

## SOT-23 Plastic-Encapsulate Voltage Regulators

Three-terminal positive voltage regulator

### Features:

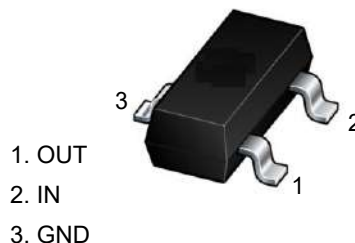
Maximum Output Current  $I_o$ : 0.1 A

Output Voltage  $V_o$ : 5 V

Continuous Total Dissipation

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

SOT-23



MARKING: 78L05

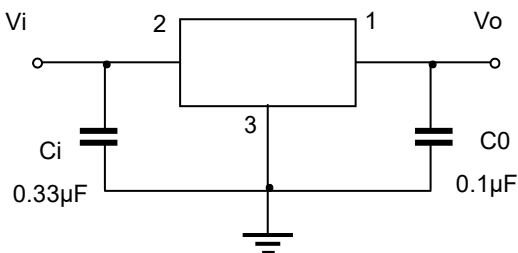
### ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_{OPR}$	0 ~ +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +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)

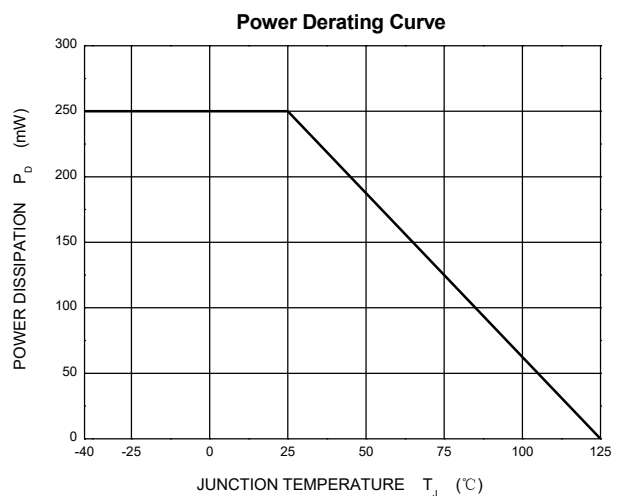
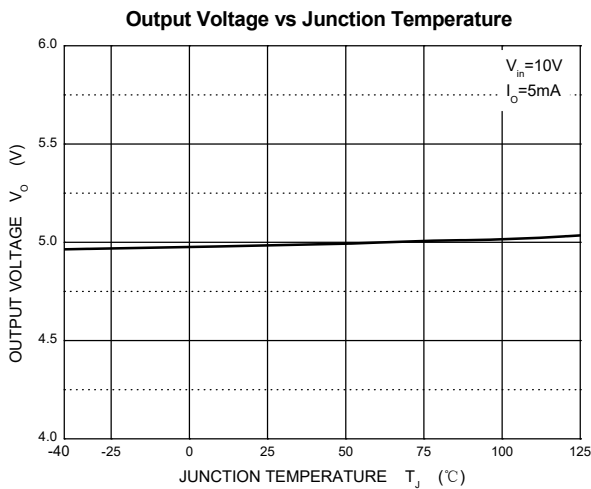
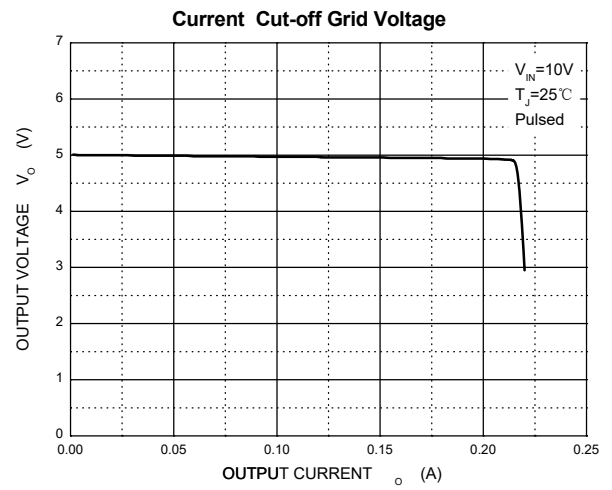
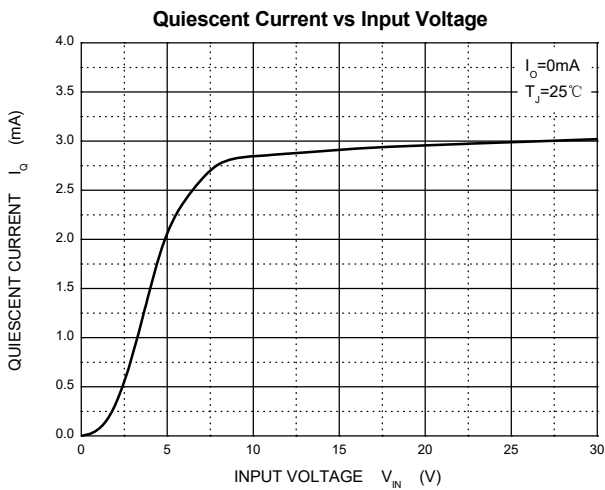
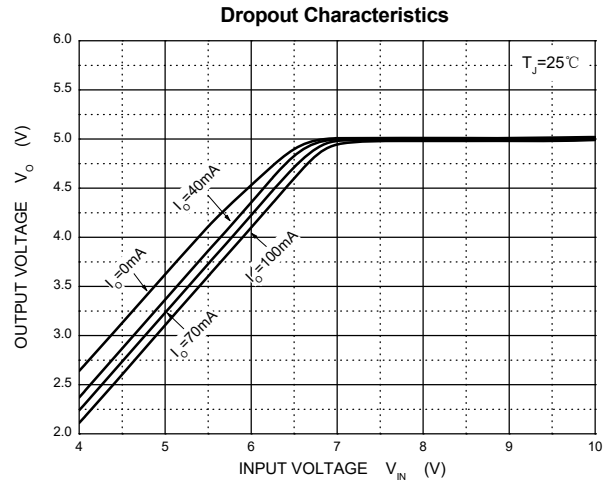
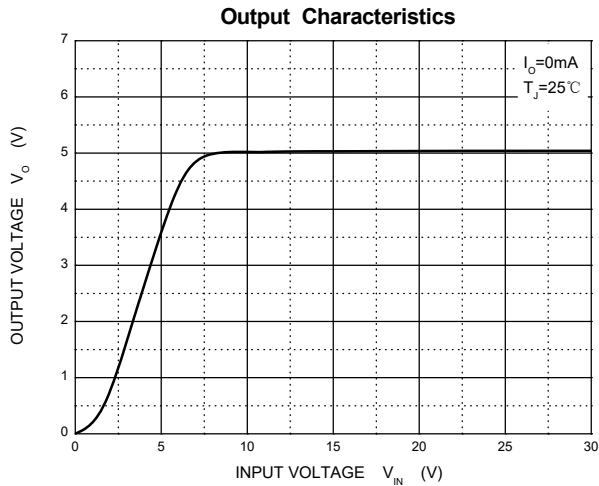
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Output voltage	$V_o$	$25^\circ\text{C}$	4.80	5.0	5.20	V	
Output voltage	$V_o$	$7\text{V} \leq V_i \leq 20\text{V}$ , $I_o = 1\text{mA} \sim 40\text{mA}$	0-125 $^\circ\text{C}$	4.75	5.0	5.25	V
		$I_o = 1\text{mA} \sim 70\text{mA}$		4.75	5.0	5.25	V
Load Regulation	$\Delta V_o$	$I_o = 1\text{mA} \sim 100\text{mA}$	$25^\circ\text{C}$	15	60	mV	
		$I_o = 1\text{mA} \sim 40\text{mA}$	$25^\circ\text{C}$	8	30	mV	
Line regulation	$\Delta V_o$	$7\text{V} \leq V_i \leq 20\text{V}$		32	150	mV	
		$8\text{V} \leq V_i \leq 20\text{V}$	$25^\circ\text{C}$	26	100	mV	
Quiescent Current	$I_q$	$25^\circ\text{C}$		3.8	6	mA	
Quiescent Current Change	$\Delta I_q$	$8\text{V} \leq V_i \leq 20\text{V}$	0-125 $^\circ\text{C}$		1.5	mA	
	$\Delta I_q$	$1\text{mA} \leq I_o \leq 40\text{mA}$	0-125 $^\circ\text{C}$		0.1	mA	
Output Noise Voltage	$V_N$	$10\text{Hz} \leq f \leq 100\text{KHz}$	$25^\circ\text{C}$	42		$\mu\text{V}/V_o$	
Ripple Rejection	RR	$8\text{V} \leq V_i \leq 20\text{V}$ , $f=120\text{Hz}$	0-125 $^\circ\text{C}$	41	49	dB	
Dropout Voltage	$V_d$	$25^\circ\text{C}$		1.7		V	

### TYPICAL APPLICATION

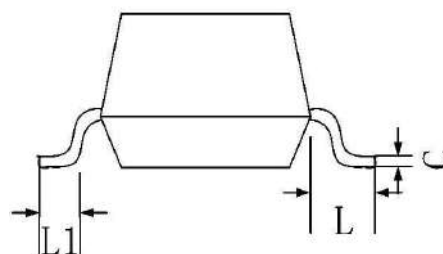
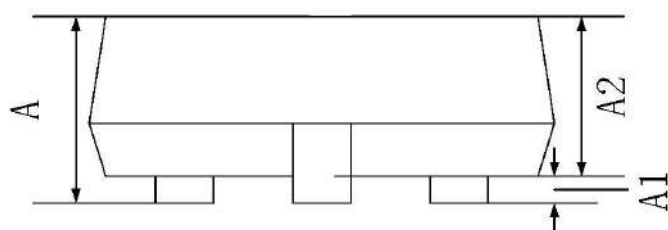
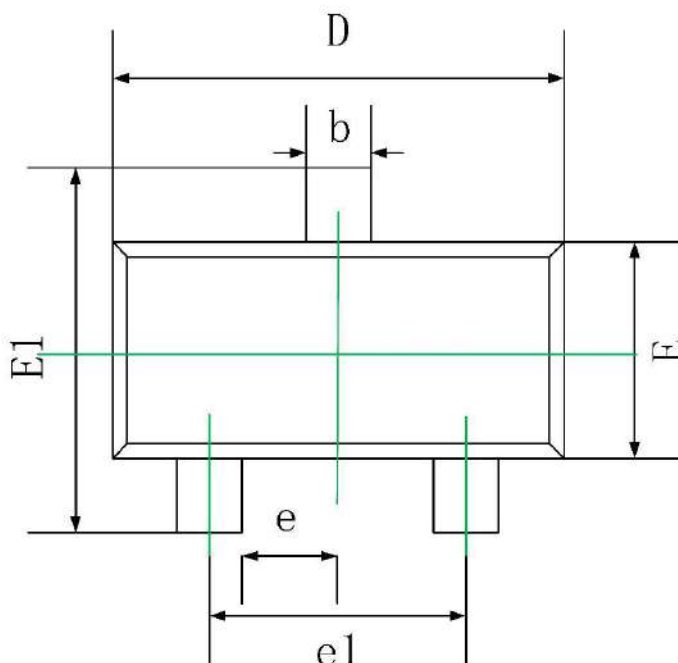


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

### Typical Characteristics



**SOT-23 Package Information**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020