Low Quiescent Current LDO

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Description

This series is a high accuracy, high input voltage low quiescent current, high speed, and low dropout Liner regulator with high ripple rejection. The device is manufactured with Bi-CMOS process.

This offers over-current limit and over temperature protection to ensure the device working in well conditions.

Specification

Supply Voltage	: 4.75V to 40V
Output Range	: 1.8V to 10V
Output Accuracy	: <±2%
Output Current	: 250mA (Up to 500mA Typ.)
PSRR	: 50dB @ 100Hz
Dropout Voltage	: 850mV @ I_{OUT}=250mA
Quiescent Current	: 6µA@V_{IN}=7V(Typ.)
Recommend Capacitor	: 10µF

Absolute Maximum Ratings Ta = 25°C

| Parameter	Rating
Power Dissipation	Internal limited (mW)
V_{IN} Range	-0.3V to 45V
V_{OUT} Range	-0.3V to 10V
Lead Temperature Range	260°C
Storage Temperature Range	-55°C to 150°C
Operating Junction Temperature Range	125°C
ESD MM	400V
ESD HBM (V)	4K

Recommended Operating Conditions Ta = 25°C

Parameter	Rating
Operating Supply Voltage	4.75V to 40V
Operating Temperature Range	-40°C to +85°C
Thermal Resistance(On PCB),R JA	43.5°C/W
Power Dissipation	1000mW

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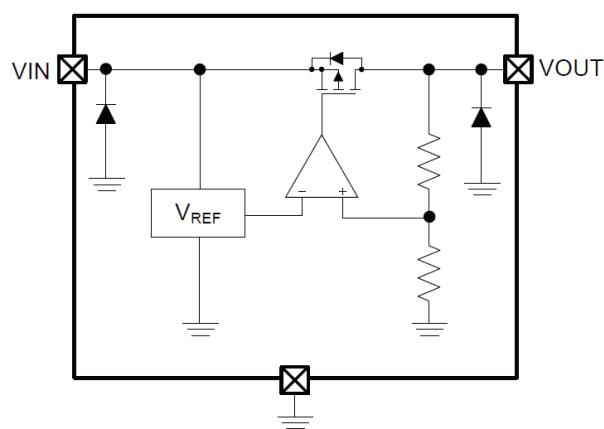# Low Quiescent Current LDO

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Electrical Characteristics (Ta=25 C,VIN=12V,CIN=COUT=10uF,unless otherwise noted)

Parameter Name	Symbol	Test Conditions		Min	Typ	Max	Unit
Input Range	V_{IN}	I_{OUT}=10mA		4.75		40	V
Output Voltage	V_{OUT}	V_{IN}=12V, I_{OUT}=10mA	HT7830	2.94	3	3.06	
			HT7833	3.234	3.3	3.366	
			HT7850	4.9	5	5.1	
Maximum Output Current	I_{OUT_PK}	V_{IN}=12V, R_L=1Ω			500		mA
Quiescent Current	I_Q	V_{IN}=7V, No load			6	8	µA
		V_{IN}=24V, No load			7.5	10	
		V_{IN}=40V, No load			10	15	
Dropout Voltage	V_{DROP}	I_{OUT}=100mA			2	12	mV
		I_{OUT}=100mA			300	400	
		Iv=250mA			850	1200	
Line Regulation	L_{NR}	V_I=7~24V,V_{OUT}=5V, I_{OUT}=1mA			0.02		%/V
		V_{IN}=7~45V, V_{OUT}=5V,I_{OUT}=1mA			0.1		
Load Regulation	L_{DR}	V_{IN}=12V, I_{OUT}=1~100mA			0.6		%
		V_{IN}=7V, I_{OUT}=1~250mA			2		
Output Noise	e_{NO}	I_{OUT}=10mA		-100		100	µV
Ripple Rejection	PSRR	V_{IN}=10V V_{PP}=0.5V I_{OUT}=1mA	f=100Hz		50		dB
			f=1KHz		40		
			f=10KHz		30		
Thermal Protection	T_{SD}	V_{IN}=12V, I_{OUT}=1mA			155		°C
Thermal Protection Hys	T_{SD_HYS}	V_{IN}=12V, I_{OUT}=1mA			30		
Temperature Coefficient	$\Delta Vo/\Delta T$	V_{IN}=12V, I_{OUT}=1mA			±0.1		mV/°C

Typical Application
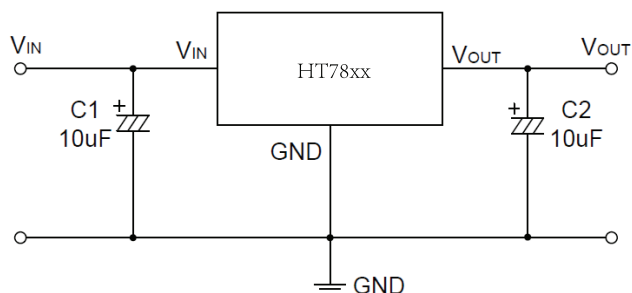
Functional Block Diagram

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Pin Configuration

GND VIN VOUT
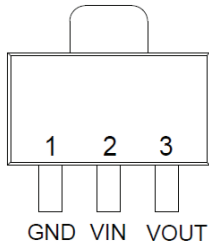
Pin Description

Pin Number	Pin Name	Function Description
1	GND	Ground
2	V_{IN}	Voltage Input
3	V_{OUT}	Voltage Output

Marking

HT7830	H4VR
HT7833	H4YR
HT7850	H4PR

Diagram

1.GND
2.VIN
3.VOUT

Dimensions : Millimetres
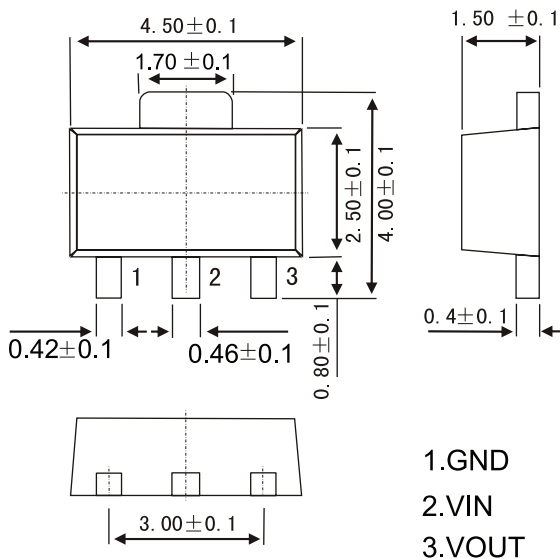
Part Number Table

Description	Part Number
Low Quiescent Current LDO, 3V, SOT-89	HT7830
Low Quiescent Current LDO, 3.3V, SOT-89	HT7833
Low Quiescent Current LDO, 5V, SOT-89	HT7850

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