

UTC317/B/TB

LINEAR INTEGRATED CIRCUIT

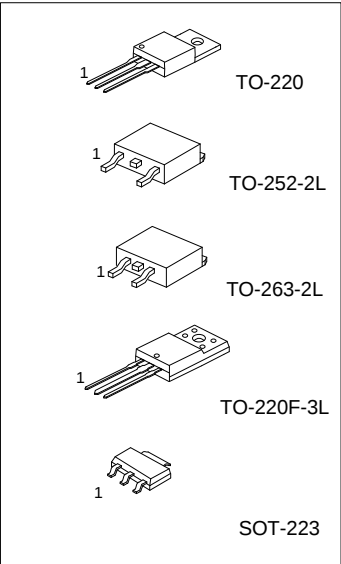
3-TERMINAL 1.5A POSITIVE ADJUSTABLE VOLTAGE REGULATOR

DESCRIPTION

The UTC317/B/TB is an adjustable 3-terminal positive voltage regulator designed to supply more than 1.5A of output current with voltage adjustable from 1.3V to 37V.

FEATURES

- *Output current up to 1.5A
- *Output voltage adjustable from 1.3V to 37V
- *Internal short circuit protection
- *Internal over temperature protection
- * Safe-Area compensation for output transistor

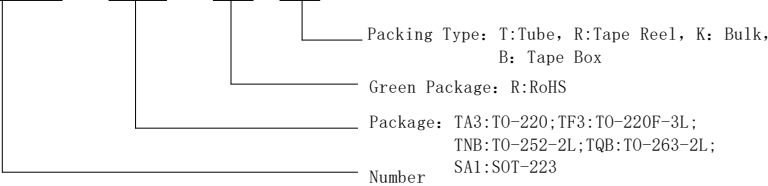


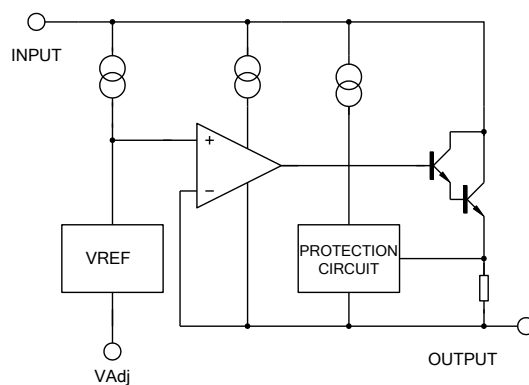
1:ADJ; 2: OUTPUT; 3: INPUT

ORDERING INFORMATION

Ordering Number	Package	Print Number	Free	Packing
UTC317-TA3-R-T	TO-220	UTC317	RoHS	Tube
UTC317-TF3-R-T	TO-220F-3L	UTC317G	RoHS	Tube
UTC317-TNB-R-T	TO-252-2L	UTC317B	RoHS	Tube
UTC317-TNB-R-R	TO-252-2L	UTC317B	RoHS	Tape Reel
UTC317-TQB-R-R	TO-263-2L	UTC317TB	RoHS	Tape Reel
UTC317-SA1-R-R	SOT-223	UTC317	RoHS	Tape Reel

UTC317- TA3 - R - T



BLOCK DIAGRAM**ABSOLUTE MAXIMUM RATINGS** (Ta=25°C, UNLESS OTHERWISE SPECIFIED)

PARAMETERS	SYMBOL	RATING	UNITS
Input - Output Voltage Difference	$V_i - V_o$	40	V
Lead Temperature	T_{LEAD}	260	°C
Power Dissipation	P_D	Internal limited	—
Operating Temperature Range	T_{OPR}	-40~+125	°C
Storage Temperature Range	T_{STG}	-65~+150	°C

ELECTRICAL CHARACTERISTICS(V_I-V_O=5V, 0°C < T_J < 125°C, I_O=500mA, I_{MAX}=1.5A, P_{MAX}=20W, unless otherwise specified)

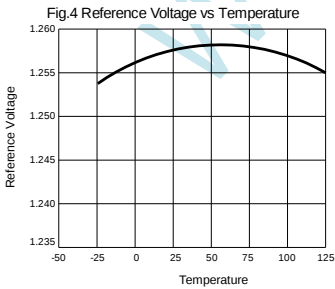
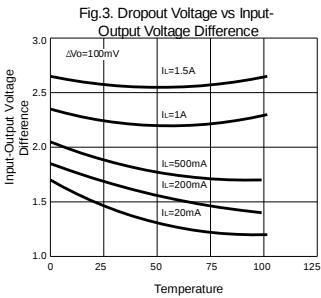
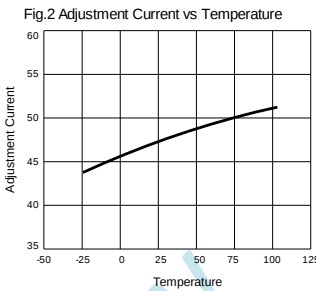
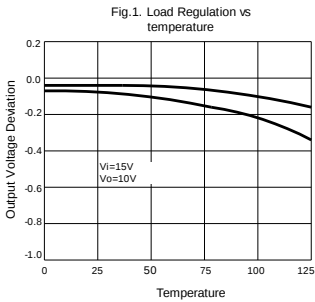
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Line Regulation	ΔV_O	T _a =25°C, 3V ≤ V _I -V _O ≤ 40V		0.01	0.04	%V
		T _a =0—125°C, 3V ≤ V _I -V _O ≤ 40V		0.02	0.07	
Load Regulation	ΔV_O	T _a =25°C		18	25	mV
		10mA ≤ I _O ≤ I _{MAX}		0.4	0.5	%V _O
		10mA ≤ I _O ≤ I _{MAX}		40	70	mV
		T _a =0—125°C		0.8	1.5	%V _O
Adjustable Pin current	I _{ADJ}			46	100	μA
Adjustable Pin Current Change	ΔI _{ADJ}	2.5V ≤ V _I -V _O ≤ 40V, 10mA ≤ I _O ≤ I _{MAX} , P _D ≤ P _{MAX}		0.3	5	μA
Reference Voltage	V _{REF}	3V ≤ V _I -V _O ≤ 40V, 10mA ≤ I _O ≤ I _{MAX} , P _D ≤ P _{MAX}	1.20	1.25	1.30	V
Temperature Stability	STT			0.7		%V _O
Minimum Load Current for regulation	I _{L(MIN)}	V _I -V _O =40V		3.5	10	mA
Maximum output Current	I _{O(MAX)}	V _I -V _O ≤ 15V, P _D ≤ P _{MAX}	1.5	2.2		A
		V _I -V _O =40V, P _D ≤ P _{MAX} , T _a =25°C	0.15	0.4		
RMS Noise v.s. %of V _{out}	eN	T _a =25°C, 10Hz ≤ f ≤ 10KHz		0.003	0.01	%V _O
Ripple Rejection	RR	V _O =10V, f=120HZ, C _{ADJ} =0		60		dB
		V _O =10V, f=120HZ, C _{ADJ} =10μF	66	75		
Long-term Stability, T _J =T _{HIGH}	ST	T _a =25°C, 1000 hr		0.3	1	%

Note: Testing with low duty pulse should be used to avoid heating effect.

THERMAL DATA

Parameter	Symbol	RATING	UNITS
Junction-to-Ambient	TO-252-2L	112	°C/W
	TO-220	54	
	TO-220F-3L	44	
	TO-263-2L	64	
	SOT-223	165	
Junction-to-Case	TO-252-2L	12	°C/W
	TO-220	5	
	TO-220F-3L	5	
	TO-263-2L	5	
	SOT-223	23	

TYPICAL CHARACTERISTICS PERFORMANCE



TYPICAL APPLICATION CIRCUITS

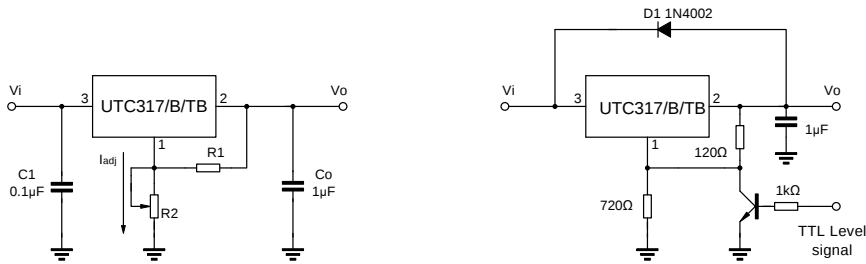


Fig.5 Programmable voltage regulator

$$V_o = 1.25V \cdot (1 + R_2/R_1) + I_{adj} \cdot R_2$$

C1 is required when regulator is located an appreciated distance from power supply. Co is needed to improve transient response.

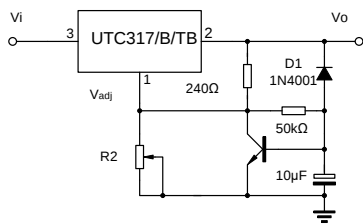


Fig.7 Soft start application

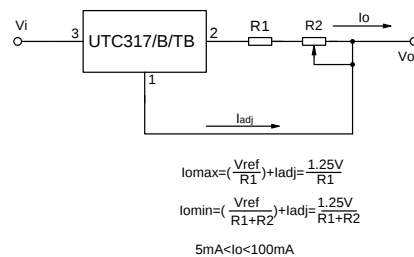
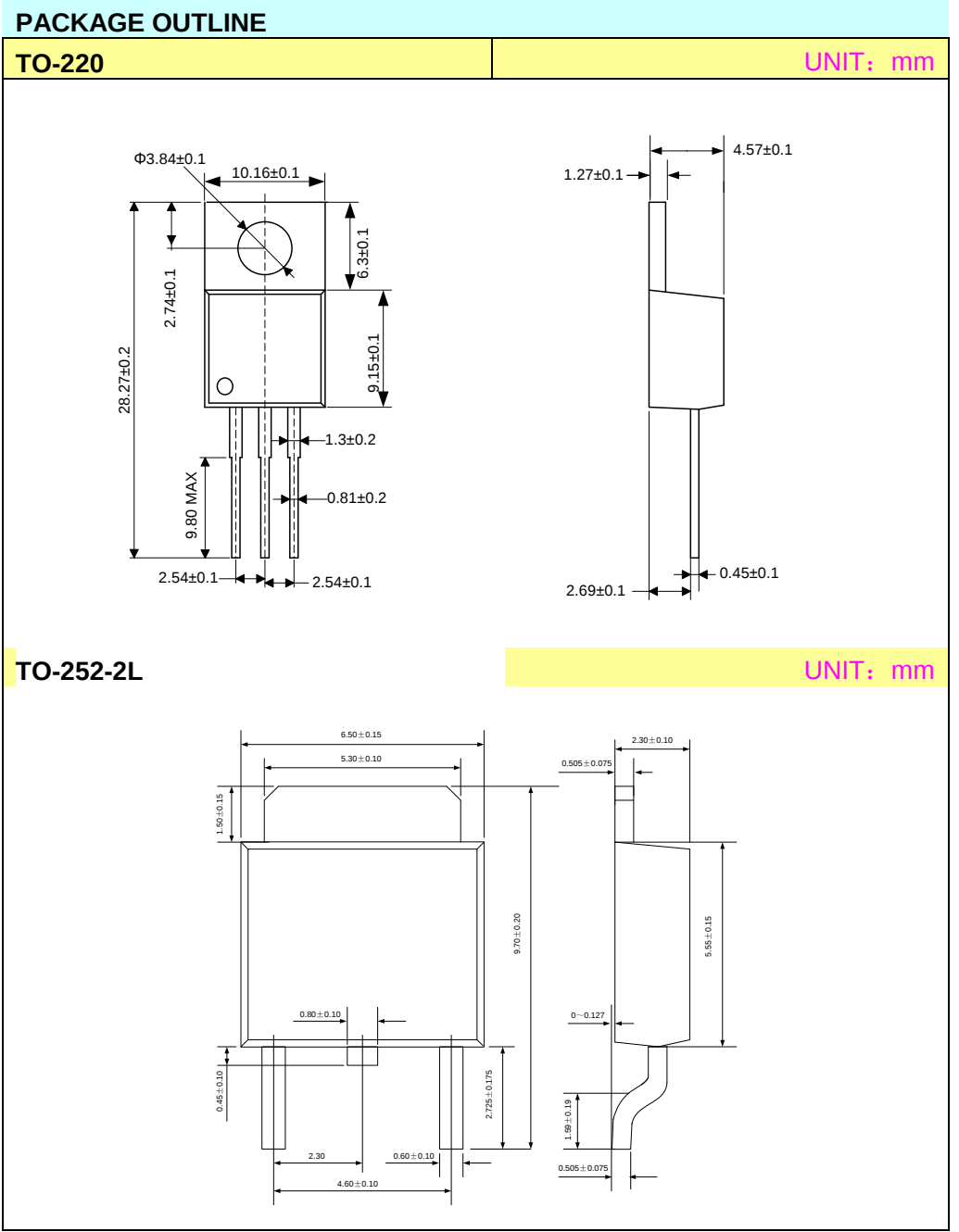
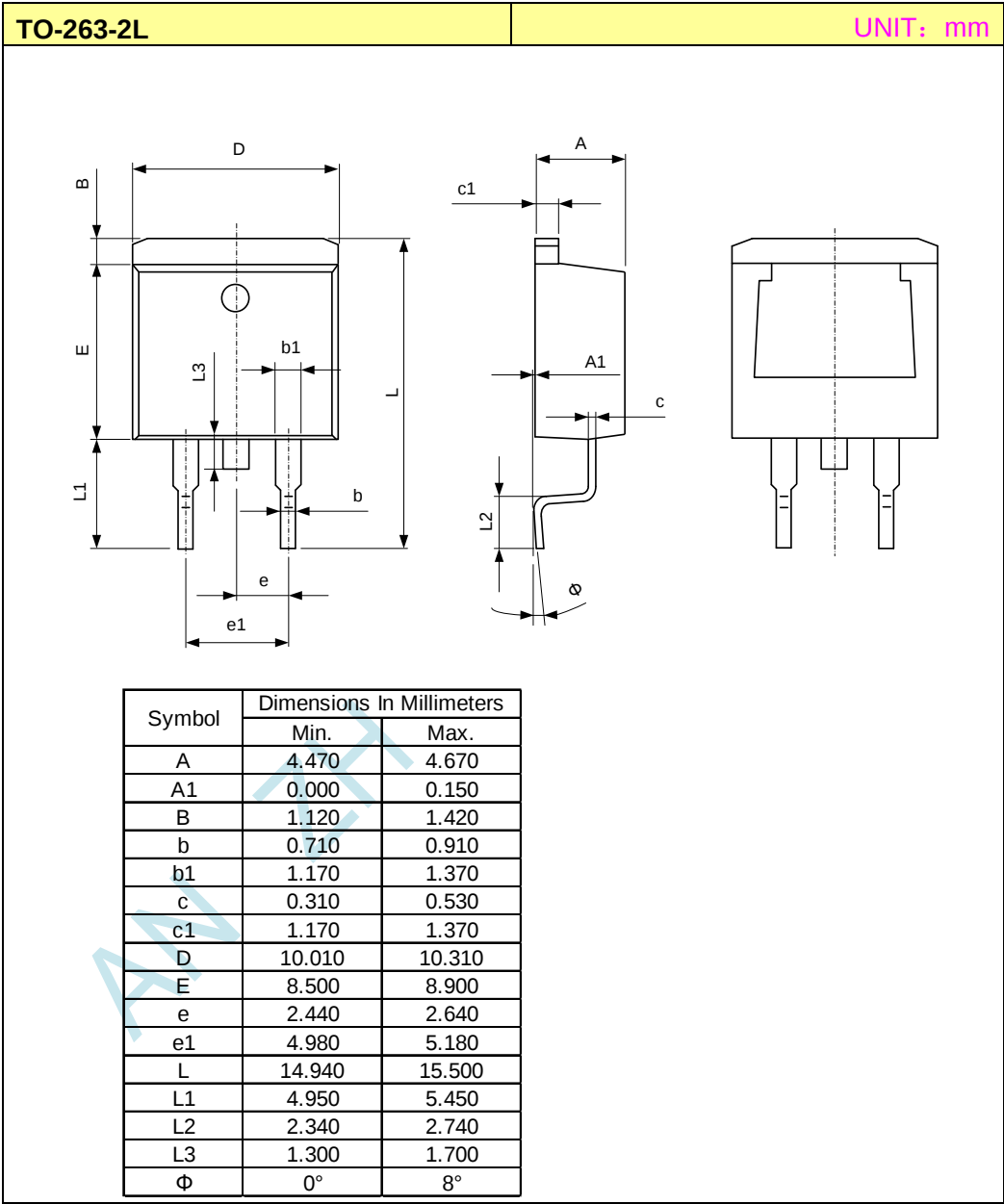
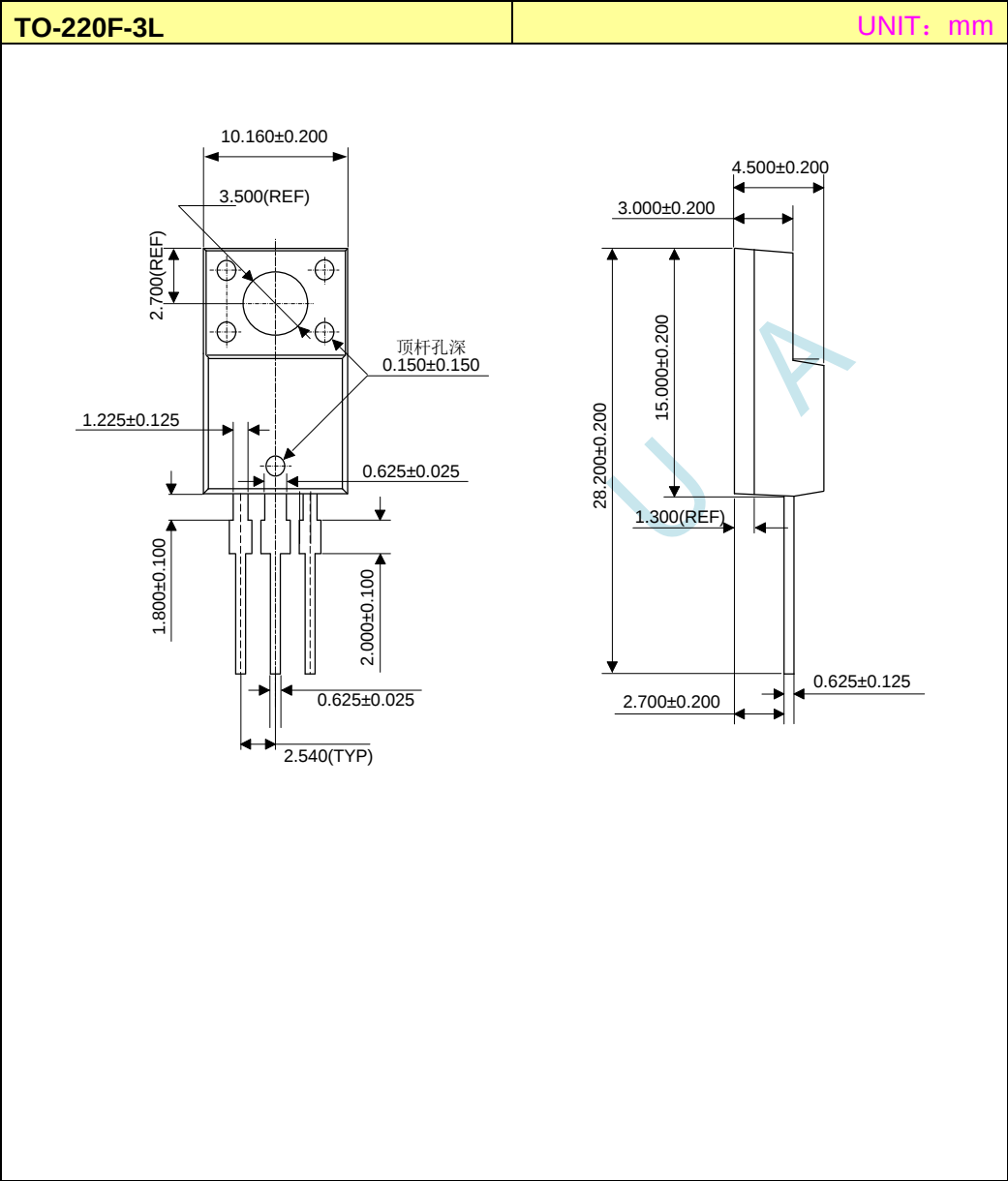
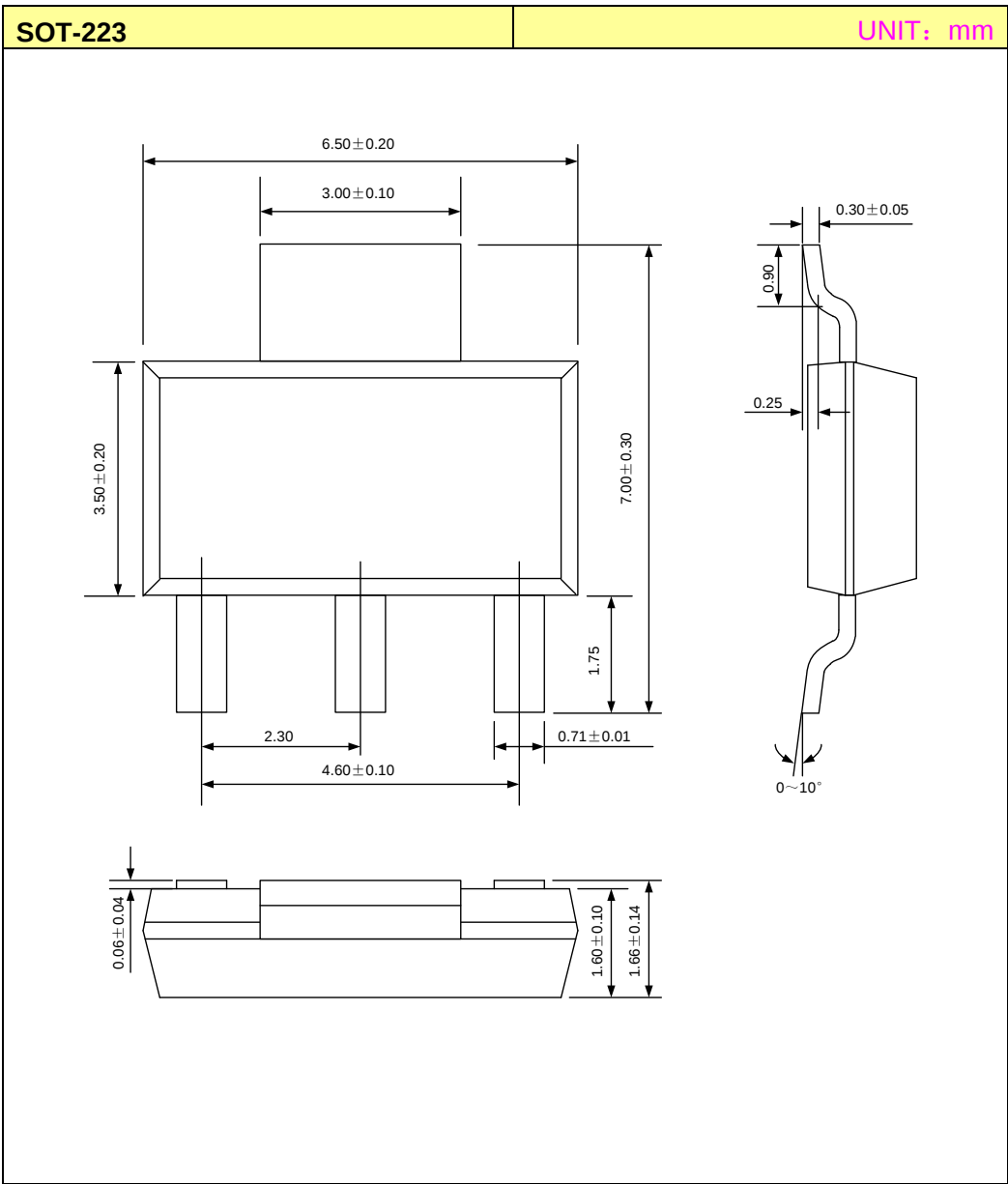


Fig.8 Constant current application









ELECTROSTATIC DISCHARGE CAUTION

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage handling to prevent electrostatic damage to the device.