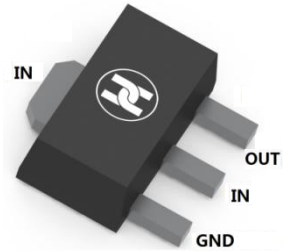
LOW DROP LINEAR VOLTAGE REGULATORS

GENERAL :**75xx-x**



FEATURES

- Low Dropout Voltage
- Low power consumption
- Low temperature coefficient
- High input voltage (up to 24V)
- High output current : 100mA (Pd ≤250mW)
- Surface Mount device

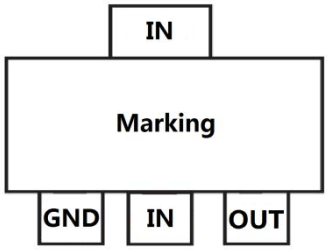
APPLICATIONS

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

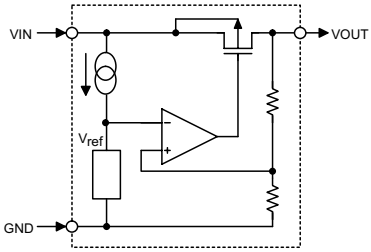
MECHANICAL DATA

- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.055 grams (approximate)

SOT-89



SCHEMATIC DIAGRAM



SELECTION TABLE

Part No.	Output Voltage	Tolerance
HT7530	3.0V	5%
HT7530-1		3%
HT7530-2		1%
HT7530-3		2%
HT7533	3.3V	5%
HT7533-1		3%
HT7533-2		1%
HT7533-3		2%
HT7536	3.6V	5%
HT7536-1		3%
HT7536-2		1%
HT7536-3		2%
HT7544	4.4V	5%
HT7544-1		3%
HT7544-2		1%
HT7544-3		2%
HT7550	5.0V	5%
HT7550-1		3%
HT7550-2		1%
HT7550-3		2%
HT7580	8.0V	5%
HT7580-1		3%
HT7580-2		1%
HT7580-3		2%

LOW DROP LINEAR VOLTAGE REGULATORS GENERAL :**75xx-x**

ABOSLUTE MAXIMUM RATINGS(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	-0.3V~26V	V
Power Dissipation	P_D	250	mW
Operating Temperature	T_{OPR}	0~70	°C
Storage Temperature Range	T_{STG}	-50 ~+125	°C

ELECTRICAL CHARACTERISTICS OF HT7530(Ta=25℃unless otherwise specified)

Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	HT7530	V_{OUT}	2.85	3.0	3.15	V	V_{IN}=5V,I_{OUT}=10mA
	HT7530-1		2.91	3.0	3.09	V	
	HT7530-2		2.97	3.0	3.03	V	
	HT7530-3		2.94	3.0	3.06	V	
Output Current		I_{OUT}	60	100		mA	V_{IN}=5V
Load Regulation		ΔV_{OUT}		60	150	mV	V_{IN}=5V,1mA≤I_{OUT}≤50mA
Voltage Drop		V_{DIF}		100		mV	I_{OUT}=1mA
Current Consumption		I_{SS}		10	20	μA	V_{IN}=5V,No Load
Line Regulation		$\Delta V_{OUT}/(\Delta V_{IN} x V_{OUT})$		0.2		%/V	4V≤V_{IN}≤12V,I_{OUT}=1mA
Input Voltage		V_{IN}			24	V	
Temperature Coefficient		$\Delta V_{OUT}/\Delta T_a$		±0.45		mV/°C	V_{IN}=5V,I_{OUT}=10mA, 0°C<Ta<70°C

ELECTRICAL CHARACTERISTICS OF HT7533(Ta=25℃unless otherwise specified)

Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	HT7533	V_{OUT}	3.14	3.3	3.47	V	V_{IN}=5.5V,I_{OUT}=10mA
	HT7533-1		3.20	3.3	3.40	V	
	HT7533-2		3.27	3.3	3.33	V	
	HT7533-3		3.24	3.3	3.37	V	
Output Current		I_{OUT}	60	100		mA	V_{IN}=5.5V
Load Regulation		ΔV_{OUT}		60	150	mV	V_{IN}=5.5V,1mA≤I_{OUT}≤50mA
Voltage Drop		V_{DIF}		100		mV	I_{OUT}=1mA
Current Consumption		I_{SS}		10	20	μA	V_{IN}=5.5V,No Load
Line Regulation		$\Delta V_{OUT}/(\Delta V_{IN} x V_{OUT})$		0.2		%/V	4.5V≤V_{IN}≤12V,I_{OUT}=1mA
Input Voltage		V_{IN}			24	V	
Temperature Coefficient		$\Delta V_{OUT}/\Delta T_a$		±0.5		mV/°C	V_{IN}=5.5V,I_{OUT}=10mA, 0°C<Ta<70°C

ELECTRICAL CHARACTERISTICS OF HT7536(T_a=25℃unless otherwise specified)

Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	HT7536	V_{OUT}	3.42	3.6	3.78	V	V_{IN}=5.6V,I_{OUT}=10mA
	HT7536-1		3.50	3.6	3.71	V	
	HT7536-2		3.56	3.6	3.64	V	
	HT7536-3		3.53	3.6	3.67	V	
Output Current		I_{OUT}	60	100		mA	V_{IN}=5.6V
Load Regulation		ΔV_{OUT}		60	150	mV	V_{IN}=5.6V,1mA≤I_{OUT}≤50mA
Voltage Drop		V_{DIF}		100		mV	I_{OUT}=1mA
Current Consumption		I_{SS}		10	20	μA	V_{IN}=5.6V,No Load
Line Regulation		$\Delta V_{OUT}/(\Delta V_{IN} x V_{OUT})$		0.2		%/V	4.6V≤V_{IN}≤12V,I_{OUT}=1mA
Input Voltage		V_{IN}			24	V	
Temperature Coefficient		$\Delta V_{OUT}/\Delta T_a$		±0.6		mV/°C	V_{IN}=5.6V,I_{OUT}=10mA, 0°C<T_a<70°C

ELECTRICAL CHARACTERISTICS OF HT7544(T_a=25℃unless otherwise specified)

Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	HT7544	V_{OUT}	4.18	4.4	4.62	V	V_{IN}=6.4V,I_{OUT}=10mA
	HT7544-1		4.27	4.4	4.53	V	
	HT7544-2		4.36	4.4	4.44	V	
	HT7544-3		4.31	4.4	4.49	V	
Output Current		I_{OUT}	60	100		mA	V_{IN}=6.4V
Load Regulation		ΔV_{OUT}		60	150	mV	V_{IN}=6.4V,1mA≤I_{OUT}≤50mA
Voltage Drop		V_{DIF}		100		mV	I_{OUT}=1mA
Current Consumption		I_{SS}		10	20	μA	V_{IN}=6.4V,No Load
Line Regulation		$\Delta V_{OUT}/(\Delta V_{IN} x V_{OUT})$		0.2		%/V	5.4V≤V_{IN}≤12V,I_{OUT}=1mA
Input Voltage		V_{IN}			24	V	
Temperature Coefficient		$\Delta V_{OUT}/\Delta T_a$		±0.7		mV/°C	V_{IN}=6.4V,I_{OUT}=10mA, 0°C<T_a<70°C

ELECTRICAL CHARACTERISTICS OF HT7550(T_a=25℃unless otherwise specified)

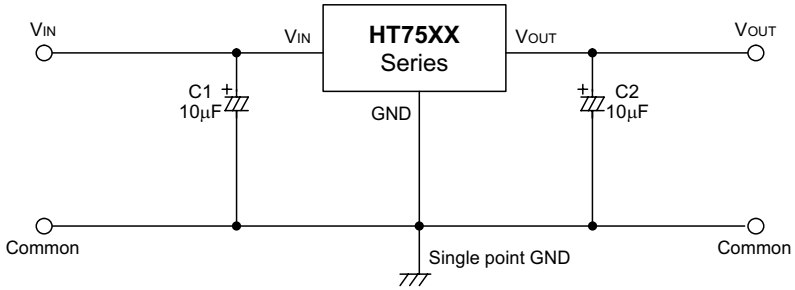
Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	HT7550	V_{OUT}	4.75	5.0	5.25	V	V_{IN}=7V,I_{OUT}=10mA
	HT7550-1		4.85	5.0	5.15	V	
	HT7550-2		4.95	5.0	5.05	V	
	HT7550-3		4.90	5.0	5.10	V	
Output Current		I_{OUT}	60	100		mA	V_{IN}=7V
Load Regulation		ΔV_{OUT}		60	150	mV	V_{IN}=7V,1mA≤I_{OUT}≤50mA
Voltage Drop		V_{DIF}		100		mV	I_{OUT}=1mA
Current Consumption		I_{SS}		10	20	μA	V_{IN}=7V,No Load
Line Regulation		$\Delta V_{OUT}/(\Delta V_{IN} x V_{OUT})$		0.2		%/V	6V≤V_{IN}≤15V,I_{OUT}=1mA
Input Voltage		V_{IN}			24	V	
Temperature Coefficient		$\Delta V_{OUT}/\Delta T_a$		±0.75		mV/°C	V_{IN}=7V,I_{OUT}=10mA, 0°C<T_a<70°C

ELECTRICAL CHARACTERISTICS OF HT7580(T_a=25℃unless otherwise specified)

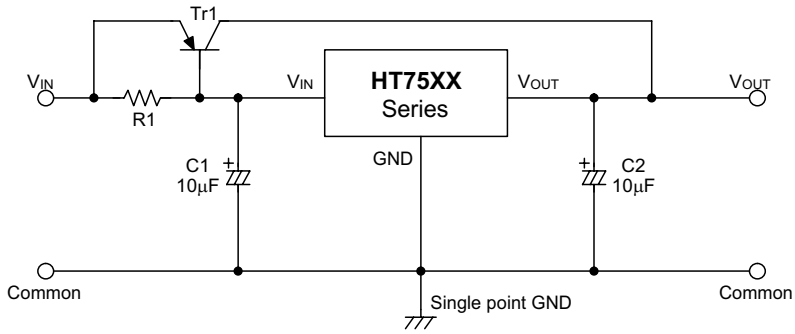
Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Output voltage	HT7580	V_{OUT}	7.61	8.0	8.40	V	V_{IN}=10V,I_{OUT}=10mA
	HT7580-1		7.77	8.0	8.24	V	
	HT7580-2		7.92	8.0	8.08	V	
	HT7580-3		7.84	8.0	8.16	V	
Output Current		I_{OUT}	60	100		mA	V_{IN}=10V
Load Regulation		ΔV_{OUT}		60	150	mV	V_{IN}=10V,1mA≤I_{OUT}≤50mA
Voltage Drop		V_{DIF}		100		mV	I_{OUT}=1mA
Current Consumption		I_{SS}		10	20	μA	V_{IN}=10V,No Load
Line Regulation		$\Delta V_{OUT}/(\Delta V_{IN} x V_{OUT})$		0.2		%/V	9V≤V_{IN}≤20V,I_{OUT}=1mA
Input Voltage		V_{IN}			24	V	
Temperature Coefficient		$\Delta V_{OUT}/\Delta T_a$		±1.2		mV/°C	V_{IN}=10V,I_{OUT}=10mA, 0°C<T_a<70°C

TYPICAL APPLICATION

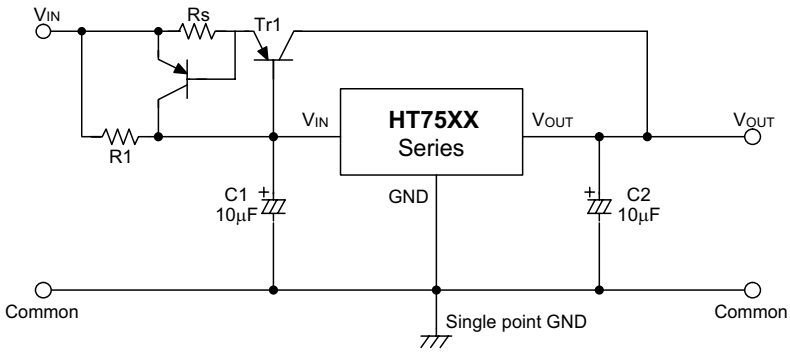
Basic circuit



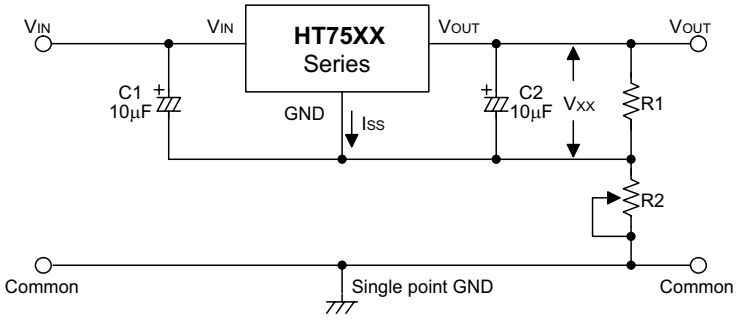
High output current positive voltage regulator



Short-Circuit protection for Tr1

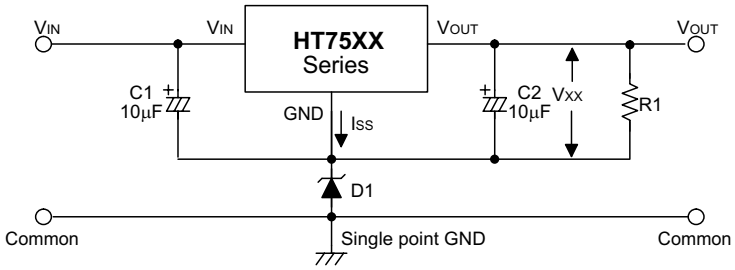


Circuit for increasing output voltage



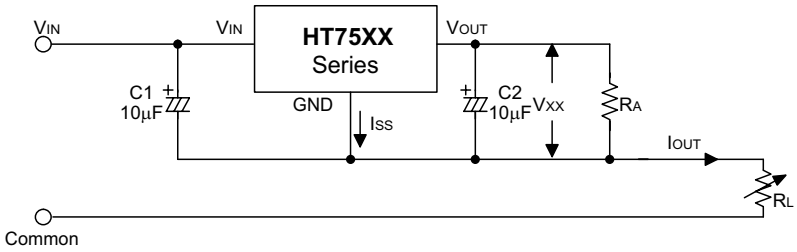
$$V_{OUT} = V_{XX} \left(1 + \frac{R2}{R1} \right) + I_{SS} R2$$

Circuit for increasing output voltage



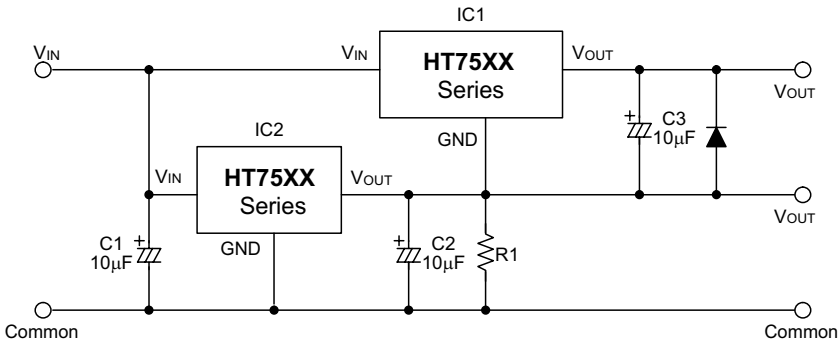
$$V_{OUT} = V_{XX} + V_{D1}$$

Constant current regulator

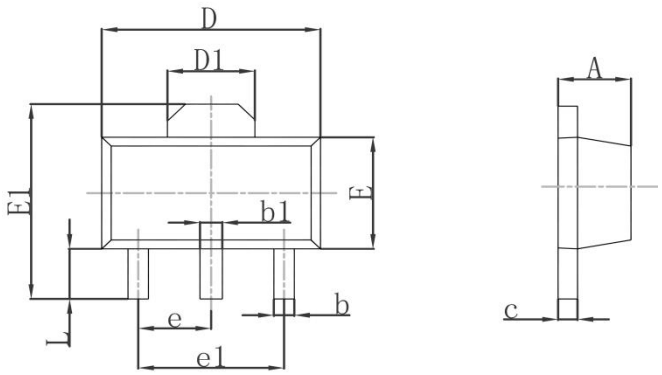


$$I_{OUT} = \frac{V_{XX}}{R_A} + I_{SS}$$

Dual supply

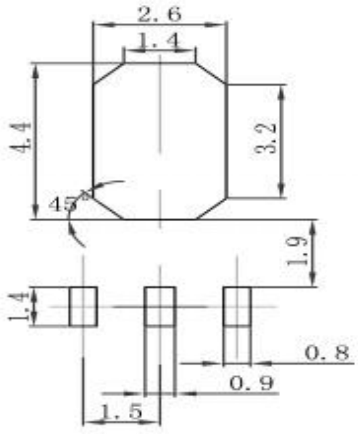


SOT-89 Package Outline Dimensions



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:

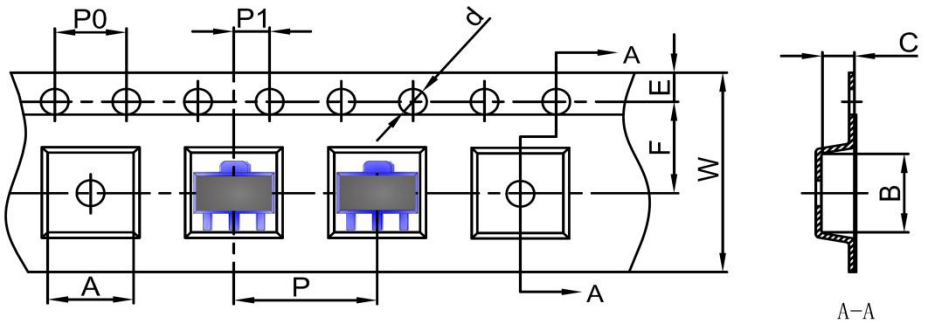
1.Controlling dimension: in millimeters

2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

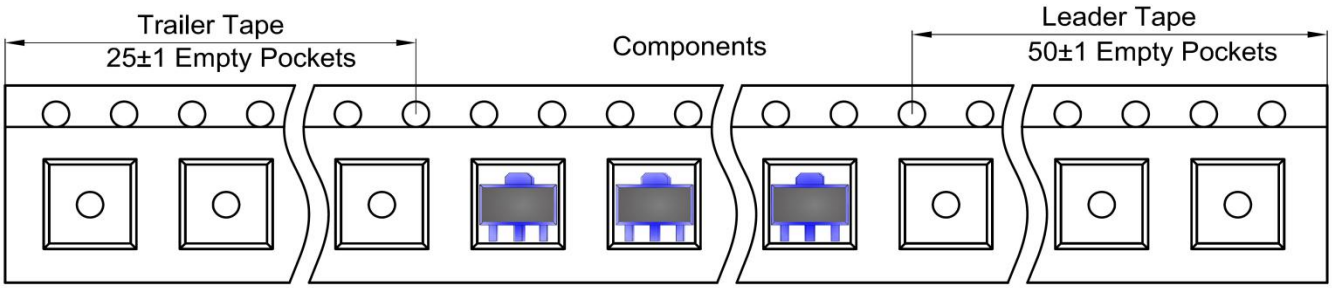
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

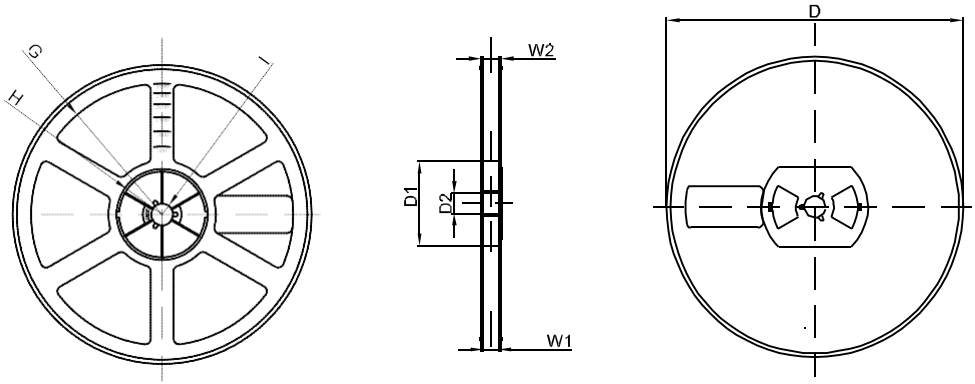


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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