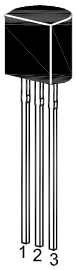
ST 78L05

3-Terminal positive voltage regulator



1. Output 2. Common 3. Input
TO-92 Plastic Package

Features

- Internal short-circuit current limiting
- Internal thermal overload protection
- Maximum output current of 100 mA (T_j = 25°C)

Absolute Maximum Ratings (T_a = 25°C)

Parameter	Symbol	Value	Unit
Input Voltage	V_{IN}	35	V
Power Dissipation	P_{tot}	800	mW
Operating Temperature	T_{opr}	- 30 to + 75	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Electrical Characteristics (Unless otherwise specified, V_{IN} = 10 V, I_{OUT} = 40 mA, C_{IN} = 0.33 µF, C_{OUT} = 0.1 µF, T_j = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Output Voltage	V_{OUT}	4.8	5	5.2	V
Input Regulation 7 V ≤ V_{IN} ≤ 20 V 8 V ≤ V_{IN} ≤ 20 V	Reg. line	 - -	 55 45	 150 100	mV
Load Regulation 1 mA ≤ I_{OUT} ≤ 100 mA 1 mA ≤ I_{OUT} ≤ 40 mA	Reg. load	 - -	 11 5	 60 30	mV
Output Voltage 7 V ≤ V_{IN} ≤ 20 V 1 mA ≤ I_{OUT} ≤ 40 mA	V_{OUT}	4.75	-	5.25	V
Output Voltage V_{IN} = 10 V 1 mA ≤ I_{OUT} ≤ 70 mA	V_{OUT}	4.75	-	5.25	V
Quiescent Current	I_B	-	3.1	6	mA
Quiescent Current Change 8 V ≤ V_{IN} ≤ 20 V With line 1 mA ≤ I_{OUT} ≤ 40 mA With load	ΔI_B	 - -	 - -	 1.5 0.1	mA
Output Noise Voltage at T_a = 25°C, 10 Hz ≤ f ≤ 100 KHz	V_{NO}	-	40	-	µV
Ripple Rejection at f = 120 Hz, 8 V ≤ V_{IN} ≤ 18 V, T_j = 25°C	RR	41	49	-	dB
Dropout Voltage at T_j = 25°C	$\lvert V_{IN}-V_{OUT} \rvert$	-	1.7	-	V
Average Temperature Coefficient of Output Voltage at I_{OUT} = 5 mA	TC_{VO}	-	-0.6	-	mV/°C

Fig.1 78L05 Output Voltage vs Ambient Temperature

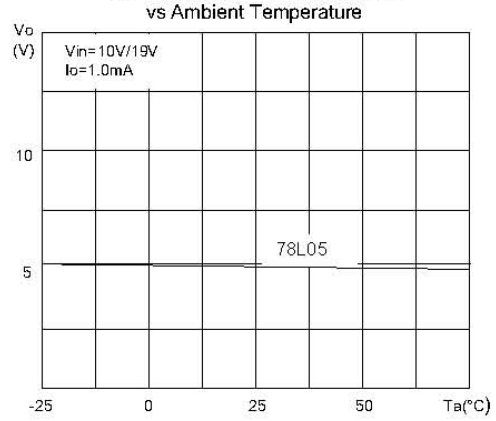


Fig.2 78L05 Quiescent Current vs Output Current

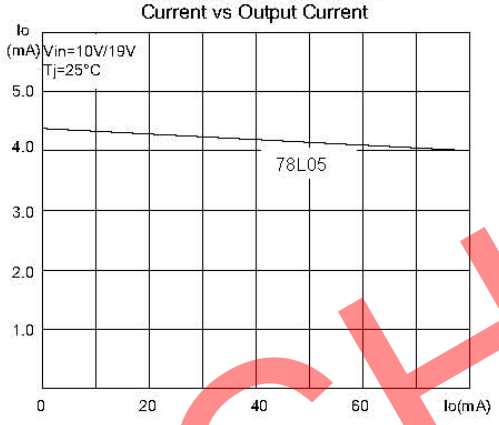


Fig.3 78L05 Quiescent Current vs Input

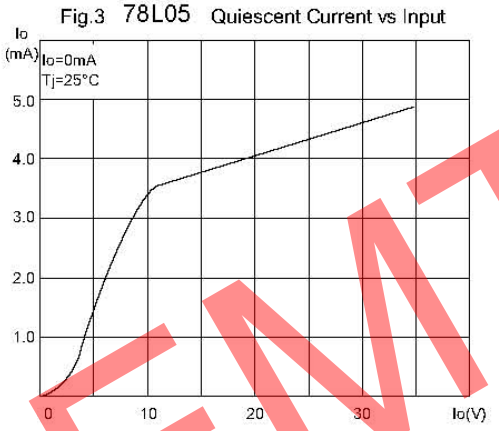


Fig.4 78L05 Thermal Shutdown

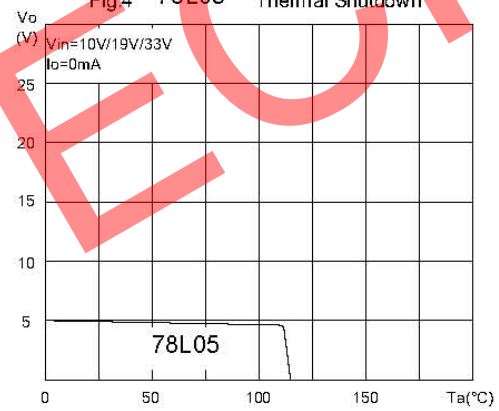


Fig.5 78L05 Output Characteristics

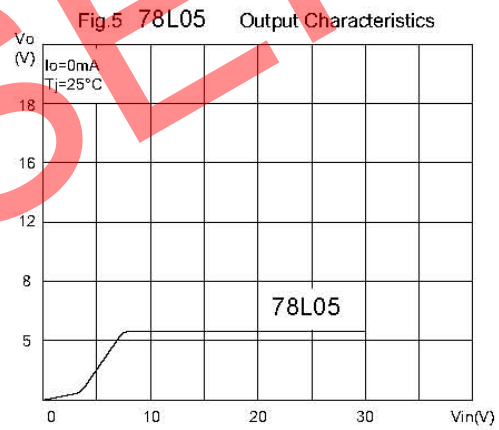


Fig.6 78L05 Dropout Characteristics