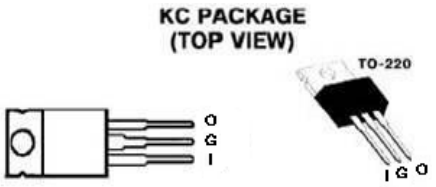
1. Features

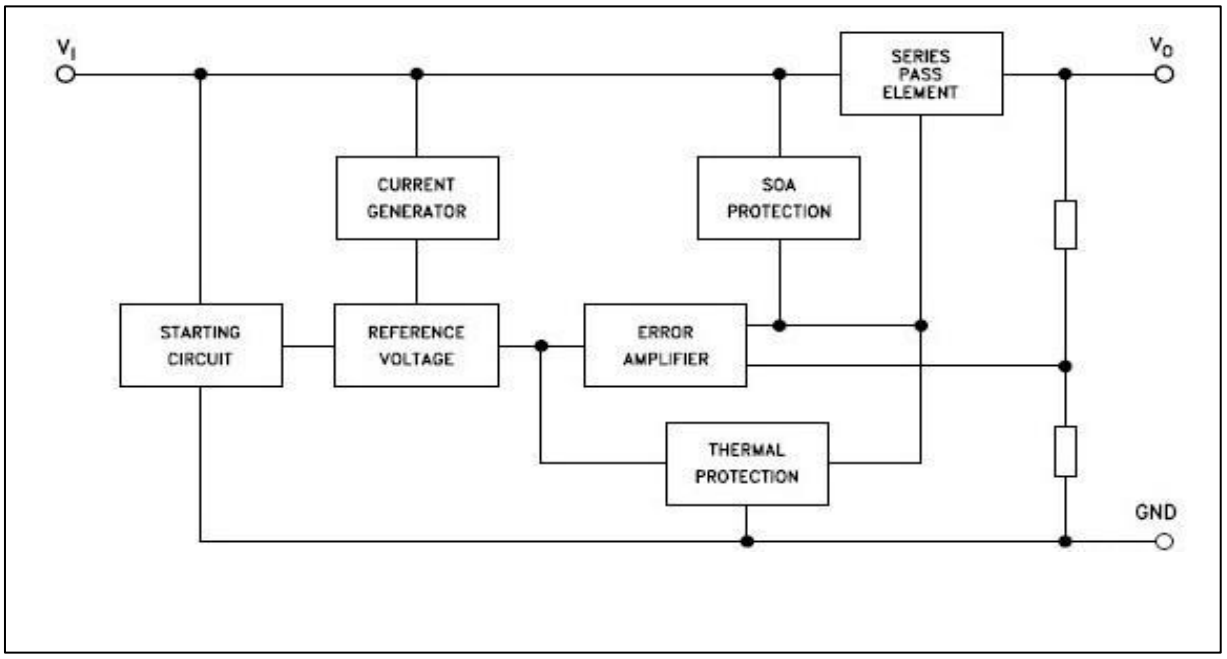
- Output current to 1.5 A
- Output voltage of 5V
- Thermal overload protection
- Short circuit protection
- Output transition SOA protection



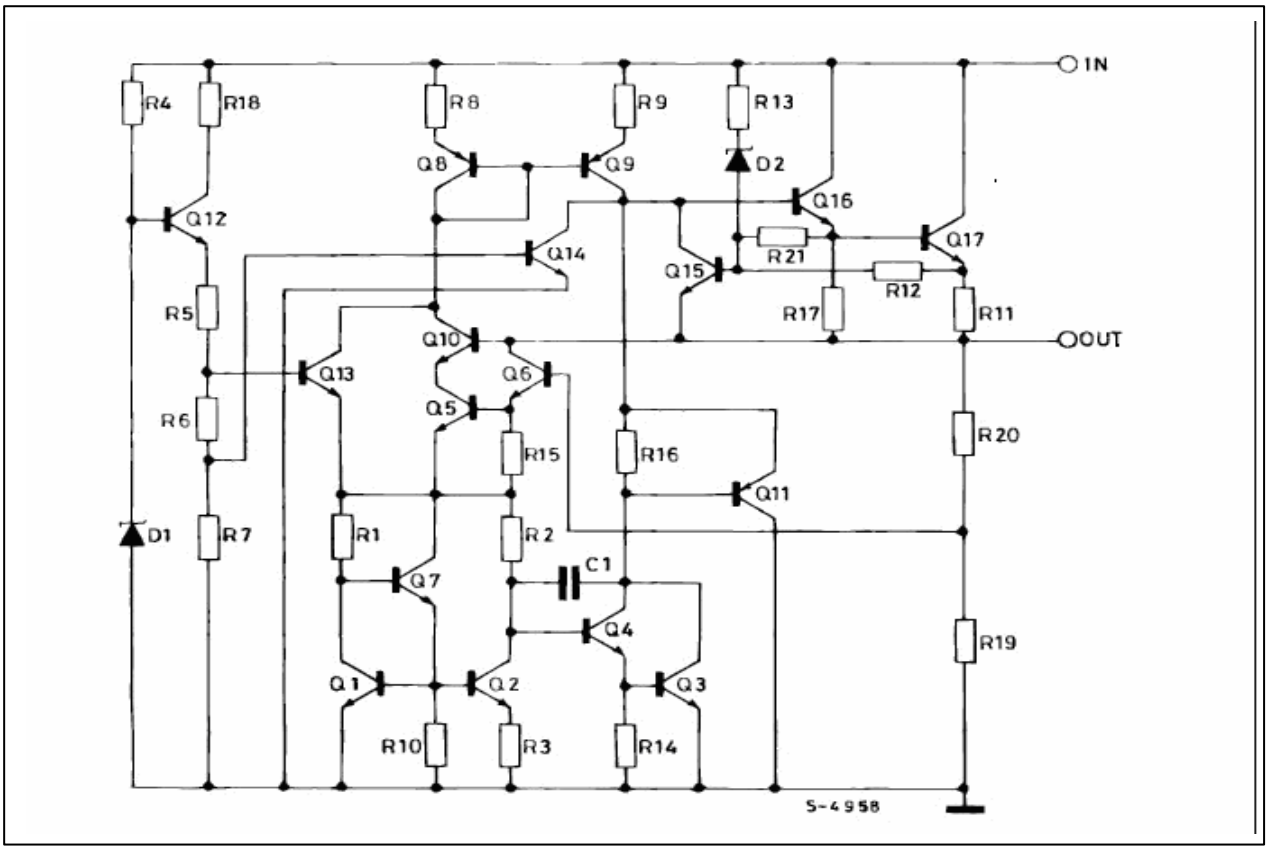
2. Description

The BL78A05 of three-terminal positive regulators is available in TO-220 package, making it useful in a wide range of applications. These regulators can provide lacal on-card regulation, eliminating the distribution problems associated with single point regulation. Each type employs internal current limiting, thermal shut-down and safe area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1.5 A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltage and currents

Block diagram



Schematic diagram



3.Maximum ratings

Absolute maximum ratings

Symbol	Parameter		Value	Unit
V_I	DC input voltage	V_O= 5 V	35	V
I_O	Output current		Internally limited	
P_D	Power dissipation		Internally limited	
T_{STG}	Storage temperature range		-40 to 125	°C
T_{OP}	Operating junction temperature range	BL78A05	0 to 125	°C

Note: Absolute maximum ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied.

4.Electrical characteristics

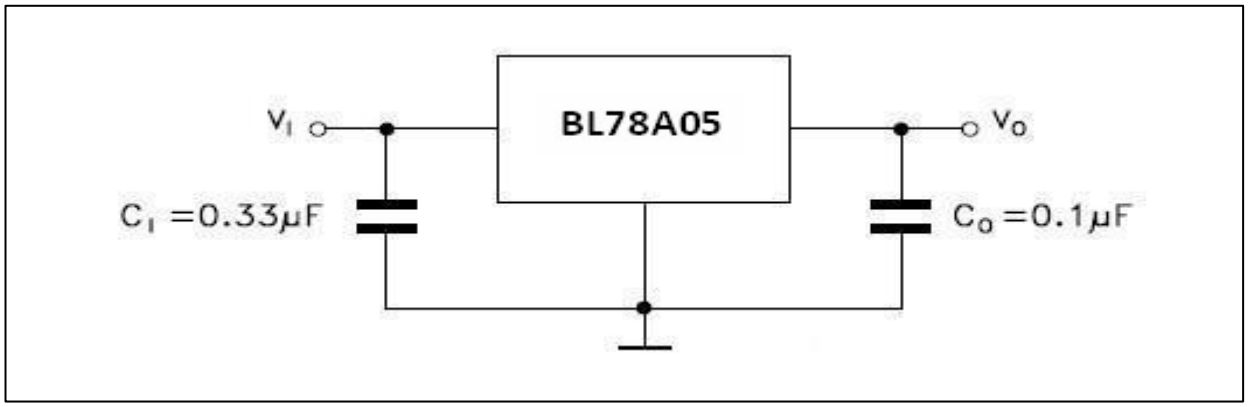
Electrical characteristics of BL78A05 (refer to the test circuits, T_J = -40 to **125°C, V_I= 11 V, I_O = 500mA, C_I= 0.33 µF, C_O = 0.1 µF unless** otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
V_O	Output voltage	T_J = 25°C	4.85	5	5.15	V
V_O	Output voltage	I_O = 5 mA to 1 A, P_O ≤15 W V_I = 8 to 20 V	4.65	5	5.35	V
Δ $V_{O(1)}$	Line regulation	V_I = 7 to 25 V, T_J = 25°C		3	50	mV
		V_I = 8 to 12 V, T_J = 25°C		1	25	
Δ $V_{O(1)}$	Load regulation	I_O = 5 mA to 1.5 A, T_J = 25°C			100	mV
		I_O = 250 to 750 mA, T_J = 25°C			25	
I_d	Quiescent current	T_J = 25°C			8	mA
Δ I_d	Quiescent current change	I_O = 5 mA to 1 A			0.5	mA
		V_I = 8 to 25 V			0.8	
Δ V_O/ÄT	Output voltage drift	I_O = 5 mA		0.6		mV/°C
eN	Output noise voltage	B =10 Hz to 100 kHz, T_J = 25°C			40	µV/V_O
SVR	Supply voltage rejection	V_I = 8 to 18 V, f = 120 Hz	68			dB
V_d	Dropout voltage	I_O = 1 A, T_J = 25°C		2	2.5	V
R_O	Output resistance	f = 1 kHz		17		mÙ
I_{sc}	Short circuit current	V_I = 35 V, T_J = 25°C		0.75	1.2	A
I_{scp}	Short circuit peak current	T_J = 25°C	1.3	1.9	2.2	A

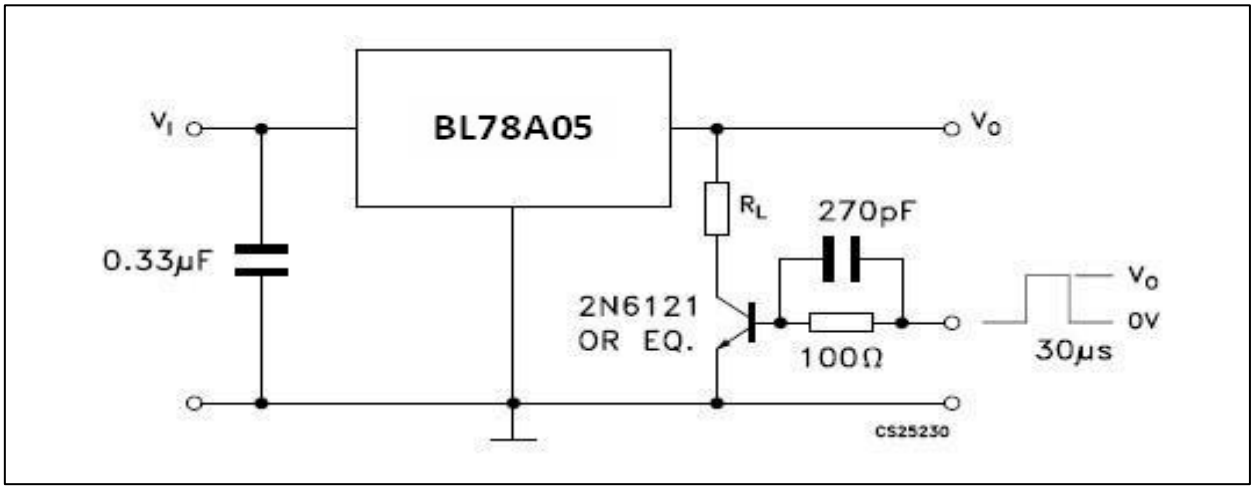
1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

5. Test circuits

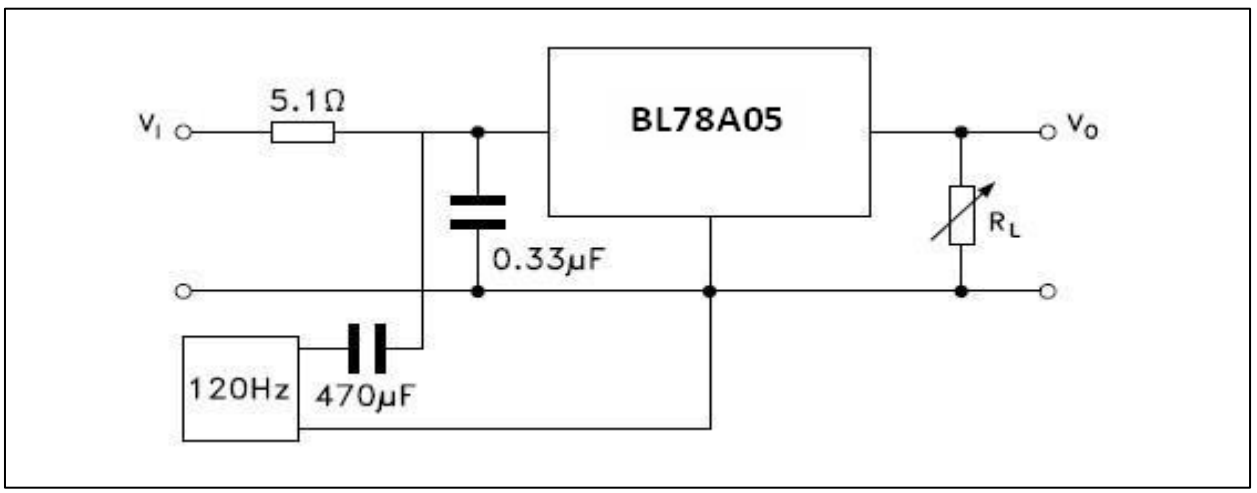
DC parameter



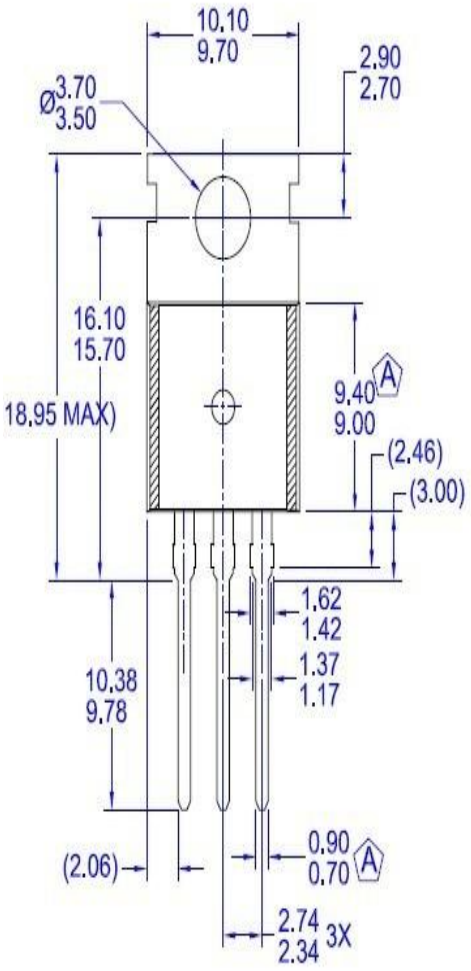
Load regulation

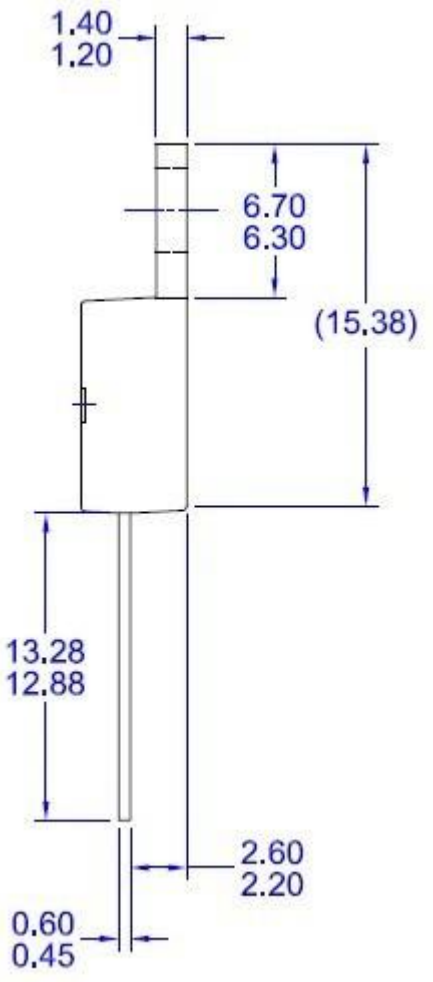


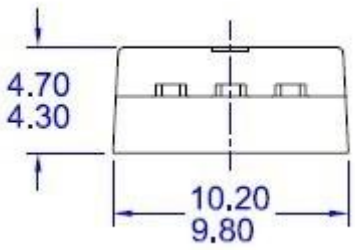
Ripple rejection



6.Package mechanical data







NOTES:

A) CONFIRMS TO JEDEC TO-220 VARIATION AB EXCEPT WHERE NOTED

B) ALL DIMENSIONS ARE IN MILLIMETERS.

C) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.