



Plastic-Encapsulate Voltage Regulators

78L05 Three-terminal positive voltage regulator

FEATURE

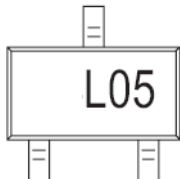
Maximum Output Current I_O : 0.1 A

Output Voltage V_O : 5 V

Continuous Total Dissipation

P_D : 0.25 W ($T_a = 25^\circ\text{C}$)

MARKING:



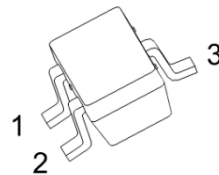
Solid dot = Green molding compound device,
if none, the normal device.

SOT-23-3

1. OUT

2. IN

3. GND



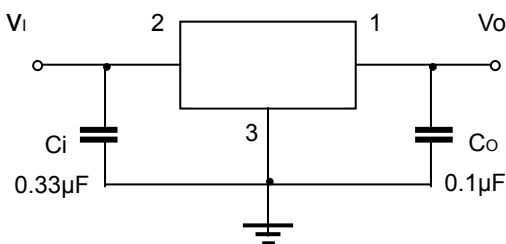
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V_I	30	V
Operating Junction Temperature Range	T_{OPR}	$-40 \sim +125$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_I=10\text{V}$, $I_O=40\text{mA}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

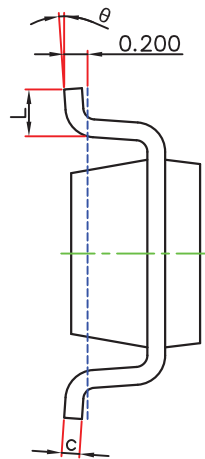
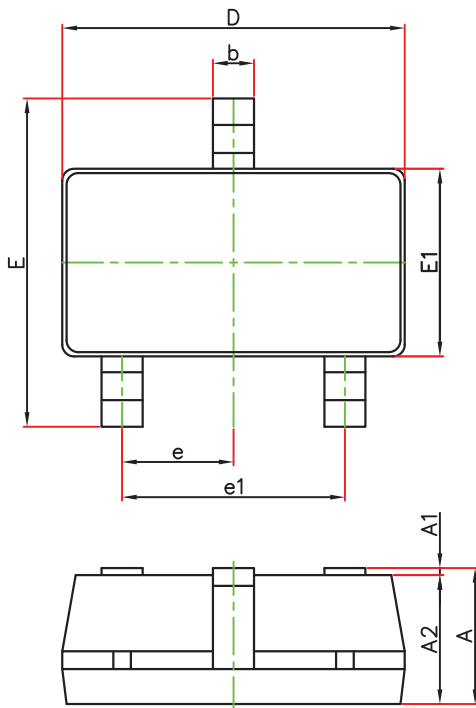
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	V_O	25°C	4.8	5.0	5.2	V
		$7\text{V} \leq V_I \leq 20\text{V}$, $I_O=1\text{mA} \sim 40\text{mA}$	4.75	5.0	5.25	V
		$I_O=1\text{mA} \sim 70\text{mA}$	4.75	5.0	5.25	V
Load regulation	ΔV_O	$I_O=1\text{mA} \sim 100\text{mA}$		15	60	mV
		$I_O=1\text{mA} \sim 40\text{mA}$		8	30	mV
Line regulation	ΔV_O	$7\text{V} \leq V_I \leq 20\text{V}$		32	150	mV
		$8\text{V} \leq V_I \leq 20\text{V}$		26	100	mV
Quiescent current	I_q	25°C		3.8	6	mA
Quiescent current change	ΔI_q	$8\text{V} \leq V_I \leq 20\text{V}$			1.5	mA
	ΔI_q	$1\text{mA} \leq V_I \leq 40\text{mA}$			0.1	mA
Output noise voltage	V_N	$10\text{Hz} \leq f \leq 100\text{kHz}$		42		μV
Ripple rejection	RR	$8\text{V} \leq V_I \leq 20\text{V}$, $f=120\text{Hz}$	41	49		dB
Dropout voltage	V_d	25°C		1.7		V

TYPICAL APPLICATION



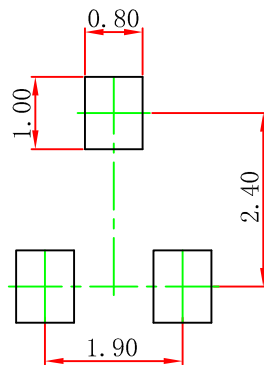
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulator.

SOT-23-3 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

SOT-23-3 Suggested Pad Layout

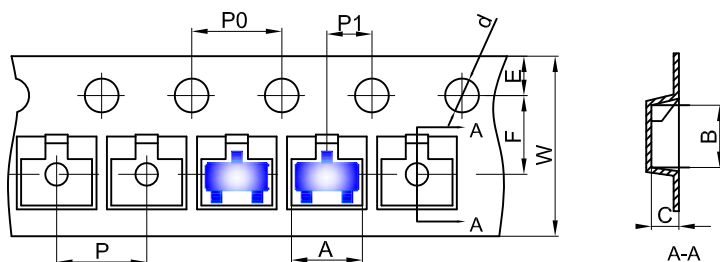


Note:

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

SOT-23-3 Tape and Reel

SOT-23-3 Embossed Carrier Tape

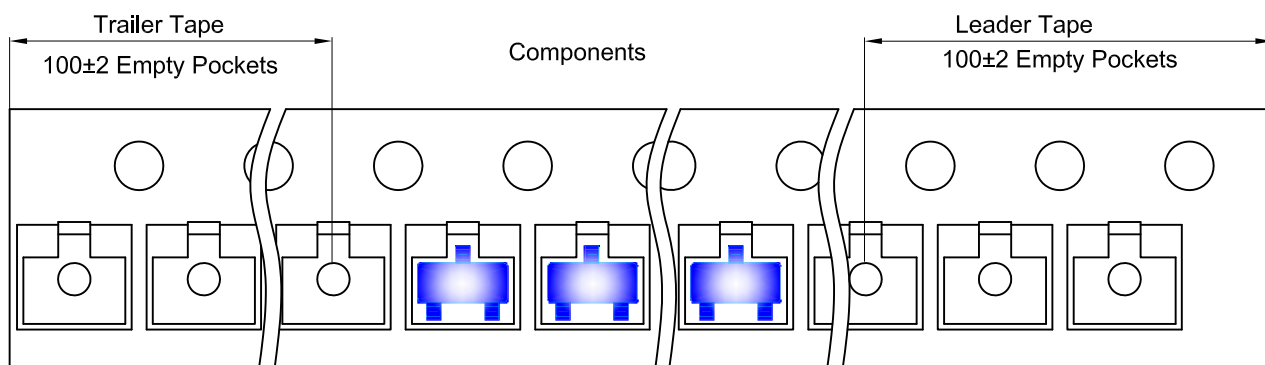


Packaging Description:

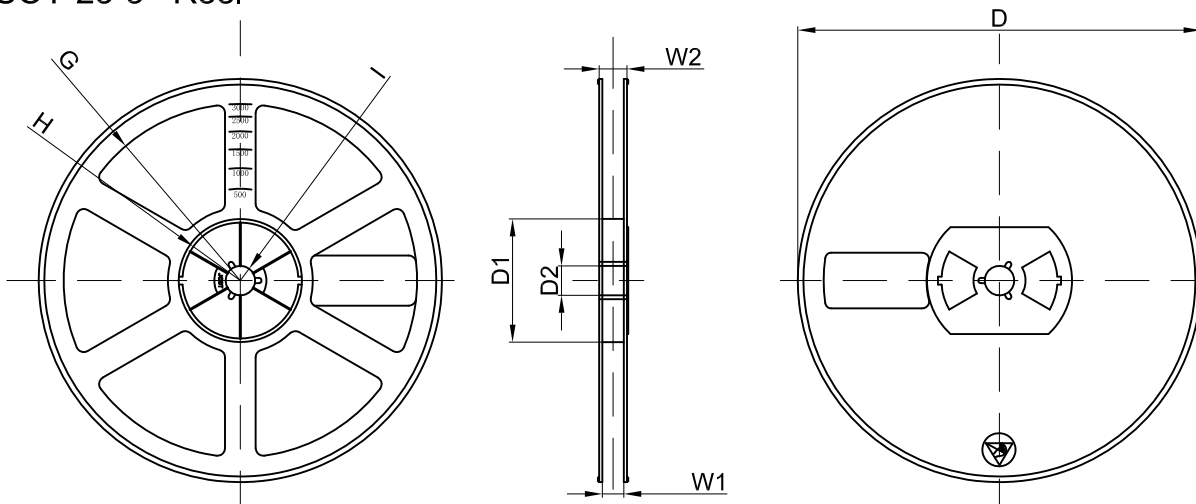
SOT-23-3 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 18.0cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23-3	3.18	3.28	1.32	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23-3 Tape Leader and Trailer



SOT-23-3 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø180.00	60.00	13.00	R78.00	R25.60	R6.50	9.50	13.10

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	