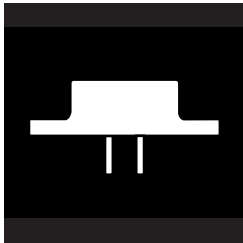


OM1805NKM OM1815NKM
OM1812NKM

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

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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	20W
	T_A	4.3W
Thermal 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 12	mV mV
		$V_{IN} = 8.0V$ to 12V	•	4 10	mV 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 15	mV mV
Standby Current Drain	I_{SCD}		•	6 6.5	mA mA
		$V_{IN} = 7.5V$ to 20V	•	0.8	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$I_O = 5mA$ 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 2.8	A A
		$f = 120 Hz, \Delta V_{IN} = 10V$	•	66	dB
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	(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.
4. Minimum load current for full line regulation = 5.0 mA.

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

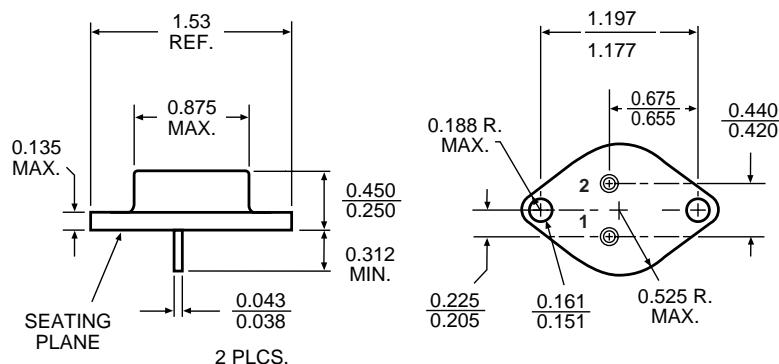
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	11.88	12.12	V
		$V_{IN} = 14.5V$ to $27V$ $I_O = 5mA$ to $1.0A, P \leq 20W$	• 11.64	12.36	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = 14.5V$ to $27V$	•	18	mV
		$V_{IN} = 16V$ to $22V$	•	50	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$ Amp	•	9	mV
		$I_O = 5mA$ to $1.0A$ Amp	•	30	mV
		$I_O = 250mA$ to $750mA$	•	32	mV
Standby Current Drain	I_{SCD}		•	6.0	mA
			•	6.5	mA
Standby Current Drain Change With Line	$D I_{SCD}$ (Line)	$V_{IN} = 15V$ to $30V$	•	0.8	mA
Standby Current Drain Change With Load	$D I_{SCD}$ (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mA
Dropout Voltage	V_{DO}	$DV_{OUT} = 100mV, I_O = 1.0A$	•	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	$\frac{DV_{IN}}{DV_{OUT}}$	$f = 120Hz, DV_{IN} = 10V$ (Note 3)	•	61	dB
			•	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)	$\frac{DV_{OUT}}{Dt}$	$T_A = 25^{\circ}C, t = 1000hrs.$		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.
The • denotes the specifications which apply over the full operating temperature range.
4. Minimum load current for full line regulation = 5.0 mA.

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MECHANICAL OUTLINE



Pin Connection

Pin 1: Input
Pin 2: Output
Case: Ground

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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 $1.0A, P \leq 20W$	• 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 $26V$	•	50	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_o = 5mA$ to $1.5A$ Amp	•	15	mV
		$I_o = 5mA$ to $1.0A$ Amp	•	25	mV
		$I_o = 250mA$ to $750mA$	•	35	mV
Standby Current Drain	I_{SCD}		•	75	mV
			•	45	mV
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 18.5V$ 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}	$T_A = 25^{\circ}C, \Delta V_{OUT} = 100mV, I_o = 1.0A$		0.8	mA
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	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz, \Delta V_{IN} = 10V$	54		dB
		(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)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^{\circ}C, t = 1000hrs.$		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.
- Minimum load current for full line regulation = 5.0 mA.

TYPICAL PERFORMANCE CHARACTERISTICS

