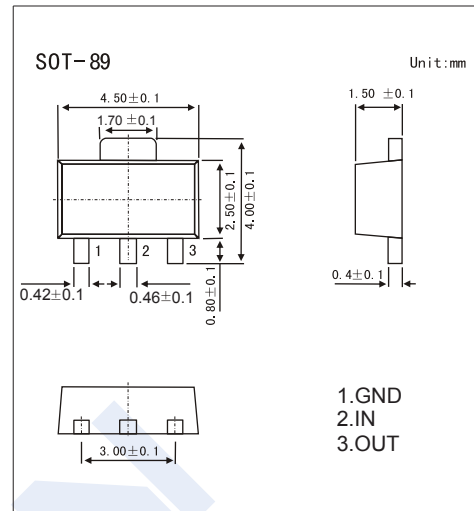


## Three-Terminal Negative Voltage Regulator

## KA090Q05

## ■ Features

- Maximum Output current  $I_{om}$ : 0.1 A
- Output voltage  $V_o$ : -5 V
- Continuous total dissipation  $P_d$ : 0.5 W
- Marking Code: Q95

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Input Voltage	$V_i$	-30	V
Operating Junction Temperature Range	$T_{OPR}$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ\text{C}$

■ Electrical Characteristics ( $V_i = -10\text{V}$ ,  $I_o = 40\text{mA}$ ,  $0^\circ\text{C} < T_j < 125^\circ\text{C}$ ,  $C_i = 0.33 \mu\text{F}$ ,  $C_o = 0.1 \mu\text{F}$ , unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Output voltage	$V_o$	$T_j = 25^\circ\text{C}$	-4.8	-5.0	-5.2	V
		$-7\text{V} \leq V_i \leq -20\text{V}$ , $I_o = 1\text{mA} - 40\text{mA}$	-4.75	-5.0	-5.25	V
		$I_o = 1\text{mA} - 70\text{mA}$	-4.75	-5.0	-5.25	V
Load regulation	$\Delta V_o$	$T_j = 25^\circ\text{C}$ , $I_o = 1\text{mA} - 100\text{mA}$		11	60	mV
		$T_j = 25^\circ\text{C}$ , $I_o = 1\text{mA} - 40\text{mA}$		5.0	30	mV
Line regulation	$\Delta V_o$	$-7\text{V} \leq V_i \leq -20\text{V}$ , $T_j = 25^\circ\text{C}$		32	150	mV
		$-8\text{V} \leq V_i \leq -20\text{V}$ , $T_j = 25^\circ\text{C}$		26	100	mV
Quiescent current	$I_q$	$T_j = 25^\circ\text{C}$		3.8	6	mA
Quiescent current change	$\Delta I_q$	$0^\circ\text{C} < T_j < 125^\circ\text{C}$ , $-8\text{V} \leq V_i \leq -20\text{V}$			1.5	mA
	$\Delta I_q$	$0^\circ\text{C} < T_j < 125^\circ\text{C}$ , $1\text{mA} \leq I_o \leq 40\text{mA}$			0.1	mA
Output noise voltage	$V_n$	$10\text{Hz} \leq f \leq 100\text{KHz}$ , $T_j = 25^\circ\text{C}$		42		$\mu\text{V}$
Ripple rejection	RR	$-8\text{V} \leq V_i \leq -18\text{V}$ , $f = 120\text{Hz}$	41	49		dB
Dropout voltage	$V_d$	$T_j = 25^\circ\text{C}$ ,		1.7		V

## ■ Typical Application

