

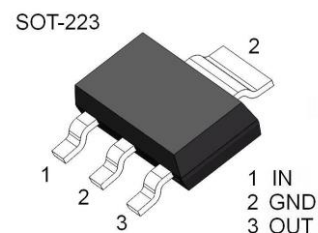


Description

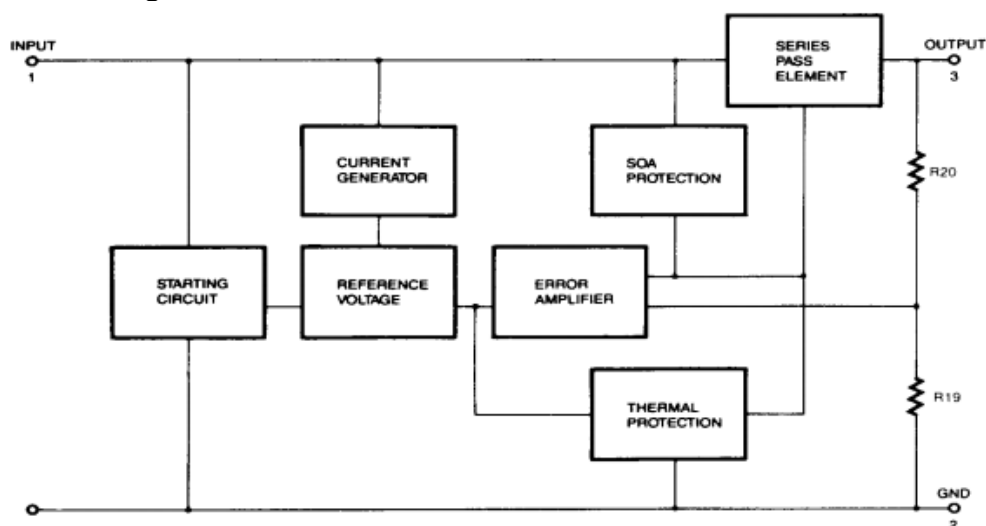
The 78M05 three-terminal positive regulators are available in the SOT-223 package with several fixed output voltages making it useful in a wide range of applications.

Features

- Output Current up to 0.5A
- Output Voltages of 5V
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating area (SOA)Protection



Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Out put Voltage	V_O	5	V
Out put Current	I_O	0.5	A
Power Dissipation	P_D	1.25	W
Operating Temperature Range	T_{OPR}	0 ~ +125	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C



Electrical Characteristics

(Refer to the test circuits, $I_O=350\text{mA}$, $V_I=10\text{V}$, $C_I=0.33\mu\text{F}$, $C_O=0.1\mu\text{F}$ unless otherwise specified)

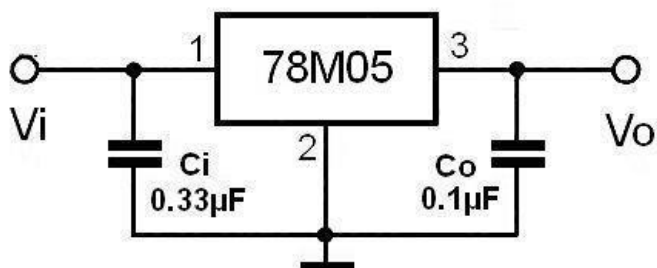
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
		$T_j = 25^\circ\text{C}$	4.8	5	5.2	
Output Voltage	V_O	$V_I = 7 \sim 20\text{V}$ $I_O = 5\text{mA} \sim 350\text{mA}$	4.75	5	5.25	V
Line Regulation	ΔV_O	$I_O = 200\text{mA}$ $T_j = 25^\circ\text{C}$ $V_I = 7 \sim 25\text{V}$			120	mV
		$V_I = 7 \sim 25\text{V}$			60	
Load Regulation	ΔV_O	$I_O = 5\text{mA} \sim 500\text{mA}$, $T_j = 25^\circ\text{C}$			120	mV
		$I_O = 5\text{mA} \sim 200\text{mA}$, $T_j = 25^\circ\text{C}$			60	
Quiescent Current	I_Q	$T_j = 25^\circ\text{C}$			6.0	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{mA} \sim 500\text{mA}$			0.5	mA
		$V_I = 7\text{V} \sim 25\text{V}$			1.2	
Output Voltage Drift	$\Delta V/\Delta T$	$I_O = 5\text{mA}$ $T_j = 0 \text{ to } +125^\circ\text{C}$		-0.5		mV/ $^\circ\text{C}$
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$		40		μV
Ripple Rejection	RR	$f = 120\text{Hz}$, $I_O = 300\text{mA}$ $V_I = 8 \text{ to } 18\text{V}$	60			dB
Dropout Voltage	V_D	$T_j = +25^\circ\text{C}$, $I_O = 500\text{mA}$		2		V
Short Circuit Current	I_{SC}	$T_j = +25^\circ\text{C}$, $V_I = 35\text{V}$		300		mA
Peak Current	I_{PK}			700		mA

Notes:

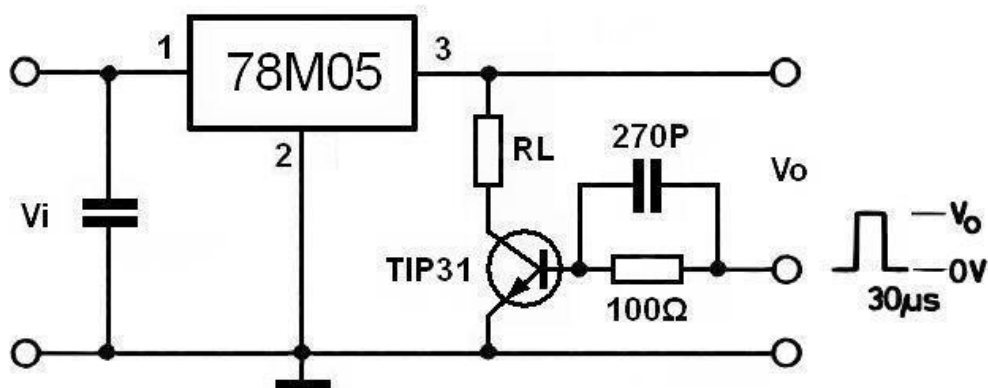
*Load and line regulation are specified at constant junction temperature. Change in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.



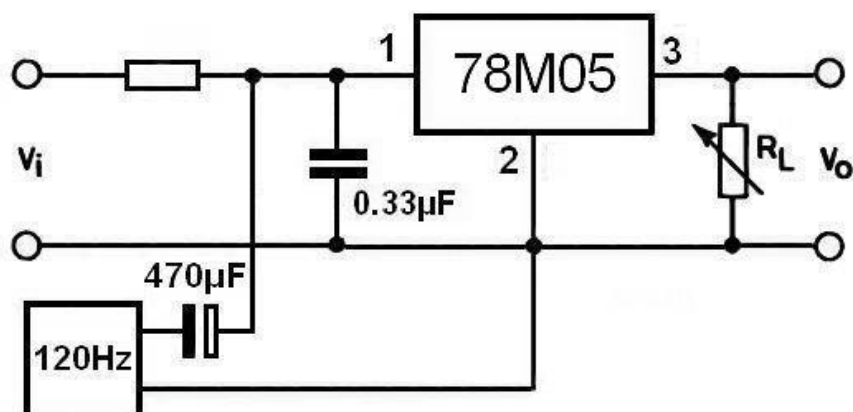
Test Circuits



DC Parameter

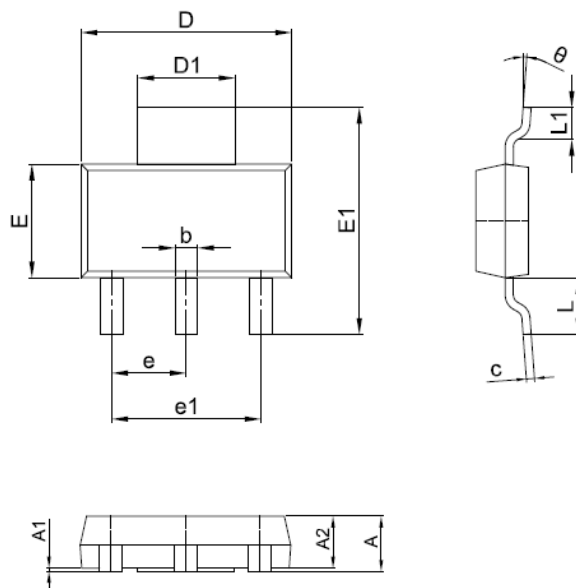


Load Regulation



Ripple Rejection

Package Dimensions



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.50	1.80	0.059	0.071
A1	0.00	0.10	0.000	0.004
A2	1.50	1.70	0.059	0.067
b	0.65	0.75	0.026	0.030
c	0.20	0.30	0.008	0.012
D	6.40	6.60	0.252	0.260
D1	2.90	3.10	0.114	0.122
E	3.30	3.70	0.130	0.146
E1	6.85	7.15	0.270	0.281
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	1.65	1.85	0.065	0.073
L1	0.90	1.15	0.035	0.045