

750mA Current、8V Input Voltage LDO

H7650

General Description

The H7650 series is a group of positive voltage output, three-pin regulators, that provide a high current even when the input/output voltage differential is small. Low power consumption and high accuracy is achieved through CMOS and laser trimming technologies.

The H7650 consists of a high-precision voltage reference, an error amplification circuit, and a current limited output driver. Transient response to load variations have improved in comparison to the existing series.



SOT89



SOT223



SOT23-5

Features

- Low voltage drop: 0.06V@100mA
- High input voltage: 8V
- Low temperature coefficient
- Low Quiescent Current: 25μA at 5.0V
- Output voltage accuracy: tolerance ±2%
- SOT89 ,SOT223 and SOT23-5 package

Applications

- Battery-powered equipment
- Hand-Hold Equipment
- GRS Receivers
- Wireless LAN

Order information

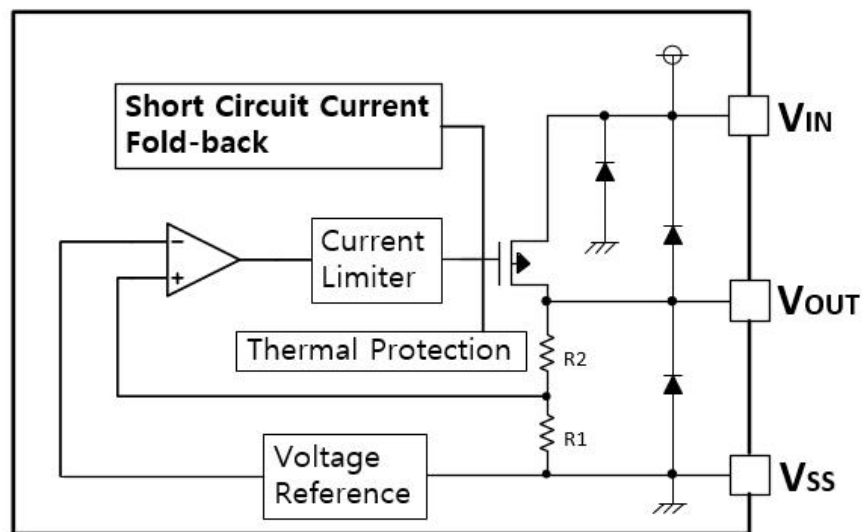
Product model	Package	Manner of packing	Minimum packing quantity
H7650-XXPX	SOT89	Reel	1000
H7650-XXGX	SOT223	Reel	2500
H7650-XXM5X	SOT23-5	Reel	3000

Order Information

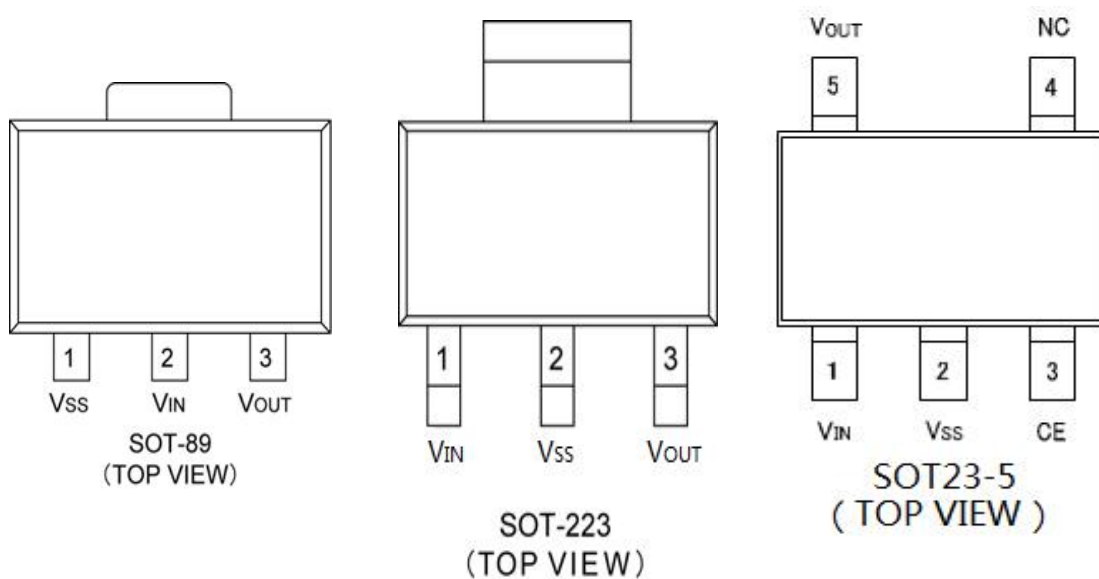
H7650-①②③④

Designator	Symbol	Description
① ②	Integer	Output Voltage(1.2~5.0V)
③	P	Package:SOT89
	G	Package:SOT223
	M5	Package:SOT23-5
④	R	RoHS / Pb Free
	G	Halogen Free

Block Diagram



Pin Assignment



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Units
Supply Voltage	V_{IN}	9	V
Output Current	I_{OUT}	1.1	A
Operating Temperature	T_{opr}	-40~+85	°C
Storage Temperature	T_{stg}	-40~+125	°C

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

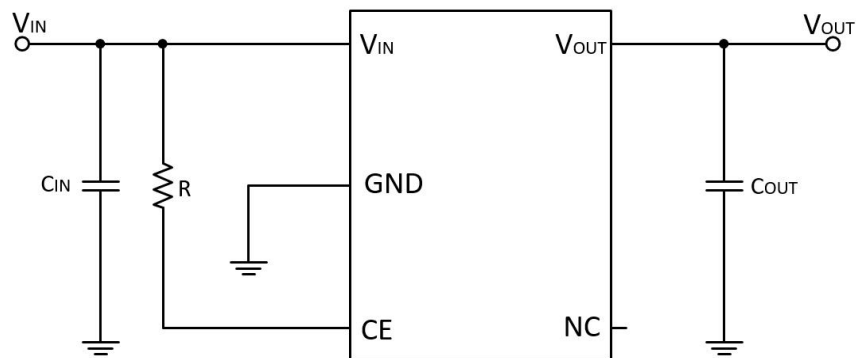
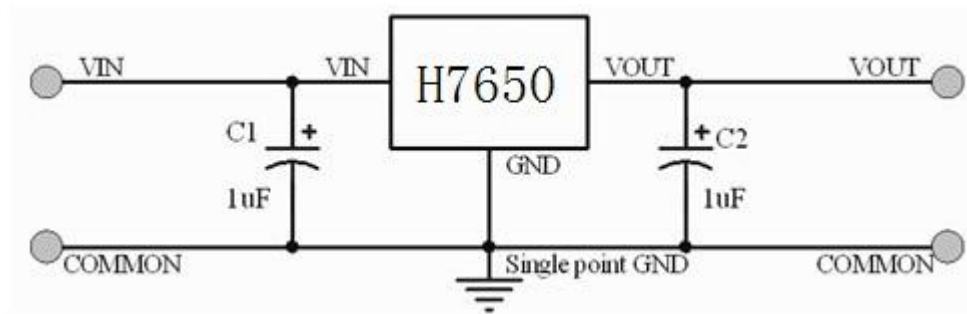
H7606 for any output voltage (Ta=25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V _{OUT}	V _{IN} =V _{OUT} +1V 1.0mA≤I _{OUT} ≤30mA	V _{OUT} ×0.98	--	V _{OUT} ×1.02	V
Output Current	I _{OUT}	V _{IN} -V _{OUT} =1V	--	750	--	mA
Low dropout	V _{DROP}	Refer to the next table				
Line Regulation	$\frac{\Delta V_{OUT}}{V_{OUT} \times \Delta V_{IN}}$	1.6V≤V _{IN} ≤8V I _{OUT} =100mA	--	0.05	0.2	%/V
Load Regulatio	Δ V _{out}	V _{IN} = V _{OUT} +1V 1.0mA≤I _{OUT} ≤100mA	--	12	30	%/A
Output voltage Temperature Coefficiency	$\frac{\Delta V_{OUT}}{\Delta T \times V_{OUT}}$	I _{OUT} =30mA 0°C≤Ta≤70°C	--	±100	--	Ppm/°C
PSRR	PSRR	F=1KHz V _{IN} =V _{OUT} +1V	--	70	--	dB
Supply Current	I _{SS1}	--	--	25	35	μA
Input Voltage	V _{IN}	--	--	--	8	V
Thermal shutdown detection temperature	T _{SD}	Junction temperature	-	160	-	°C
Thermal shutdown release temperature	T _{SR}	Junction temperature	-	140	-	°C

Electrical Characteristics by Output Voltage:

Output Voltage (V)	Dropout Voltage(V)		
	Conditions	Typ.	Max.
V _{OUT} ≤ 2.0V	I _{OUT} =60 mA	0.05	0.08
2.0 < V _{OUT} ≤ 3.0	I _{OUT} =80 mA	0.05	0.08
3.0 < V _{OUT} ≤ 4.0	I _{OUT} =100 mA	0.06	0.08
4.0 < V _{OUT} ≤ 5.0		0.05	0.08
3.0 < V _{OUT} ≤ 4.0	I _{OUT} =200 mA	0.13	0.16
4.0 < V _{OUT} ≤ 5.0		0.12	0.16
3.0 < V _{OUT} ≤ 4.0	I _{OUT} =1000 mA	0.65	0.8
4.0 < V _{OUT} ≤ 5.0		0.6	0.8

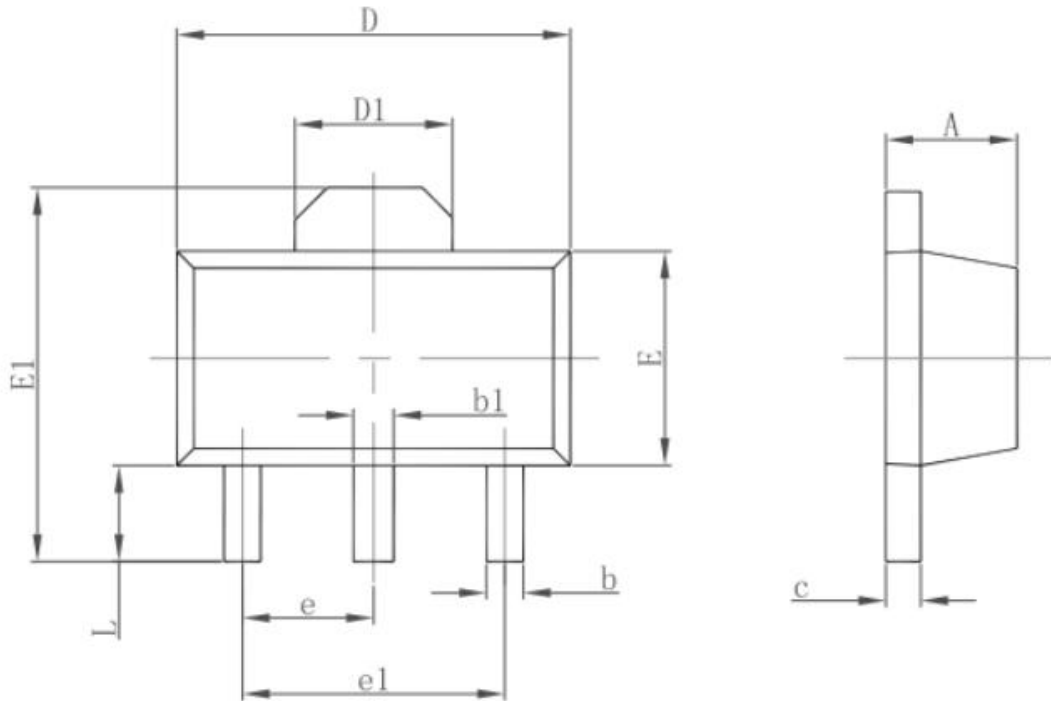
Application Circuits



Note1: Input capacitor $C_{IN}=1\mu F$. $R=10K$

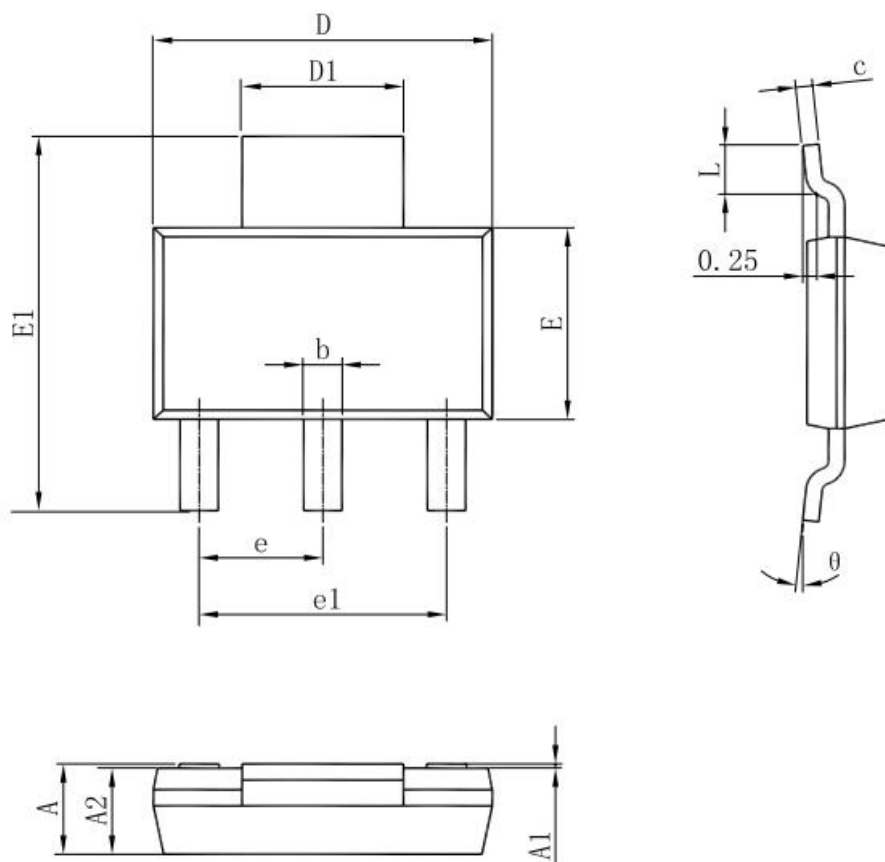
Note2: Output capacitor $C_{OUT}=1\mu F$

Package Information (SOT89-3)



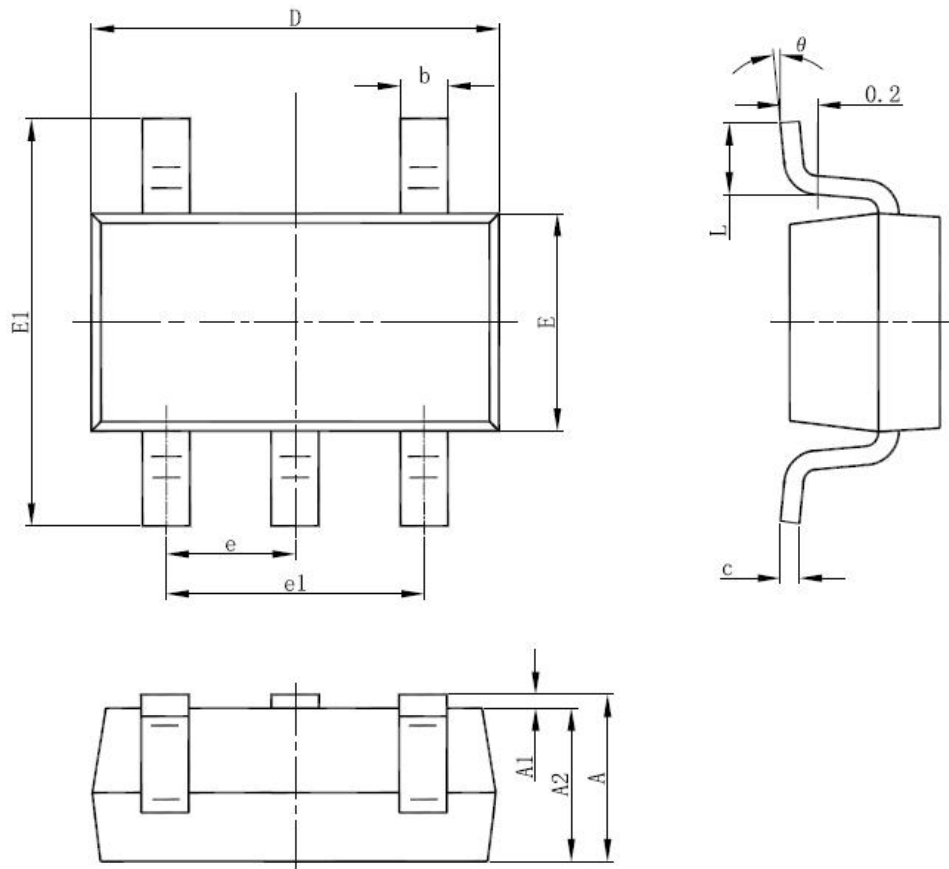
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550REF.		0.061REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP.		0.060TYP.	
e1	3.000TYP.		0.118TYP.	
L	0.900	1.200	0.035	0.047

Package Information (SOT223)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.820	0.026	0.032
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300 (BSC)		0.091 (BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°

Package Information (SOT23-5)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 (BSC)		0.037 (BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Special Version

The company reserves the right of final interpretation of this specification.

Version Change Description

Versions: V1.5

Writer: HangLiu

Time: 2021.10.29

Amendant record:

- 1.Re-typesetting the manual and checking some data