

LOW DROP LINEAR VOLTAGE REGULATORS

FEATURES

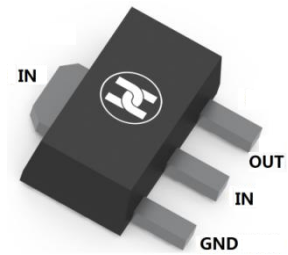
- Low Dropout Voltage
- Low power consumption
- Low temperature coefficient
- High input voltage (up to 15V)
- High output current: 150mA
- Surface Mount device

APPLICATIONS

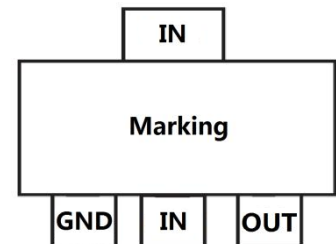
- Battery-powered equipment
- Communication equipment
- Audio/Video equipment

MECHANICAL DATA

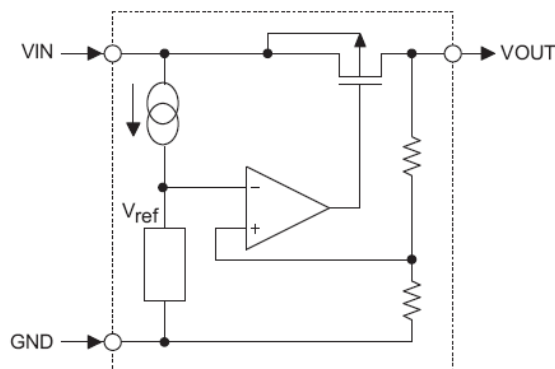
- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.055 grams (approximate)



SOT-89



Block 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	15	V
Power Dissipation	P_D	500.	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)

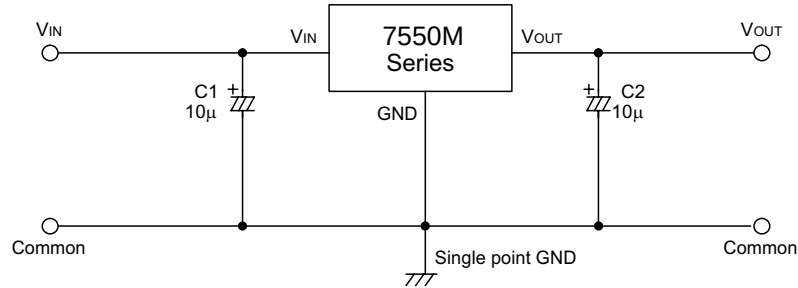
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{IN}	Conditions				
V_{OUT}	Output Voltage	7V	$I_{OUT}=10\text{mA}$	4.9	5.00	5.1	V
I_{OUT}	Output Current	7V	-	120	150	-	mA
ΔV_{OUT}	Load Regulation	7V	$1\text{mA} \leq I_{OUT} \leq 50\text{mA}$	-	60	150	mV
V_{DIF}	Voltage Drop(Note)	-	$I_{OUT}=1\text{mA}$, $\Delta V_{OUT}=2\%$	-	50	-	mV
I_{SS}	Current Consumption	7V	No load	-	1.5	2.0	μA
$\frac{\Delta V_{OUT}}{\Delta V_{IN} \times V_{OUT}}$	Line Regulation	-	$6\text{V} \leq V_{IN} \leq 16\text{V}$ $I_{OUT}=1\text{mA}$	-	0.2	-	%/V
V_{IN}	Input Voltage	-	-	-	-	15	V
$\frac{\Delta V_{OUT}}{\Delta T_a}$	Temperature Coefficient	7V	$I_{OUT}=10\text{mA}$ $0^{\circ}\text{C} < T_a < 70^{\circ}\text{C}$	-	± 0.75	-	mV/ $^{\circ}\text{C}$

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 $V_{IN} = V_{OUT}+2\text{V}$ with a fixed load.

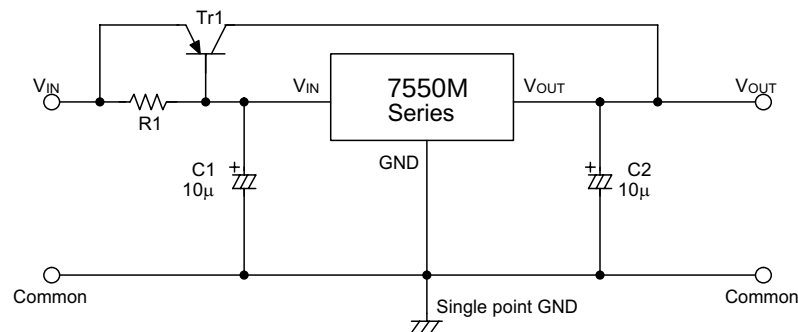
LOW DROP LINEAR VOLTAGE REGULATORS

TYPICAL APPLICATION

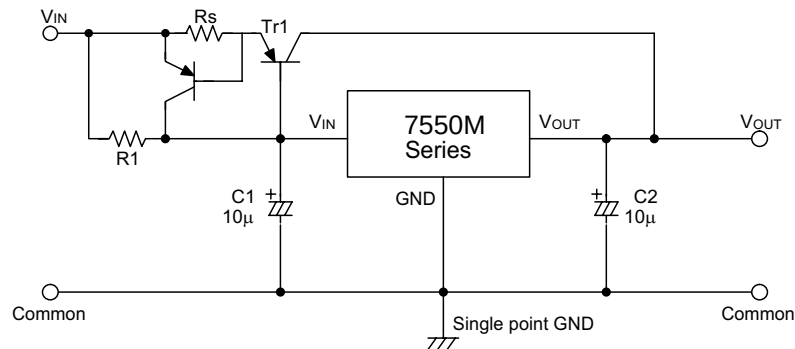
Basic circuit



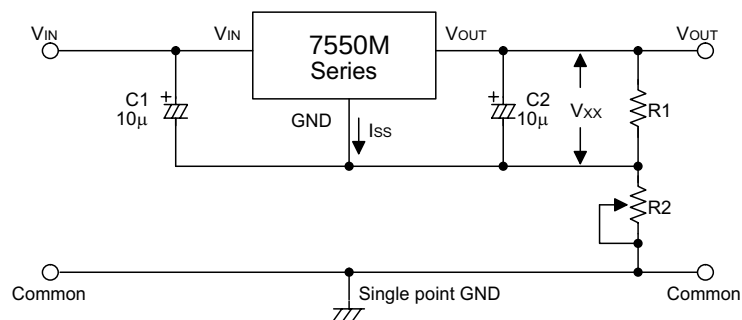
High output current positive voltage regulator



Short-Circuit protection for Tr1



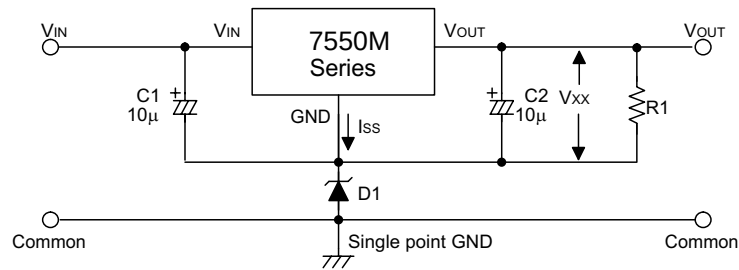
Circuit for increasing output voltage



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

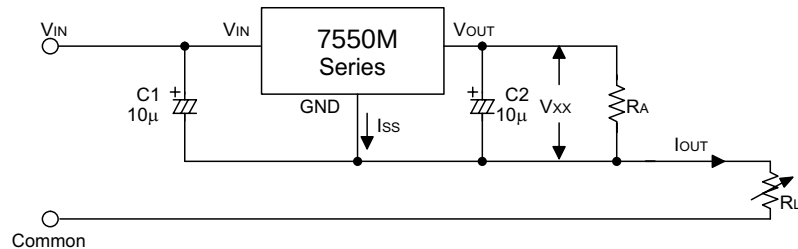
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Circuit for increasing output voltage



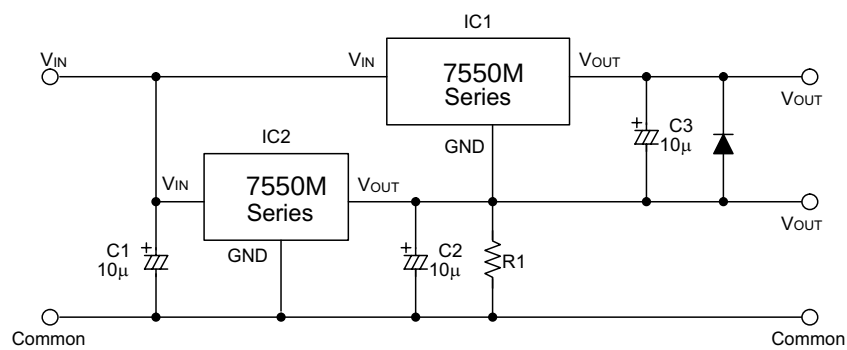
$$V_{OUT} = V_{XX} + V_{D1}$$

Constant current regulator



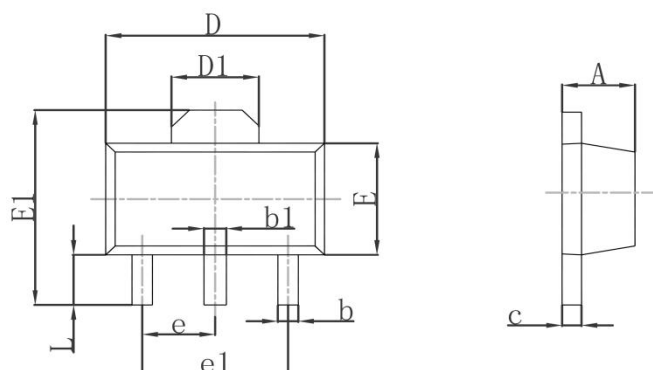
$$I_{OUT} = \frac{V_{XX}}{R_A} + I_{SS}$$

Dual supply



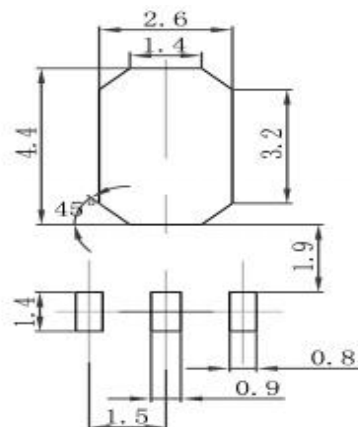
LOW DROP LINEAR VOLTAGE REGULATORS

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

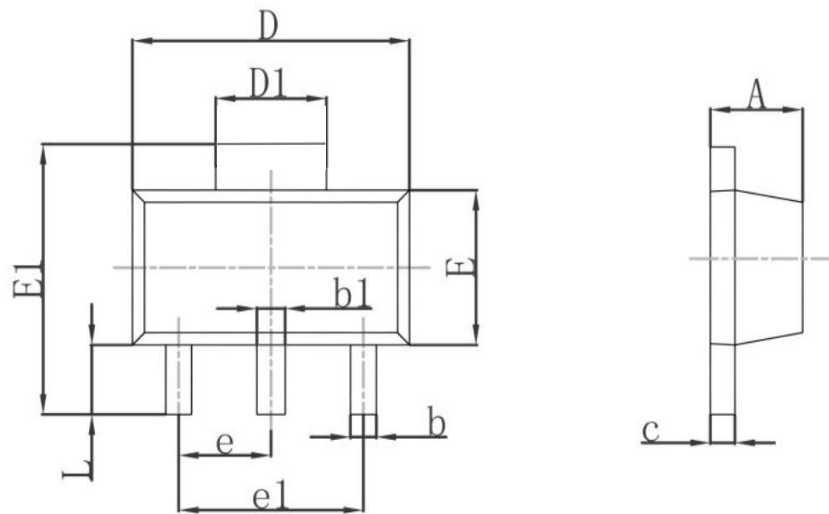


Note:

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

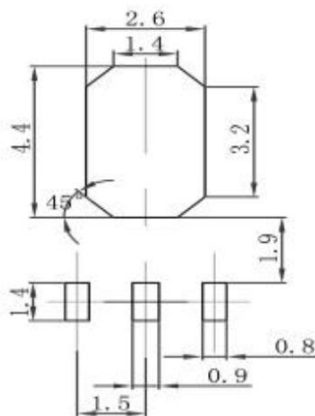
BIPOLAR TRANSISTOR (PNP)

SOT-89 Package Outline Dimensions



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	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
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		0.0610REF	
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



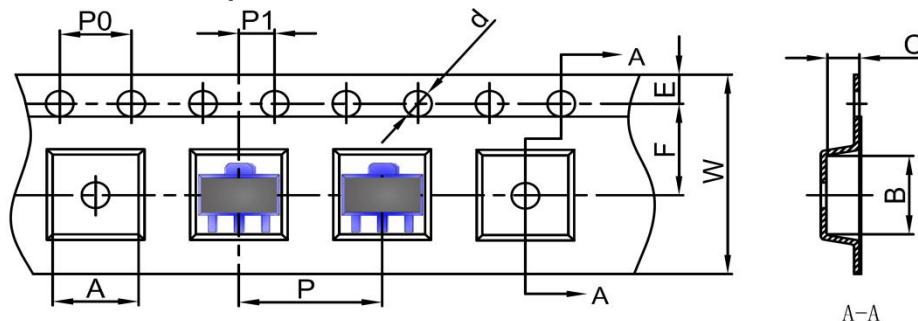
Note:

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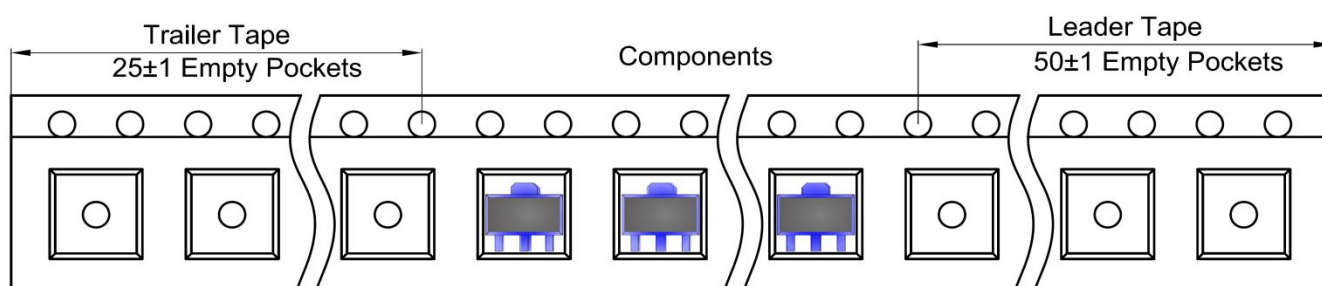
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

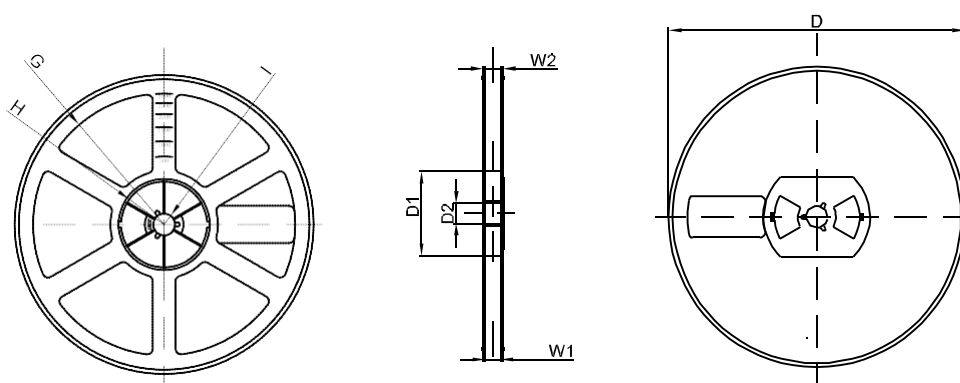


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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