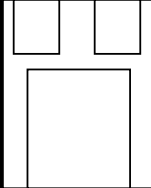


HERMETIC SURFACE MOUNT FIXED VOLTAGE POSITIVE REGULATORS



Three Terminal, Fixed Voltage, 1.5 Amp
Precision Positive 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 positive 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.

ABSOLUTE MAXIMUM RATINGS

Input to Output Voltage Differential	+35 V
Operating Junction Temperature Range	- 55°C to + 150°C
Storage Temperature Range	- 55°C to + 150°C
Typical Power/Thermal Characteristics:	
Rated Power @ 25°C	
T_C	17.5W
T_A	3W
Thermal Resistance:	
θ_{JC}	3.5°C/W
θ_{JA}	42°C/W
Lead Temperature at Case (5 sec)	225°C

3.5

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	• 4.85	5.15	V
Line Regulation (Note 1)	V_{RLINE}	$V_{IN} = 7.5V$ to 20V	•	5	mV
				12	mV
		$V_{IN} = 8.0V$ to 12V	•	4	mV
				10	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to 1.5 Amp	•	12	mV
				25	mV
		$I_O = 250mA$ to 750 mA	•	6	mV
				15	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
			•	2.8	A
Ripple Rejection	$\frac{\Delta V_{IN}}{\Delta V_{OUT}}$	$f = 120Hz, \Delta V_{IN} = 10V$	66		dB
		(Note 3)	• 60		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)	$\frac{\Delta V_{OUT}}{\Delta t}$	$T_A = 25^{\circ}C, t = 1000hrs.$		75	mV

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	• 11.64	12.36	V
Line Regulation (Note 1)	V_{RLINE}	$V_{IN} = 14.5V$ to 27V	•	18	mV
				50	mV
		$V_{IN} = 16V$ to 22V	•	9	mV
				30	mV
Load Regulation (Note 1)	V_{RLOAD}	$I_O = 5mA$ to 1.5 Amp	•	32	mV
				60	mV
		$I_O = 250mA$ to 750 mA	•	20	mV
				40	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.

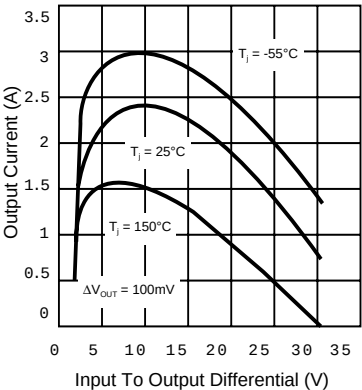
ELECTRICAL CHARACTERISTICS 15 Volt $V_{IN} = 23V, I_O = 500mA, -55^{\circ}C \leq T_A \leq 125^{\circ}C$ (unless otherwise specified)

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 $30V$	• 14.6	15.4	V
Line Regulation (Note 1)	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 1.5 Amp	•	35	mV
		$I_O = 5mA$ to 1.0 Amp	•	75	mV
		$I_O = 250mA$ to 750 mA	•	21	mV
Standby Current Drain	I_{SCD}		•	45	mV
			•	6.0	mA
Standby Current Drain Change With Line	ΔI_{SCD} (Line)	$V_{IN} = 18.5V$ to $30V$	•	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	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	ΔV_{IN}	$f = 120$ Hz, $\Delta V_{IN} = 10V$	54		dB
	ΔV_{OUT}	(Note 3)	• 52		dB
Output Noise Voltage (Note 3)	N_O	$T_A = 25^{\circ}C, f = 10$ Hz to $100KHz$		40	$\mu V/V$ RMS
Long Term Stability (Note 3)	ΔV_{OUT} Δt	$T_A = 25^{\circ}C, t = 1000$ hrs.		150	mV

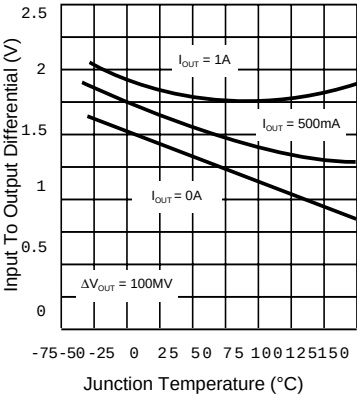
- Notes:
- Load and Line Regulation are specified at a constant junction temperature. Pulse testing with low duty cycle is used. Changes in output voltage due to heating effects must be taken into account separately.
 - Short Circuit protection is only assured up to $V_{IN} = 35V$.
 - If not tested,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

TYPICAL PERFORMANCE CHARACTERISTICS

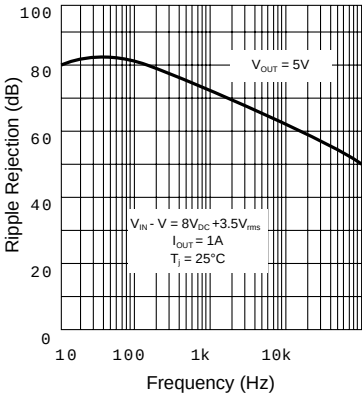
PEAK OUTPUT CURRENT



DROPOUT VOLTAGE



RIPPLE REJECTION

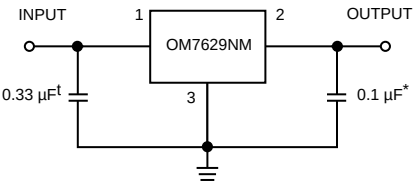


3.5



TYPICAL APPLICATIONS

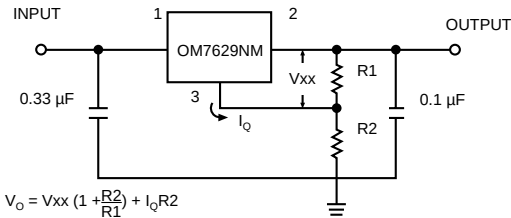
FIXED OUTPUT REGULATOR



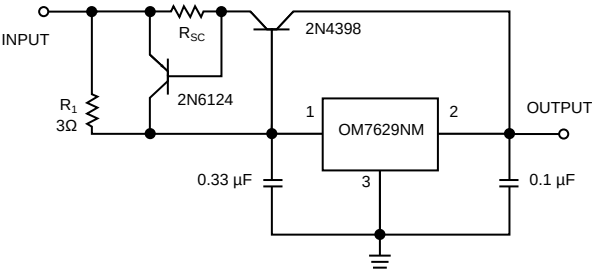
* Increasing value of output capacitor improves system transient response

t Required only if regulator is located an appreciable distance from power supply filter.

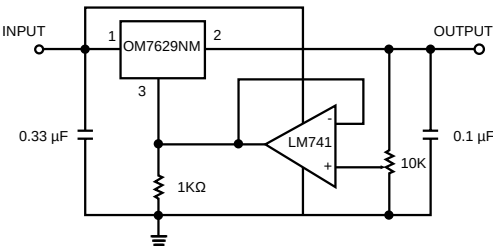
CIRCUIT FOR INCREASING OUTPUT VOLTAGE



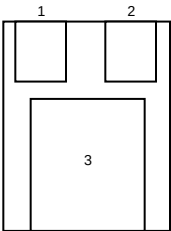
HIGH OUTPUT CURRENT, SHORT CIRCUIT PROTECTED



ADJUSTABLE OUTPUT REGULATOR, 7 TO 30 VOLTS

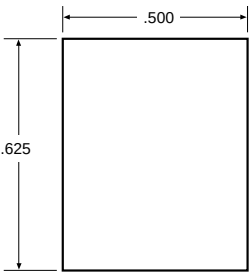


PIN CONNECTION

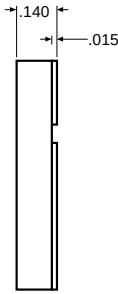


Pin 1: In
Pin 2: Out
Pin 3: Ground

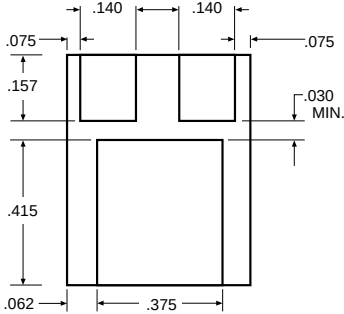
MECHANICAL OUTLINE



TOP VIEW



SIDE VIEW



BOTTOM VIEW