

# SURFACE MOUNT NEGATIVE FIXED VOLTAGE REGULATOR



## FEATURES

- Hermetic Surface Mount Package
- Output Voltages: -5V, -12V, -15V
- Output Voltages Set Internally to  $\pm 2\%$
- Built-In Thermal Overload Protection
- Short Circuit Current Limiting
- Product Is Available Hi-Rel Screened

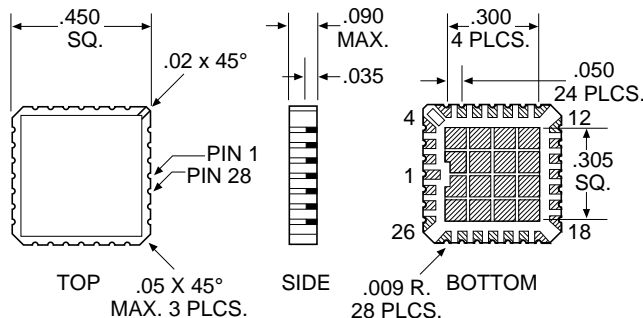
## DESCRIPTION

This three terminal negative regulator is 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 1.0 amp of output current. This unit features internally trimmed voltages to  $\pm 2\%$  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 @ 25°C

Power Dissipation ( $P_d$ ) (Internally Limited).....	10 W
Input - Output Voltage Differential .....	- 35 V
Operating Junction Temperature Range .....	- 55°C to + 150°C
Storage Temperature Range .....	- 65°C to + 150°C
Lead Temperature (Soldering 10 Seconds).....	280°C
Thermal Resistance: Junction-to-Case.....	18°C/W

## MECHANICAL OUTLINE



## Pin Connection

Pin 1, 15 thru 28:	OUT
Pin 2, 3, 13, and 14:	GND
Pin 4 thru 12:	IN

3.5

**ELECTRICAL CHARACTERISTICS**  $I_O = 500\text{mA}$ ,  $-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$  (unless otherwise specified.)  
 OM7905SM:  $V_{IN} = -10\text{V}$ ; OM7912SM:  $V_{IN} = -19\text{V}$ ; OM7915SM:  $V_{IN} = -23\text{V}$ .

Parameter	Part Number	Conditions	Min.	Max.	Units
Output Voltage, $V_{OUT}$	OM7905SM	$V_{IN} = -7.5\text{V to } -20\text{V}$	• -5.15	-4.85	V
	OM7912SM	$V_{IN} = -14.5\text{V to } -27\text{V}$	• -12.36	-11.64	V
	OM7915SM	$V_{IN} = -17.5\text{V to } -30\text{V}$	• -15.45	-14.55	V
Line Regulation, $V_{RLINE}$ (Note 1)	OM7905SM	$V_{IN} = -7.5\text{V to } -20\text{V}$	•	20	mV
		$V_{IN} = -8.0\text{V to } -12\text{V}$	•	35	mV
	OM7912SM	$V_{IN} = -14.5\text{V to } -27\text{V}$	•	12	mV
		$V_{IN} = -16\text{V to } -22\text{V}$	•	20	mV
	OM7915SM	$V_{IN} = -17.5\text{V to } -30\text{V}$	•	33	mV
		$V_{IN} = -20\text{V to } -26\text{V}$	•	80	mV
Load Regulation, $V_{RLOAD}$ (Note 1)	OM7905SM	$I_O = -5\text{mA to } -1.0\text{Amp}$	•	24	mV
		$I_O = -250\text{mA to } -750\text{mA}$	•	70	mV
	OM7912SM	$I_O = -5\text{mA to } -1.0\text{Amp}$	•	35	mV
		$I_O = -250\text{mA to } -750\text{mA}$	•	50	mV
	OM7915SM	$I_O = -5\text{mA to } -1.0\text{Amp}$	•	25	mV
		$I_O = -250\text{mA to } -750\text{mA}$	•	45	mV
Standby Current Drain, $I_{SCD}$	OM7905SM		•	55	mV
	OM7912SM		•	70	mV
	OM7915SM		•	26	mV
Standby Current Drain Change With Line, $I_{SCD}$ (Line)	OM7905SM	$V_{IN} = -7.0\text{V to } -20\text{V}$	•	60	mV
	OM7912SM	$V_{IN} = -14.5\text{V to } -27\text{V}$	•	55	mV
	OM7915SM	$V_{IN} = -17.5\text{V to } -30\text{V}$	•	60	mV
Standby Current Drain Change With Load, $I_{SCD}$ (Load)	OM7905SM	$I_O = 5\text{mA to } 1000\text{mA}$	•	110	mV
	OM7912SM		•	34	mV
Dropout Voltage		$V_{OUT} = 100\text{mV}$ , $I_O = 1.0\text{A}$	•	70	mV
Peak Output Current, $I_{O(pk)}$		$T_A = 25^\circ\text{C}$	•	3.0	mA
Short Circuit Current, $I_{DS}$ (Note 2)		$V_{IN} = -35\text{V}$	•	3.5	mA
			•	4.6	mA
Ripple Rejection $\frac{V_{IN}}{V_{OUT}}$	OM7905SM	$f = 120\text{Hz}$ , $V_{IN} = -10\text{V}$	•	7.2	mA
	OM7912SM	$f = 120\text{Hz}$ , $V_{IN} = 10\text{V}$	•	8.0	mA
	OM7915SM	$f = 120\text{Hz}$ , $V_{IN} = 10\text{V}$	•	0.6	mA
RMS Output Noise, $N_O$ (Note 3)		$T_A = 25^\circ\text{C}$ , $f = 10\text{Hz to } 100\text{kHz}$		1.0	mA
Long Term Stability (Note 3) $\frac{V_{IN}}{t}$	OM7905SM	$T_A = 25^\circ\text{C}$ , $t = 1000\text{ hrs.}$		0.6	mA
	OM7912SM			2.5	V
	OM7915SM			2.0	A
				40	$\mu\text{V/V rms}$
				75	mV
				120	mV
				150	mV

**Note 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.

**Note 2:** Short Circuit protection is only assured up to  $V_{IN} = -35\text{V}$ .

**Note 3:** If not tested, shall be guaranteed to the specified limits.

The • denotes the specifications which apply over the full operating temperature range. If not noted  $T_A = 25^\circ\text{C}$