

TCA700Y

Car Voltage Regulator

Integrated voltage regulator in bipolar technology, specially designed for stabilized power supplies of car instrumentation in vehicles with 12 V system.

This IC features narrow tolerance on output voltage, a low temperature coefficient and is equipped with an automatic current limiter and a thermal overload protection which prevents destruction of the IC in case of accidental overloads, such as short-circuits. A sufficiently large cooling fin must be provided, to ensure that under normal working conditions the maximum permissible junction temperature is not exceeded, otherwise the thermal overload protection would operate.

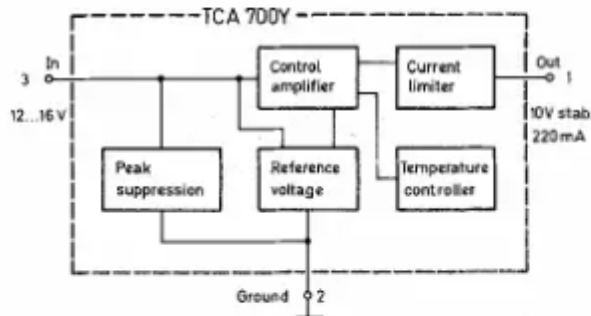


Fig. 1: TCA700Y block diagram

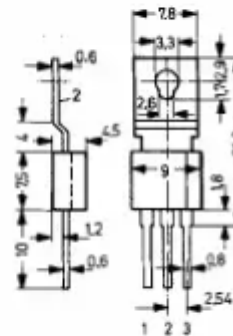


Fig. 2:
Plastic Package similar to TO-202
Pin 2 is connected to the cooling fin.

Weight approx. 1.5 g
Dimensions in mm

All voltages are referred to pin 2.

Absolute Maximum Ratings

	Symbol	Value	Unit
Input Voltage continuous	V_3	-0.5 to +16	V
pulsed, max. 1 s	V_3	20	V
pulsed, max. 0.1 ms with $R_L = 100 \Omega$	V_3	200	V
Input Current, pulsed, exponentially decaying with $\tau = 1$ ms	$-I_3$	15	A
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_s	-40 to +125	°C

Recommended Operating Conditions

	Symbol	Min.	Typ.	Max.	Unit
Load Resistance	$R_{1/2}$	45.5	-	-	Ω

Characteristics at $R_{thS} = 20 \text{ K/W}^1)$, $T_A = 25 \text{ °C}$

	Symbol	Min.	Typ.	Max.	Unit
Stabilized Voltage at $V_3 = 12$ to 16 V , $R_{1/2} = 45.5$ to 330Ω	V_1	9.775	10	10.225	V
at $V_3 = 11.5 \text{ V}$, $R_{1/2} = 45.5 \Omega$	V_1	9.65	-	-	V
at $V_3 = 10.8 \text{ V}$, $R_{1/2} = 45.5 \Omega$	V_1	8.95	-	-	V
Temperature Coefficient of Stabilized Voltage at $V_3 = 13.5 \text{ V}$, $R_{1/2} = 70 \Omega$	$\frac{\Delta V_1}{\Delta T_C}$	-	-0.5	-	$\frac{\text{mV}}{\text{K}}$
Current Limiting starts at	$-I_1$	220	-	-	mA
Current Consumption at $I_1 = 0$	I_3	-	8	-	mA
Thermal Resistance, Junction to Cooling Fin	R_{thC}	-	-	10	K/W

¹⁾ R_{thS} is the thermal resistance between heat sink and ambient air.