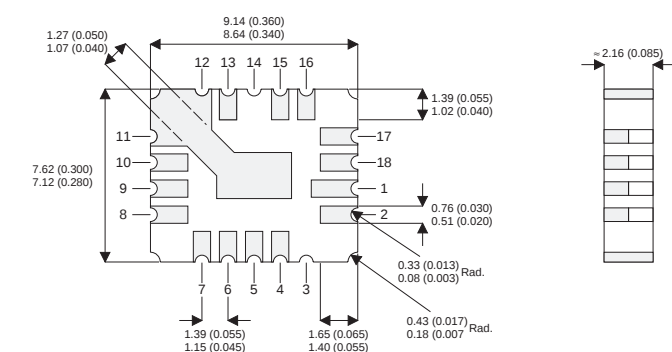


0.5 AMP NEGATIVE ADJUSTABLE VOLTAGE REGULATOR IN CERAMIC SURFACE MOUNT PACKAGE

FEATURES

- -1.2V TO 47V OUTPUT VOLTAGE RANGE
- 0.5A OUTPUT CURRENT
- 1% OUTPUT VOLTAGE TOLERANCE
- 0.5% / A LOAD REGULATION
- 0.01% / V LINE REGULATION
- 0.02% / W THERMAL REGULATION
- INTERNAL PROTECTION



Pins 4,5 – Adjust
Pins 6,7,8,9,10,11,12,13 – V_{OUT}
Pins 15,16,17,18,1,2 – V_{IN}

Internal current and power limiting coupled with true thermal limiting prevents device damage due to overloads or shorts, even if the regulator is not fastened to a heat sink.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{I-O}	Input - Output Differential Voltage	– Standard	40V
		– HV Series	50V
I_O	Output Current		Internally limited
P_D	Power Dissipation		Internally limited
T_J	Operating Junction Temperature Range		-55 to +150°C
T_{STG}	Storage Temperature		-65 to 150°C

Parameter	Test Conditions	IP137MAHV IP137MA			IP137MHV , IP137M			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
V_{REF} Reference Voltage	$I_{OUT} = 10mA$	-1.238	-1.25	-1.262	-1.225	-1.25	-1.275	V
	$I_{OUT} = 10mA$ to I_{MAX} $V_{IN} - V_{OUT} = 3V$ to V_{MAX} $P \leq P_{MAX}$ $T_J = -55$ to $150^{\circ}C$	-1.220	-1.25	-1.280	-1.200	-1.25	-1.300	V
$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$ Line Regulation 1	$V_{IN} - V_{OUT} = 3V$ to V_{MAX}	0.005	0.010		0.010	0.020		%V
	$T_J = -55$ to $150^{\circ}C$	0.010	0.030		0.020	0.050		
$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$ Load Regulation 1	$I_{OUT} = 10mA$ to I_{MAX} $V_{OUT} \leq 5V$	5	25		15	25		mV
	$V_{OUT} \geq 5V$	0.1	0.5		0.3	0.5		%
	$I_{OUT} = 10mA$ to I_{MAX} $V_{OUT} \leq 5V$	10	50		20	50		mV
	$T_J = -55$ to $150^{\circ}C$ $V_{OUT} \geq 5V$	0.2	1		0.3	1		%
Thermal Regulation	$t_p = 10ms$ $T_A = 25^{\circ}C$	0.002	0.020		0.002	0.02		%/W
Ripple Rejection	$V_{OUT} = -10V$ $f = 120Hz$ $C_{ADJ} = 0$	60	66		60			dB
	$C_{ADJ} = 10\mu F$ $T_J = -55$ to $150^{\circ}C$	70	80		66	77		dB
I_{ADJ} Adjust Pin Current	$T_J = -55$ to $150^{\circ}C$	65	100		65	100		μA
ΔI_{ADJ} Adjust Pin Current Change	$T_J = -55$ to $+150^{\circ}C$	$I_{OUT} = 10mA$ to I_{MAX}	0.2	2	0.5	5		μA
		$V_{IN} - V_{OUT} = 3V$ to $40V$	1.0	5	2	5		
		$V_{IN} - V_{OUT} = 3V$ to $50V$ (HV SERIES)	2.0	6	3	6		
I_{MIN} Minimum Load Current	$T_J = -55$ to $150^{\circ}C$	$V_{IN} - V_{OUT} \leq 40V$	2.5	5	2.5	5		mA
		$V_{IN} - V_{OUT} \leq 10V$	1.2	3	1.2	3		
I_{CL} Current Limit	$T_J = -55$ to $150^{\circ}C$	$V_{IN} - V_{OUT} \leq 15V$	0.50	0.80	1.5	0.50	0.80	A
		$V_{IN} - V_{OUT} = 40V$	0.15	0.17		0.15	0.17	
		$V_{IN} - V_{OUT} = 50V$ (HV SERIES)	0.10	0.17	0.5	0.10	0.17	
$\frac{\Delta V_{OUT}}{\Delta TEMP}$ Temperature Stability	$T_J = -55$ to $150^{\circ}C$	0.6	1.5		0.6			%
$\frac{\Delta V_{OUT}}{\Delta TIME}$ Long Term Stability	$T_A = +125^{\circ}C$ $t = 1000$ Hrs	0.3	1		0.3	1		%
e_n RMS Output Noise (% of V_{OUT})	$f = 10$ Hz to 10 kHz $T_A = 25^{\circ}C$	0.003			0.003			%
$R_{\theta JC}$ Thermal Resistance Junction to Case	LCC4 Package		13			13		$^{\circ}C/W$

1) Regulation is measured at constant junction temperature, using pulse testing at a low duty cycle. Changes in output voltage due to heating effects are covered under thermal regulation specifications.

2) Test Conditions unless otherwise stated: $V_{IN} - V_{OUT} = 5V$, $I_{OUT} = 0.1A$, $P_{MAX} = 10W$, $I_{MAX} = 0.5A$
 $V_{MAX} = 40V$ for standard series, $50V$ for HV series.