



DC COMPONENTS CO., LTD.  
INTEGRATED CIRCUIT

DM78L05  
DM78L05A

TECHNICAL SPECIFICATIONS OF LOW CURRENT POSITIVE VOLTAGE REGULATOR

Description

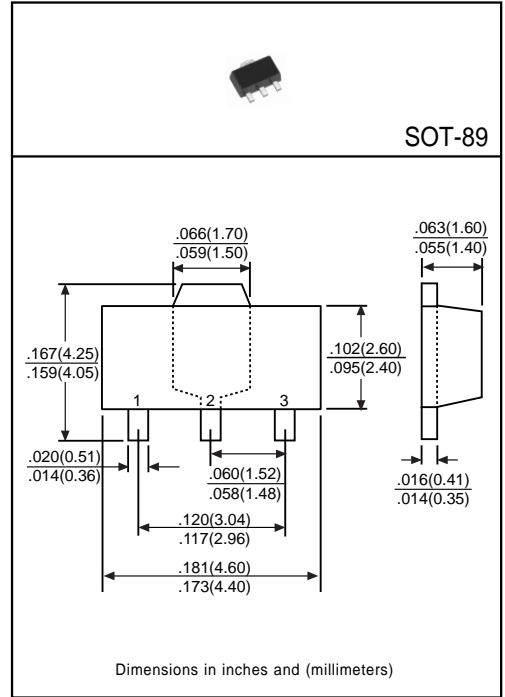
These regulators employ internal current limiting and thermal shutdown, making them essentially indestructible. They can deliver up to 100mA output current, if the case temperature can keep in  $T_c=25^{\circ}\text{C}$ . They are intended as fixed voltage regulators in a wide range of applications including local(on-card) regulation for elimination of noise and distribution problems associated with single-point regulation. In addition, they can be used with power pass elements to make high-current voltage regulators.

Pinning

- 1 = Output
- 2 = Ground
- 3 = Input

Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$ )

Characteristic	Symbol	Rating	Unit
Input Voltage	$V_i$	30	V
Total Power Dissipation	$P_d$	Internal limit	W
Operating Temperature Range	$T_{opr}$	0 to +125	$^{\circ}\text{C}$
Maximum Junction Temperature	$T_j$	125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to +150	$^{\circ}\text{C}$
Lead Temperature(Soldering 10 Sec.)	$T_L$	260	$^{\circ}\text{C}$



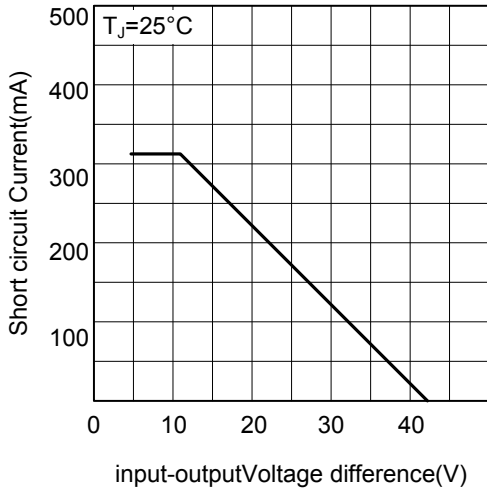
Electrical Characteristics

( $V_{in}=10\text{V}$ ,  $I_{out}=40\text{mA}$ ,  $0^{\circ}\text{C}\leq T_j\leq 125^{\circ}\text{C}$ ,  $C_{in}=0.33\mu\text{F}$ ,  $C_{out}=0.1\mu\text{F}$ , unless otherwise specified)

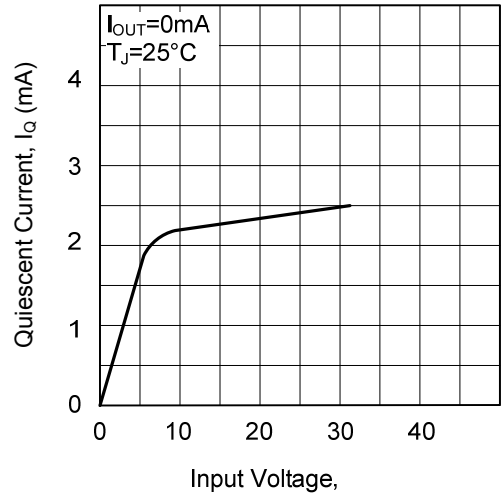
Characteristic	Symbol	Min	Typ	Max	Unit	Test Conditions
Output Voltage	DM78L05A	4.85	5.00	5.15	V	$T_j=25^{\circ}\text{C}$ $1\text{mA}\leq I_o\leq 70\text{mA}$ $1\text{mA}\leq I_o\leq 40\text{mA}$ , $7\text{V}\leq V_{in}\leq 25\text{V}$
	DM78L05	4.75	5.00	5.25		
		4.75	-	5.25		
		4.75	-	5.25		
Line Regulation	$Reg_{line}$	-	-	150	mV	$T_j=25^{\circ}\text{C}$ , $7\text{V}\leq V_{in}\leq 20\text{V}$
		-	-	100		$T_j=25^{\circ}\text{C}$ , $8\text{V}\leq V_{in}\leq 20\text{V}$
Load Regulation	$Reg_{load}$	-	-	30	mV	$T_j=25^{\circ}\text{C}$ , $1\text{mA}\leq I_o\leq 40\text{mA}$
		-	-	60		$T_j=25^{\circ}\text{C}$ , $1\text{mA}\leq I_o\leq 100\text{mA}$
Input Bias Current	$I_{IB}$	-	-	5.0	mA	$T_j=25^{\circ}\text{C}$
Input Bias Current Change	$\Delta I_{IB}$	-	-	0.1	mA	$1\text{mA}\leq I_o\leq 40\text{mA}$
		-	-	1.0		$8\text{V}\leq V_{in}\leq 20\text{V}$
Output Noise Voltage	$V_n$	-	40	-	$\mu\text{V}$	$T_A=25^{\circ}\text{C}$ , $10\text{Hz}\leq f\leq 100\text{KHz}$
Ripple Rejection	RR	47	62	-	dB	$8\text{V}\leq V_{in}\leq 16\text{V}$ , $f=120\text{Hz}$
Dropout Voltage	$V_D$	-	1.7	-	V	$T_j=25^{\circ}\text{C}$
Peak Output Current	$I_{max}$	-	140	-	mA	$T_j=25^{\circ}\text{C}$

## Electrical Characteristic Curves

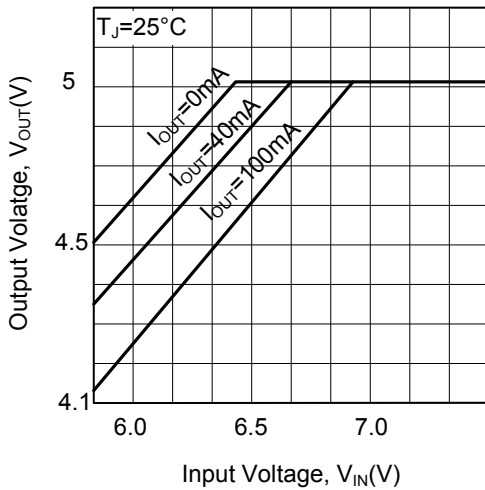
Short Circuit output current



DM78L05 Quiescent Current vs. Input Voltage



DM78L05 Dropout Characteristics



DM78L05 Output Voltage vs. Ambient temperature

