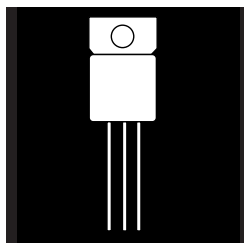


OM1905STM OM1912STM OM1915STM
 OM1905NTM OM1912NTM OM1915NTM

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 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 $\pm 1\%$ 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 $V_{IN} = -10V, I_O = 500mA, -55^\circ C T_A 125^\circ C$ (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^\circ C$	-4.95	-5.05	V
		$V_{IN} = -7.5V$ to -20V $I_O = 5mA$ to 1.0, A, $P \leq 15W$	• -4.85	-5.15	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -7.5V$ to -20V	•	12 25	mV mV
		$V_{IN} = -8.0V$ to -12V	•	5 12	mV mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to 1.5 Amp	•	20 25	mV mV
		$I_O = 250mA$ to 750 mA	•	15 30	mV mV
Standby Current Drain	I_{SCD}	•		2.5 3.0	mA mA
		$V_{IN} = -7.0V$ to -20V	•	0.4	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$I_O = 5mA$ to 1000mA	•	0.4	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$\Delta V_{OUT} = 100mV, I_O = 1.0A$	•	2.5	V
Dropout Voltage	V_{DO}	$T_A = 25^\circ C$	1.5	3.3	A
Peak Output Current	$I_{O(pk)}$	$V_{IN} = -35V$	•	1.2 2.8	A A
Short Circuit Current (Note 2)	I_{DS}	$f = 120 Hz, \Delta V_{IN} = -10V$	•	63	dB
		(Note 3)	•	60	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)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^\circ C, t = 1000 hrs.$		75	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 $V_{IN} = -35V$.
3. If not tested, shall be guaranteed to the specified limits.
 The • denotes the specifications which apply over the full operating temperature range.

OM1905STM/NTM - OM1915NTM/STM

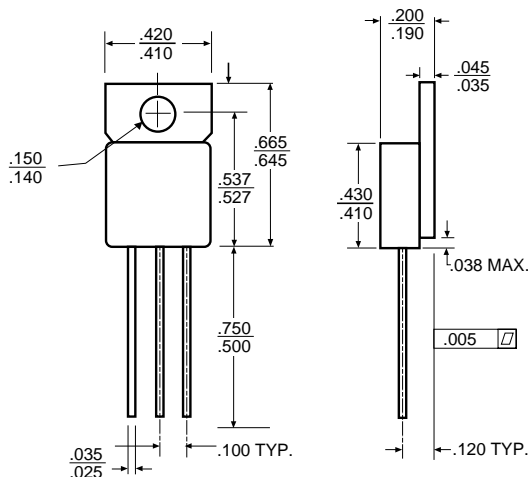
ELECTRICAL CHARACTERISTICS -12 Volt $V_{IN} = -19V, I_O = 500mA, -55^{\circ}C \leq T_A \leq 125^{\circ}C$ (unless otherwise specified)

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	mV
		$V_{IN} = -16V$ to $-22V$	•	50	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	10	mV
		$I_O = 250mA$ to $750mA$	•	30	mV
Standby Current Drain	I_{SCD}		•	32	mV
			•	60	mV
Standby Current Drain Change With Line	$D I_{SCD}$ (Line)	$V_{IN} = -14.5V$ to $-27V$	•	16	mV
			•	30	mV
Standby Current Drain Change With Load	$D I_{SCD}$ (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mA
			•	0.5	mA
Dropout Voltage	V_{DO}	$DV_{OUT} = 100mV, I_O = 1.0A$	•	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	A
			•	2.8	A
Ripple Rejection	$\frac{DV_{IN}}{DV_{OUT}}$	$f = 120Hz, DV_{IN} = -10V$	•	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)	$\frac{DV_{OUT}}{Dt}$	$T_A = 25^{\circ}C, t = 1000hrs.$		120	mV

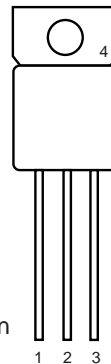
Notes:

- 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.
- Minimum load current for full line regulation = 5 mA.

MECHANICAL OUTLINE



CONNECTION DIAGRAM



- Case U**
- Ground
 - Input
 - Output
 - No Connection

- Case T**
- Ground
 - Input
 - Output
 - Input

3.3

OM1905STM/NTM - OM1915STM/NTM

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

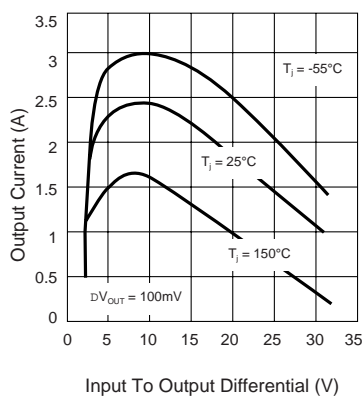
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-14.85	-15.15	V
		$V_{IN} = -17.5V$ to $-30V$ $I_O = 5mA$ to $1.0A$, $P \leq 15W$	• -14.55	-15.45	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -17.5V$ to $-30V$		25	mV
			•	50	mV
		$V_{IN} = -20V$ to $-26V$		15	mV
		•	25	mV	
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$ Amp		35	mV
			•	75	mV
		$I_O = 250mA$ to $750mA$		21	mV
		•	45	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 $1000mA$	•	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
			•	2.8	A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz$, $\Delta V_{IN} = -10V$		53	dB
		(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)	$\frac{\Delta V_{OUT}}{Dt}$	$T_A = 25^{\circ}C$, $t = 1000hrs.$		150	mV

Notes:

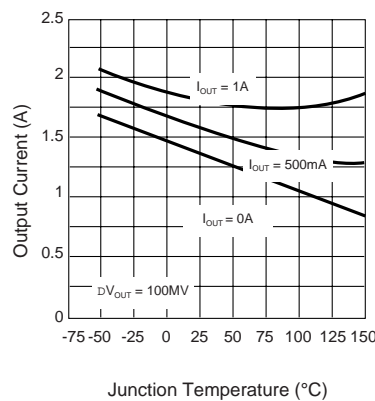
- Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
 - Short Circuit protection is only assured up to $V_{IN} = -35V$.
 - If not tested, shall be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

TYPICAL PERFORMANCE CHARACTERISTICS

PEAK OUTPUT



DROPOUT VOLTAGE



RIPPLE REJECTION

