_A = 25^{\circ}C$, $f = 10 Hz$ to $100KHz$		40	$\mu V/V$ RMS
Long Term Stability (Note 3)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^{\circ}C$, $t = 1000 hrs.$		150	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.

TYPICAL PERFORMANCE CHARACTERISTICS**PEAK OUTPUT CURRENT****DROPOUT VOLTAGE** **RIPPLE REJECTION**

205 Crawford Street, Leominster, MA 01453 USA (508) 534-5776 FAX (508) 537-4246

6789073 0001632 3&T

3.3-96