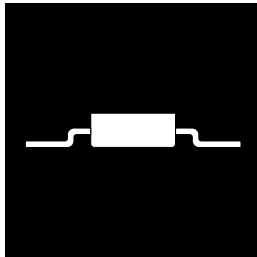


SURFACE MOUNT POSITIVE 0.5 VOLT, LOW DROPOUT VOLTAGE REGULATOR



**Isolated Hermetic Surface Mount Package
Three Terminal, Fixed Voltage, 1 Amp,
Low Dropout Voltage Regulator**

FEATURES

- Isolated Hermetic Surface Mount Package
- Similar To Industry Standard LM2940
- Dropout Voltage Typically 0.5 V @ $I_O = 1\text{ A}$
- Output Current In Excess Of 1 A
- Reverse Battery Protection
- Internal Short Circuit Protection
- Available Hi-Rel Screened

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 a hermetic surface mount package and is ideally suited for Hi-Rel applications where small size and high reliability are required.

ABSOLUTE MAXIMUM RATINGS @ 25°C

Input Voltage	26 Vdc
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

3.5

ELECTRICAL CHARACTERISTICS, P/N OM7648SM (5 Volts)

-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} = 10 V, I _{OUT} = 5 mA	1	4.85	5.15	V
		V _{IN} = 10 V, I _{OUT} = 5 mA	2	4.75	5.25	
		V _{IN} = 6 V, I _{OUT} = 5 mA	1	4.85	5.15	
		V _{IN} = 6 V, I _{OUT} = 5 mA	2	4.75	5.25	
		V _{IN} = 7 V, I _{OUT} = 5 mA	1	4.85	5.15	
		V _{IN} = 7 V, I _{OUT} = 5 mA	2	4.75	5.25	
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	4.85	5.15	
		V _{IN} = 26 V, I _{OUT} = 5 mA	2	4.75	5.25	
		V _{IN} = 10 V, I _{OUT} = 1 A	1	4.85	5.15	
		V _{IN} = 10 V, I _{OUT} = 1 A	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 _{REIN}	R _O = 100 Ω	1, 2	-15	V	
Reverse Polarity Input Voltage Transient	V _{REIT}	R _O = 100 Ω, t = 20 ms	1, 2	-45	V	
Quiescent Current	I _Q	V _{IN} = 10 V, I _{OUT} = 5 mA	1	15	mA	
		V _{IN} = 10 V, I _{OUT} = 5 mA	2	20		
		V _{IN} = 7 V, I _{OUT} = 5 mA	1	15		
		V _{IN} = 7 V, I _{OUT} = 5 mA	2	20		
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	15		
		V _{IN} = 26 V, I _{OUT} = 5 mA	2	20		
Line Regulation	V _{RLN}	V _{IN} = 10 V, I _{OUT} = 1 A	1	50	mV	
		7 V V _{IN} 26 V, I _{OUT} = 5 mA	2	100		
Load Regulation	V _{RLD}	V _{IN} = 10 V, 50 mA I _{OUT} 1 A	1	±40	mV	
		I _{OUT} = 5 mA	2	±50		
Dropout Voltage	V _{DO}	I _{OUT} = 1 A	1	.7	V	
		I _{OUT} = 1 A	2	1		
Output Noise Voltage	V _{ON}	V _{IN} = 10 V, I _O = 5 mA, 10 Hz - 100 Hz	1	150	µV rms	
		I _{OUT} = 100 mA	2	200		
Output Impedance	R _O	V _{IN} = 10 V, I _{OUT} = 100 mA dc and 20 mA ac, f _o = 120 Hz	1, 2	700	µV rms	
Short Circuit Current	I _{OS}	V _{IN} = 10 V	1	1.5	A	
Ripple Rejection	R _R	V _{IN} = 10 V + 1 V rms, I _{OUT} = 5 mA, f = 1 kHz	1	60	dB	
		I _{OUT} = 5 mA, f = 1 kHz	2	50		

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

ELECTRICAL CHARACTERISTICS, P/N OM7649SM (12 Volts)

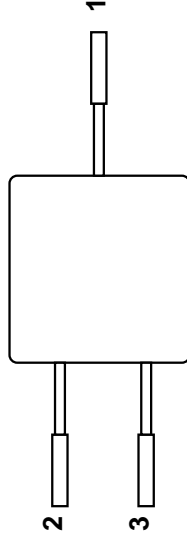
-55°C T_A 125°C, V_{IN} = 20 V, I_O = 1 A, C_{OUT} = 22 µF (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V _{OUT}	V _{IN} = 17 V, I _{OUT} = 5 mA	1	11.64	12.36	V
		V _{IN} = 17 V, I _{OUT} = 5 mA	2	11.40	12.60	
		V _{IN} = 13.6 V, I _{OUT} = 5 mA	1	11.64	12.36	
		V _{IN} = 13.6 V, I _{OUT} = 5 mA	2	11.40	12.60	
		V _{IN} = 14 V, I _{OUT} = 5 mA	1	11.64	12.36	
		V _{IN} = 14 V, I _{OUT} = 5 mA	2	11.40	12.60	
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	11.64	12.36	
		V _{IN} = 26 V, I _{OUT} = 5 mA	2	11.40	12.60	
		V _{IN} = 17 V, I _{OUT} = 1 A	1	11.64	12.36	
		V _{IN} = 17 V, I _{OUT} = 1 A	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 _{REIN}	R _O = 100 Ω	1, 2	-15	V	
Reverse Polarity Input Voltage Transient	V _{REIT}	R _O = 100 Ω, t = 20 ms	1, 2	-45	V	
Quiescent Current	I _Q	V _{IN} = 17 V, I _{OUT} = 5 mA	1	15	mA	
		V _{IN} = 17 V, I _{OUT} = 5 mA	2	20		
		V _{IN} = 14 V, I _{OUT} = 5 mA	1	15		
		V _{IN} = 14 V, I _{OUT} = 5 mA	2	20		
		V _{IN} = 26 V, I _{OUT} = 5 mA	1	15		
		V _{IN} = 26 V, I _{OUT} = 5 mA	2	20		
Line Regulation	V _{RLN}	V _{IN} = 17 V, I _{OUT} = 1 A	1	5	mV	
		14 V V _{IN} 26 V, I _{OUT} = 5 mA	2	60		
Load Regulation	V _{RLD}	V _{IN} = 17 V, 50 mA I _{OUT} 1 A	1	±75	mV	
		I _{OUT} = 5 mA	2	±120		
Dropout Voltage	V _{DO}	I _{OUT} = 1 A	1	.7	V	
		I _{OUT} = 1 A	2	1		
Output Noise Voltage	V _{ON}	V _{IN} = 17 V, I _O = 5 mA, 10 Hz - 100 Hz	1	150	µV rms	
		I _{OUT} = 100 mA	2	200		
Output Impedance	R _O	V _{IN} = 17 V, I _{OUT} = 100 mA dc and 20 mA ac, f _o = 120 Hz	1, 2	1000	µV rms	
Short Circuit Current	I _{OS}	V _{IN} = 17 V	1	1.6	A	
Ripple Rejection	R _R	V _{IN} = 17 V + 1 V rms, I _{OUT} = 5 mA, f = 1 kHz	1	45	dB	
		I _{OUT} = 5 mA, f = 1 kHz	2	42		

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

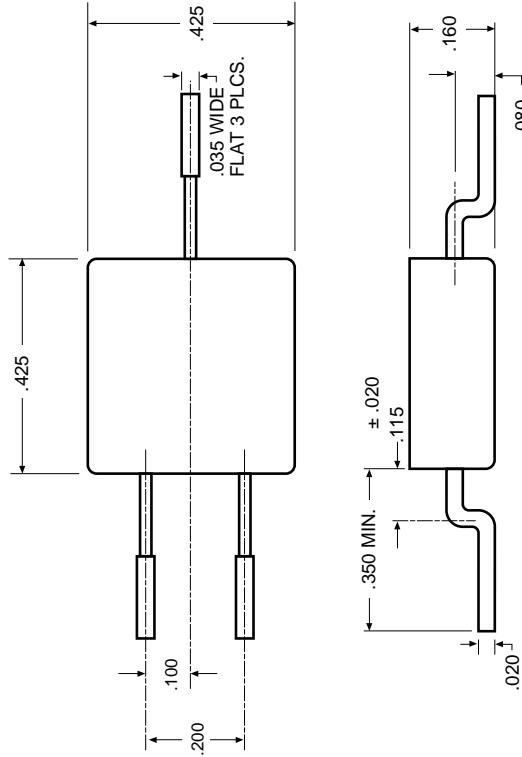


PIN CONNECTION



Pin 1: V_{OUT}
 Pin 2: Adjust
 Pin 3: V_{IN}
 Case: Isolated

MECHANICAL OUTLINE



ELECTRICAL CHARACTERISTICS, P/N OM7650SM (15 Volts)

-55°C, T_A 125°C, $V_{IN} = 20 V$, $I_O = 1 A$, $C_{OUT} = 22 \mu F$ (unless otherwise specified).

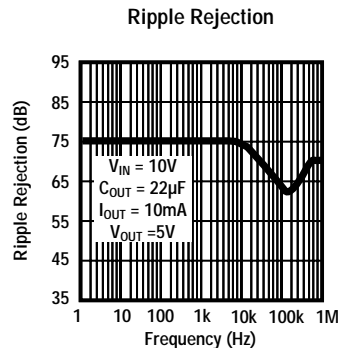
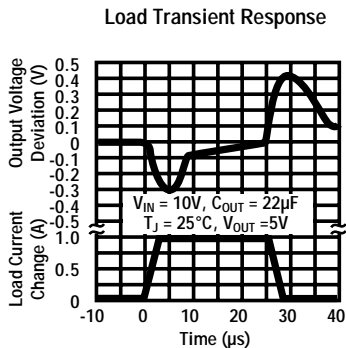
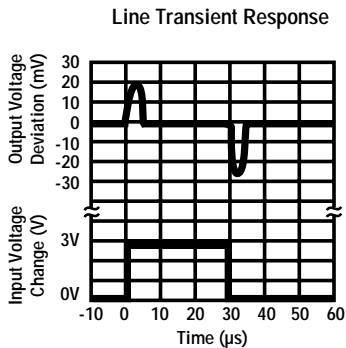
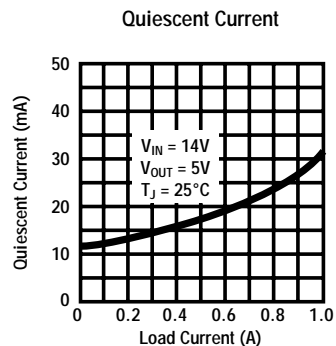
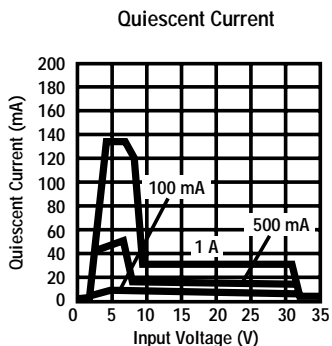
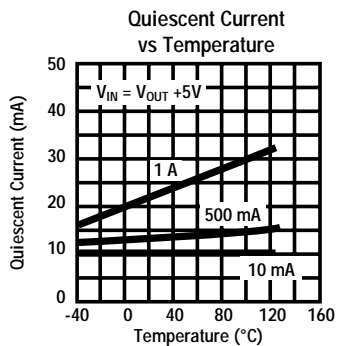
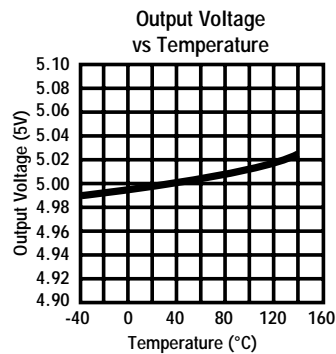
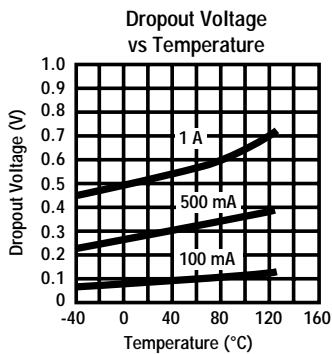
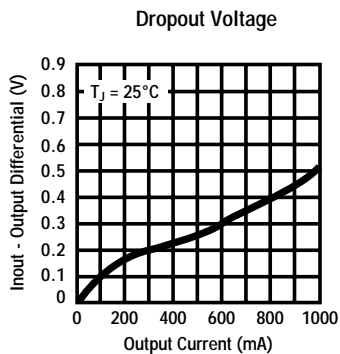
Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit		
Output Voltage	V_{OUT}	$V_{IN} = 20 V$, $I_{OUT} = 5 mA$	1	14.55	15.45	V		
			2	14.25	15.75			
		$V_{IN} = 16.75 V$, $I_{OUT} = 5 mA$	1	14.55	15.45			
			2	14.25	15.75			
		$V_{IN} = 17 V$, $I_{OUT} = 5 mA$	1	14.55	15.45			
			2	14.25	15.75			
		$V_{IN} = 26 V$, $I_{OUT} = 5 mA$	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			
Maximum Line Transient	V_{LT}	$V_O = 16 V$, $R_O = 100 \Omega$, $t = 20 ms$	1, 2	40		V		
		Reverse Polarity	$R_O = 100 \Omega$	1, 2	-15		V	
		Reverse Polarity	$R_O = 100 \Omega$, $t = 20 ms$	1, 2	-45		V	
		Quiescent Current	I_Q	$V_{IN} = 20 V$, $I_{OUT} = 5 mA$	1	15	15	mA
					2	20	20	
				$V_{IN} = 17 V$, $I_{OUT} = 5 mA$	1	15	15	
					2	20	20	
				$V_{IN} = 26 V$, $I_{OUT} = 5 mA$	1	15	15	
	2			20	20			
Line Regulation	V_{RLN}	$V_{IN} = 20 V$, $I_{OUT} = 1 A$	1	50	60			
			2					
Load Regulation	V_{RLD}	$V_{IN} = 20 V$, $I_{OUT} = 5 mA$	1	±95	±150	mV		
			2					
Dropout Voltage	V_{DO}	$V_{IN} = 20 V$, $I_{OUT} = 1 A$	1	±150	±240	mV		
			2					
Output Noise Voltage	V_{ON}	$I_{OUT} = 100 mA$	1	.7	1	V		
			2	150	200	mV		
Output Impedance	R_O	$V_{IN} = 20 V$, $I_O = 5 mA$, 10 Hz - 100 Hz	1	1000	1000	μV rms		
		$V_{IN} = 20 V$, $I_{OUT} = 100 mA$ 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	48		dB		
			2	42				

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

3.5



TYPICAL APPLICATIONS



3.5

