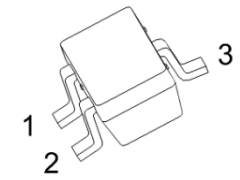
78L05

Three-terminal positive voltage regulator

SOT-23-3L



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 ℃)

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

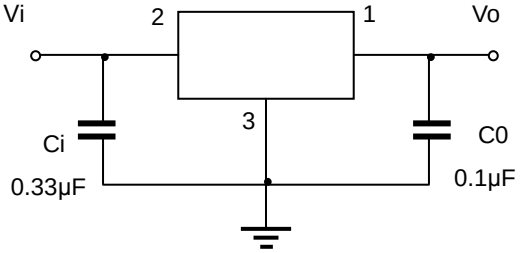
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	℃/W
Operating Junction Temperature Range	T_{OPR}	-40~+125	℃
Storage Temperature Range	T_{STG}	-65~+150	℃

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE (Vi=10V,Io=40mA,Ci=0.33uF,,Co=0.1uF, unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Output voltage	Vo	T_J=25℃	3%	4.85	5.0	5.15	V
			2%	4.90	5.0	5.10	V
		7V≤Vi≤20V, Io=1mA~40mA		4.75	5.0	5.25	V
		Io=1mA~70mA		4.75	5.0	5.25	V
Load Regulation	ΔVo	Io=1mA~100mA,T_J=25℃			15	60	mV
		Io=1mA~40mA,T_J=25℃			8	30	mV
Line regulation	ΔVo	7V≤V_I≤20V			32	150	mV
		8V≤Vi≤20V,T_J=25℃			26	100	mV
Quiescent Current	Iq	T_J=25℃			3.8	6	mA
Quiescent Current Change	ΔIq	8V≤Vi≤20V				1.5	mA
	ΔIq	1mA≤V_I≤40mA				0.1	mA
Output Noise Voltage	V_N	10Hz≤f≤100KHz,T_J=25℃			42		μV/Vo
Ripple Rejection	RR	8V≤Vi≤20V,f=120Hz		41	49		dB
Dropout Voltage	Vd	T_J=25℃			1.7		V

* Pulse test.

TYPICAL APPLICATION

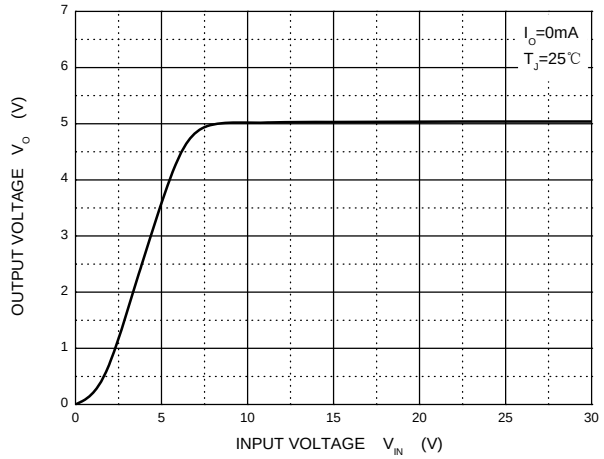


Note1: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

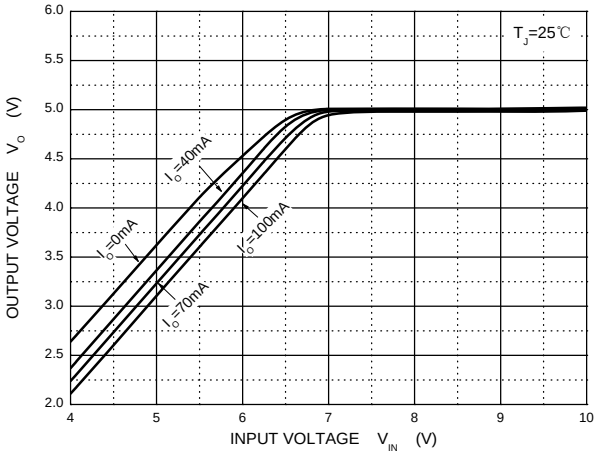
Note2: This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. Adding a suitable resistor in front of the IC input can reduce the possibility of IC damage by ESD to a certain extent.

Typical Characteristics

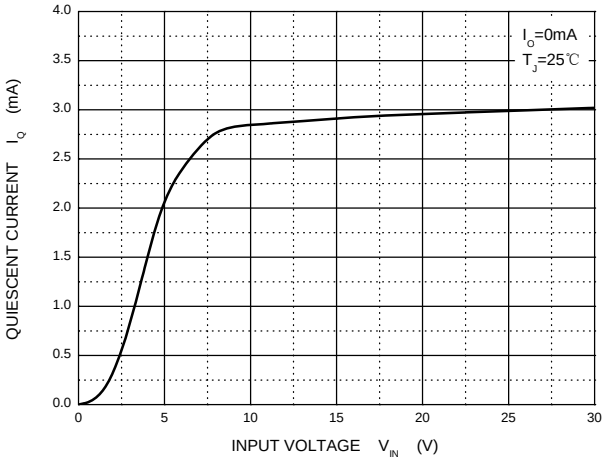
Output Characteristics



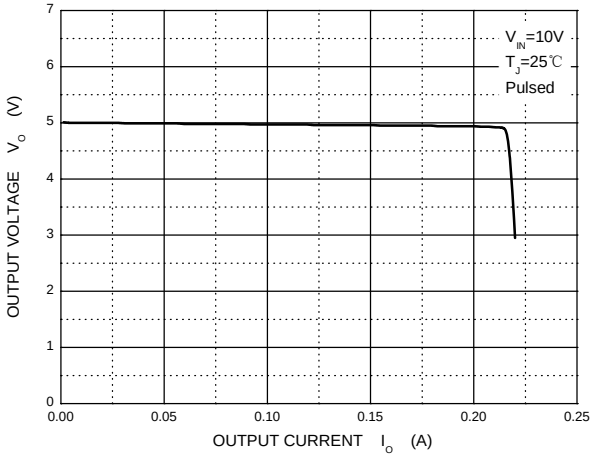
Dropout Characteristics



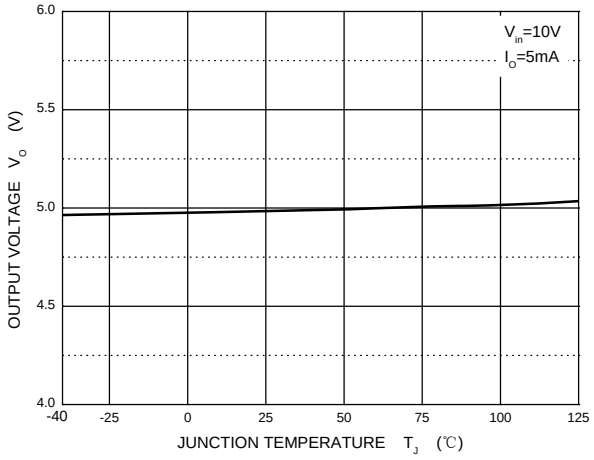
Quiescent Current vs Input Voltage



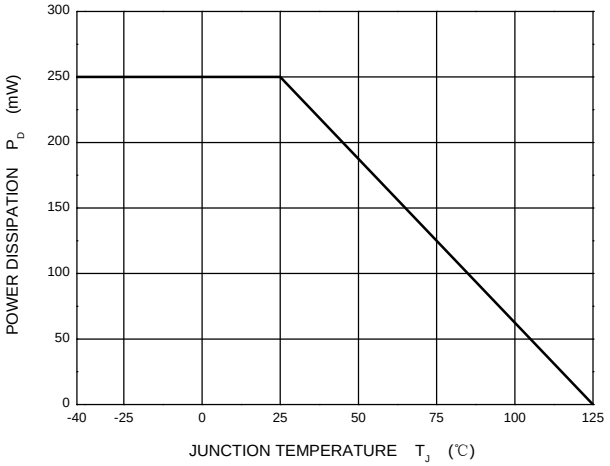
Current Cut-off Grid Voltage



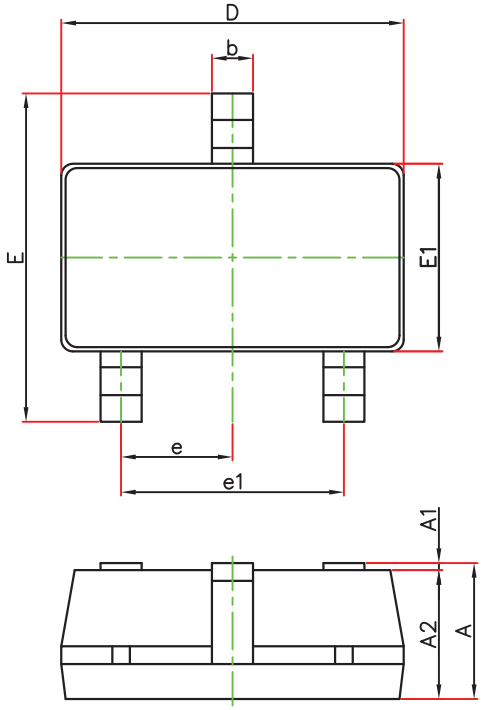
Output Voltage vs Junction Temperature

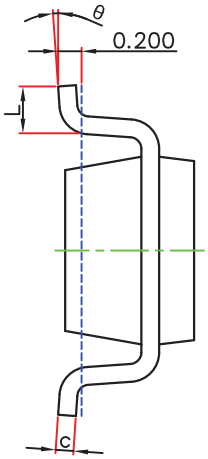


Power Derating Curve



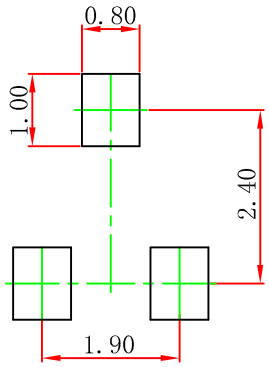
SOT-23-3L Package Outline Dimensions





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-23-3L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

DISCLAIMER

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