DESCRIPTION

The A78L05 is fix 5V monolithic integrated circuit voltage regulators are suitable for applications that required supply current up to 100mA.

The A78L05 is available in SOT-23, SOT89-3 and TO-92 packages.

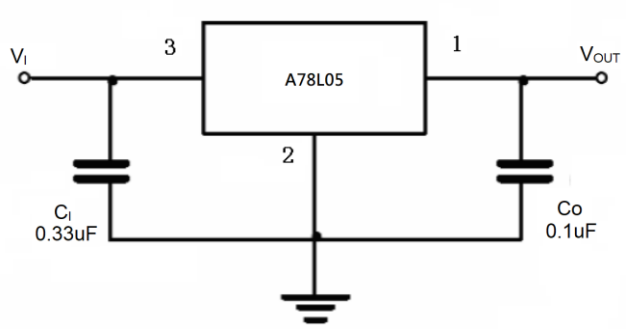
FEATURES

- Maximum Output current: 0.1A
- Output Voltage: 5V
- Thermal Overload Protection
- Short-Circuit Current Limiting
- Output Voltage offered in ±5% Tolerance
- Available in SOT-23, SOT89-3 and TO-92 packages

ORDERING INFORMATION

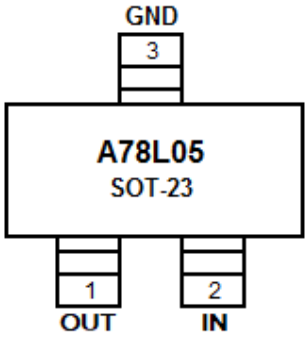
Package Type	Part Number	
SOT-23 SPQ: 3,000pcs/Reel	E3	A78L05E3R
		A78L05E3VR
SOT89-3 SPQ: 1,000pcs/Reel	K3	A78L05K3R
		A78L05K3VR
TO-92 A:SPQ: 2,000pcs/Box B:SPQ: 1,000pcs/Bag	Z	A78L05ZW
		A78L05ZVW
Note	V: Halogen free Package R: Tape & Reel W: A: Ammo Packing B: Bulk Packing	
AiT provides all RoHS products		

APPLICATION CIRCUIT

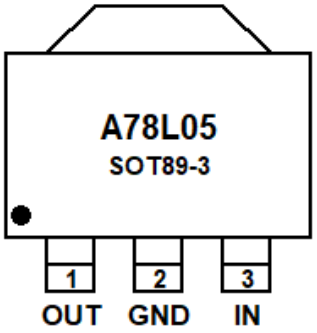


NOTE: Bypass capacitors Co of at least 0.1uF are recommended for optimum stability and transient response.
It should be located as close as possible (recommended to be less than 10mm) to the regulators.

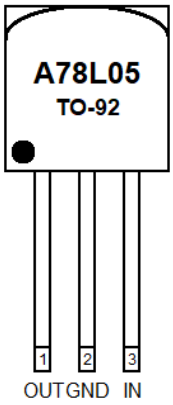
PIN DESCRIPTION



Top View



Top View



Top View

Pin #			Symbol	Function
SOT-23	SOT89-3	TO-92		
1	1	1	OUT	Output
2	3	3	IN	Input
3	2	2	GND	Ground

ABSOLUTE MAXIMUM RATINGS

T_A=25°C

V_I, Input Voltage		30V
P_D, Power Dissipation	SOT-23	350mW
	SOT-89-3	500mW
	TO-92	625mW
T_{OPR}, Operating ambient Temperature Range	SOT-23	0°C ~ +125°C
	SOT-89-3	-25°C ~ +125°C
	TO-92	-25°C ~ +125°C
T_{STG}, Storage Temperature Range		-55°C ~ +150°C

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

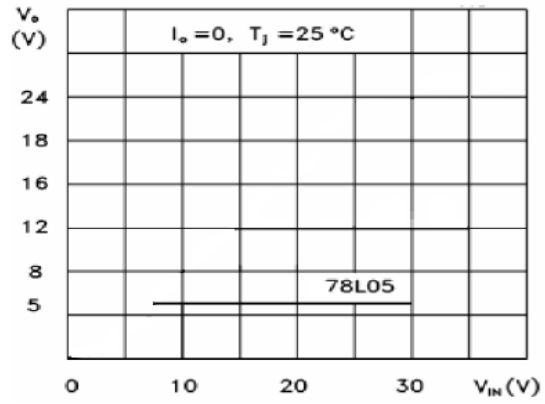
V_I=10V, I_O=40mA, -30<T_J<85℃, C1=0.33μF, C_O=0.1μF[NOTE1], unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	T_J=25℃	4.80	5	5.20	V
		7V≤V_I≤20V; I_O=1mA~40mA	4.75	-	5.25	V
		7V≤V_I≤Vmax; I_O=1mA~70mA	4.75	-	5.25	V
Load Regulation	ΔV_O	V_{IN}=10V; I_O=1mA~100mA	-60	-	60	mV
		V_{IN}=10V; I_O=1mA~40mA	-30	-	30	
Line Regulation	ΔV_O	I_{OUT}=40mA; 7V≤V_I≤20V	-150	-	150	mV
		I_{OUT}=40mA; 8V≤V_I≤20V	-100	-	100	
Quiescent Current	I_Q		-	-	5.5	mA
Quiescent Current Change	ΔI_Q	8V≤V_I≤20V	-1.5	-	1.5	mA
		1mA≤I_O≤40mA	-0.1	-	0.1	
Ripple Rejection	RR	10V≤V_I≤20V; f=120Hz; T_J=25°C	40	-	-	dB
Dropout Voltage	Vd	T_J=25°C	-	2.2	-	V
Short Circuit Current Limit	Isc	T_J=25°C	-	0.41	-	V

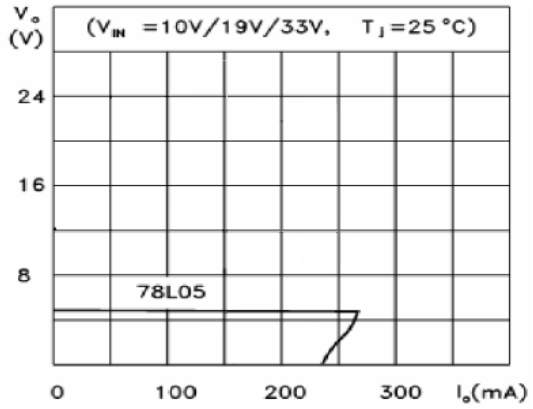
NOTE1: The Maximum steady state usable output current and input voltage are very dependent on the heating sinking and/or lead temperature length of the package. The date above represent pulse test conditions with junction temperatures as indicated at the initiation of test.

TYPICAL PERFORMANCE CHARACTERISTICS

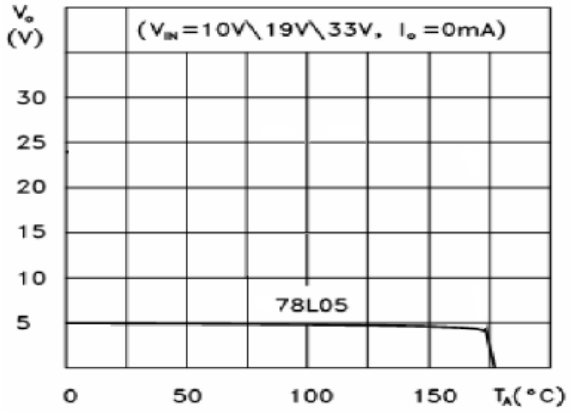
1. Output Characteristics



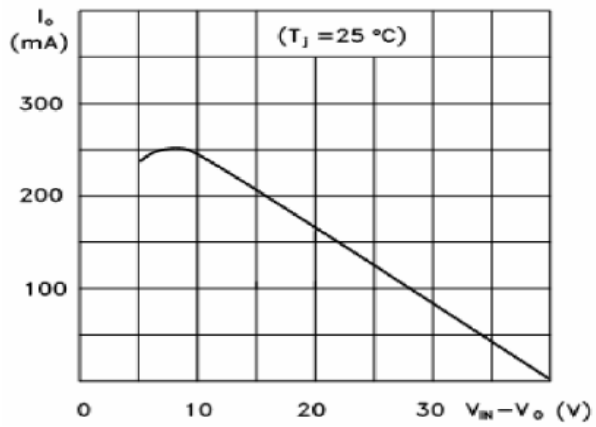
2. Load Characteristics



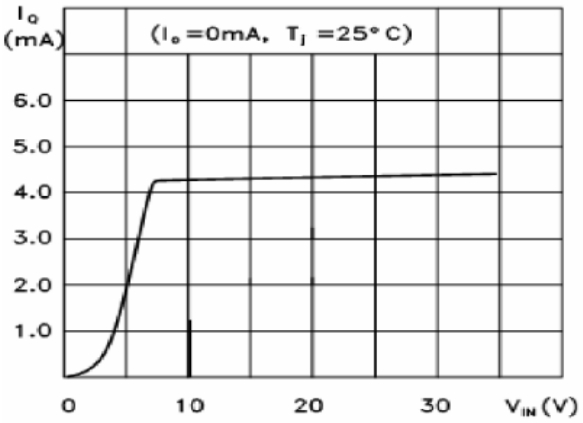
3. Thermal Shutdown



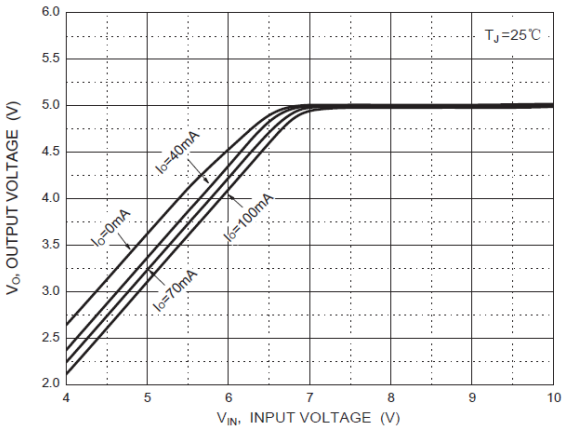
4. Short Circuit Output Current



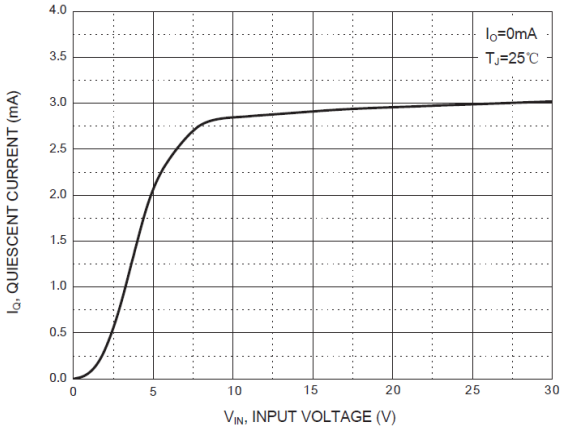
5. Quiescent Current vs. Input Voltage



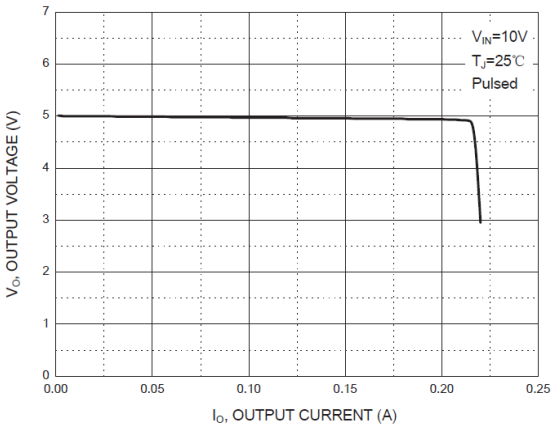
6. Dropout Characteristics



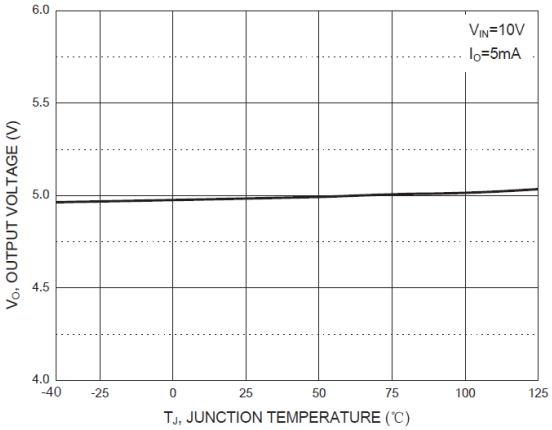
7. Quiescent Current vs. Input Voltage



8. Current Cut-off Grid Voltage

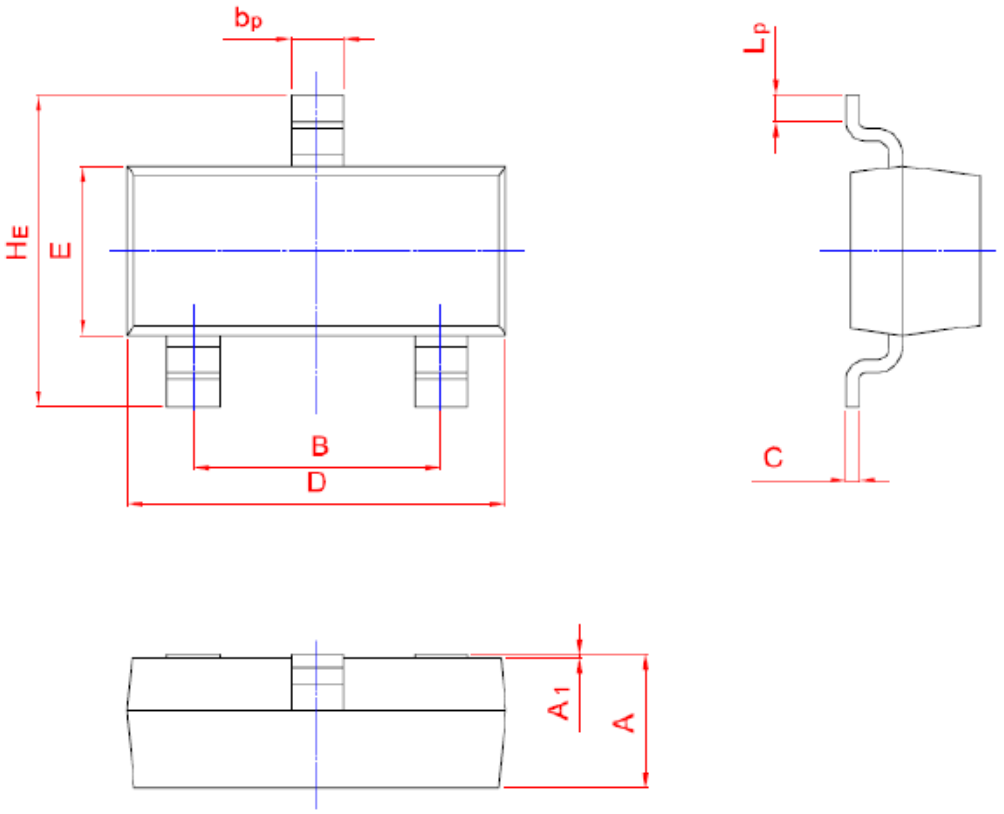


9. Output Voltage vs. Junction Temperature



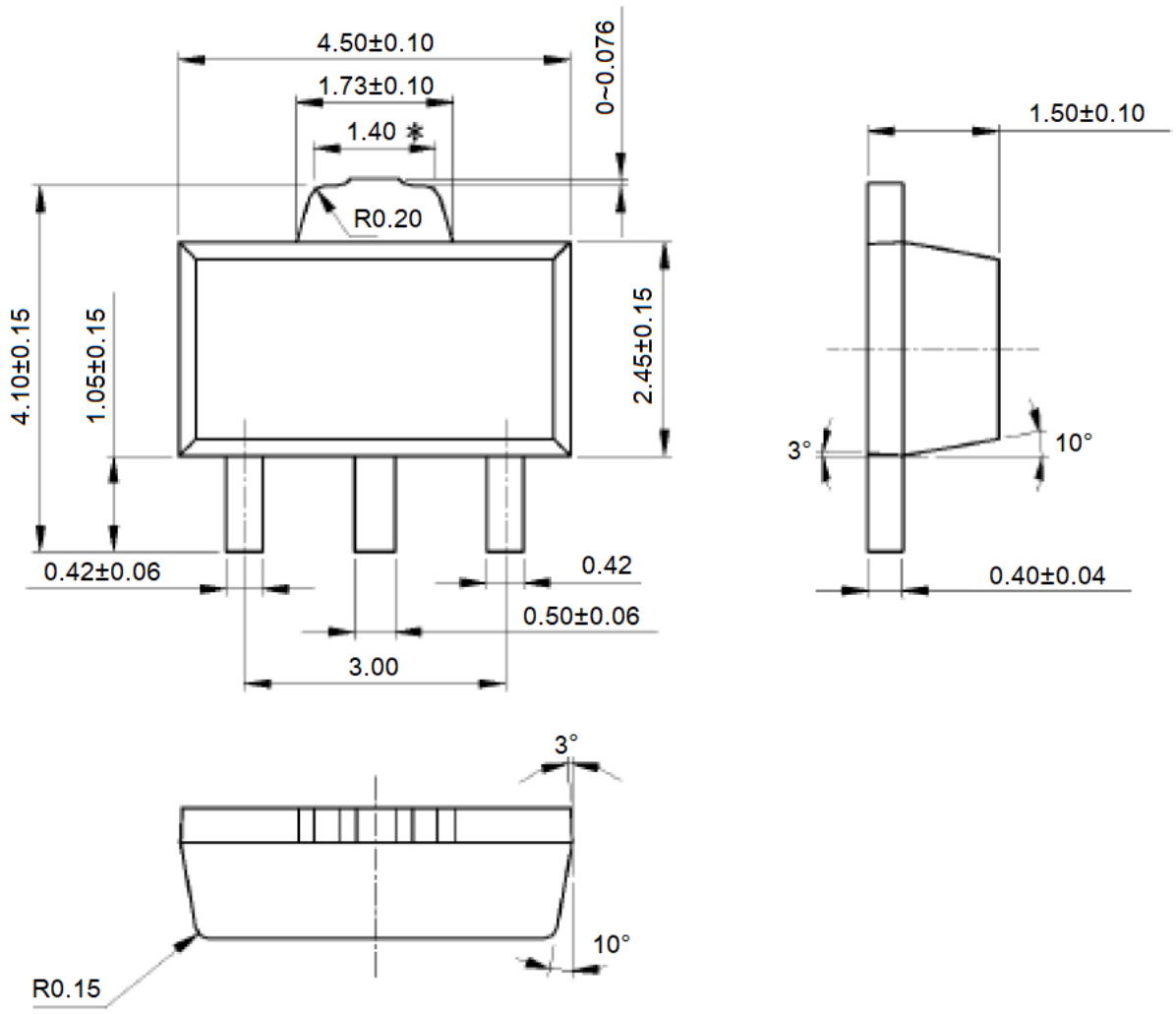
PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)

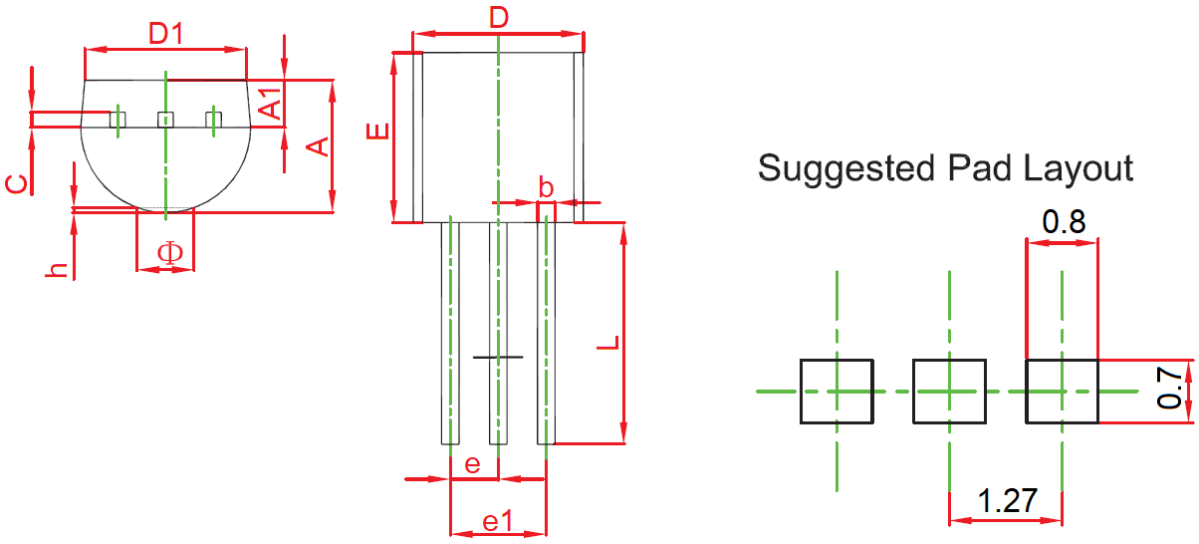


Symbol	Min	Max
A	0.95	1.40
B	1.78	2.04
b_p	0.35	0.50
C	0.08	0.19
D	2.70	3.10
E	1.20	1.65
H_E	2.20	3.00
A_1	0.013	0.100
L_p	0.20	0.50

Dimension in SOT89-3 Package (Unit: mm)



Dimension in TO-92 Package (Unit: mm)



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.310	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
C	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430	-	0.135	-
E	4.300	4.700	0.169	0.185
e	1.270 TYP		0.050 TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Φ	-	1.600	-	0.063
h	0.000	0.380	0.000	0.015

IMPORTANT NOTICE

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