OM1326SMM OM1326NMM OM1326STM OM1326SRM
OM1326NKM OM1326NTM OM1326N2M

1.5 AMP POSITIVE ADJUSTABLE VOLTAGE REGULATOR APPROVED TO DESC DRAWING 7703407

Please see mechanical outlines herein

Three Terminal, Precision Adjustable Positive Voltage Regulator In Hermetic Style Packages (LM117AHV)

FEATURES

- Similar To Industry Standard LM117AHV
- Approved To DESC Standardized Military Drawing Number 7703407
- Built In Thermal Overload Protection
- Short Circuit Current Limiting
- Available In Six Package Styles
- Maximum Output Voltage Tolerance Is Guaranteed to ± 1%

DESCRIPTION

These three terminal positive regulators are supplied in hermetically sealed packages. All protective features are designed into the circuit, including thermal shutdown, current-limiting, and safe-area control. With heat sinking, these devices can deliver up to 1.5 Amps of output current. The LCC-20 device is limited to 0.5 Amps. The unit also features output voltages that can be fixed from 1.2 Volts to 57 Volts using external resistors.

ABSOLUTE MAXIMUM RATINGS T_c @ 25°C

Power Dissipation
LCC-20 . . . . 1.1 W
Case-All Others. . . . . .20 W
Input - Output Voltage Differential . . . . 60 V
Operating Junction Temperature Range . . . . - 55°C to + 150°C
Storage Temperature Range . . . . - 65°C to + 150°C
Lead Temperature (Soldering 10 seconds) . . . . 300°C
Thermal Resistance, Junction to Case:
LCC-20 . . . . 17°C/W
TO-257 (Isol), SMD-3 and SMD 257. . . . . 4.2°C/W
TO-257 (Non-Isol) and SMD-1. . . . . 3.5°C/W
TO-3 . . . . 3.0°C/W
Maximum Output Current:
LCC-20. . . . . 0.5 A
Case-All Others. 1.5A
Recommended Operating Conditions:
Output Voltage Range . . . . .1.2 to 57 VDC
Ambient Operating Temperature Range (T_A). . . . . - 55°C to + 125°C
Input Voltage Range . . . . 4.25 to 61.25 VDC

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ELECTRICAL CHARACTERISTICS $-55°C \le T_A \le 125°C$, $I_L = 8mA$ (unless otherwise specified)

OM1326NTM, OM1326STM, OM1326NKM, OM1326SMM, OM1326NMM, OM1326SRM

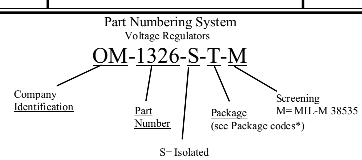
Parameter	Symbol	Test Conditions		Min.	Max.	Unit
Reference Voltage	V_{REF}	$V_{DIFF} = 3.0V$, $T_A = 25°C$		1.238	1.262	
		$V_{DIFF} = 3.3V$	•	1.225	1.270	V
		$V_{DIFF} = 40V$	•	1.225	1.270	
		$V_{DIFF} = 60V$	•	1.225	1.270	
Line Regulation	R_{LINE}	$3.0V \le V_{DIFF} \le 40V$, $V_{out} = V_{ref}$, $T_A = 25°C$		-4.5	4.5	
(Note 1)		$3.3V \le V_{DIFF} \le 40V$, $V_{out} = V_{ref}$	•	-9	-9	mV
		$40V \le V_{DIFF} \le 60V$, $V_{out} = V_{ref}$, $T_A = 25°C$		-5	5	
		$40V \le V_{DIFF} \le 60V$, $V_{out} = V_{ref}$	•	-10	10	
Load Regulation	R_{LOAD}	$V_{DIFF} = 3.0V$, $10mA \le I_L \le 1.5A$, $T_A = 25°C$		-15	15	
(Note 1)		$V_{DIFF} = 3.3V$, $10mA \le I_L \le 1.5A$	•	-15	15	mV
		$V_{DIFF} = 40V$, $10mA \le I_L \le 300mA$, $T_A = 25°C$		-15	15	
		$V_{DIFF} = 40V$, $10mA \le I_L \le 195mA$	•	-15	15	
		$V_{DIFF} = 60V$, $10mA \le I_L \le 30mA$	•	-15	15	
Thermal Regulation	V_{RTH}	$V_{in} = 14.6V$, $I_L = 1.5A$		-5	5	mV
		$P_d = 20$ Watts, $t = 20$ ms, $T_A = 25°C$				
Ripple Rejection	R_N	$f = 120$ Hz, $V_{out} = V_{ref}$	•	66		dB
(Note 2)		$C_{Adj} = 10\ \mu F$, $I_{out} = 100$ mA				
Adjustment Pin Current	I_{Adj}	$V_{DIFF} = 3.0V$, $T_A = 25°C$			100	
		$V_{DIFF} = 3.3V$	•		100	µA
		$V_{DIFF} = 40V$	•		100	
		$V_{DIFF} = 60V$	•		100	
Adjustment Pin	ΔI_{Adj}	$V_{DIFF} = 3.0V$, $10mA \le I_L \le 1.5A$, $T_A = 25°C$		-5	5	
Current Change		$V_{DIFF} = 3.3V$, $10mA \le I_L \le 1.5A$	•	-5	5	
		$V_{DIFF} = 40V$, $10mA \le I_L \le 300mA$, $T_A = 25°C$		-5	5	
		$V_{DIFF} = 40V$, $10mA \le I_L \le 195mA$	•	-5	5	µA
		$3.0V \le V_{DIFF} \le 40V$, $T_A = 25°C$		-5	5	
		$3.3V \le V_{DIFF} \le 40V$	•	-5	5	
		$3.3V \le V_{DIFF} \le 60V$	•	-5	5	
Miminum Load Current	I_{Lmin}	$V_{DIFF} = 3.0V$, $V_{out} = 1.4V$ (forced)			5.0	
		$V_{DIFF} = 3.3V$, $V_{out} = 1.4V$ (forced)	•		5.0	mA
		$V_{DIFF} = 40V$, $V_{out} = 1.4V$ (forced)	•		5.0	
		$V_{DIFF} = 60V$, $V_{out} = 1.4V$ (forced)	•		7.0	
Current Limit	I_{CL}	$V_{DIFF} = 5V$	•	1.5	3.5	
(Note 2)		$V_{DIFF} = 40V$, $T_A = 25°C$		0.3	1.5	A
		$V_{DIFF} = 60V$, $T_A = 25°C$		0.05	0.50	

Notes:

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.
2. If not tested, shall be guaranteed to the specified limits.
3. The • denotes the specifications which apply over the full operating temperature range.

PART NUMBER DESIGNATOR

Standard Military Drawing Number	Omnirel Part Number	Omnirel Package Designation
77034074	OM1326SRM	SMD257
7703407M	OM1326SMM	SMD-3
7703407U	OM1326STM	TO-257 (Isolated)
7703407T	OM1326NTM	TO-257 (non-Isolated)
7703407Y	OM1326NKM	TO-3
7703407N	OM1326NMM	SMD-1
77034072	OM1326N2M	LCC-20



* Package Codes:
K= TO-204AA (TO-3)
T= TO-257AA
2= LCC-20
M= SMD-1, 3
R= D^{2}Pac

ELECTRICAL CHARACTERISTICS $-55°C \le T_A \le 125°C$, I_L = 8mA (unless otherwise specified)

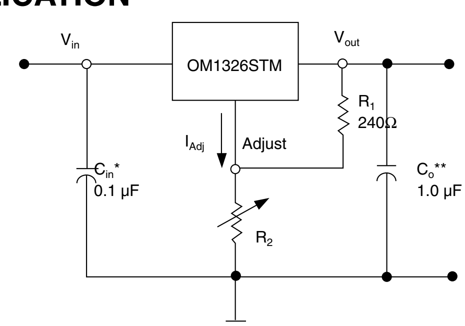
OM1326N2M

Parameter	Symbol	Test Conditions		Min.	Max.	Unit
Reference Voltage	V_{REF}	V_{DIFF} = 3.0V, T_A = 25°C		1.238	1.262	
		V_{DIFF} = 3.3V	•	1.225	1.270	V
		V_{DIFF} = 40V	•	1.225	1.270	
		V_{DIFF} = 60V	•	1.225	1.270	
Line Regulation	R_{LINE}	$3.0V \le V_{DIFF} \le 40V$, $V_{out} = V_{ref}$, T_A = 25°C		-4.5	4.5	
(Note 1)		$3.3V \le V_{DIFF} \le 40V$, $V_{out} = V_{ref}$	•	-9	-9	mV
		$40V \le V_{DIFF} \le 60V$, $V_{out} = V_{ref}$, T_A = 25°C		-5	5	
		$40V \le V_{DIFF} \le 60V$, $V_{out} = V_{ref}$	•	-10	10	
Load Regulation	R_{LOAD}	V_{DIFF} = 3.0V, $10mA \le I_L \le 500$ mA, T_A = 25°C		-15	15	
(Note 1)		V_{DIFF} = 3.3V, $10mA \le I_L \le 500$ mA	•	-15	15	mV
		V_{DIFF} = 40V, $10mA \le I_L \le 150$ mA, T_A = 25°C		-15	15	
		V_{DIFF} = 40V, $10mA \le I_L \le 100$ mA	•	-15	15	
		V_{DIFF} = 60V, $10mA \le I_L \le 20$ mA	•	-15	15	
Thermal Regulation	V_{RTH}	V_{in} = 14.6V, I_L = 300 mA		-2	2	mV
		P_d = 4.0 Watts, t = 20 ms, T_A = 25°C				
Ripple Rejection	R_N	f = 120 Hz, $V_{out} = V_{ref}$	•	66		dB
(Note 2)		C_{Adj} = 10 µF, I_{out} = 100 mA				
Adjustment Pin Current	I_{Adj}	V_{DIFF} = 3.0V, T_A = 25°C			100	
		V_{DIFF} = 3.3V	•		100	µA
		V_{DIFF} = 40V	•		100	
		V_{DIFF} = 60V	•		100	
Adjustment Pin	ΔI_{Adj}	V_{DIFF} = 3.0V, $10mA \le I_L \le 500$ mA, T_A = 25°C		-5	5	
Current Change		V_{DIFF} = 3.3V, $10mA \le I_L \le 500$ mA	•	-5	5	
		V_{DIFF} = 40V, $10mA \le I_L \le 150$ mA, T_A = 25°C		-5	5	
		V_{DIFF} = 40V, $10mA \le I_L \le 100$ mA	•	-5	5	µA
		$3.0V \le V_{DIFF} \le 40V$, T_A = 25°C		-5	5	
		$3.3V \le V_{DIFF} \le 40V$	•	-5	5	
		$3.3V \le V_{DIFF} \le 60V$	•	-5	5	
Miminum Load Current	I_{Lmin}	V_{DIFF} = 3.0V, V_{out} = 1.4V (forced)			5.0	
		V_{DIFF} = 3.3V, V_{out} = 1.4V (forced)	•		5.0	mA
		V_{DIFF} = 40V, V_{out} = 1.4V (forced)	•		5.0	
		V_{DIFF} = 60V, V_{out} = 1.4V (forced)	•		7.0	
Current Limit	I_{CL}	V_{DIFF} = 5V	•	0.5	1.65	
(Note 2)		V_{DIFF} = 40V, T_A = 25°C		0.15	0.65	A
		V_{DIFF} = 60V, T_A = 25°C		0.02	0.28	

Notes: Please see page 34.

3.3

STANDARD APPLICATION



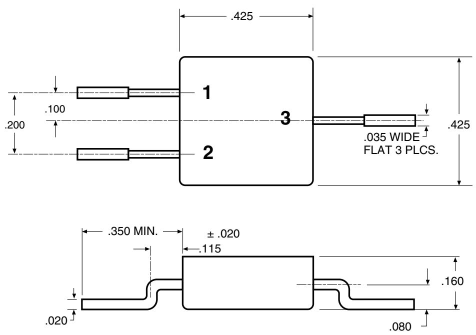
* C_{in} is required if regulator is located an appreciable distance from power supply filter.

** C_o is not needed for stability, however it does improve transient response.

$$V_{out} = 1.25\text{ V }\left(1 + \frac{R_2}{R_1}\right) + I_{Adj}\, R_2$$

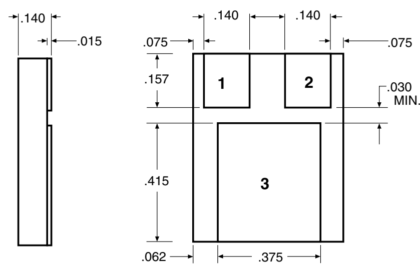
Since I_{Adj} is controlled to less than 100 µA, the error associated with this term is negligible in most applications.

MECHANICAL OUTLINE



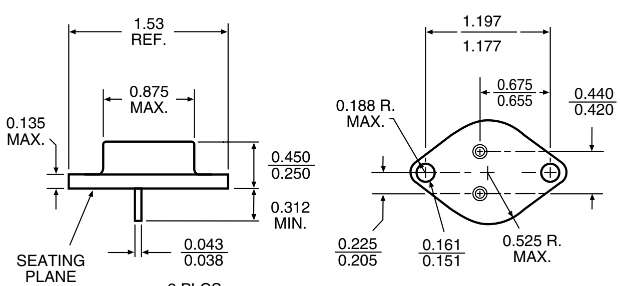
OM1326SMM

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



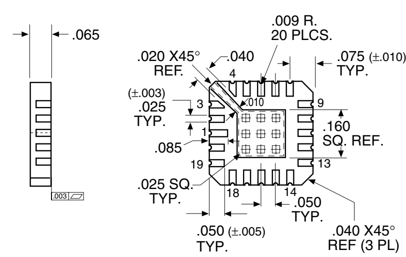
OM1326NMM

Pin 1 - Adjust
Pin 2 - Input
Pin 3 - Output



OM1326NKM

Pin 1 - Adjust
Pin 2 - Input
Case - Output



OM1326N2M

Pin 1	NC	Pin 11	V_{IN}
Pin 2	NC	Pin 12	V_{OUT}
Pin 3	NC	Pin 13	V_{OUT}
Pin 4	NC	Pin 14	V_{OUT}(Sense)
Pin 5	NC	Pin 15	NC
Pin 6	NC	Pin 16	NC
Pin 7	NC	Pin 17	NC
Pin 8	NC	Pin 18	ADJUST
Pin 9	NC	Pin 19	NC
Pin 10	NC	Pin 20	V_{IN}

For additional information please see the mechanical outline section.