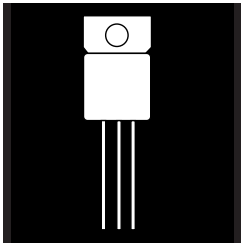


0.5 VOLT LOW DROPOUT POSITIVE FIXED VOLTAGE REGULATOR APPROVED TO DESC DRAWING



**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

3.3

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°C T_A 125°C, V_{IN} = 10 V, I_O = 1 A, C_{OUT} = 22 μF (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V _{OUT}	V _{IN} = 10 V, I _{OUT} = 5 mA	1	4.85	5.15	V
			2	4.75	5.25	
		V _{IN} = 6 V, I _{OUT} = 5 mA	1	4.85	5.15	
			2	4.75	5.25	
		V _{IN} = 7 V, I _{OUT} = 5 mA	1	4.85	5.15	
			2	4.75	5.25	
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	4.85	5.15	
			2	4.75	5.25	
		V _{IN} = 10 V, I _{OUT} = 1 A	1	4.85	5.15	
			2	4.75	5.25	
V _{IN} = 6 V, I _{OUT} = 1 A	1	4.85	5.15			
	2	4.75	5.25			
V _{IN} = 6 V, I _{OUT} = 50 mA	V _{DO}	I _{OUT} = 1 A	1	4.85	5.15	V
			2	4.75	5.25	
V _{IN} = 10 V, I _{OUT} = 50 mA	V _{DO}	I _{OUT} = 100 mA	1	4.85	5.15	mV
			2	4.75	5.25	
Maximum Line Transient	V _{LT}	V _O 6 V, R _O = 100 Ω, t = 20 ms	1, 2	40		V
Reverse Polarity Input Voltage DC	V _{RIN}	R _O = 100 Ω	1, 2	-15		V
Reverse Polarity Input Voltage Transient	V _{RIT}	R _O = 100 Ω, t = 20 ms	1, 2	-45		V
Quiescent Current	I _O	V _{IN} = 10 V, I _{OUT} = 5 mA	1	15	mA	
			2	20		
		V _{IN} = 7 V, I _{OUT} = 5 mA	1	15		
			2	20		
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	15		
2	20					
V _{IN} = 10 V, I _{OUT} = 1 A	1	50	20			
	2	100	100			
Line Regulation	V _{RLN}	7 V V _{IN} 26 V, I _{OUT} = 5 mA	1, 2	±40	±50	mV
Load Regulation	V _{RLD}	V _{IN} = 10 V, 50 mA I _{OUT} 1 A	1, 2	±50	±100	mV
Dropout Voltage	V _{DO}	I _{OUT} = 1 A	1	.7	V	
			2	1		
		I _{OUT} = 100 mA	1	150		
2	200	mV				
Output Noise Voltage	V _{ON}	V _{IN} = 10 V, I _O = 5 mA, 10 Hz - 100 Hz	1, 2		700	μV rms
Output Impedance	R _O	V _{IN} = 10 V, I _{OUT} = 100 mA dc and 20 mA ac, f _O = 120 Hz	1, 2		1	
Short Circuit Current	I _{OS}	V _{IN} = 10 V	1	1.5	A	
			2	1.3		
Ripple Rejection	R _{RR}	V _{IN} = 10 V + 1 V rms, I _{OUT} = 5 mA, f = 1 kHz	1, 2	60	50	dB

Notes: 1. T_A = 25°C.
2. Over full operating temperature range.

ELECTRICAL CHARACTERISTICS, P/N OM2940-12 (12 Volt)Test Conditions are -55°C T_A 125°C, V_{IN} = 17 V, I_O = 1 A, C_{OUT} = 22 μF (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V _{OUT}	V _{IN} = 17 V, I _{OUT} = 5 mA	1	11.64	12.36	V
			2	11.40	12.60	
		V _{IN} = 13.6 V, I _{OUT} = 5 mA	1	11.64	12.36	
			2	11.40	12.60	
		V _{IN} = 14 V, I _{OUT} = 5 mA	1	11.64	12.36	
			2	11.40	12.60	
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	11.64	12.36	
			2	11.40	12.60	
		V _{IN} = 17 V, I _{OUT} = 1 A	1	11.64	12.36	
			2	11.40	12.60	
V _{IN} = 13.6 V, I _{OUT} = 1 A	1	11.64	12.36			
	2	11.40	12.60			
V _{IN} = 13.6 V, I _{OUT} = 50 mA	V _{DO}	I _{OUT} = 1 A	1	11.64	12.36	V
			2	11.40	12.60	
V _{IN} = 17 V, I _{OUT} = 50 mA	V _{DO}	I _{OUT} = 100 mA	1	11.64	12.36	mV
			2	11.40	12.60	
Maximum Line Transient	V _{LT}	V _O 13 V, R _O = 100 Ω, t = 20 ms	1, 2	40		V
Reverse Polarity Input Voltage DC	V _{RIN}	R _O = 100 Ω	1, 2	-15		V
Reverse Polarity Input Voltage Transient	V _{RIT}	R _O = 100 Ω, t = 20 ms	1, 2	-45		V
Quiescent Current	I _O	V _{IN} = 17 V, I _{OUT} = 5 mA	1	15	mA	
			2	20		
		V _{IN} = 14 V, I _{OUT} = 5 mA	1	15		
			2	20		
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	15		
2	20					
V _{IN} = 17 V, I _{OUT} = 1 A	1	50	20			
	2	60	60			
Line Regulation	V _{RLN}	14 V V _{IN} 26 V, I _{OUT} = 5 mA	1, 2	±75	±120	mV
Load Regulation	V _{RLD}	V _{IN} = 17 V, 50 mA I _{OUT} 1 A	1, 2	±120	±190	mV
Dropout Voltage	V _{DO}	I _{OUT} = 1 A	1	.7	V	
			2	1		
		I _{OUT} = 100 mA	1	150		
2	200	mV				
Output Noise Voltage	V _{ON}	V _{IN} = 17 V, I _O = 5 mA, 10 Hz - 100 Hz	1		1000	μV rms
Output Impedance	R _O	V _{IN} = 17 V, I _{OUT} = 100 mA dc and 20 mA ac, f _O = 120 Hz	1, 2		1	
Short Circuit Current	I _{OS}	V _{IN} = 17 V	1	1.6	A	
			2	1.3		
Ripple Rejection	R _{RR}	V _{IN} = 17 V + 1 V rms, I _{OUT} = 5 mA, f = 1 kHz	1, 2	52	46	dB

Notes: 1. T_A = 25°C.
2. Over full operating temperature range.

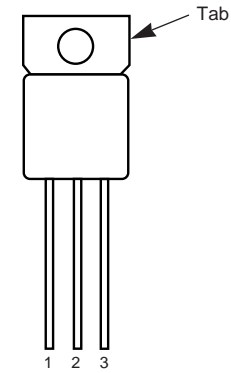
ELECTRICAL CHARACTERISTICS, P/N OM2940-15 (15Volt)

Test Conditions are -55°C T_A 125°C, V_{IN} = 20 V, I_O = 1 A, C_{OUT} = 22 μF (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit	
Output Voltage	V _{OUT}	V _{IN} = 20 V, I _{OUT} = 5 mA	1	14.55	15.45	V	
			2	14.25	15.75		
		V _{IN} = 16.75 V, I _{OUT} = 5 mA	1	14.55	15.45		
			2	14.25	15.75		
		V _{IN} = 17 V, I _{OUT} = 5 mA	1	14.55	15.45		
			2	14.25	15.75		
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	14.55	15.45		
			2	14.25	15.75		
V _{IN} = 20 V, I _{OUT} = 1 A	1	14.55	15.45				
	2	14.25	15.75				
V _{IN} = 16.75 V, I _{OUT} = 1 A	1	14.55	15.45				
	2	14.25	15.75				
V _{IN} = 16.75 V, I _{OUT} = 50 mA	1	14.55	15.45				
	2	14.25	15.75				
V _{IN} = 20 V, I _{OUT} = 50 mA	1	14.55	15.45				
	2	14.25	15.75				
Maximum Line Transient	V _{LT}	V _O 16 V, R _O = 100 Ω, t = 20 ms	1, 2	40		V	
Reverse Polarity Input Voltage DC	V _{RIN}	R _O = 100	1, 2	-15		V	
Reverse Polarity Input Voltage Transient	V _{RIT}	R _O = 100 Ω, t = 20 ms	1, 2	-45		V	
Quiescent Current	I _O	V _{IN} = 20 V, I _{OUT} = 5 mA	1		15	mA	
			2		20		
		V _{IN} = 17 V, I _{OUT} = 5 mA	1		15		
			2		20		
V _{IN} = 26 V, I _{OUT} = 5 mA	1		15				
	2		20				
V _{IN} = 20 V, I _{OUT} = 1 A	1		50				
	2		60				
Line Regulation	V _{RLN}	17 V < V _{IN} < 26 V, I _{OUT} = 5 mA	1		±95	mV	
			2		±150		
Load Regulation	V _{RLD}	V _{IN} = 20 V, 50 mA < I _{OUT} < 1 A	1		±150	mV	
			2		±240		
Dropout Voltage	V _{DO}	I _{OUT} = 1 A	1		.7	V	
			2		1		
			I _{OUT} = 100 mA	1		150	mV
				2		200	
Output Noise Voltage	V _{ON}	V _{IN} = 20 V, I _O = 5 mA, 10 Hz - 100 Hz	1		1000	μV rms	
Output Impedance	R _O	V _{IN} = 20 V, I _{OUT} = 100 mA ac and 20 mA dc, f _O = 120 Hz	1, 2		1		
Short Circuit Current	I _{OS}	V _{IN} = 20 V	1	1.6		A	
			2	1.3			
Ripple Rejection	R _R	V _{IN} = 20 V + 1 V rms, I _{OUT} = 5 mA, f = 1 kHz	1, 2	48		dB	

Notes: 1. T_A = 25°C.
2. Over full operating temperature range.

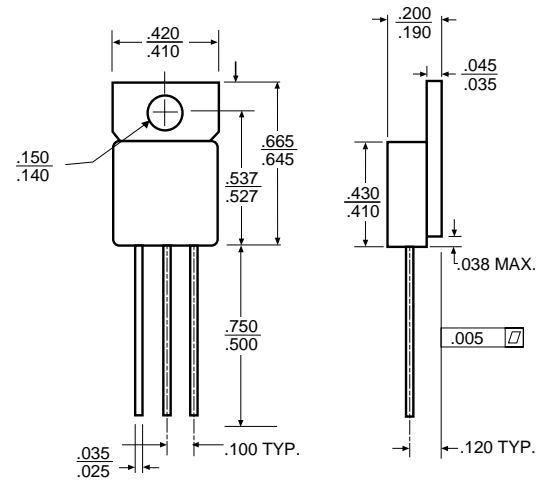
PIN CONNECTION



Front View

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

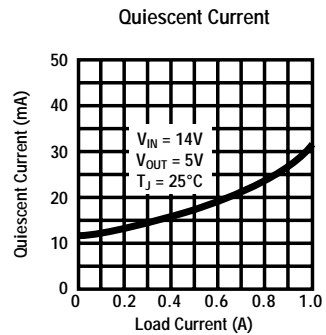
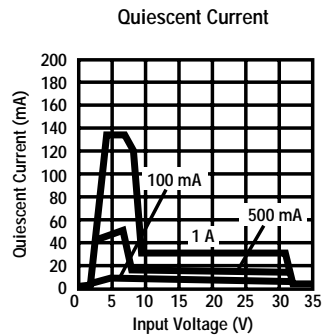
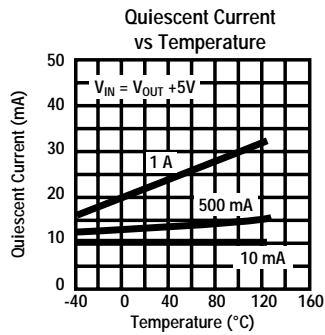
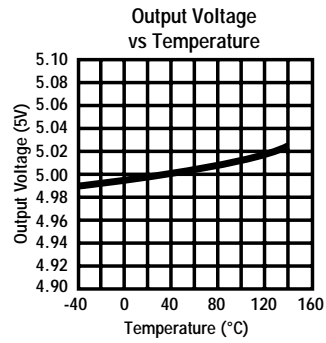
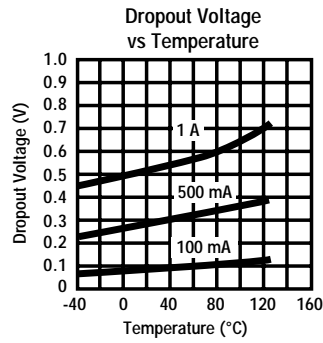
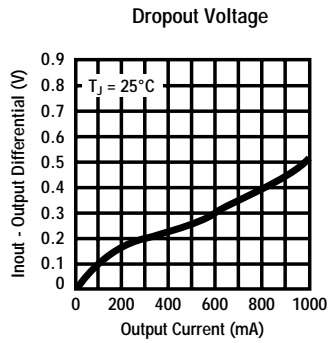
MECHANICAL OUTLINE



NOTES

- Case is metal/hermetically sealed
- Isolated Tab

TYPICAL APPLICATIONS



3.3

