

LOW DROP LINEAR VOLTAGE REGULATORS

FEATURES

- Low Dropout Voltage
- Low power consumption
- Low temperature coefficient
- High input voltage (up to 36V)
- High output current : 100mA ($P_d \leq 250\text{mW}$)
- Surface Mount device

APPLICATIONS

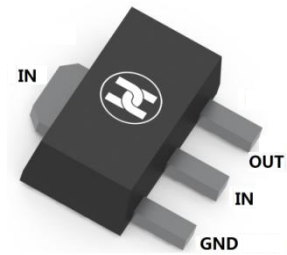
- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

MECHANICAL DATA

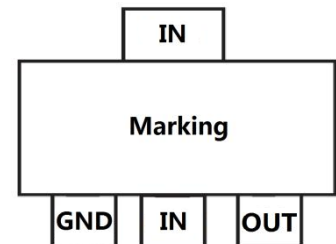
- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.055 grams (approximate)

SELECTION TABLE

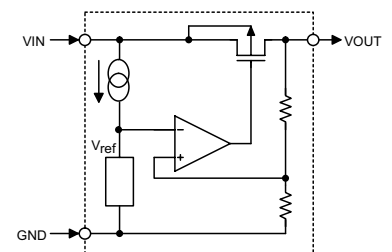
Part No.	Output Voltage	Tolerance
7550	5.0V	5%
7550-1		3%
7550-2		1%
7550-3		2%



SOT-89



SCHEMATIC DIAGRAM



LOW DROP LINEAR VOLTAGE REGULATORS

ABOSLUTE MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	-0.3V~36V	V
Power Dissipation	P_D	250	mW
Operating Temperature	T_{OPR}	-40~+85	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-40~+125	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS OF HT7530($T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.		Unit
75501						
Output Voltage	V_{OUT}	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}$	4.9	5.0	5.1	V
Output Current (Note 1)	I_{OUT}	$V_{IN}=V_{OUT}+2V$	70	100		mA
Dropout Voltage (Note 2)	V_{DROP}	$I_{OUT}=1\text{mA}$		30	65	mV
Line Regulation	$\frac{\Delta V_{OUT1}}{\Delta V_{IN} \cdot V_{OUT}}$	$V_{OUT}+2V \leq V_{IN} \leq 36V, I_{OUT}=1\text{mA}$		0.05	0.2	%/V
Load Regulation	ΔV_{OUT2}	$V_{IN}=V_{OUT}+2V, 1.0\text{mA} \leq I_{OUT} \leq 50\text{mA}$		30	80	mV
Output Voltage Temperature Coefficient	$\frac{\Delta V_{OUT1}}{T_A \cdot V_{OUT}}$	$V_{IN}=V_{OUT}+2V, I_{OUT}=10\text{mA}, -40^{\circ}\text{C} \leq T_A \leq 85^{\circ}\text{C}$		± 50	± 100	ppm/ $^{\circ}\text{C}$
Supply Current	I_{SS1}	$V_{IN}=V_{OUT}+2V$		1.2	3.0	μA

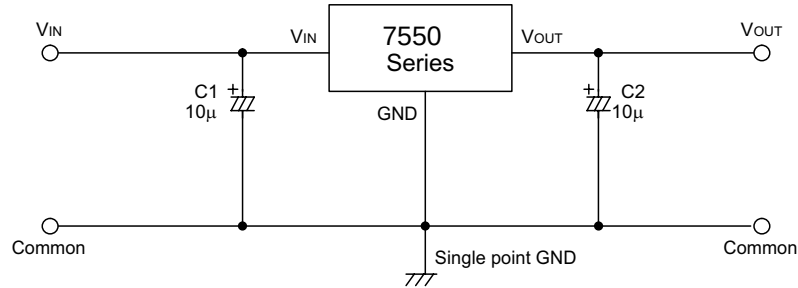
Notes:1. Increase the output current slowly, record the current when V_{OUT} decrease 98% of V_{OUT} .

2. $V_{drop}=V_{IN1}-(V_{OUT} \times 0.98)$, $V_{OUT}: V_{IN}=V_{OUT}+2V, I_{OUT}=1\text{mA}$

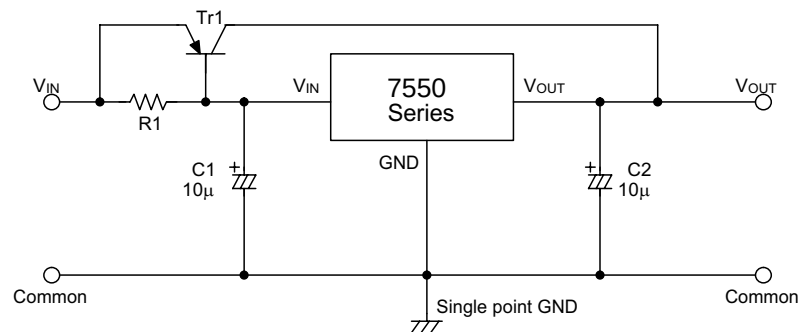
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TYPICAL APPLICATION

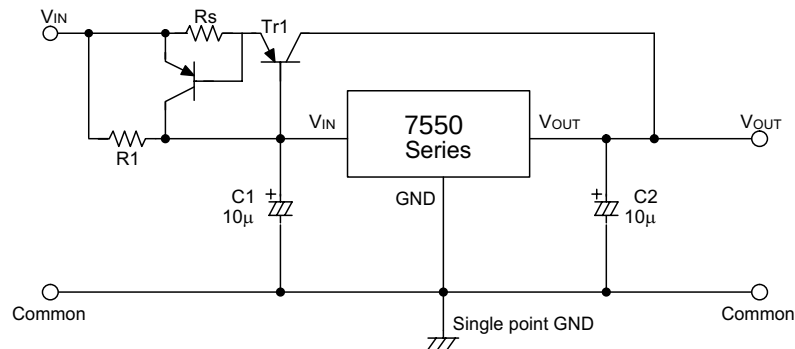
Basic circuit



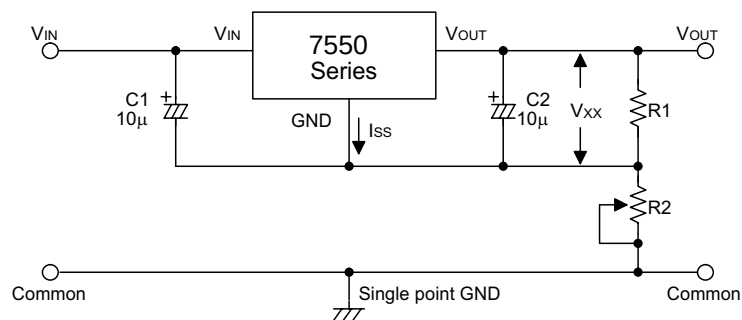
High output current positive voltage regulator



Short-Circuit protection for Tr1



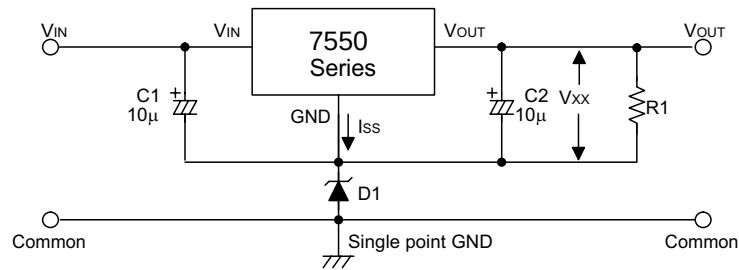
Circuit for increasing output voltage



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

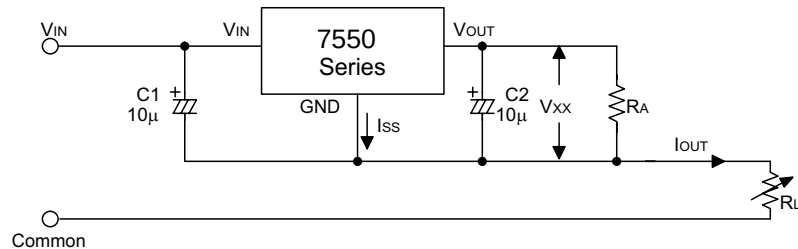
LOW DROP LINEAR VOLTAGE REGULATORS

Circuit for increasing output voltage



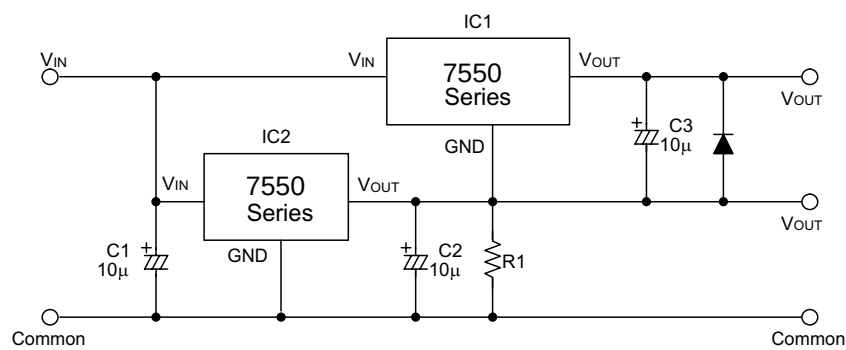
$$V_{OUT} = V_{XX} + V_{D1}$$

Constant current regulator



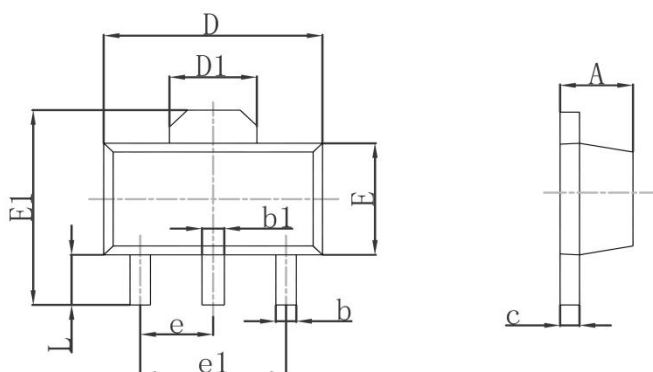
$$I_{OUT} = \frac{V_{XX}}{R_A} + I_{SS}$$

Dual supply



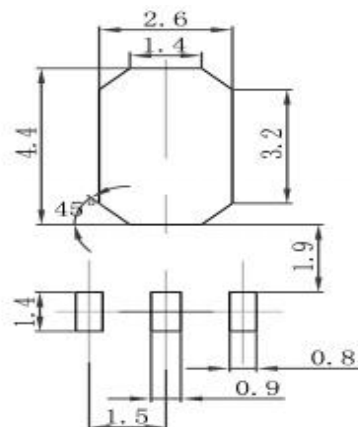
LOW DROP LINEAR VOLTAGE REGULATORS

SOT-89 Package Outline Dimensions



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

SOT-89 Suggested Pad Layout

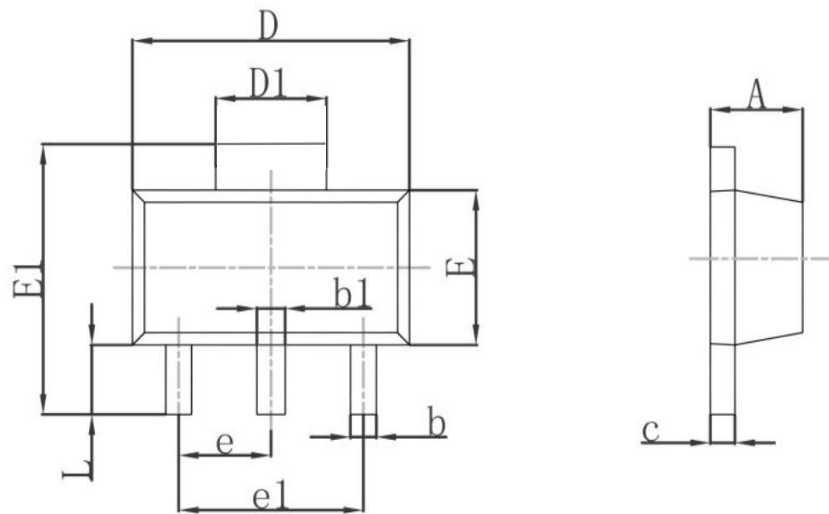


Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

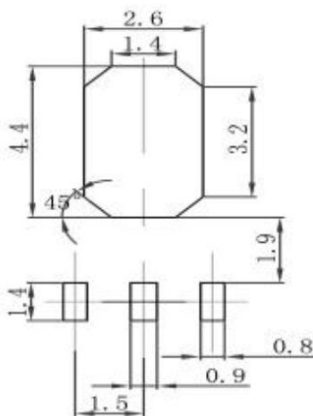
BIPOLAR TRANSISTOR (PNP)

SOT-89 Package Outline Dimensions



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	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
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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		0.0610REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500REF		0.0590REF	
L	0.900	1.200	0.035	0.047
e1	3.000REF		1.181REF	

SOT-89 Suggested Pad Layout



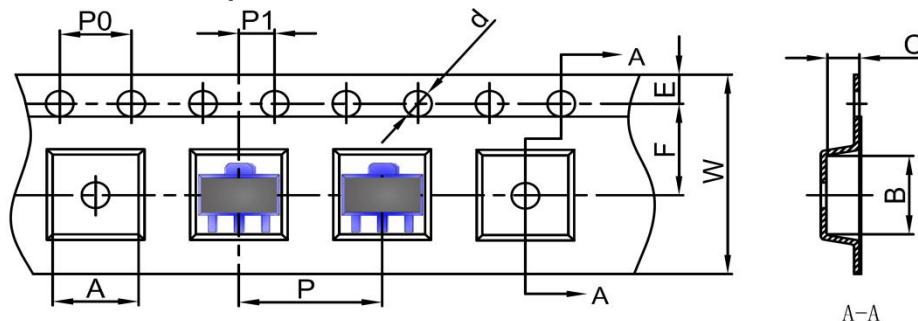
Note:

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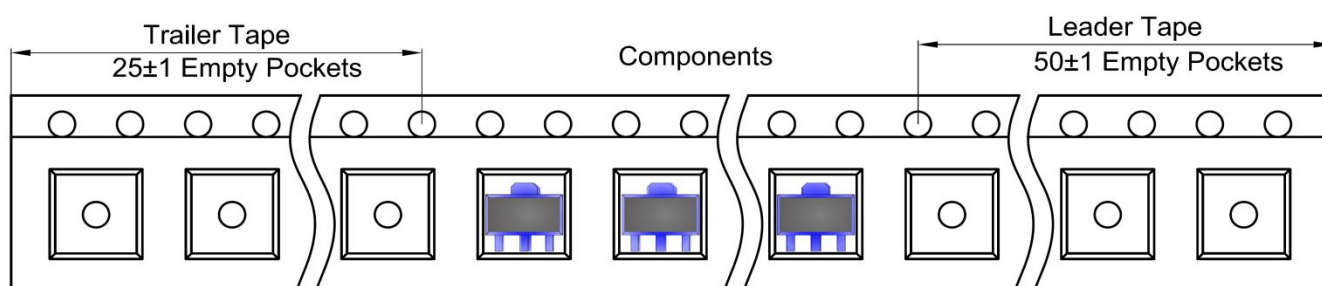
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

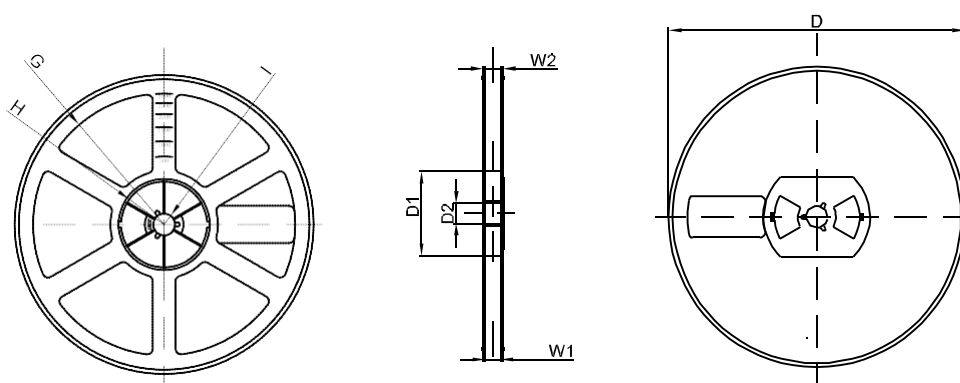


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-89 Tape Leader and Trailer



SOT-89 Reel



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	13.20	16.50
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1