

DESC APPROVED LOW DROPOUT NEGATIVE



Three Terminal, Fixed Voltage,
Low Dropout Negative Voltage Regulator
In Hermetic Packages

FEATURES

- Approved To DESC Standardized Military Drawings
- Low Dropout Voltage, $0.6\text{ V @ } I_o = 1\text{ A}$
- Output Current in Excess of 1 A [LOC 20 (N2) package limited to 0.3A]
- Reverse Battery Protection
- Internal Short Circuit Protection
- Isolated and Non-Isolated Hermetic Package Types
- Output Voltages: - 5V, -5.2V, -12V, & -15V

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DESCRIPTION

The OM2990 series of fixed voltage regulators are designed to provide up to 1.5A with high efficiency. It has the ability to source 1A of output current with a typical dropout voltage of 0.6V and a maximum of 1V over the entire operating temperature range. It is supplied in hermetic packages and is ideally suited for all applications where small size and high reliability are required.

ABSOLUTE MAXIMUM RATINGS, $T_C = 25^\circ\text{C}$

Input Voltage	-26 V to +0.3V
Output Voltage	-5V, -5.2 V, -12 V, -15 V dc
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: Junction to Case	
Case 2, LOC20	15.5°C/W
Case U&M, TO-257 (isolated) & SMD-3	3.8°C/W
Case T&N, TO-257 (non-isolated) & SMD-1	3.0°C/W
Case Y, TO-3	2.7°C/W
Maximum Output Current	
Case 2	0.3A
Case U&M	1.2A
Case T, N & Y	1.5A

APPROVED DESC DRAWING	OMNIREL P/N
5962-9571101MUA	OM2990 - 5 STM
5962-9571002MUA	OM2990 - 5.2 STM
5962-9571001MUA	OM2990 - 12 STM

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Notes: 1. $T_A = 25^\circ\text{C}$.
2. Over full operating temperature range.
3. Guaranteed, not tested

Test Conditions are -55°C T_A 125°C , $V_{BI} = -17\text{V}$, $C_{OUT} = 47\text{ }\mu\text{F}$ (unless otherwise specified).

Notes:

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4. The short circuit current is less than the maximum output current due to internal foldback current limiting. The -5V and -5.2V versions do not reach the foldback current limit and therefore conducts a higher short

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ELECTRICAL CHARACTERISTICS, 0M2990-15SM, ST (-15 VOLTS)

Test Conditions are -55°C, $T_A = 125^\circ\text{C}$, $V_{IN} = -20\text{V}$, $C_{OUT} = 47\text{ }\mu\text{F}$ (unless otherwise specified).						
Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$5\text{ mA} \leq I_O \leq 1.0\text{ A}$	1 2	-15.39 -15.75	-14.70 -14.25	V
Quiescent Current	I_Q	$I_O \leq 1.0\text{ A}$ $I_O = 1.0\text{ A}$, $V_{IN} = -15\text{ V}$	1 2 1,2		15 20 50	mA
Line Regulation	V_{RLN}	-16 V V_{IN} -26 V, $I_{O,UT} = 5\text{ mA}$	1 2		± 75 ± 120	mV
Load Regulation	V_{RLD}	50 mA $I_{O,UT}$ 1.0 A	1 2		± 120 ± 190	mV
Dropout Voltage	V_{DO}	$I_O = 0.1\text{ A}$ $DV_O = 100\text{ mV}$ $I_O = 1.0\text{ A}$ $DV_O = 100\text{ mV}$	1 2 1 2		3 1	V
Output Noise Voltage	V_{ON}	$I_O = 5\text{ mA}$, 10 Hz - 100 kHz	3		1800	μV
Short Circuit Current	I_{OS}	$R_L = 1$	1 2 4	.60 50		A
Maximum Output Current	I_{MAX}		1 4	1.4		A
Ripple Rejection	R_R	$V_{ripple} = 1\text{ V}_{rms}$ $I_{O,UT} = 5\text{ mA}$, $f = 1\text{ kHz}$	1	42		dB

Notes: 1. $T_A = 25^\circ\text{C}$.
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Test Conditions are -55°C T_A 125°C , $V_{IN} = -10\text{V}$, $C_{OUT} = 47\text{ }\mu\text{F}$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit	
Output Voltage	V _{OUT}	5 mA ≤ I _O ≤ 300 mA	1 2	-5.10 -5.25	-4.90 -4.75	V	
Quiescent Current	I _Q	I _O ≤ 300 mA	1 2		7 14	m A	
		I _O = 300 mA , V _{IN} = -5 V	1,2		55		
Line Regulation	V _{RLN}	-6 V V _{IN} -26 V,	1		±45	m V	
		I _{OUT} = 5 mA	2		±60		
Load Regulation	V _{RLD}	50 mA I _{OUT} 300 mA	1		±80	m V	
			2		±120		
Dropout Voltage	V _{DO}	I _O = 100 mA	1		3	V	
		DV _O 100 mV	2				
		I _O = 300 mA	1		1		
		DV _O 100 mV	2				
Output Noise Voltage	V _{ON}	I _O = 5 mA, 10 Hz - 100 kHz	3		800	μV	
Short Circuit Current	I _{OS}	R _L = 1	1	300	250	m A	
			2				
Maximum Output Current	I _{OAX}		1	300		m A	
Ripple Rejection	R _R	V _{ripple} = 1 V _{rms} I _{OUT} = 5 mA, f = 1 kHz	1	50		dB	
Notes: 1. T _A = 25°C. 2. Over full operating temperature range. 3. Guaranteed, not tested.							

ELECTRICAL CHARACTERISTICS, 0M2990-12N2 (-12 VOLTS)

Test Conditions are -55°C T_A 125°C , $V_{IN} = -17\text{V}$, $C_{OUT} = 47\text{ }\mu\text{F}$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$5\text{ mA} \leq I_O \leq 300\text{ mA}$	1 2	-12.24 -12.60	-11.76 -11.40	V
Quiescent Current	I_Q	$I_O \leq 300\text{ mA}$	1 2		7 14	mA
		$I_O = 300\text{ mA}, V_{IN} = -12\text{ V}$	1,2		60	
		$-13\text{ V} \leq V_{IN} \leq -26\text{ V}$ $I_{OUT} = 5\text{ mA}$	1 2		± 75 ± 110	
Line Regulation	V_{RLN}		1 2		± 75 ± 110	mV
Load Regulation	V_{RLD}	$50\text{ mA} \leq I_{OUT} \leq 300\text{ mA}$	1 2		± 120 ± 190	mV
Dropout Voltage	V_{DO}	$I_O = 100\text{ mA}$	1		3	V
		$DV_O = 100\text{ mV}$	2			
		$I_O = 300\text{ mA}$	1		1	
		$DV_O = 100\text{ mV}$	2			
Output Noise Voltage	V_{ON}	$I_O = 5\text{ mA}$ $10\text{ Hz} - 100\text{ kHz}$	3		1650	μV
Short Circuit Current	I_{OS}	$R_L = 1$	1 2	200 175		mA
			1 4	280		
Maximum Output Current	I_{MAX}		1 4	280		mA
Ripple Rejection	R_R	$V_{ripple} = 1\text{ V}_{AS}$ $I_{OUT} = 5\text{ mA}, f = 1\text{ kHz}$	1	42		dB

Notes: 1. $T_A = 25^\circ\text{C}$.
2. Over full operating temperature range.
3. Guaranteed, not tested.
4. The short circuit current is less than the maximum output current due to internal foldback current limiting.
The -5V and -5.2V versions do not reach the foldback current limit and therefore conducts a higher short

ELECTRICAL CHARACTERISTICS, 0M2990-15 N2 (-15 VOLTS)

Test Conditions are -55°C T_A 125°C , $V_{IN} = -20\text{V}$, $C_{OUT} = 47\text{ }\mu\text{F}$ (unless otherwise specified).

Test Conditions are $T_A = T_{\text{case}} = 25^{\circ}\text{C}$, $V_{\text{IN}} = 20\text{V}$, $C_{\text{OUT}} = 47\mu\text{F}$ (unless otherwise specified).					
Parameter	Symbol	Test Conditions	Notes	Min.	Max.
Output Voltage	V_{OUT}	$5\text{ mA} \leq I_{\text{O}} \leq 300\text{ mA}$	1 2	-15.30 -15.75	-14.70 -14.25
Quiescent Current	I_{Q}	$I_{\text{O}} \leq 300\text{ mA}$	1 2		20 25
		$I_{\text{O}} = 300\text{ mA}$, $V_{\text{IN}} = -15\text{ V}$	1,2		60
Line Regulation	V_{RLN}	-16 V V_{IN} -26 V	1		± 85
		$I_{\text{OUT}} = 5\text{ mA}$	2		± 130
Load Regulation	V_{RLD}	50 mA I_{OUT} 300 mA	1		± 135
			2		± 205
Dropout Voltage	V_{DO}	$I_{\text{O}} = 100\text{ mA}$	1		
		DV_{O} 100 mV	2		3
		$I_{\text{O}} = 300\text{ mA}$	1		1
		DV_{O} 100 mV	2		
Output Noise Voltage	V_{ON}	$I_{\text{O}} = 5\text{ mA}$ $10\text{ Hz} - 100\text{ kHz}$	3		1900
Short Circuit Current	I_{OS}	$R_{\text{L}} = 1$	1	150	
			2	140	
Maximum Output Current	I_{MAX}		1	280	
			4		
Ripple Rejection	R_{R}	$V_{\text{ripple}} = 1\text{ V}_{\text{AS}}$ $I_{\text{OUT}} = 5\text{ mA}$ $f = 1\text{ kHz}$	1	42	

Notes: 1. $T_A = 25^{\circ}\text{C}$.
2. Over full operating temperature range.
3. Guaranteed, not tested.
4. The short circuit current is less than the maximum output current due to internal foldback current limiting. The -9V and -5.2V versions do not reach the foldback current limit and therefore conducts a higher short circuit level.

ELECTRICAL CHARACTERISTICS, OM2990-5.2NK, NM, NT (-5.2 VOLTS)

Test Conditions are -55°C, T_A 125°C, $V_{IN} = -10.2V$, $C_{OUT} = 47\mu F$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$5mA \leq I_O \leq 1.0A$	1 2	-5.30 -5.46	-5.10 -4.94	V
Quiescent Current	I_Q	$I_O \leq 1.0A$	1 2		5 12	mA
		$I_O = 1.0A, V_{IN} = -5.2V$	1,2		50	
Line Regulation	V_{RLN}	-6.2V V_{IN} -26V, $I_{OUT} = 5mA$	1 2		± 40 ± 50	mV
Load Regulation	V_{RLD}	50mA I_{OUT} 1.0A	1 2		± 50 ± 100	mV
Dropout Voltage	V_{DO}	$I_O = 0.1A$	1			V
		DV_O 100mV	2		3	
		$I_O = 1.0A$	1			
		DV_O 100mV	2		1	
Output Noise Voltage	V_{ON}	$I_O = 5mA$, 10Hz - 100kHz	3		750	μV
Short Circuit Current	I_{SC}	$R_L = 1$	1 2	1.5 1.3		A
Maximum Output Current	I_{MAX}		1	1.5		A
Ripple Rejection	R_R	$V_{ripple} = 1V_{ms}$ $I_{OUT} = 5mA, f = 1kHz$	1	50		dB

Notes: 1. $T_A = 25^\circ C$.
2. Over full operating temperature range.
3. Guaranteed, not tested.

ELECTRICAL CHARACTERISTICS, OM2990-5.2SM, ST (-5.2 VOLTS)

Test Conditions are -55°C, T_A 125°C, $V_{IN} = -10.2V$, $C_{OUT} = 47\mu F$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$5mA \leq I_O \leq 1.0A$	1 2	-5.30 -5.46	-5.10 -4.94	V
Quiescent Current	I_Q	$I_O \leq 1.0A$	1 2		5 12	mA
		$I_O = 1.0A, V_{IN} = -5.2V$	1,2		50	
Line Regulation	V_{RLN}	-6.2V V_{IN} -26V, $I_{OUT} = 5mA$	1 2		± 45 ± 55	mV
Load Regulation	V_{RLD}	50mA I_{OUT} 1.0A	1 2		± 70 ± 110	mV
Dropout Voltage	V_{DO}	$I_O = 0.1A$	1			V
		DV_O 100mV	2		3	
		$I_O = 1.0A$	1			
		DV_O 100mV	2		1	
Output Noise Voltage	V_{ON}	$I_O = 5mA$, 10Hz - 100kHz	3		750	μV
Short Circuit Current	I_{SC}	$R_L = 1$	1,2	1.27		A
Maximum Output Current	I_{MAX}		1	1.27		A
Ripple Rejection	R_R	$V_{ripple} = 1V_{ms}$ $I_{OUT} = 5mA, f = 1kHz$	1	50		dB

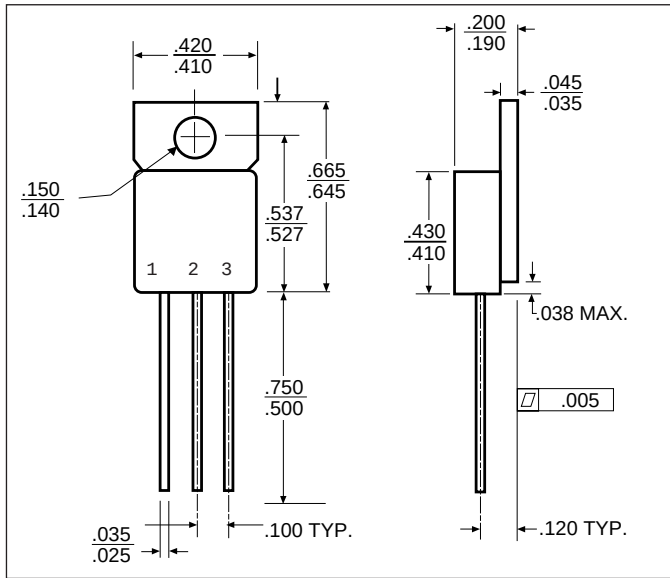
Notes: 1. $T_A = 25^\circ C$.
2. Over full operating temperature range.
3. Guaranteed, not tested.

ELECTRICAL CHARACTERISTICS, OM2990-5.2N2 (-5.2 VOLTS)

Test Conditions are -55°C, T_A 125°C, $V_{IN} = -10.2V$, $C_{OUT} = 47\mu F$ (unless otherwise specified).

Parameter	Symbol	Test Conditions	Notes	Min.	Max.	Unit
Output Voltage	V_{OUT}	$5mA \leq I_O \leq 300mA$	1 2	-5.30 -5.46	-5.10 -4.94	V
Quiescent Current	I_Q	$I_O \leq 300mA$	1 2		7 14	mA
		$I_O = 300mA, V_{IN} = -5.2V$	1,2		55	
Line Regulation	V_{RLN}	-6.2V V_{IN} -26V, $I_{OUT} = 5mA$	1 2		± 45 ± 60	mV
Load Regulation	V_{RLD}	50mA I_{OUT} 300mA	1 2		± 80 ± 120	mV
Dropout Voltage	V_{DO}	$I_O = 100mA$	1			V
		DV_O 100mV	2		3	
		$I_O = 300mA$	1			
		DV_O 100mV	2		1	
Output Noise Voltage	V_{ON}	$I_O = 5mA$, 10Hz - 100kHz	3		800	μV
Short Circuit Current	I_{SC}	$R_L = 1$	1 2	300 250		mA
Maximum Output Current	I_{MAX}		1	300		mA
Ripple Rejection	R_R	$V_{ripple} = 1V_{ms}$ $I_{OUT} = 5mA, f = 1kHz$	1	50		dB

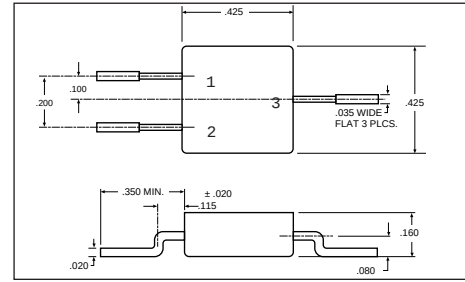
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2. Over full operating temperature range.
3. Guaranteed, not tested.



T0-257AA

OM2990STM
 Isolated
 Front View
 Pin 1 - Ground
 Pin 2 - Input
 Pin 3 - Output
 Tab - Isolated

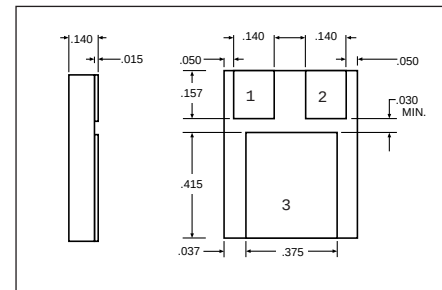
OM2990NTM
 Non-Isolated
 Front View
 Pin 1 - Ground
 Pin 2 - Input
 Pin 3 - Output
 Tab - Input



SMD-3

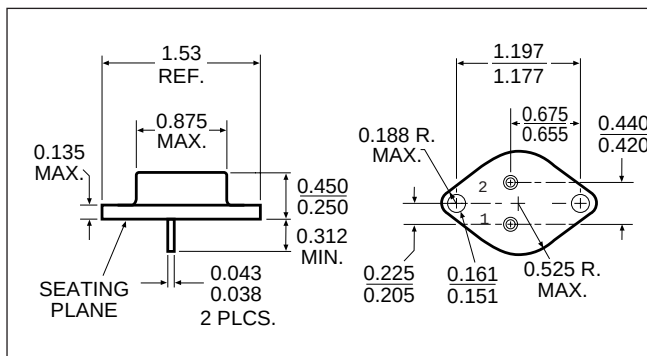
OM2990SMM

Front View
 Pin 1 - Ground
 Pin 2 - Output
 Pin 3 - Input
 Case - Isolated

SMD 1
"N" PACKAGE

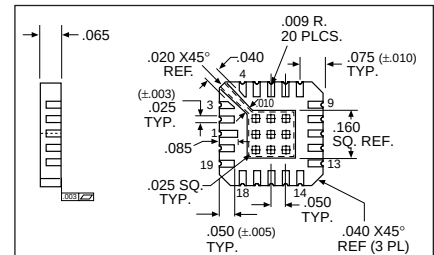
OM2990NMM

Pin 1 - Ground
 Pin 2 - Output
 Pin 3 - Input



T0-204AA (T0-3)

OM2990NKM
 Pin 1 - Ground
 Pin 2 - Output



LCC 20

OM2990N2M

Pin 1	NC	Pin 11	V _{OUT}
Pin 2	NC	Pin 12	V _{OUT}
Pin 3	NC	Pin 13	NC
Pin 4	NC	Pin 14	NC
Pin 5	NC	Pin 15	V _{IN}
Pin 6	Ground	Pin 16	V _{IN}
Pin 7	NC	Pin 17	V _{IN}
Pin 8	NC	Pin 18	NC
Pin 9	V _{OUT} (Sense)	Pin 19	NC



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Благодаря развитой сети поставщиков, помогаем в поиске и приобретении экзотичных или снятых с производства компонентов.

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