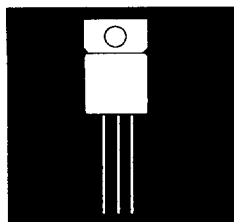


0.5 VOLT LOW DROPOUT POSITIVE FIXED VOLTAGE REGULATOR APPROVED TO DESC DRAWING



**Three Terminal, Fixed Voltage, 1 Amp
Low Dropout Voltage Regulator In
Hermetic JEDEC TO-257AA Package**

FEATURES

- Similar To Industry Standard LM2940
- Approved To DESC Standardized Military Drawing
- Dropout Voltage Typically 0.5 V @ $I_O = 1$ A
- Output Current in Excess of 1 A
- Reverse Battery Protection
- Internal Short Circuit Protection
- Isolated Hermetic Package

DESCRIPTION

These three terminal fixed voltage regulators are designed to provide 1.0A with high efficiency. It has the ability to source 1A of output current with a typical dropout voltage of .5V and a maximum of 1V over the entire temperature range. It is supplied in the hermetic TO-257 package and is ideally suited for Military applications where small size and high reliability is required.

ABSOLUTE MAXIMUM RATINGS

Input Voltage	26Vdc
Output Voltage	+5V, +12V, +15Vdc
Operating Junction Temperature Range	- 55°C to + 125°C
Storage Temperature Range	- 65°C to + 150°C
Lead Temperature (Soldering 10 seconds)	300°C
Thermal Resistance:	
θ_{JC} (Isolated)	4.2°C/W
θ_{JA}	42°C/W
Maximum Output Current	1.3 A

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PART NUMBER DESIGNATOR

Standard Military Drawing Number	Omnirel Part Number
5962-8958710MUX	OM2940-5STM
5962-9088401MUX	OM2940-12STM
5962-9088501MUX	OM2940-15STM

ELECTRICAL CHARACTERISTICS, P/N OM2940-5 (5 Volt)Test Conditions are $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_N = 10\text{ V}$, $I_O = 1\text{ A}$, $C_{OUT} = 22\text{ }\mu\text{F}$ (unless otherwise specified).

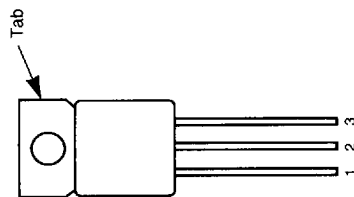
Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$V_N = 10\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	4.85	5.15	V
		$V_N = 6\text{ V}$, $I_{OUT} = 5\text{ mA}$	2	4.75	5.25	
		$V_N = 7\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	4.85	5.15	
		$V_N = 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	2	4.75	5.25	
		$V_N = 10\text{ V}$, $I_{OUT} = 1\text{ A}$	2	4.75	5.25	
		$V_N = 6\text{ V}$, $I_{OUT} = 50\text{ mA}$	2	4.75	5.25	
		$V_N = 10\text{ V}$, $I_{OUT} = 50\text{ mA}$	2	4.75	5.25	
Maximum Line Transient	V_{LT}	$V_O \leq 6\text{ V}$, $R_O = 100\text{ }\Omega$, $t = 20\text{ ms}$	1, 2	40		V
Reverse Polarity	V_{RP}	$R_O = 100\text{ }\Omega$	1, 2	-15		V
Input Voltage Transient	V_{RT}	$R_O = 100\text{ }\Omega$, $t = 20\text{ ms}$	1, 2	-45		V
Quiescent Current	I_Q	$V_N = 10\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		15	mA
		$V_N = 7\text{ V}$, $I_{OUT} = 5\text{ mA}$	2		20	
		$V_N = 25\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		15	
		$V_N = 10\text{ V}$, $I_{OUT} = 1\text{ A}$	1		50	
Line Regulation	V_{RLN}	$7\text{ V} \leq V_N \leq 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		± 40	mV
Load Regulation	V_{RLD}	$V_N = 10\text{ V}$, $50\text{ mA} \leq I_{OUT} \leq 1\text{ A}$	1		± 50	mV
Dropout Voltage	V_{DO}	$I_{OUT} = 1\text{ A}$	1		.7	V
Output Noise Voltage	V_{ON}	$V_N = 10\text{ V}$, $I_O = 5\text{ mA}$, $10\text{ Hz} - 100\text{ Hz}$	1, 2		700	$\mu\text{V rms}$
Output Impedance	R_O	$V_N = 10\text{ V}$, $I_{OUT} = 100\text{ mA dc}$ and 20 mA ac , $f_o = 120\text{ Hz}$	1, 2		1	Ω
Short Circuit Current	I_{OS}	$V_N = 10\text{ V}$	1	1.5		A
Ripple Rejection	R_{RR}	$V_N = 10\text{ V} + 1\text{ V rms}$, $I_{OUT} = 5\text{ mA}$, $f = 1\text{ kHz}$	1	60		dB

Notes: 1. $T_A = 25^{\circ}\text{C}$.
2. Over full operating temperature range.**ELECTRICAL CHARACTERISTICS, P/N OM2940-12 (12 Volt)**Test Conditions are $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_N = 17\text{ V}$, $I_O = 1\text{ A}$, $C_{OUT} = 22\text{ }\mu\text{F}$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$V_N = 17\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	11.64	12.36	V
		$V_N = 13.6\text{ V}$, $I_{OUT} = 5\text{ mA}$	2	11.40	12.60	
		$V_N = 14\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	11.64	12.36	
		$V_N = 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	2	11.40	12.60	
		$V_N = 17\text{ V}$, $I_{OUT} = 1\text{ A}$	2	11.64	12.36	
		$V_N = 13.6\text{ V}$, $I_{OUT} = 1\text{ A}$	2	11.40	12.60	
		$V_N = 13.6\text{ V}$, $I_{OUT} = 50\text{ mA}$	1	11.64	12.36	
		$V_N = 17\text{ V}$, $I_{OUT} = 50\text{ mA}$	2	11.40	12.60	
Maximum Line Transient	V_{LT}	$V_O \leq 13\text{ V}$, $R_O = 100\text{ }\Omega$, $t = 20\text{ ms}$	1, 2	40		V
Reverse Polarity	V_{RP}	$R_O = 100\text{ }\Omega$	1, 2	-15		V
Input Voltage Transient	V_{RT}	$R_O = 100\text{ }\Omega$, $t = 20\text{ ms}$	1, 2	-45		V
Quiescent Current	I_Q	$V_N = 17\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		15	mA
		$V_N = 14\text{ V}$, $I_{OUT} = 5\text{ mA}$	2		20	
		$V_N = 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		15	
		$V_N = 17\text{ V}$, $I_{OUT} = 1\text{ A}$	1		50	
Line Regulation	V_{RLN}	$14\text{ V} \leq V_N \leq 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		± 75	mV
Load Regulation	V_{RLD}	$V_N = 17\text{ V}$, $50\text{ mA} \leq I_{OUT} \leq 1\text{ A}$	1		± 120	mV
Dropout Voltage	V_{DO}	$I_{OUT} = 1\text{ A}$	1		.7	V
Output Noise Voltage	V_{ON}	$V_N = 17\text{ V}$, $I_O = 5\text{ mA}$, $10\text{ Hz} - 100\text{ Hz}$	1		1000	$\mu\text{V rms}$
Output Impedance	R_O	$V_N = 17\text{ V}$, $I_{OUT} = 100\text{ mA dc}$ and 20 mA ac , $f_o = 120\text{ Hz}$	1, 2		1	Ω
Short Circuit Current	I_{OS}	$V_N = 17\text{ V}$	1	1.6		A
Ripple Rejection	R_{RR}	$V_N = 17\text{ V} + 1\text{ V rms}$, $I_{OUT} = 5\text{ mA}$, $f = 1\text{ kHz}$	1	52		dB

Notes: 1. $T_A = 25^{\circ}\text{C}$.
2. Over full operating temperature range.

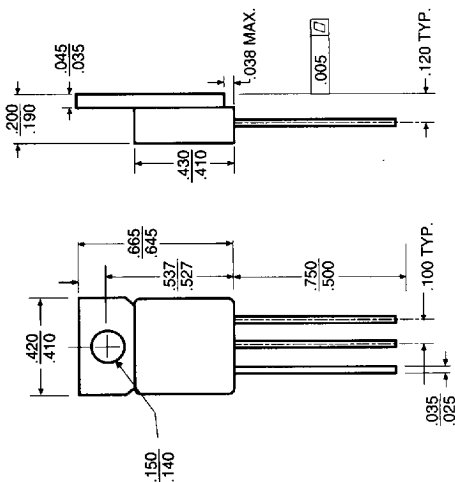
PIN CONNECTION



Front View

Pin 1: V_{IN} Pin 3: V_{OUT}
 Pin 2: Gnd Tab: Isolated

MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab

ELECTRICAL CHARACTERISTICS, P/N OM2940-15 (15Volt)

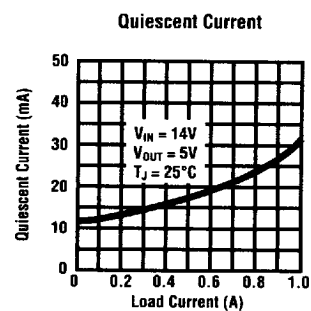
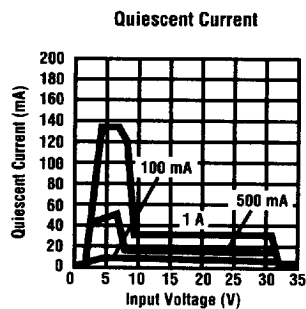
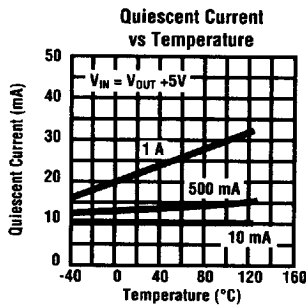
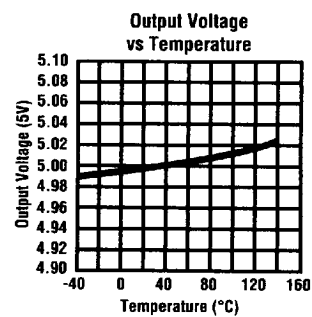
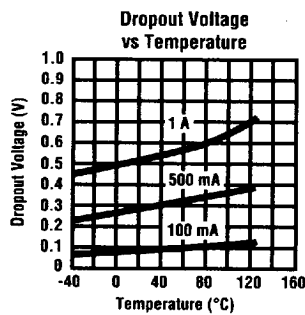
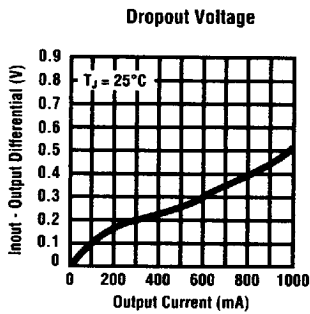
Test Conditions are $-55^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$; $V_N = 20\text{ V}$, $I_O = 1\text{ A}$, $C_{OUT} = 22\text{ }\mu\text{F}$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$V_N = 20\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	14.55	15.45	V
			2	14.25	15.75	
		$V_N = 16.75\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	14.55	15.45	
			2	14.25	15.75	
		$V_N = 17\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	14.55	15.45	
			2	14.25	15.75	
		$V_N = 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	1	14.55	15.45	
			2	14.25	15.75	
		$V_N = 20\text{ V}$, $I_{OUT} = 1\text{ A}$	1	14.55	15.45	
			2	14.25	15.75	
		$V_N = 16.75\text{ V}$, $I_{OUT} = 1\text{ A}$	1	14.55	15.45	
			2	14.25	15.75	
		$V_N = 16.75\text{ V}$, $I_{OUT} = 50\text{ mA}$	1	14.55	15.45	
			2	14.25	15.75	
Maximum Line Transient	V_{LT}	$V_O \leq 16\text{ V}$, $R_O = 100\text{ }\Omega$, $t = 20\text{ ms}$	1, 2	40		V
Reverse Polarity	V_{RN}	$R_O = 100\text{ }\Omega$	1, 2	-15		V
Reverse Polarity	V_{RR}	$R_O = 100\text{ }\Omega$, $t = 20\text{ ms}$	1, 2	-45		V
Quiescent Current	I_Q	$V_N = 20\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		15	mA
			2		20	
		$V_N = 17\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		15	
			2		20	
		$V_N = 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		50	
			2		60	
Line Regulation	V_{RLN}	$17\text{ V} \leq V_N \leq 26\text{ V}$, $I_{OUT} = 5\text{ mA}$	1		± 95	mV
			2		± 150	
Load Regulation	V_{RLD}	$V_N = 20\text{ V}$, $50\text{ mA} \leq I_{OUT} \leq 1\text{ A}$	1		± 150	mV
			2		± 240	
Dropout Voltage	V_{DO}	$I_{OUT} = 1\text{ A}$	1		.7	V
			2		1	
Output Noise Voltage	V_{ON}	$V_N = 20\text{ V}$, $I_O = 5\text{ mA}$, $10\text{ Hz} - 100\text{ Hz}$	1		150	mV
			2		200	
Output Impedance	R_O	$V_N = 20\text{ V}$, $I_{OUT} = 100\text{ mA}$ ac and 20 mA dc, $f_o = 120\text{ Hz}$	1, 2		1000	$\mu\text{V rms}$
Short Circuit Current	I_{SC}	$V_N = 20\text{ V}$	1	1.6		Ω
			2	1.3		
Ripple Rejection	R_{rr}	$V_N = 20\text{ V} + 1\text{ V rms}$, $I_{OUT} = 5\text{ mA}$, $f = 1\text{ kHz}$	1	48		A
			2	42		dB

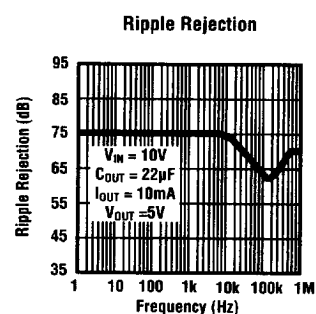
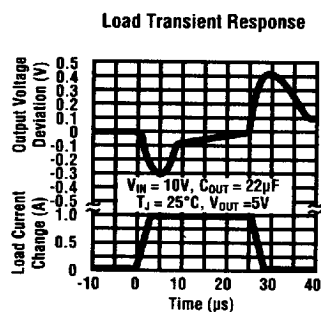
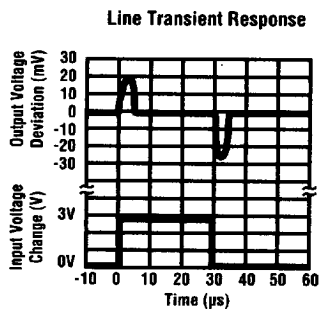
Notes: 1. $T_A = 25^{\circ}\text{C}$.

2. Over full operating temperature range.

TYPICAL APPLICATIONS



3.3



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