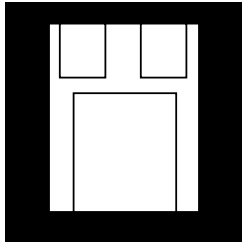


HERMETIC SURFACE MOUNT FIXED VOLTAGE NEGATIVE REGULATORS APPROVED TO DESC DRAWINGS



Three Terminal, Fixed Voltage, 1.5 Amp Precision Negative Regulators In Hermetic Surface Mount Package

FEATURES

- Hermetic Surface Mount Package
- Output Voltages: -5V, -12V, -15V
- Output Voltages Set Internally To $\pm 1\%$
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Product Is Available Hi-Rel Screened

DESCRIPTION

These three terminal negative regulators are supplied in a hermetically sealed surface mount 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, and -15V. These units are ideally suited for Military applications where a hermetic surface mount package is required.

PART NUMBER DESIGNATOR

Standard Military Drawing Number

5962-8874601 NX

5962-8874701 NX

5962-8874801 NX

Omnirel Part Number

OM1905NMM

OM1912NMM

OM1915NMM

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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 θ_{JC} 3.5°C/W
 θ_{JA} 120°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 $1.0 A, P \leq 15W$	• -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	ΔI_{SCD} (Line)	$I_o = 5mA$ to $1000mA$	•	0.4	mA
Standby Current Drain Change With Load	ΔI_{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}		•	63	dB
		$f = 120 Hz, \Delta V_{IN} = -10V$ (Note 3)	•	60	dB
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$T_A = 25^\circ C, f = 10 Hz$ to $100KHz$		40	$\mu V/V$ RMS
Output Noise Voltage (Note 3)	N_O	$T_A = 25^\circ C, t = 1000 hrs.$		75	mV
Long Term Stability (Note 3)	$\frac{\Delta V_{OUT}}{\Delta t}$				

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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.



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

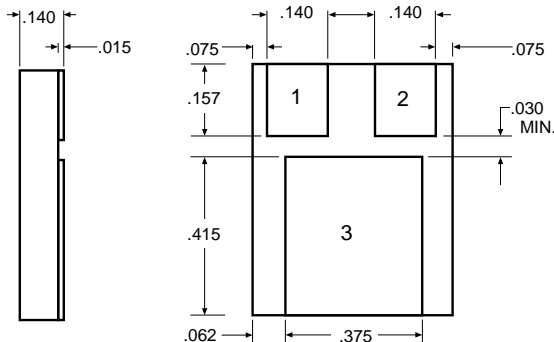
Parameter	Symbol	Test Conditions	Min.	Max.	Unit
Output Voltage	V_{OUT}	$T_A = 25^{\circ}C$	-11.88	-12.12	V
		$V_{IN} = -14.5V$ to $-27V$ $I_O = 5mA$ to $1.0A, P \leq 15W$	• -11.64	-12.36	V
Line Regulation (Note 1) (Note 4)	V_{RLINE}	$V_{IN} = -14.5V$ to $-27V$	•	20 50	mV mV
		$V_{IN} = -16V$ to $-22V$	•	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	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz, \Delta V_{IN} = -10V$	•	56	dB
		(Note 3)	•	53	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.
The • denotes the specifications which apply over the full operating temperature range.
4. Minimum load current for full line regulation = 5 mA.

MECHANICAL OUTLINE

CONNECTION DIAGRAM



Pin 1 Ground
Pin 2 Output
Pin 3 Input

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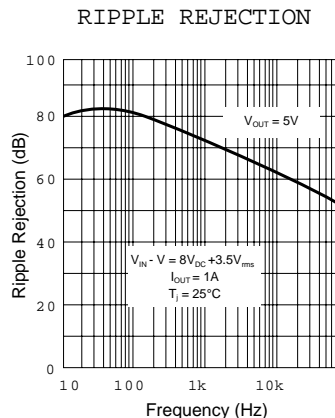
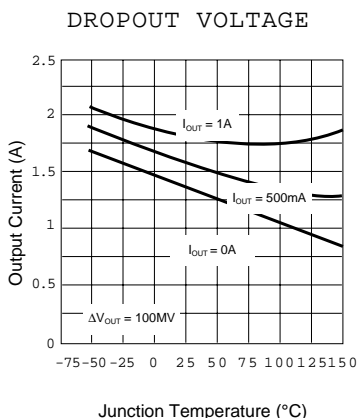
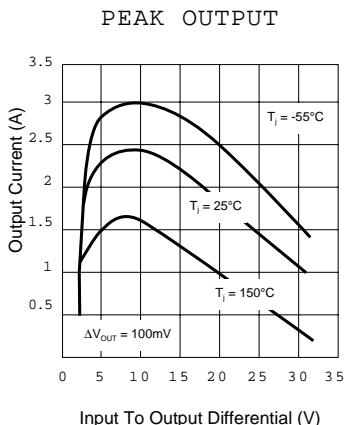
ELECTRICAL CHARACTERISTICS -15 Volt $V_{IN} = -23V, I_o = 500mA, -55^{\circ}C \leq T_A \leq 125^{\circ}C$ (unless otherwise specified)

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 $-30V$ $I_O = 5mA$ 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
		$V_{IN} = -20V$ to $-26V$		50	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to $1.5A$		15	mV
		$I_O = 250mA$ to $750mA$		25	mV
Standby Current Drain	I_{SCD}			35	mV
				75	mV
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = -17.5V$ to $-30V$		21	mV
				45	mV
Standby Current Drain Change With Load	ΔI_{SCD} (Load)	$I_O = 5mA$ to $1000mA$		6.0	mA
				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	3.3	A
Short Circuit Current (Note 2)	I_{DS}	$V_{IN} = -35V$		1.2	A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz, \Delta V_{IN} = -10V$	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:

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.

TYPICAL PERFORMANCE CHARACTERISTICS



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