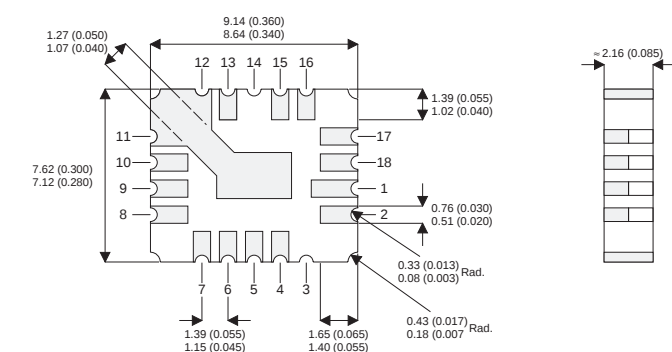


0.5 AMP NEGATIVE ADJUSTABLE VOLTAGE REGULATOR IN CERAMIC SURFACE MOUNT PACKAGE

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 ($T_{case} = 25^{\circ}\text{C}$ 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 ≤ P _{MAX} T _J = -55 to 150°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°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} ≤ 5V		5	25	15	25	mV		
				V _{OUT} ≥ 5V		0.1	0.5	0.3	0.5	%		
		I _{OUT} = 10mA to I _{MAX} T _J = -55 to 150°C		V _{OUT} ≤ 5V		10	50	20	50	mV		
				V _{OUT} ≥ 5V		0.2	1	0.3	1	%		
Thermal Regulation		t _p = 10ms T _A = 25°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} = 10μF T _J = -55 to 150°C		70	80	66	77	dB		
I _{ADJ}	Adjust Pin Current	T _J = -55 to 150°C				65	100	65	100	μA		
ΔI _{ADJ}	Adjust Pin Current Change	T _J = -55 to +150°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°C		V _{IN} – V _{OUT} ≤ 40V		2.5	5	2.5	5	mA		
				V _{IN} – V _{OUT} ≤ 10V		1.2	3	1.2	3			
I _{CL}	Current Limit	T _J = -55 to 150°C		V _{IN} – V _{OUT} ≤ 15V		0.50	0.80	1.5	0.50	0.80	1.5	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	0.5	
$\frac{\Delta V_{OUT}}{\Delta TEMP}$	Temperature Stability	T _J = -55 to 150°C				0.6	1.5	0.6		%		
$\frac{\Delta V_{OUT}}{\Delta TIME}$	Long Term Stability	T _A = +125°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°C				0.003		0.003		%		
R _{θJC}	Thermal Resistance Junction to Case	LCC4 Package					13		13	°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.