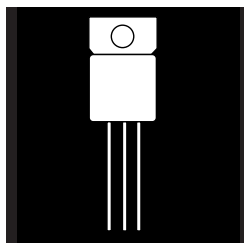


OM1905STM OM1912STM OM1915STM  
 OM1905NTM OM1912NTM OM1915NTM

## 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

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## 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  $\theta_{JC}$  (Case U) . . . . . 4.2°C/W  
 $\theta_{JC}$  (Case T) . . . . . 3.5°C/W  
 $\theta_{JA}$  . . . . . 42°C/W

## ELECTRICAL CHARACTERISTICS -5 Volt $V_{IN} = -10V, I_O = 500mA, -55^\circ C \quad T_A \quad 125^\circ C$ (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	$\Delta I_{SCD}$ (Line)	$I_O = 5mA$ to 1000mA	•	0.4	mA
Standby Current Drain Change With Load	$\Delta I_{SCD}$ (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.

3.3

## OM1905STM/NTM - OM1915NTM/STM

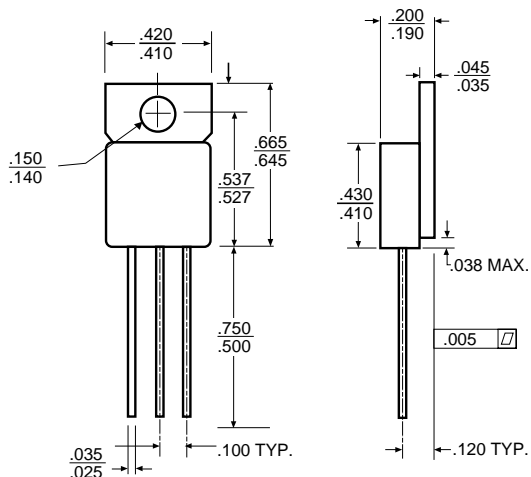
### ELECTRICAL CHARACTERISTICS -12 Volt $V_{IN} = -19V, I_O = 500mA, -55^{\circ}C \text{ } T_A \text{ } 125^{\circ}C$ (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	$V_{OUT}$	$T_A = 25^{\circ}C$	-11.88	-12.12	V
		$V_{IN} = -14.5V \text{ to } -27V$ $I_O = 5mA \text{ to } 1.0A, P \leq 15W$	• -11.64	-12.36	V
Line Regulation (Note 1) (Note 4)	$V_{RLINE}$	$V_{IN} = -14.5V \text{ to } -27V$		20	mV
		$V_{IN} = -16V \text{ to } -22V$		50	mV
Load Regulation (Note 1)	$V_{RLOAD}$	$I_O = 5mA \text{ to } 1.5A$		10	mV
		$I_O = 250mA \text{ to } 750mA$		30	mV
Standby Current Drain	$I_{SCD}$			32	mV
				60	mV
Standby Current Drain Change With Line	$D I_{SCD}$ (Line)	$V_{IN} = -14.5V \text{ to } -27V$	•	16	mV
				30	mV
Standby Current Drain Change With Load	$D I_{SCD}$ (Load)	$I_O = 5mA \text{ to } 1000mA$	•	3.5	mA
				4.0	mA
Dropout Voltage	$V_{DO}$	$DV_{OUT} = 100mV, I_O = 1.0A$	•	1.8	V
Peak Output Current	$I_{O(pk)}$	$T_A = 25^{\circ}C, I_O = 5mA \text{ to } 1A$	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)	$N_O$	$T_A = 25^{\circ}C, f = 10Hz \text{ to } 100KHz$		40	$\mu V/V$ RMS
Long Term Stability (Note 3)	$\frac{DV_{OUT}}{Dt}$	$T_A = 25^{\circ}C, t = 1000hrs.$		120	mV

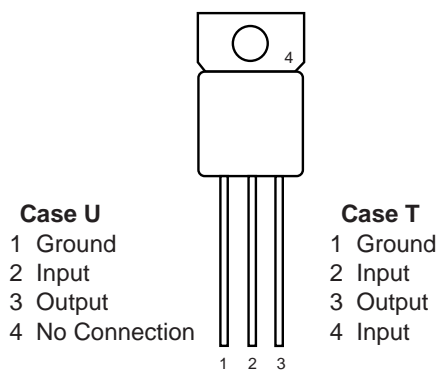
#### Notes:

- 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



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## 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)

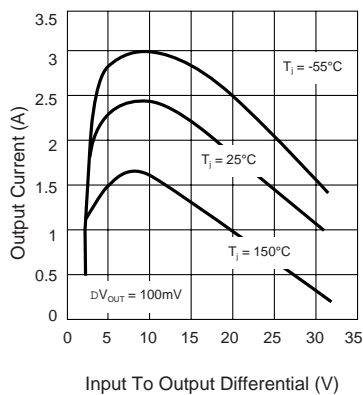
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	$V_{OUT}$	$T_A = 25^{\circ}C$	-14.85	-15.15	V
		$V_{IN} = -17.5V$ to $-30V$ $I_O = 5mA$ to $1.0A$ , $P \leq 15W$	• -14.55	-15.45	V
Line Regulation (Note 1) (Note 4)	$V_{RLINE}$	$V_{IN} = -17.5V$ to $-30V$		25	mV
			•	50	mV
		$V_{IN} = -20V$ to $-26V$		15	mV
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	$\Delta I_{SCD}$ (Line)	$V_{IN} = -17.5V$ to $-30V$	•	0.8	mA
Standby Current Drain Change With Load	$\Delta I_{SCD}$ (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)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^{\circ}C$ , $t = 1000hrs.$		150	mV

#### Notes:

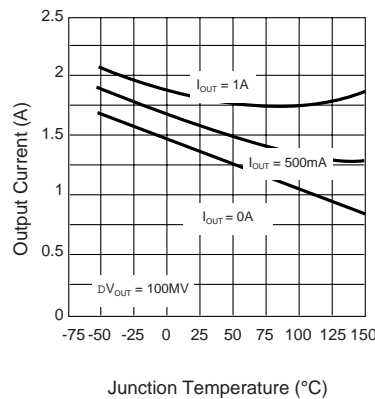
- Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
  - Short Circuit protection is only assured up to  $V_{IN} = -35V$ .
  - If not tested, shall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

