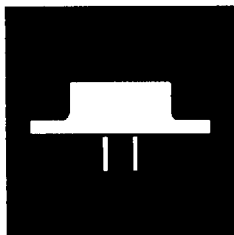


HERMETIC TO-3 FIXED VOLTAGE REGULATORS APPROVED TO DESC DRAWINGS



Three Terminal, Fixed Voltage, 1.5 Amp
Precision Positive Regulators In Hermetic
JEDEC TO-3 Package

FEATURES

- Output Voltages: 5V, 12V, 15V
- Output Voltages Set Internally to $\pm 1\%$
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Similar To Industry Standards 7805, 7812, 7815
- Hi-Rel Screening Available

DESCRIPTION

These three terminal positive regulators are supplied in a hermetically sealed metal TO-3 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

Standard Military Drawing Number

5962-8778201 YX

5962-8777601 YX

5962-8855301 YX

Omnirel Part Number

OM1805NKM

OM1812NKM

OM1815NKM

3.3

6789073 0001590 0T0

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 20W T_A 4.3WThermal Resistance θ_{JC} 3°C/W θ_{JA} 29°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 1.0A, $P \leq 20 W$	• 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 1.0Amp	•	25	mV
		$I_O = 250mA$ to 750 mA	•	6	mV
Standby Current Drain	I_{SCD}		•	15	mV
			•	6	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 7.5V$ to 20V	•	6.5	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to 1000mA	•	0.8	mA
Dropout Voltage	V_{DO}	$T_A = 25^\circ C$, $\Delta V_{OUT} = 100mV$, $I_O = 1.0A$		0.5	mV
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	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120 Hz$, $\Delta V_{IN} = 10V$	66		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:

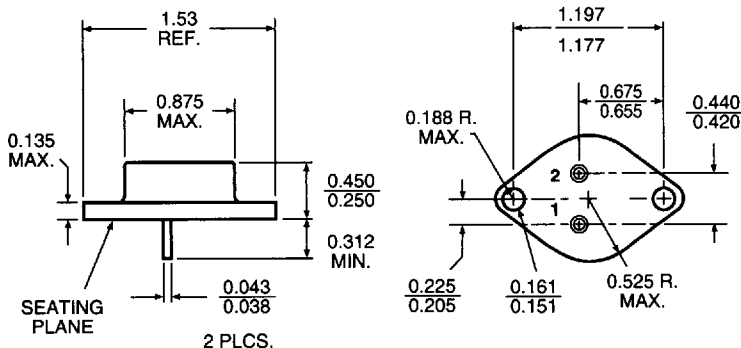
- Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
- Short Circuit protection is only assured up to $V_{IN} = 35V$.
- If not tested, shall be guaranteed 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 $1.0A, P \leq 20W$	• 11.64	12.36	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = 14.5V$ to $27V$	•	18	mV
			•	50	mV
		$V_{IN} = 16V$ to $22V$	•	9	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	32	mV
		$I_O = 5mA$ to $1.0A$	•	60	mV
		$I_O = 250mA$ to $750mA$	•	20	mV
Standby Current Drain	I_{SCD}		•	6.0	mA
			•	6.5	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 15V$ 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	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz, \Delta V_{IN} = 10V$	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:

- 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.

MECHANICAL OUTLINE**Pin Connection**

Pin 1: Input

Pin 2: Output

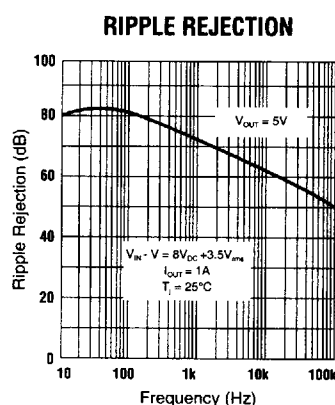
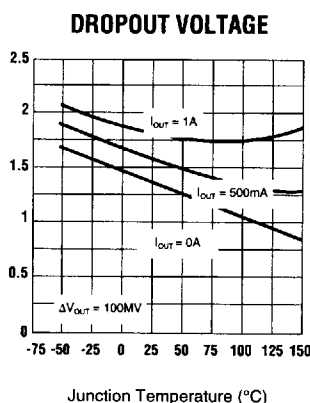
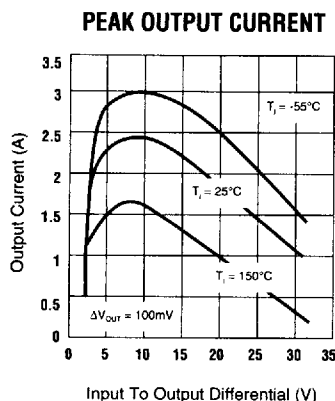
Case: Ground

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 $1.0A$, $P \leq 20W$	14.6	15.4	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = 17.5V$ to $30V$		20	mV
				50	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
				45	mV
Standby Current Drain	I_{SCD}			6.0	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 18.5V$ to $30V$		6.5	mA
				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

6789073 0001593 80T