ZHEJIANG UNIU-NE Technology CO.,LTD

浙 江 宇 力 微 新 能 源 科 技 有 限 公 司

78S12M Data Sheet

V 1.1

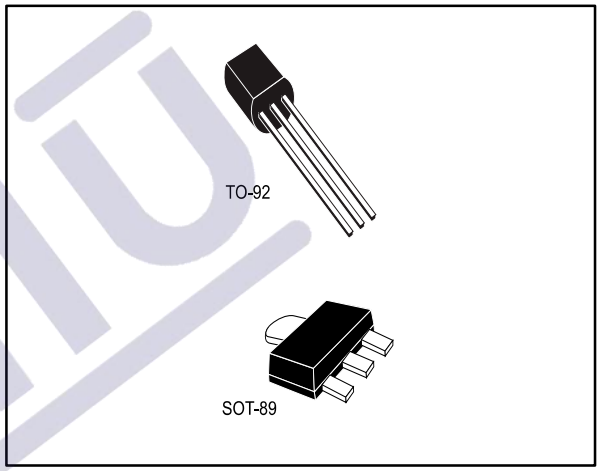
Positive voltage regulators

Description

The 78S12M series of three terminal positive regulators employ internal current limiting and thermal shutdown, making them essentially indestructible. If adequate heat-sink is provided, they can deliver up to 120 mA output current. They are intended as fixed voltage regulators in a wide range of applications including local or on-card regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators. The 78S12M series used as Zener diode/resistor combination replacement, offers e improvement along with lower quiescent current and lower noise.

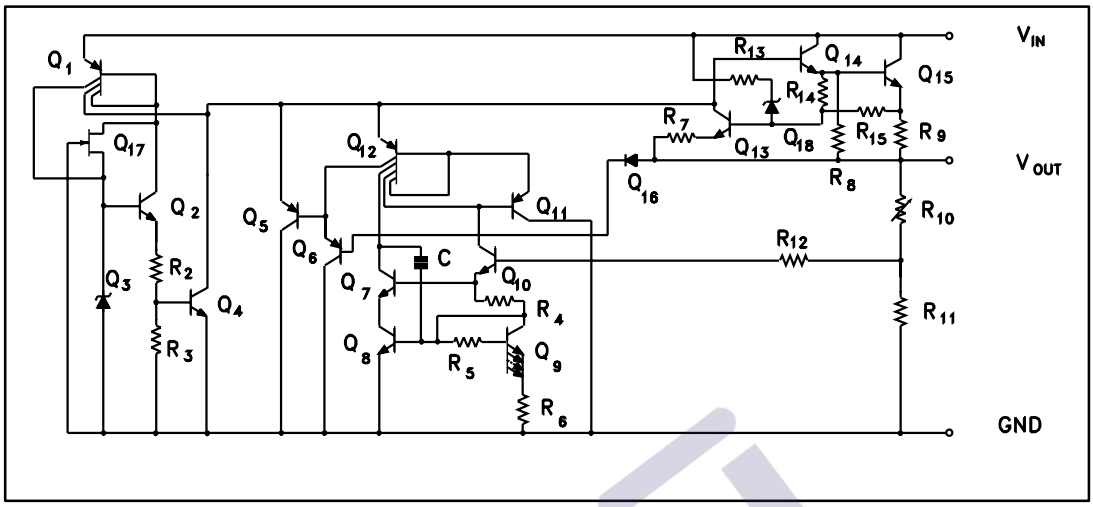
Features

- Output current up to 120 mA
- Output voltages of 12V
  thermal overload protection
- Short-circuit protection
- No external components are required
- Available in ± 2%



Diagram

Figure 1: Schematic diagram



Pin configuration

Figure 2: Pin connection (top view, bottom view for TO-92)

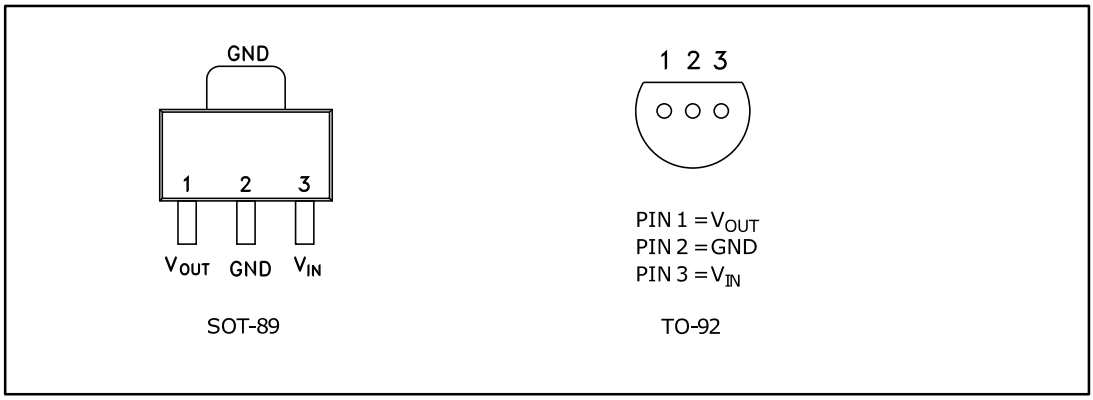
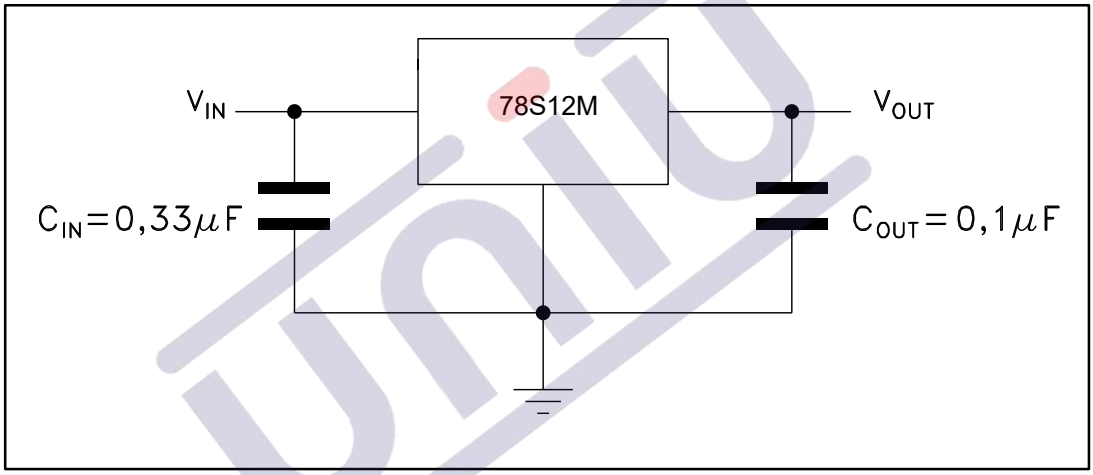


Figure 3: Test circuits



Maximum ratings

absolute maximum ratings over operating temperature range (unless othewise noted)

78S12M	PARAMETER	UNIT
Input voltage, VI	35	V
Virtual junction temperature range, TJ	150	°C
Lead temperature 1,6 mm (1/16 inch) from case for 10 seconds	260	°C
Storage temperature range, T_{STG}	-65 to 150	°C

recommended operating conditions

78S12M	MIN	MAX	UNIT
Input voltage, VI	8	20	V
Output current, IO		100	mA
Operating virtual junction temperature, TJ	0		°C

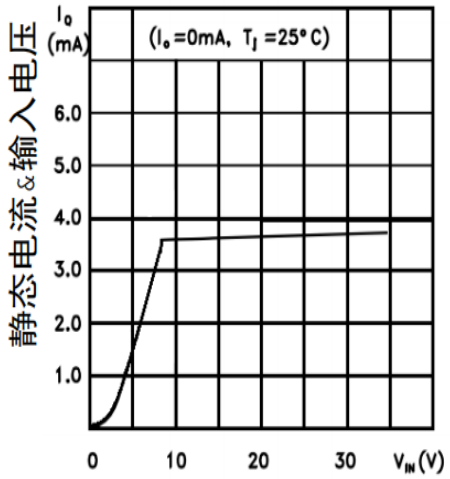
Electrical characteristics

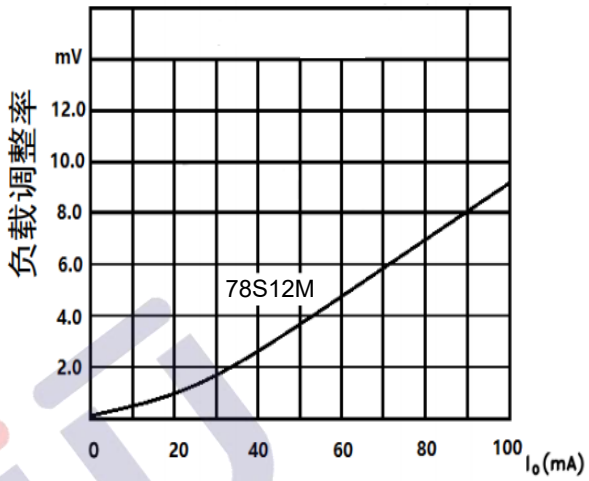
electrical characteristics at specified virtual junction temperature, VI = 19V, I_o=40mA (unless otherwise noted)

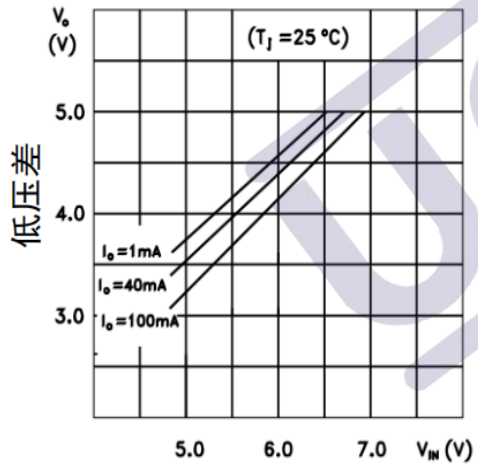
PARAMETER	TEST CONDITIONS	T ①	78S12M			UNIT
			MIN	TYP	MAX	
Output voltage		25°C	11.5	12	12.5	V
	IO=1 mA to 40MA, V I=14V to 27V	Full range	11.4	12	12.6	
	IO = 1 mA to 70 mA	Full range	11.4	12	12.6	
Input voltage regulation	V I = 14.5V tO 27V	25 C		55	250	mV
	V I =16V tO 27V			49	200	
Ripple rejection	V I = 15V to 25V, f= 120 Hz	25°C	37	42		dB
Output voltage regulation	IO = 1 mA to 100 mA	25 C		22	100	mV
	IO = 1 mA to 40 mA			13	50	
Output noise voltage	f= 10 Hz to 100 kHz	25°C		70		μV
Dropout voltage		25°C		1.7		V
Bias current		25°C		4.3	6	mA
		125°C			5.5	
Bias current change	V I = 16V to 27V	Full range			1.5	mA
	IO = 1 mA to 40 mA				0.1	

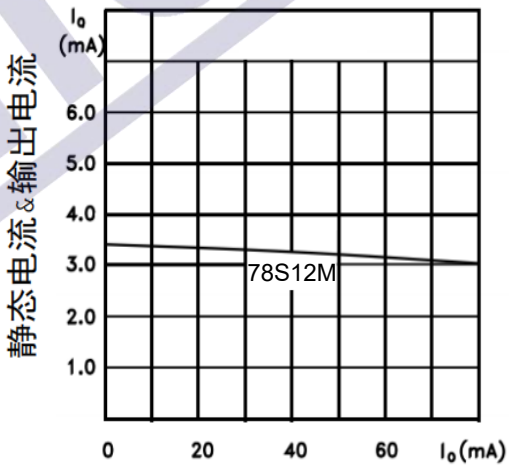
① Pulse-testing techniques maintain TJ as close to TA as possible. Thermal effects must be taken into account separately. All characteristics are measured with a 0.33-μF capacitor across the input and a 0.1-μF capacitor across the output. Full range for the 78S12M isTJ= 0°C to 70°C

Typical performance



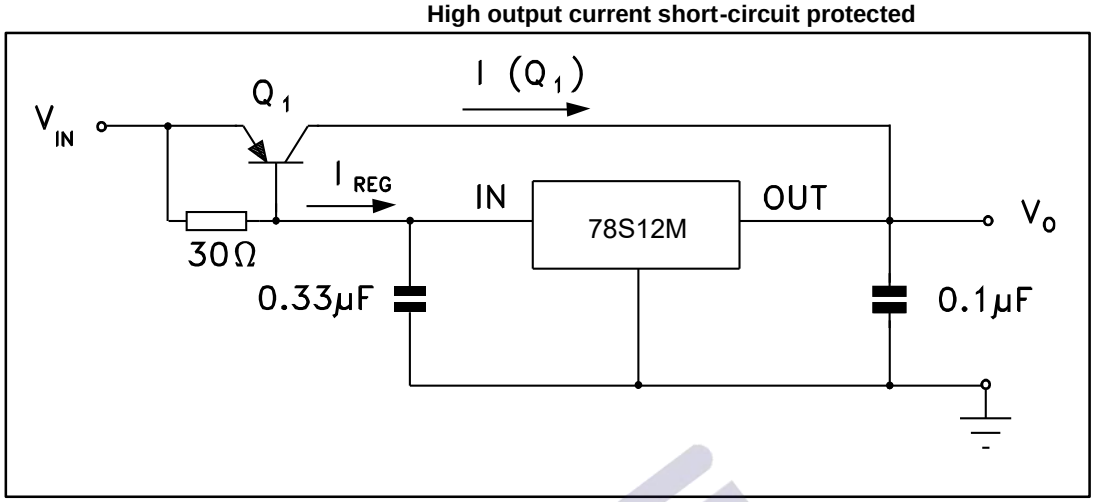




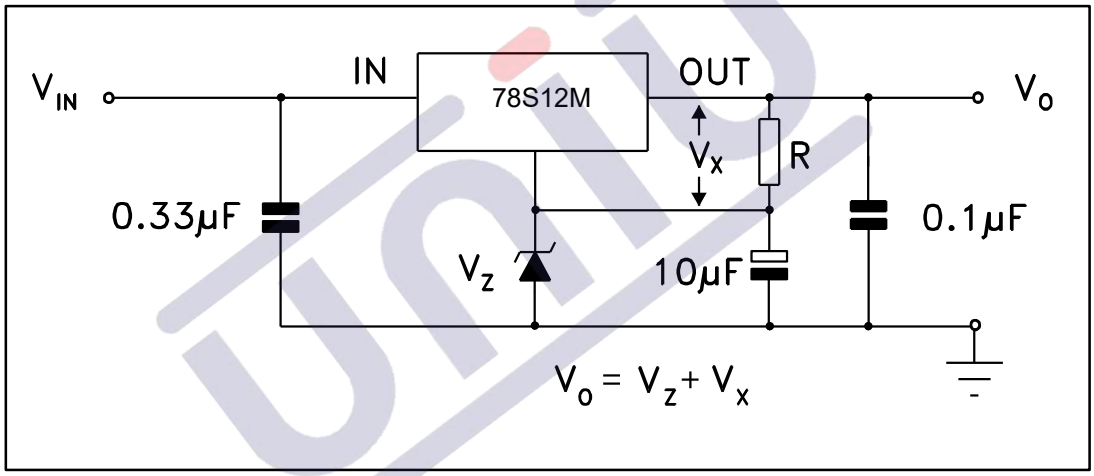


Typical application

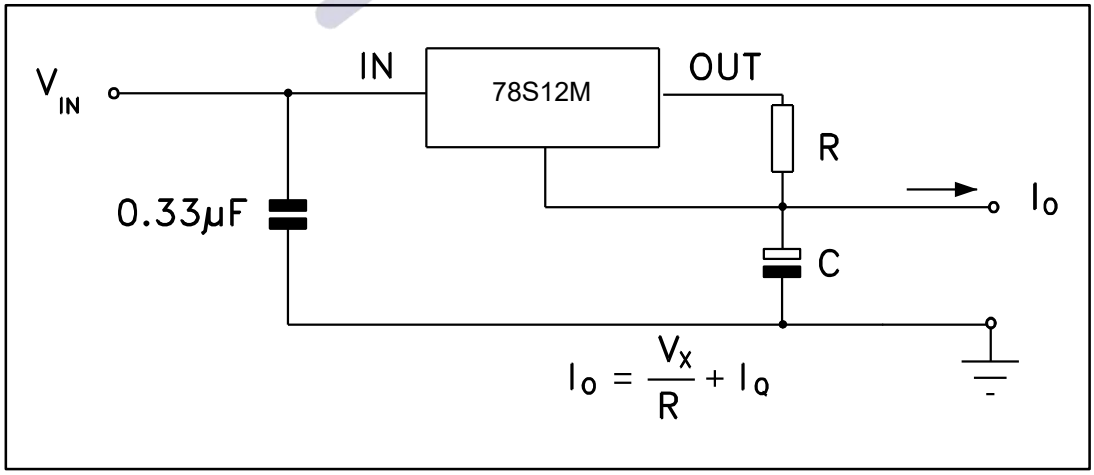
High output current short-circuit protected



Outuput boost circuit



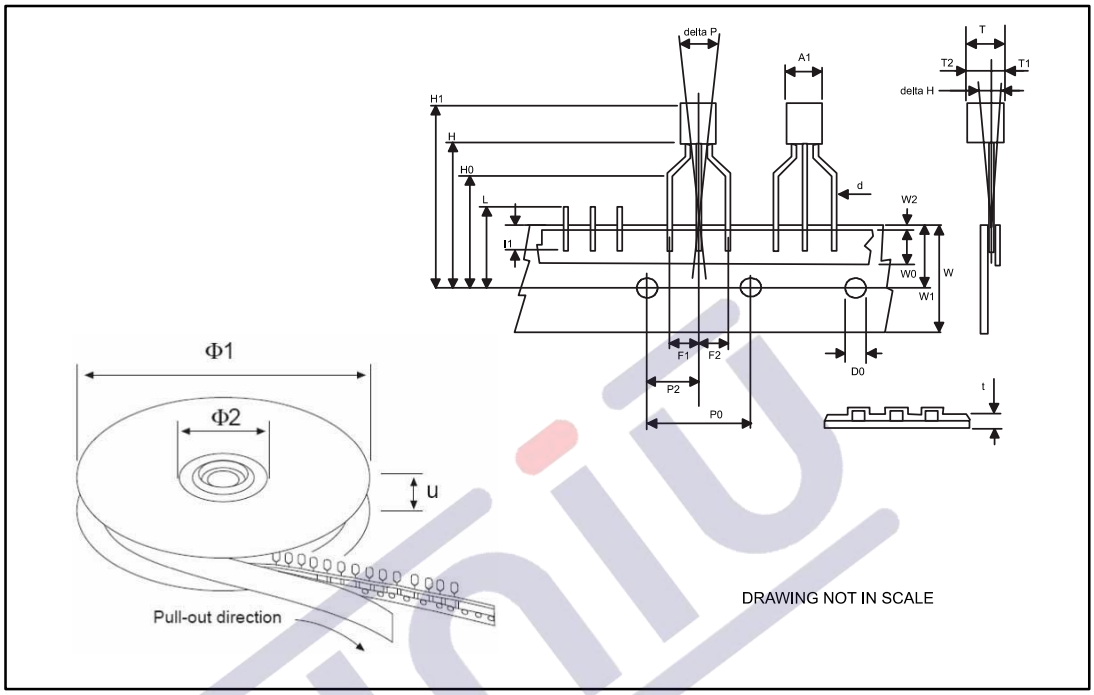
Current regulator



Package information

TO-92 packing information

: TO-92 tape and reel outline

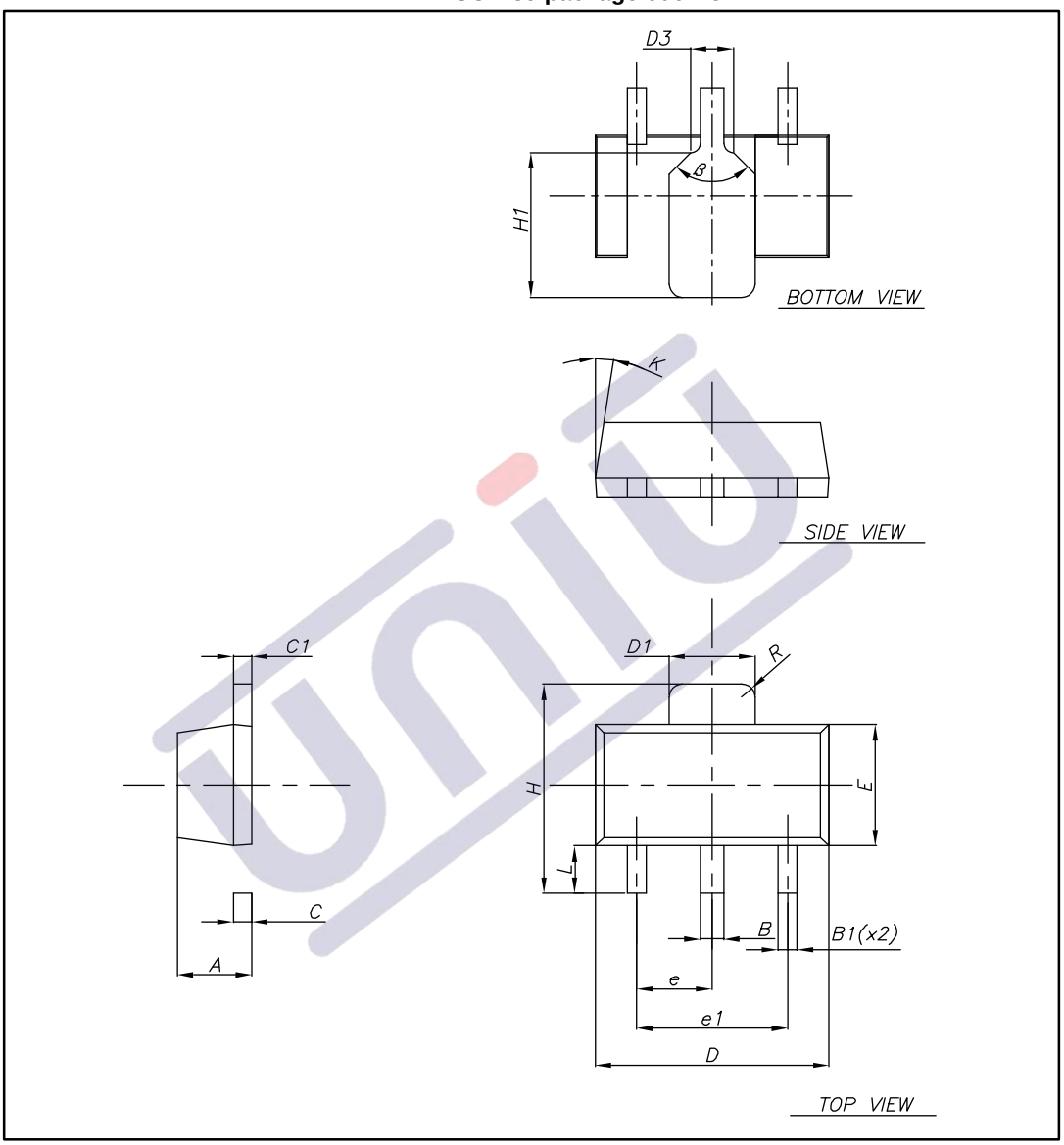


TO-92 tape and reel mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A1			4.80
T			3.80
T1			1.60
T2			2.30
d	0.45	0.47	0.48
P0	12.50	12.70	12.90
P2	5.65	6.35	7.05
F1, F2	2.40	2.50	2.94
F3	4.98	5.08	5.48
delta H	-2.00		2.00
W	17.50	18.00	19.00
W0	5.5	6.00	6.5
W1	8.50	9.00	9.25
W2			0.50
H		18.50	21
H3	0.5	1	2
H0	15.50	16.00	18.8
H1		25.0	27.0
D0	3.80	4.00	4.20
t			0.90
L			11.00
I1	3.00		
delta P	-1.00		1.00
Ø1	352	355	358
Ø2	28	30	32
u	44	47	50

SOT-89 package information

SOT-89 package outline



SOT-89 mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	1.40		1.60
B	0.44		0.56
B1	0.36		0.48
C	0.35		0.44
C1	0.35		0.44
D	4.40		4.60
D1	1.62		1.83
D3		0.90	
E	2.29		2.60
e	1.42		1.57
e1	2.92		3.07
H	3.94		4.25
H1	2.70		3.10
K	1°		8°
L	0.89		120
R		0.25	
β		90°	

SOT-89 carrier tape outline

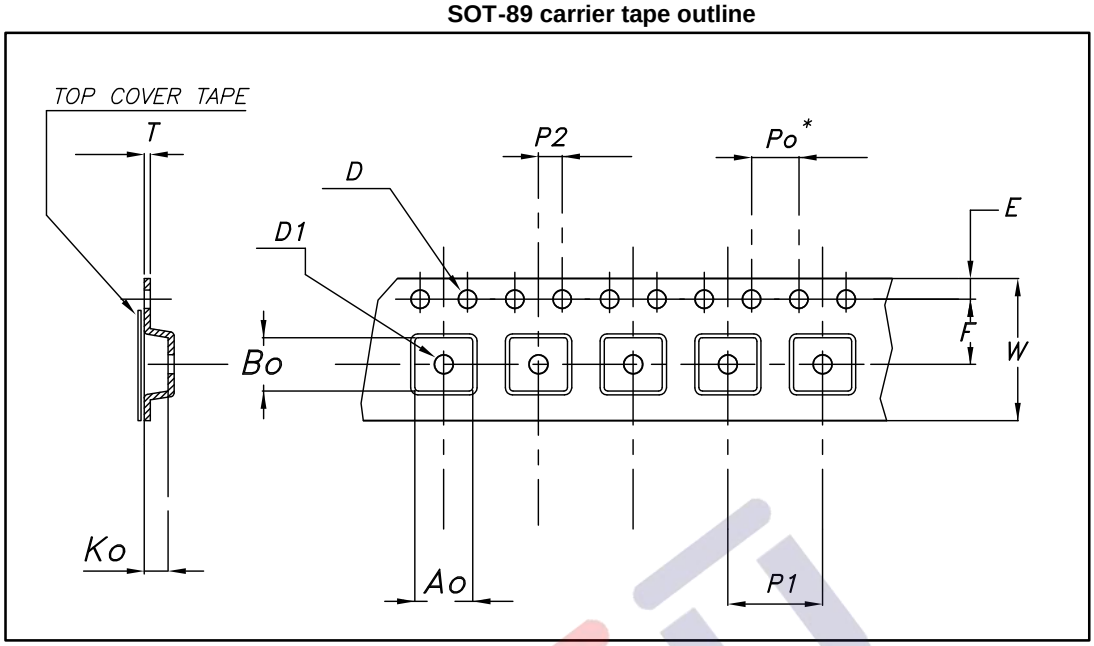


Table : SOT8-89 carrier tape mechanical data

Dim.	mm	
	Value	Tolerance
Ao	4.91	± 0.10
Bo	4.52	± 0.10
Ko	1.90	± 0.10
F	5.50	± 0.10
E	1.75	± 0.10
W	12	± 0.30
P2	2	± 0.10
Po	4	± 0.10
P1	8	± 0.10
T	0.30	± 0.10
D	Ø 1.55	± 0.05
D1	Ø 1.60	± 0.10

1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2021/11/10	1.1	Layout adjustment

2.免责声明

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