International
IOR Rectifier

PD - 94665

Adjustable Positive Linear Regulator Surface Mount (D^2)

OM7585ASR
5962 - 0323703MUA

D^2

Product Summary

Part Number	Output Voltage	Output Current
OM7585ASR	+1.5V to +5.5V	5.0A

Description

The OM7585ASR is an adjustable positive linear regulator with a 5A maximum current capability. This part is specifically designed for low voltage applications where fast transient response is required. Utilizing a 3-pin surface mount package configuration, these devices are ideally suited for military/aerospace applications and other harsh environmental extremes.

Features

- Fast Transient Response
- Current Limit Protection
- Thermal Protection
- Hermetic D^2 Package
- DSCC Qualified
- Screened to MIL-PRF-38535

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
Output Currrent	I_O	5.0	A
Input Voltage	V_{IN}	7.0	V
Power Dissipation @ Tc = 25°C	P_D	26.5	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	5.0	°C/W
Operating Junction Temperature Range	T_J	-55 to +125	°C
Storage Temperature Range	T_{STG}	-65 to +150	
Lead Temperature Soldering (10second maximum)	T_L	300	

Electrical Characteristics -55°C ≤ T_A ≤ 125°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min.	Max.	Units
Reference Voltage (Note 1)	V_{REF}	V_{IN} = 4.25V, I_{OUT} = 10mA, 25°C	1.238	1.266	V
		2.75V ≤ V_{IN} ≤ 7.0V, I_{OUT} = 5.0A	1.20	1.275	
Line Regulation (Note 2)	V_{RLINE}	2.75V ≤ V_{IN} ≤ 7.0V, I_{OUT} = 10mA	-	8.5	mV
Load Regulation (Notes1 & 2)	V_{RLOAD}	V_{IN} = 4.25V, 10mA ≤ I_O ≤ 5.0A, 25°C	-	24	
		V_{IN} = 4.25V, 10mA ≤ I_O ≤ 5.0A, -55°C, 125°C	-	34	
Dropout Voltage (Note 3)	V_{DROP}	$\triangle V_{REF}$ = 1%, I_{OUT} = 5.0A	-	1.4	V
Current Limit	I_{SC}	V_{IN} = 6.75V	5.0	-	A
Adjust Pin Current	I_{ADJ}	V_{IN} = 4.25V, I_{OUT} = 10mA	-	120	µA
Adjust Pin Current (Note 4)		2.75V ≤ V_{IN} ≤ 7.0V, 10mA ≤ I_{OUT} ≤ 5.0A	-	5.0	
Minimim Load Current (Note 5)	I_{MIN}	2.75V ≤ V_{IN} ≤ 7.0V	-	10	mA
Ripple Rejection	$\triangle V_{IN} / \triangle V_{OUT}$	f = 120Hz, C_{OUT} = 100µF tant, V_{IN} = 4.25V, I_{OUT} = 5.0A,	60	200	dB
Thermal Regulation @ 25°C	V_{REG}	V_{IN} = 7.0V, I_{OUT} = 5.0A Pulse Width = 30ms, P_D = 26.5W	-	0.02	%/W

Notes

1. Low duty cycle pulse testing with Kelvin sense connections is required in order to maintain accurate data. Load regulation and output voltage are measured at a constant junction temperature.
2. Line and load regulation are guaranteed up to maximum power dissipation. Power dissipation is determined by input/ output differntial and the output current. Guraranteed maximum output power will not be available over the full input/ output voltage range.
3. Dropout voltage is defined as the minimum differential voltage between V_{IN} and V_{OUT} required to maintain regulation at V_{OUT}. It is measured when the output voltage drops 1% below its nominal value.
4. $I_{FULL\ LOAD}$ is defined as the maximum value of output load current as a function of input-to-output voltage. $I_{FULL\ LOAD}$ is equal to 5A for the OM7585ASR. The OM7585ASR has a constant current limit with changes in input-to-output voltage.
5. Minimum load current is defined as the minimum current required at the output in order for the output voltage to maintain regulation. The resistor values selected for the voltage divider automatically maintains this current.

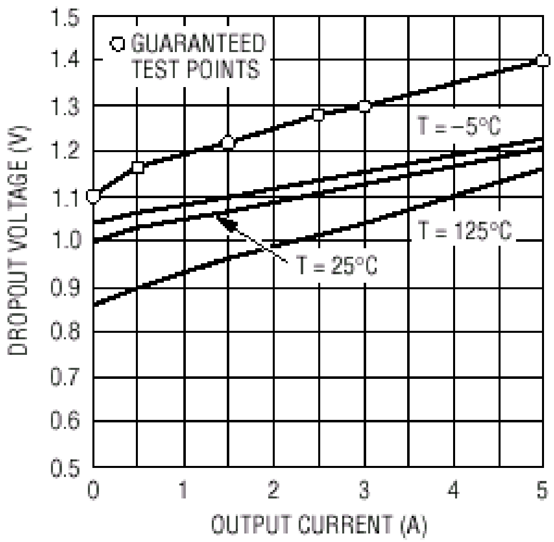


Fig 1: Typical Dropout Voltage Vs Output Current

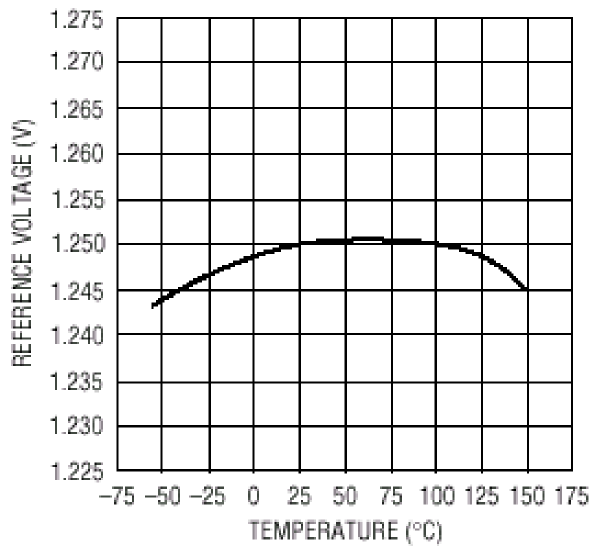


Fig 2: Typical Reference Voltage Vs Temperature

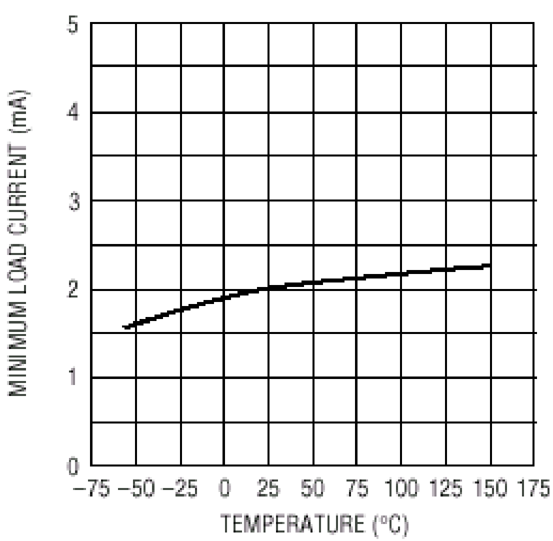


Fig 3: Typical Minimum Load Current Vs Temperature

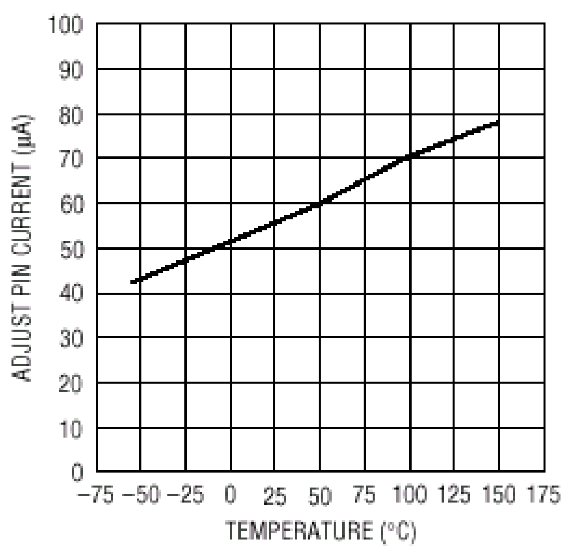


Fig 4: Typical Adjust Pin Current Vs Temperature

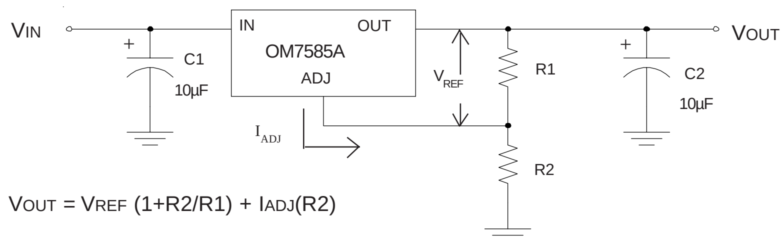
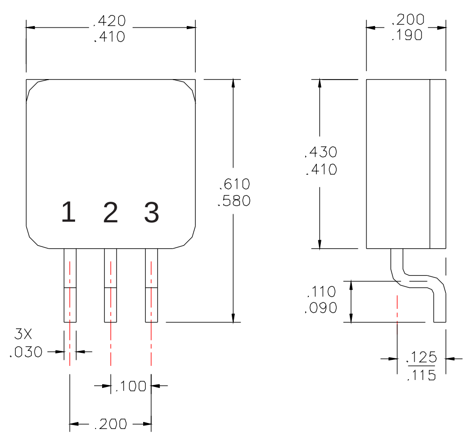


Fig 5: Typical Application

Layout Consideration

It is recommended that output capacitors be located as close as possible to the V_{OUT} terminal of the device to prevent any high frequency oscillation that may result due to excessive stray inductance.

Case Outline and Dimensions — D^2



Package Pin Description

Pin #	Pin Symbol	Function
1	ADJ	A resistor from this pin to the V_{OUT} pin and ground sets the output voltage.
2	V_{OUT}	The output of the regulator. A minimum of 10µF capacitor must be connected from this pin to ground to ensure stability.
3	V_{IN}	The input pin of the regulator. Typically a large storage capacitor is connected from this pin to ground to ensure that the input voltage does not sag below the minimum drop out voltage during the load transient response.

Part Numbering Nomenclature

OM	7585A	S	R	M
Omnirel	Device	S=Isolated	Package	Screening