2905K **50mA Low Dropout Voltage Regulators**

Preliminary August 2014

FEATURES

- High accuracy Output Voltage Regulation
- Guaranteed 50mA Output Current
- Very low quiescent current (Ground Current)
- Very Low Dropout Voltage
- Extremely tight Load and Line Regulation
- Very low Temperature Coefficient
- Needs only 1μF Output low-ESR ceramic capacitor for stability
- Overvoltage protection with Hysteresis (OVP)

ABSOLUTE MAXIMUM RATINGS

Power Dissipation	Internally limited
Storage Temperature Range	-60ºC to +150ºC
Operating Junction Temperature Range	-40ºC to +150ºC
Input Voltage	-12V to +30V
Input Current	Internally limited
Output Voltage	-1V to +16V
Output Current	Internally limited
Minimum ESD rating, HBM (C = 100pF, R = 1.5k)	2kV

ELECTRICAL CHARACTERISTICS

Unless otherwise specified all limits are guaranteed for T_J = 25°C

Parameter	Conditions	Min	Typ	Max	Units
Output Voltage	4V ≤ V_{IN} ≤ 8V, 1mA ≤ I_{OUT} ≤ 50mA	3.43	3.5	3.57	V
Output Voltage Temperature Coefficient	V_{IN}=8V, I_{OUT}=1mA (Note 1)	-	50	150	ppm/ºC
Load Regulation (Note 2)	V_{IN} = 4V, 1mA ≤ I_{OUT} ≤ 50mA	-	-	20	mV
Line Regulation (Note 2)	4V ≤ V_{IN} ≤ 8V, I_{OUT} =50mA	-15	-	+15	mV
Dropout Voltage (Note 3)	I_{OUT} =50mA	-	-	0.50	V
Ground Current (Quiescent Current)	V_{IN}=8V, I_{OUT}=1mA	-	100	150	μA
Output Current Limiting	V_{IN}=8V, V_{OUT}=0V	70	100	-	mA
OVP Start Voltage		8.1	8.7	9.4	V
OVP Hysteresis		-	0.15	-	V
Input Current at OVP mode	V_{IN} = 30V, V_{OUT} = 0V	-	-	1	mA
Output Current at OVP mode	V_{IN} = 30V, V_{OUT} = 0V	-	-	10	μA
Output Ripple	Vin=6V +/- 1V, I_{OUT}=50mA , F=100Hz	-	-	+/- 20	mV
Turn-on Time	V_{IN} = 4V		10		mS
OTP mode			165		°C
Output Capacitance for stability (Note 4)		1.0			μF

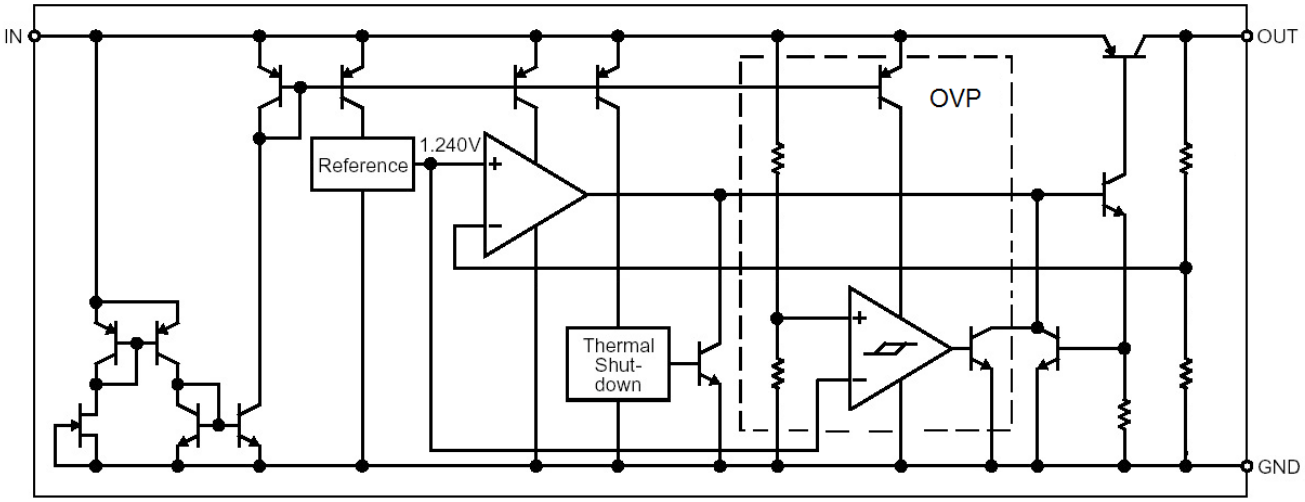
Note 1: Output Voltage Temperature Coefficient is defined as the worst case voltage change divided by the temperature range: -40°C to +125°C..

Note 2: Regulation is measured at constant junction temperature, using pulse testing with a low duty cycle.

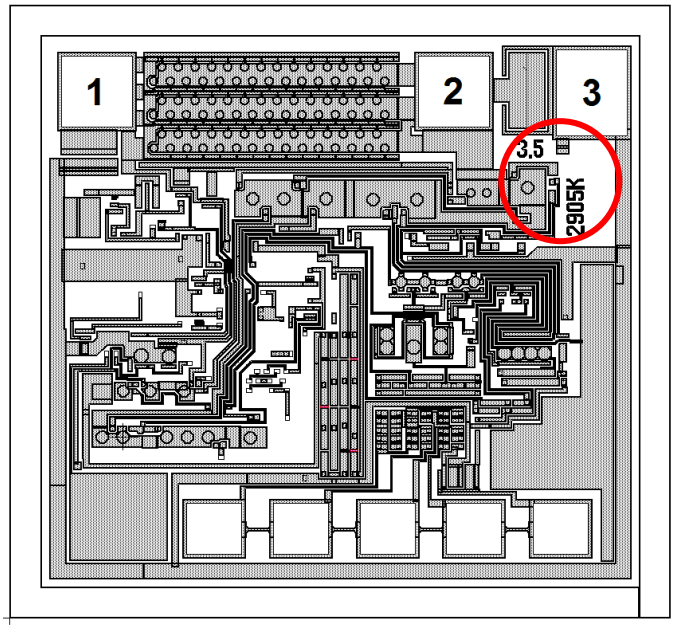
Note 3: Dropout Voltage is defined as the input to output differential at which the output voltage drops 100 mV below its nominal value measured at 1V differential.

Note 4: Stability with low-ESR ceramic Output capacitors.

BLOCK DIAGRAM



PAD LOCATION AND COORDINATES
(METAL LAYERS DRAWING)



Die Mark: 2905K 3.5

Pad	Pad name	Pad opening size (μm²)	Pad centers coordinates (μm)	
			X	Y
1	Output	90×90	110	670
2	Input	90×90	565	670
3	GND	110×90	740	670

Assembly Characteristics

No.	Assembly Characteristics	Value
1	Wafer Size	6 Inch
2	Wafer Thickness before Grinding	675 +/-25 µm
3	Scribe Street Width	80 µm
4	Chip Size (including Scribe Line)	0.84 × 0.78 mm^2
5	Die Attach Material	Substrate is connected to GND
6	Quantity of Bond Pad Metal Layers	1
7	Pad Thickness	1.6 µm
8	Composition of Metal Layers	Al+Si(1.0%)+Ti(0.5%)
9	Min. Bond Pad Opening Size	90×90 µm
10	Min. Bond Pad Pitch	175 µm
11	Min. Wire Diameters	0.9 mil (22.9 µm)
12	Circuit Under Pad Design (CUP)	No

For your information

Pb-free products:
- RoHS compliant and compatible with the current requirements of IPC/JEDEC J-STD-020.

Green products:
- Lead-free (RoHS compliant)
- Halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).