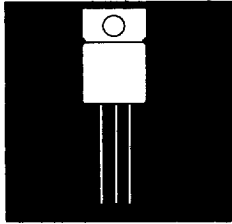


ISOLATED HERMETIC TO-257AA FIXED VOLTAGE REGULATORS APPROVED TO DESC DRAWINGS



**Three Terminal, Fixed Voltage, 1.5 Amp
Precision Positive 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 7805, 7812, 7815

DESCRIPTION

These three terminal positive 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 $\pm 1\%$ of nominal voltage. These units are ideally suited for Military applications where a hermetically sealed package is required.

PART NUMBER DESIGNATOR

3.3

Standard Military Drawing Number	Omnirel Part Number
5962-8778201 UX	OM1805STM
5962-8778201 TX	OM1805NTM
5962-8777601 UX	OM1812STM
5962-8777601 TX	OM1812NTM
5962-8855301 UX	OM1815STM
5962-8855301 TX	OM1815NTM

"U" = Isolated

"T" = Non-Isolated

6789073 0001595 682

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 3WThermal Resistance θ_{JC} Case U 4.2°C/W θ_{JC} Case T 3.5°C/W θ_{JA} Case T 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}	$T_A = 25^\circ C$	4.92	5.08	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	•	5	mV
				12	mV
		$V_{IN} = 8.0V$ to 12V	•	4	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to 1.5 Amp		12	mV
		$I_O = 5mA$ to 1.0 Amp	•	25	mV
		$I_O = 250mA$ to 750 mA	•	6	mV
Standby Current Drain	I_{SCD}			6	mA
			•	6.5	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 7.5V$ to 20V	•	0.8	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to 1000mA	•	0.5	mA
Dropout Voltage	V_{DO}	$T_A = 25^\circ C$, $\Delta V_{OUT} = 100mV$, $I_O = 1.0A$		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, $\Delta V_{IN} = 10V$	68		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:

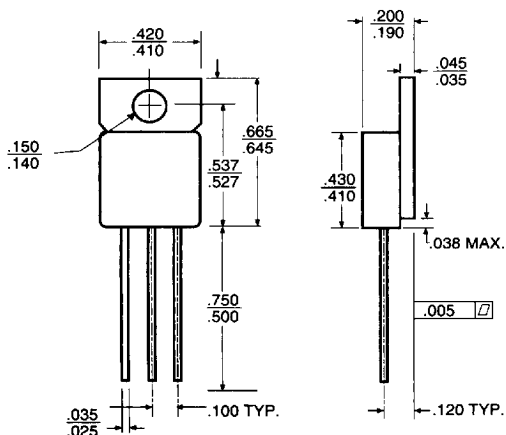
- Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
- Short Circuit protection is only assured up to $V_{IN} = 35V$.
- If not tested, shall be guaranteed to the specified limits.
The • denotes the specifications which apply over the full operating temperature range.
- Minimum load current for full line regulation = 5.0 mA.

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

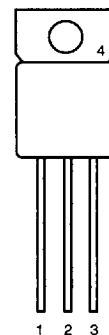
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	11.88	12.12	V
		$V_{IN} = 14.5V$ to $27V$ $I_O = 5mA$ to $1.0A$, $P \leq 15W$	• 11.64	12.36	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = 14.5V$ to $27V$	•	18	mV
		$V_{IN} = 16V$ to $22V$	•	50	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	9	mV
		$I_O = 5mA$ to $1.0A$	•	30	mV
		$I_O = 250mA$ to $750mA$	•	32	mV
Standby Current Drain	I_{SCD}		•	60	mV
			•	40	mV
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 15V$ to $30V$	•	6.0	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to $1000mA$	•	6.5	mA
Dropout Voltage	V_{DO}	$\Delta V_{OUT} = 100mV$, $I_O = 1.0A$	•	0.8	mA
Peak Output Current	$I_{O(pk)}$	$T_A = 25^{\circ}C$	1.5	2.5	V
Short Circuit Current (Note 2)	I_{DS}	$V_{IN} = 35V$		3.3	A
			•	1.2	A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz$, $\Delta V_{IN} = 10V$	61		dB
		(Note 3)	• 54		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:

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. 4. Minimum load current for full line regulation = 5.0 mA. The • denotes the specifications which apply over the full operating temperature range.
4. Minimum load current for full line regulation = 5.0 mA.

MECHANICAL OUTLINE**CONNECTION DIAGRAM**

Case T
 1 Input
 2 Ground
 3 Output
 4 Ground



Case U
 1 Input
 2 Ground
 3 Output
 4 No Connection

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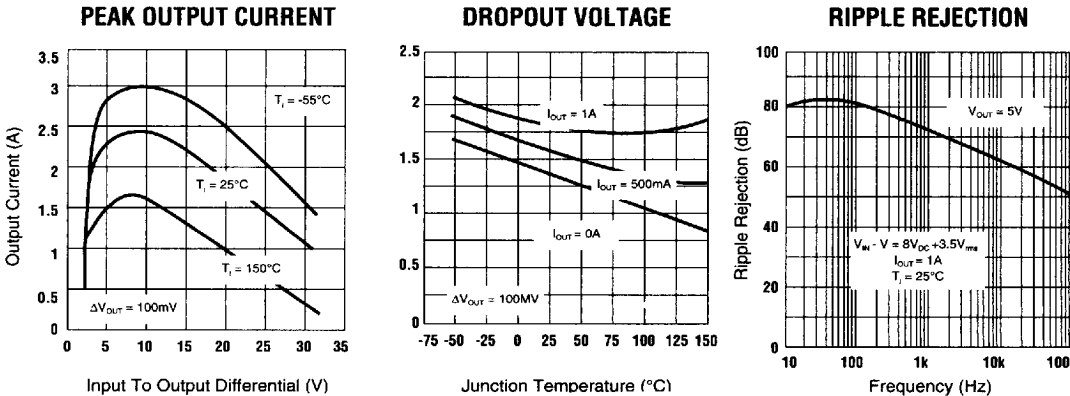
ELECTRICAL CHARACTERISTICS 15 Volt $V_{IN} = 23V, I_O = 500mA, -55^{\circ}C \leq T_A \leq 125^{\circ}C$ (unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	14.8	15.2	V
		$V_{IN} = 18.5V$ to $30V$ $I_O = 5mA$ to $1.0A, P \leq 15W$	14.6	15.4	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = 17.5V$ to $30V$		20	mV
		$V_{IN} = 20V$ to $26V$		15	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$ Amp		35	mV
		$I_O = 5mA$ to $1.0A$ Amp		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	ΔI_{SCD} (Line)	$V_{IN} = 18.5V$ 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}	$T_A = 25^{\circ}C, \Delta V_{OUT} = 100mV, I_O = 1.0A$		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	ΔV_{IN}	$f = 120Hz, \Delta V_{IN} = 10V$	54		dB
	ΔV_{OUT}	(Note 3)	52		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)	ΔV_{OUT} Δt	$T_A = 25^{\circ}C, t = 1000hrs.$		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.
 - Minimum load current for full line regulation = 5.0 mA.

TYPICAL PERFORMANCE CHARACTERISTICS

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