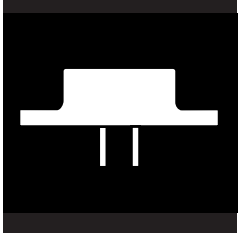


OM1905NKM OM1915NKM
OM1912NKM

HERMETIC TO-3 FIXED VOLTAGE NEGATIVE REGULATORS APPROVED TO DESC DRAWINGS



Three Terminal, Fixed Voltage, 1.5 Amp
Precision Negative 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 7905, 7912, 7915
- Hi-Rel Screening Available

DESCRIPTION

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

5962-8874601 YX

5962-8874701 YX

5962-8874801 YX

Omnirel Part Number

OM1905NKM

OM1912NKM

OM1915NKM

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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 3.6W
Thermal Resistance	θ_{JC} 4.2°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 $1.0 A, P \leq 20W$	• -4.85	-5.15	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -7.5V$ to $-20V$		12	mV
		$V_{IN} = -8.0V$ to $-12V$	•	25	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_o = 5mA$ to $1.5 Amp$		5	mV
			•	12	mV
		$I_o = 250mA$ to $750 mA$		20	mV
Standby Current Drain	I_{SCD}			25	mV
			•	30	mV
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = -7.0V$ to $-20V$		2.5	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_o = 5mA$ to $1000mA$		0.4	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
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120 Hz, \Delta V_{IN} = -10V$		2.8	A
		(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.

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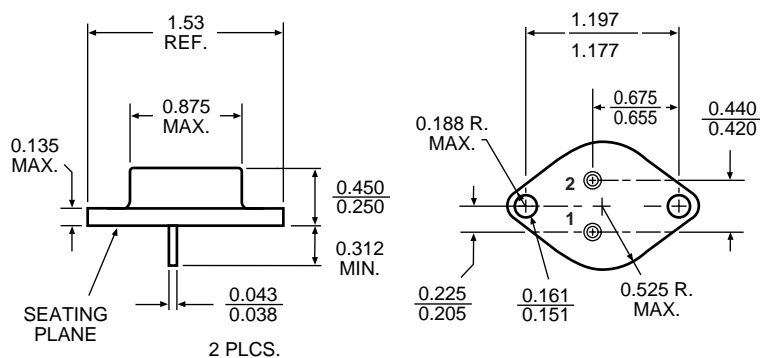
ELECTRICAL CHARACTERISTICS -12 Volt $V_{IN} = -19V, I_O = 500mA, -55^{\circ}C \leq T_A \leq 125^{\circ}C$ (unless otherwise specified)

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 $1.0A, P_D \leq 20W$	• -11.64	-12.36	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -14.5V$ to $-27V$	•	20 50	mV mV
		$V_{IN} = -16V$ to $-22V$	•	10 30	mV mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$	•	32 60	mV mV
		$I_O = 250mA$ to $750mA$	•	16 30	mV mV
Standby Current Drain	I_{SCD}		•	3.5 4.0	mA mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = -14.5V$ to $-27V$	•	0.8	mA
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mA
Dropout Voltage	V_{DO}	$\Delta V_{OUT} = 100mV, I_O = 1.0A$	•	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 2.8	A A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz, \Delta V_{IN} = -10V$ (Note 3)	•	56 53	dB dB
	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: Ground
Pin 2: Output
Case: Input

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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}	$T_A = 25^{\circ}C$	-14.85	-15.15	V
		$V_{IN} = -17.5V$ to $-30V$ $I_O = 5 mA$ to $1.0 A, P_D \leq 20 W$	• -14.55	-15.45	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -17.5V$ to $-30V$	•	25	mV
		$V_{IN} = -20V$ to $-26V$	•	15	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5 Amp$	•	35	mV
		$I_O = 250mA$ to $750 mA$	•	21	mV
Standby Current Drain	I_{SCD}		•	6.0	mA
			•	6.5	mA
Standby Current Drain Change With Line	DI_{SCD} (Line)	$V_{IN} = -17.5V$ to $-30V$	•	0.8	mA
Standby Current Drain Change With Load	DI_{SCD} (Load)	$I_O = 5mA$ to $1000mA$	•	0.5	mA
Dropout Voltage	V_{DO}	$DI_{OUT} = 100mV, I_O = 1.0A$	•	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	$\frac{DI_{IN}}{DI_{OUT}}$	$f = 120 Hz, DI_{IN} = -10V$	•	53	dB
		(Note 3)	•	50	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)	$\frac{DI_{OUT}}{Dt}$	$T_A = 25^{\circ}C, t = 1000 hrs.$		150	mV

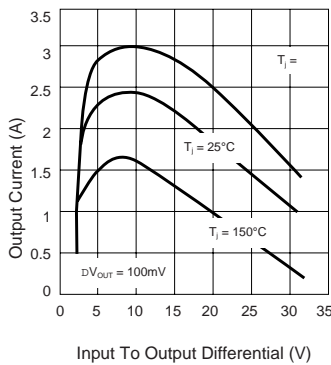
Notes:

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.

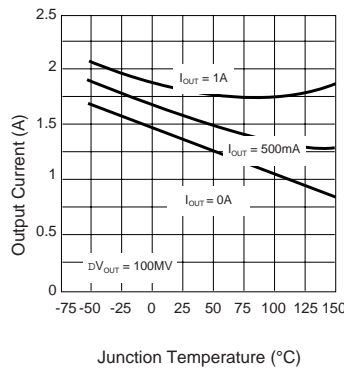
TYPICAL PERFORMANCE CHARACTERISTICS

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PEAK OUTPUT CURRENT



DROPOUT VOLTAGE



RIPPLE REJECTION

