HOLTEK

HT75xx-1
100mA Low Power LDO

Features

- Low power consumption
- Low voltage drop
- Low temperature coefficient
- High input voltage (up to 24V)
- High output current : 100mA
- Output voltage accuracy: tolerance ±3%
- TO92, SOT89 and SOT23-5 package

Applications

- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

General Description

The HT75xx-1 series is a set of three-terminal high current low voltage regulator implemented in CMOS technology. They can deliver 100mA output current and allow an input voltage as high as 24V. They are available with several fixed output voltages ranging from 2.1V to 12.0V. CMOS technology ensures low voltage drop and low quiescent current.

Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain variable voltages and currents.

Selection Table

Part No.	Output Voltage	Package	Marking
HT7521-1	2.1V	TO92 SOT89 SOT23-5	75xx-1 (for TO92) 75xx-1 (for SOT89) 75xx-1# (for SOT89) 75xx-1+ (for SOT89) 5xx1 (for SOT23-5) 5xx1# (for SOT23-5) 5xx1+ (for SOT23-5)
HT7523-1	2.3V		
HT7525-1	2.5V		
HT7527-1	2.7V		
HT7530-1	3.0V		
HT7533-1	3.3V		
HT7536-1	3.6V		
HT7540-1	4.0V		
HT7544-1	4.4V		
HT7550-1	5.0V		
HT7560-1	6.0V		
HT7570-1	7.0V		
HT7580-1	8.0V		
HT7590-1	9.0V		
HT75A0-1	10.0V		
HT75C0-1	12.0V		

Note: ″xx″ stands for output voltages.

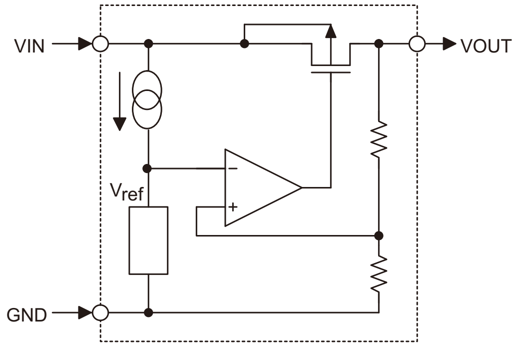
Both lead free and green compound devices are available. Note the symbol marks below:

″#″ stands for lead free devices.

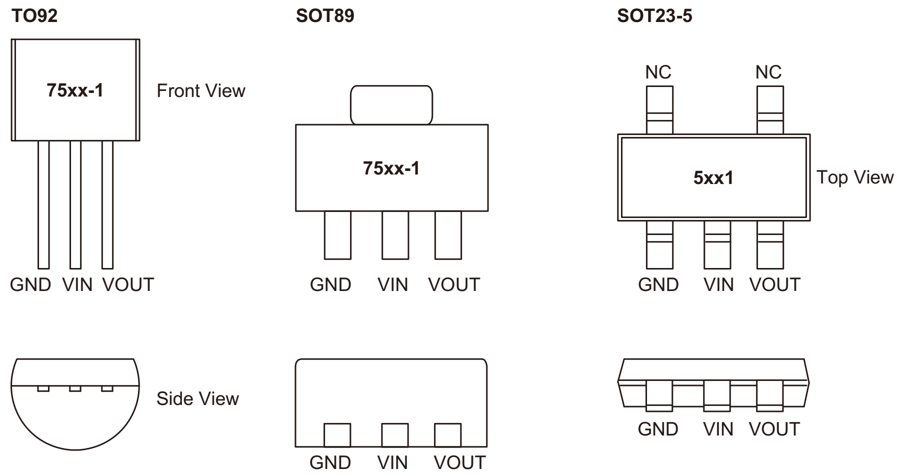
Blank and ″+″ stands for green compound devices, which are Lead-free and Halogen-free.

For the TO92 package, the symbol mark will be at the end of the date code. Whereas for the SOT89 and SOT23-5, the symbol mask will be located at the end of IC marking.

Block Diagram



Pin Assignment



Absolute Maximum Ratings

Supply Voltage ....–0.3V to 26V

Storage Temperature ....–50°C to 125°C

Operating Temperature ....–40°C to 85°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.

Thermal Information

Symbol	Parameter	Package	Max.	Unit
θ_{JA}	Thermal Resistance (Junction to Ambient) (Assume no ambient airflow, no heat sink)	SOT23-5	500	°C/W
		SOT89	200	°C/W
		TO92	200	°C/W
P_D	Power Dissipation	SOT23-5	0.20	W
		SOT89	0.50	W
		TO92	0.50	W

Note: P_D is measured at Ta= 25°C

Electrical Characteristics

HT7521-1, +2.1V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	4.1V	I_{OUT}=10mA	2.037	2.1	2.163	V
I_{OUT}	Output Current	4.1V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	4.1V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	4.1V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	3.1V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	4.1V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.37	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7523-1, +2.3V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	4.3V	I_{OUT}=10mA	2.231	2.3	2.369	V
I_{OUT}	Output Current	4.3V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	4.3V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	4.3V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	3.3V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	4.3V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.39	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7525-1, +2.5V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	4.5V	I_{OUT}=10mA	2.425	2.5	2.575	V
I_{OUT}	Output Current	4.5V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	4.5V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	4.5V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	3.5V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	4.5V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.41	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7527-1, +2.7V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	4.7V	I_{OUT}=10mA	2.619	2.7	2.781	V
I_{OUT}	Output Current	4.7V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	4.7V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	4.7V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	3.7V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	4.7V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.43	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7530-1, +3.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	5.0V	I_{OUT}=10mA	2.91	3.0	3.09	V
I_{OUT}	Output Current	5.0V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	5.0V	1mA≤I_{OUT}≤50mA		60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	5.0V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	4.0V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	5.0V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.45	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7533-1, +3.3V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	5.5V	I_{OUT}=10mA	3.201	3.3	3.399	V
I_{OUT}	Output Current	5.5V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	5.5V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	5.5V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	4.5V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	5.5V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.5	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7536-1, +3.6V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	5.6V	I_{OUT}=10mA	3.492	3.6	3.708	V
I_{OUT}	Output Current	5.6V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	5.6V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	5.6V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	4.6V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	5.6V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.6	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7540-1, +4.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	6.0V	I_{OUT}=10mA	3.88	4.0	4.12	V
I_{OUT}	Output Current	6.0V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	6.0V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	6.0V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	5.0V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	6.0V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.7	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7544-1, +4.4V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	6.4V	I_{OUT}=10mA	4.268	4.4	4.532	V
I_{OUT}	Output Current	6.4V	—	60	100	—	mA
ΔV_{OUT}	Load Regulation	6.4V	1mA≤I_{OUT}≤50mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	6.4V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	5.4V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	6.4V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.7	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7550-1, +5.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	7.0V	I_{OUT}=10mA	4.85	5.0	5.15	V
I_{OUT}	Output Current	7.0V	—	100	150	—	mA
ΔV_{OUT}	Load Regulation	7.0V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	7.0V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	6.0V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	7.0V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.75	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7560-1, +6.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	8.0V	I_{OUT}=10mA	5.82	6.0	6.18	V
I_{OUT}	Output Current	8.0V	—	150	—	—	mA
ΔV_{OUT}	Load Regulation	8.0V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	8.0V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	7.0V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	8.0V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.85	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7570-1, +7.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	9.0V	I_{OUT}=10mA	6.79	7.0	7.21	V
I_{OUT}	Output Current	9.0V	—	150	—	—	mA
ΔV_{OUT}	Load Regulation	9.0V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	9.0V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	8.0V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	9.0V	I_{OUT}=10mA -40°C<Ta<85°C	—	±0.95	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7580-1, +8.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	10V	I_{OUT}=10mA	7.76	8.0	8.24	V
I_{OUT}	Output Current	10V	—	150	—	—	mA
ΔV_{OUT}	Load Regulation	10V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	10V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	9.0V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	10V	I_{OUT}=10mA -40°C<Ta<85°C	—	±1.10	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT7590-1, +9.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	11V	I_{OUT}=10mA	8.73	9.0	9.27	V
I_{OUT}	Output Current	11V	—	150	—	—	mA
ΔV_{OUT}	Load Regulation	11V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	11V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	10V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	11V	I_{OUT}=10mA -40°C<Ta<85°C	—	±1.15	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

HT75A0-1, +10.0V Output Type

Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	12V	I_{OUT}=10mA	9.7	10.0	10.3	V
I_{OUT}	Output Current	12V	—	150	—	—	mA
ΔV_{OUT}	Load Regulation	12V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	12V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	11V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	12V	I_{OUT}=10mA -40°C<Ta<85°C	—	±1.25	—	mV/°C

Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

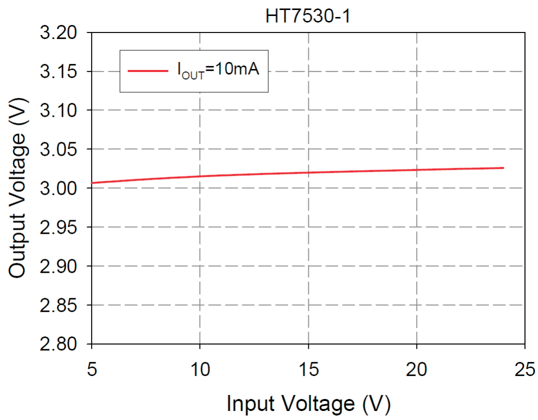
HT75C0-1, +12.0V Output Type

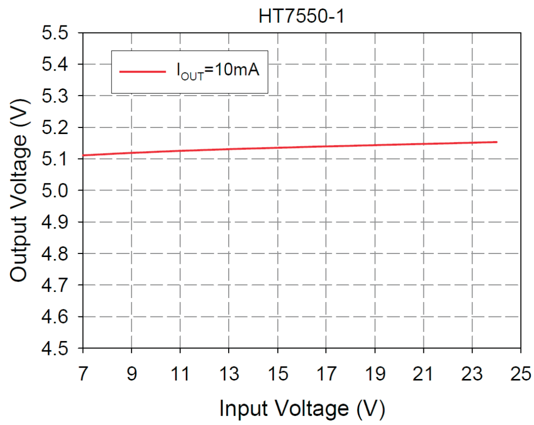
Ta=25°C

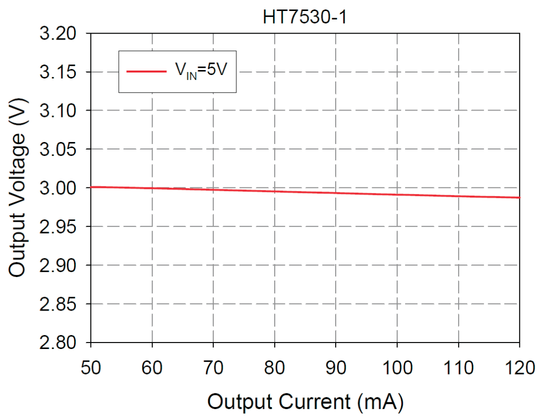
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	14V	I_{OUT}=10mA	11.64	12.0	12.36	V
I_{OUT}	Output Current	14V	—	150	—	—	mA
ΔV_{OUT}	Load Regulation	14V	1mA≤I_{OUT}≤70mA	—	60	150	mV
V_{DIF}	Voltage Drop (Note)	—	I_{OUT}=1mA, ΔV_{OUT}=2%	—	100	—	mV
I_{SS}	Current Consumption	14V	No load	—	2.5	5.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	—	13V≤V_{IN}≤24V I_{OUT}=1mA	—	0.2	—	%/V
V_{IN}	Input Voltage	—	—	—	—	24	V
$\frac{\Delta V_{DET}}{\Delta Ta}$	Temperature Coefficient	14V	I_{OUT}=10mA -40°C<Ta<85°C	—	±1.45	—	mV/°C

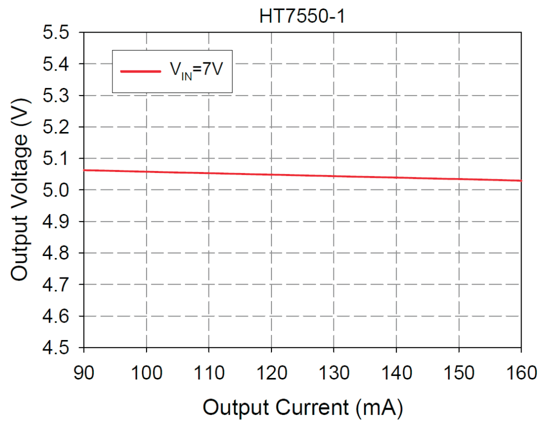
Note: Dropout voltage is defined as the input voltage minus the output voltage that produces a 2% change in the output voltage from the value at V_{IN} = V_{OUT}+2V with a fixed load.

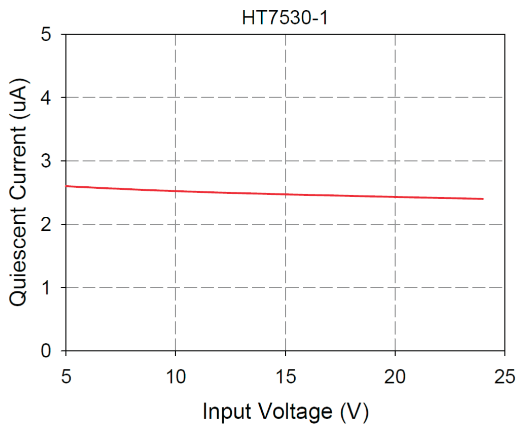
Typical Performance Characteristics

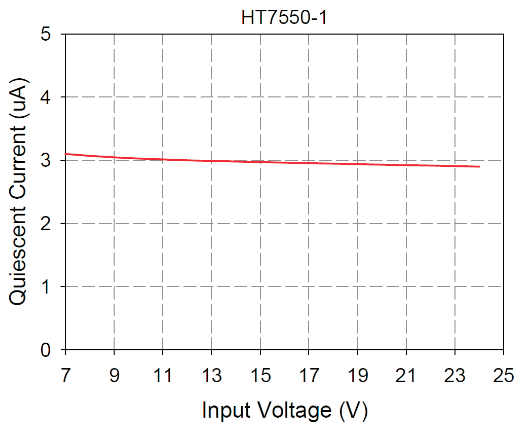


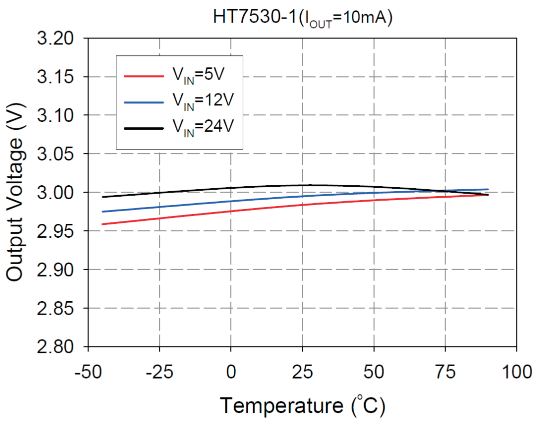


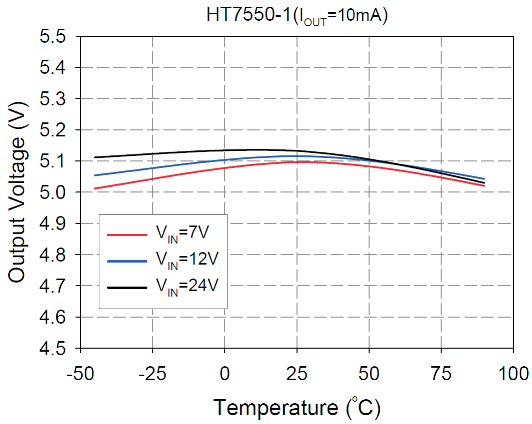


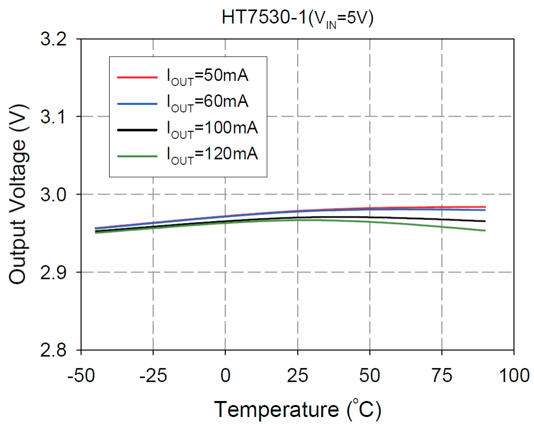


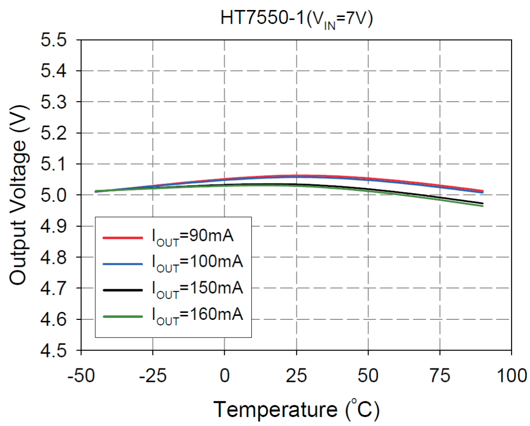


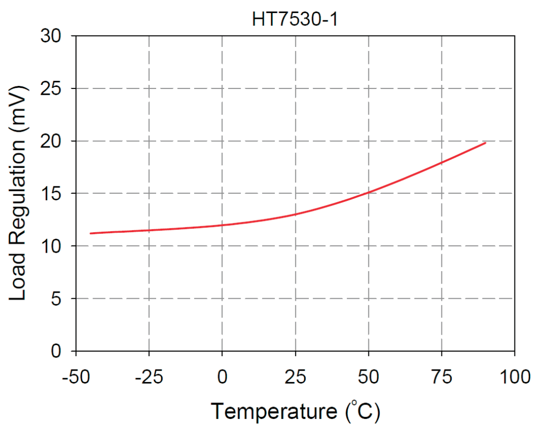


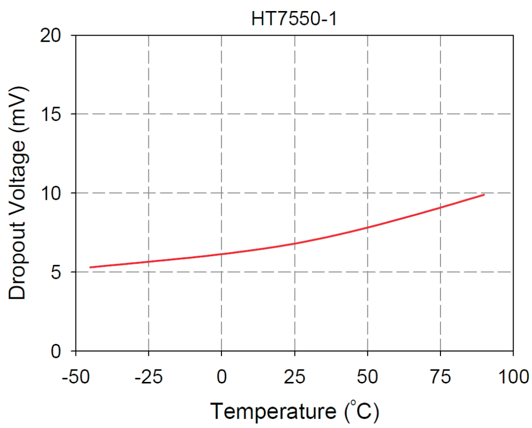

HT7530-1(I_{OUT}=10mA)
V_{IN}=5V
V_{IN}=12V
V_{IN}=24V
Output Voltage (V)
3.20
3.15
3.10
3.05
3.00
2.95
2.90
2.85
2.80
-50
-25
0
25
50
75
100
Temperature (°C)

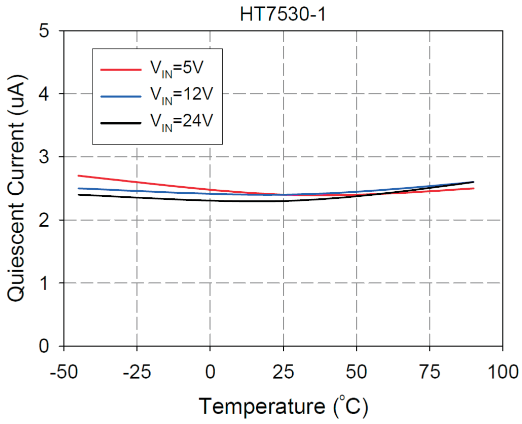

HT7550-1(I_{OUT}=10mA)
V_{IN}=7V
V_{IN}=12V
V_{IN}=24V
Output Voltage (V)
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
-50
-25
0
25
50
75
100
Temperature (°C)

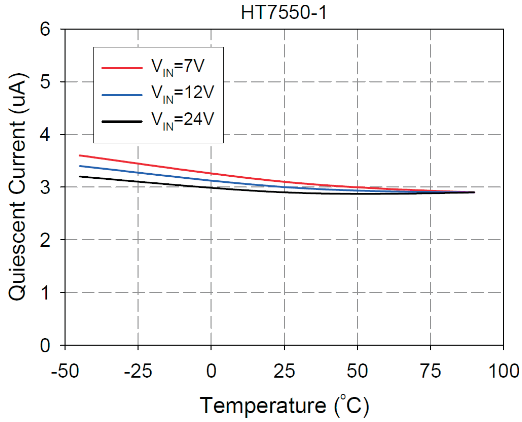

HT7530-1(V_{IN}=5V)
I_{OUT}=50mA
I_{OUT}=60mA
I_{OUT}=100mA
I_{OUT}=120mA
Output Voltage (V)
3.2
3.1
3.0
2.9
2.8
-50
-25
0
25
50
75
100
Temperature (°C)

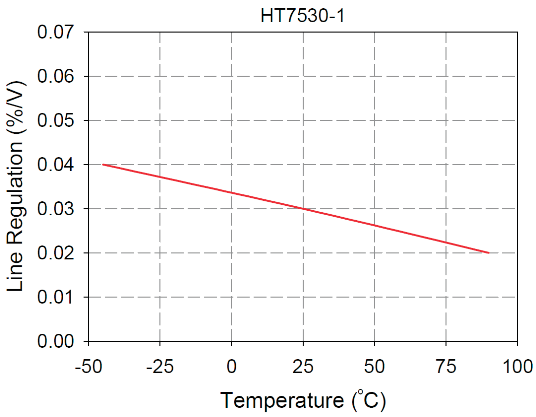

HT7550-1(V_{IN}=7V)
I_{OUT}=90mA
I_{OUT}=100mA
I_{OUT}=150mA
I_{OUT}=160mA
Output Voltage (V)
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
-50
-25
0
25
50
75
100
Temperature (°C)

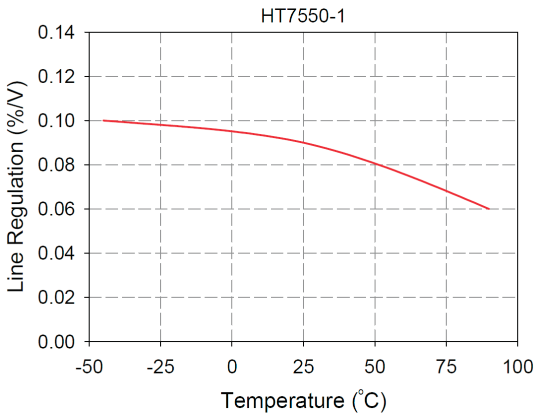

HT7530-1
Load Regulation (mV)
30
25
20
15
10
5
0
-50
-25
0
25
50
75
100
Temperature (°C)


HT7550-1
Dropout Voltage (mV)
20
15
10
5
0
-50
-25
0
25
50
75
100
Temperature (°C)


HT7530-1
Quiescent Current (uA)
Temperature (°C)
V_{IN}=5V
V_{IN}=12V
V_{IN}=24V
0
1
2
3
4
5
-50
-25
0
25
50
75
100

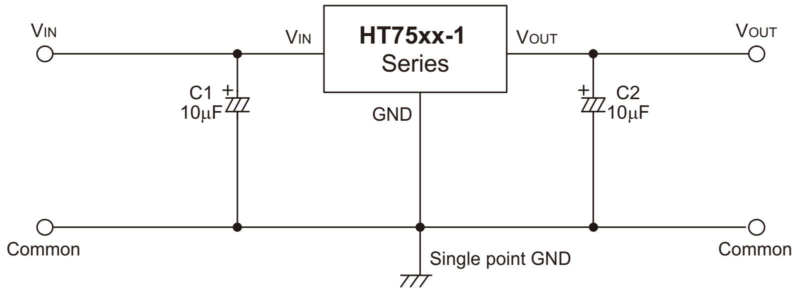

HT7550-1
Quiescent Current (uA)
Temperature (°C)
V_{IN}=7V
V_{IN}=12V
V_{IN}=24V
0
1
2
3
4
5
6
-50
-25
0
25
50
75
100


HT7530-1
Line Regulation (%/V)
Temperature (°C)
0.00
0.01
0.02
0.03
0.04
0.05
0.06
0.07
-50
-25
0
25
50
75
100

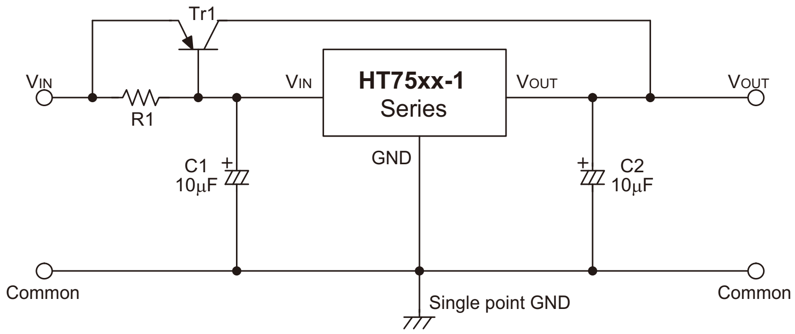

HT7550-1
Line Regulation (%/V)
Temperature (°C)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
-50
-25
0
25
50
75
100

Application Circuits

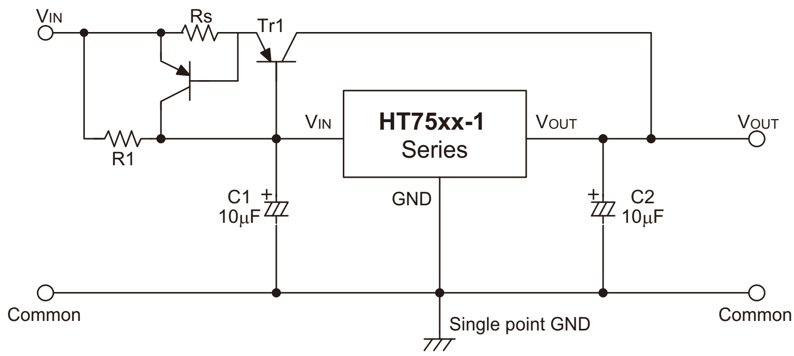
Basic Circuit



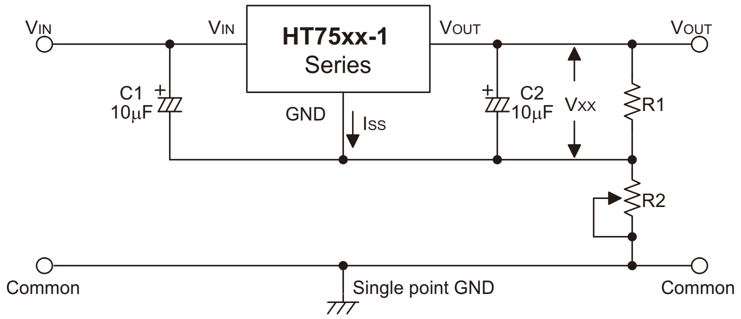
High Output Current Positive Voltage Regulator



Short-Circuit Protection for Tr1

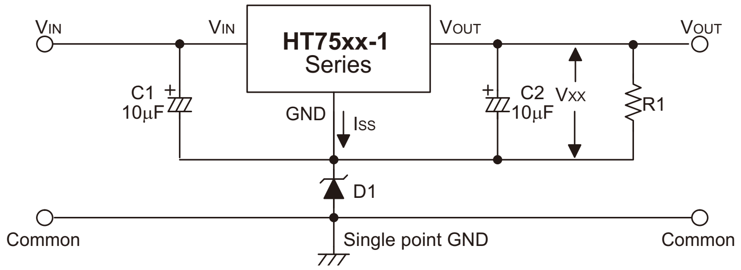


Circuit for Increasing Output Voltage



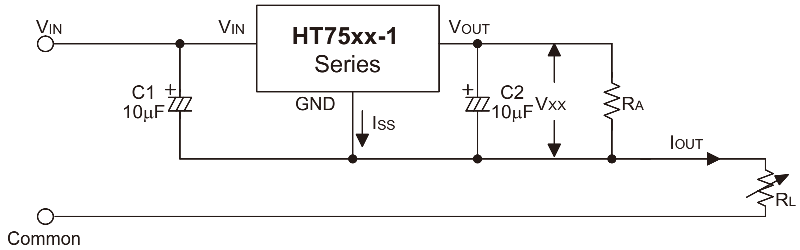
$$V_{OUT} = V_{XX}\ \left(1 + \frac{R2}{R1}\right) + I_{SS}\ R2$$

Circuit for Increasing Output Voltage



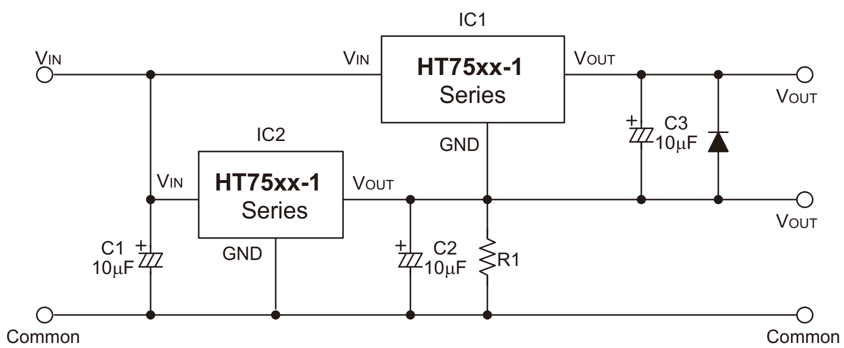
$$V_{OUT} = V_{XX} + V_{D1}$$

Constant Current Regulator



$$I_{OUT} = \frac{V_{XX}}{R_A} + I_{SS}$$

Dual Supply



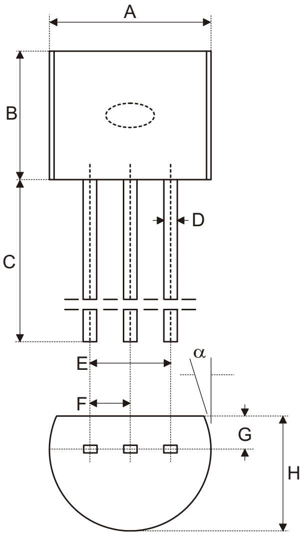
Package Information

Note that the package information provided here is for consultation purposes only. As this information may be updated at regular intervals users are reminded to consult the Holtek website for the latest version of the package information.

Additional supplementary information with regard to packaging is listed below. Click on the relevant section to be transferred to the relevant website page.

- Further Package Information (include Outline Dimensions, Product Tape and Reel Specifications)
- Packing Meterials Information
- Carton information
- PB FREE Products
- Green Packages Products

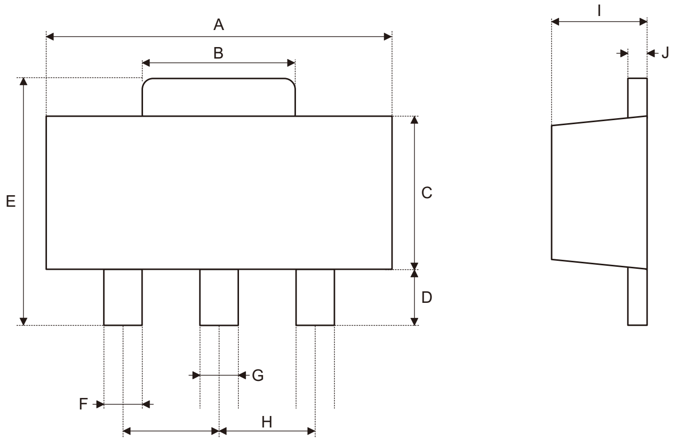
3-pin TO92 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
A	0.170	—	0.200
B	0.170	—	0.200
C	0.500	—	—
D	0.011	—	0.020
E	0.090	—	0.110
F	0.045	—	0.055
G	0.045	—	0.065
H	0.130	—	0.160
α	0°	—	10°

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	4.32	—	5.08
B	4.32	—	5.08
C	12.70	—	—
D	0.28	—	0.51
E	2.29	—	2.79
F	1.14	—	1.40
G	1.14	—	1.65
H	3.30	—	4.06
α	0°	—	10°

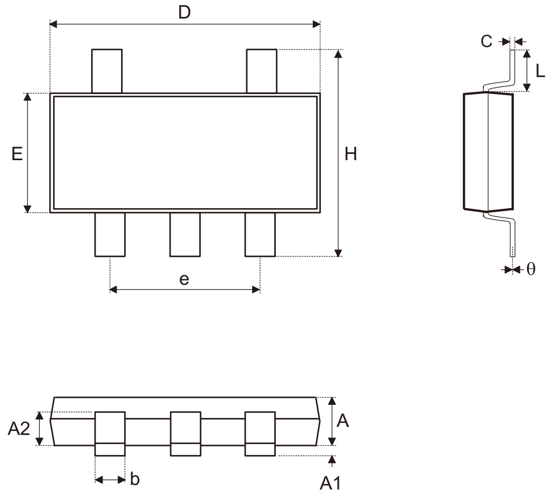
3-pin SOT89 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
A	0.173	—	0.181
B	0.059	—	0.072
C	0.090	—	0.102
D	0.035	—	0.047
E	0.155	—	0.167
F	0.014	—	0.019
G	0.017	—	0.022
H	—	0.059	—
I	55	—	63
J	14	—	17

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	4.39	—	4.60
B	1.50	—	1.83
C	2.29	—	2.59
D	0.89	—	1.19
E	3.94	—	4.24
F	0.36	—	0.48
G	0.43	—	0.56
H	—	1.50	—
I	1.40	—	1.60
J	0.36	—	0.43

5-pin SOT23-5 Outline Dimensions



Symbol	Dimensions in inch		
	Min.	Nom.	Max.
A	0.039	—	0.051
A1	—	—	0.004
A2	0.028	—	0.035
b	0.014	—	0.020
C	0.004	—	0.010
D	0.106	—	0.122
E	0.055	—	0.071
e	—	0.075	—
H	0.102	—	0.118
L	0.015	—	—
θ	0°	—	9°

Symbol	Dimensions in mm		
	Min.	Nom.	Max.
A	1.00	—	1.30
A1	—	—	0.10
A2	0.70	—	0.90
b	0.35	—	0.50
C	0.10	—	0.25
D	2.70	—	3.10
E	1.40	—	1.80
e	—	1.90	—
H	2.60	—	3.0
L	0.37	—	—
θ	0°	—	9°