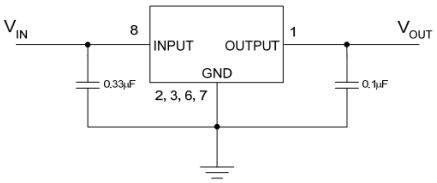
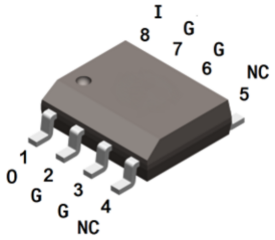
78L05-S8

Three-terminal Positive Voltage Regulator

Features

- If adequate heat sinking is provided, they can deliver over 100mA output current
- Thermal overload protection
- Short circuit current limiting
- Output voltage of 5V





SOP-8

Mechanical Data

- Case: SOP-8
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
78L05-S8	SOP-8	4000 pcs / Tape & Reel	78L05

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V_I	30	V
Maximum Output Current	I_{CM}	100	mA

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	P_D	0.75	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	180	°C/W
Operating Temperature Range	T_{OPR}	-40 ~ +125	°C
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C

Electrical Characteristics (I_O = 40mA, V_I = 10V, C_I = 0.33μF, C_O = 0.1μF, T_J = 0℃ to 125℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	V_O	T_J = 25℃	4.8	5.0	5.2	V
		1mA < I_O < 40mA 7V ≤ V_I ≤ 20V	4.75	-	5.25	V
		1mA < I_O < 70mA, V_I =10V	4.75	-	5.25	V
Line Regulation	ΔV_O	7V ≤ V_I ≤ 20V, T_J = 25℃	-	55	150	mV
		8V ≤ V_I ≤ 20V, T_J = 25℃	-	2	100	mV
Load Regulation	ΔV_O	1mA ≤ I_O ≤ 100mA, T_J = 25℃	-	11	60	mV
		1mA ≤ I_O ≤ 40mA, T_J = 25℃	-	5	30	mV
Quiescent Current	I_Q	T_J = 25℃	-	3	6	mA
		T_J = 125℃	-	-	5.5	mA
Quiescent Current Change	ΔI_Q	8V ≤ V_I ≤ 20V	-	-	1.5	mA
		1mA ≤ I_O ≤ 40mA	-	-	0.1	mA
Output Voltage Drift	ΔV_O /ΔT	I_O = 5mA, 0 ≤ T_J ≤ 125℃	-	0.65	-	mV/°C
Output Noise Voltage	V_N	10Hz ≤ f ≤ 100kHz, T_J = 25℃	-	40	-	μV
Ripple Rejection	RR	8V ≤ V_I ≤ 18V, f = 120Hz T_J = 25℃	41	90	-	dB
Dropout Voltage	V_D	T_J = 25℃	-	1.7	-	V

TYPICAL CHARACTERISTICS (@ T_A = 25°C unless otherwise specified)

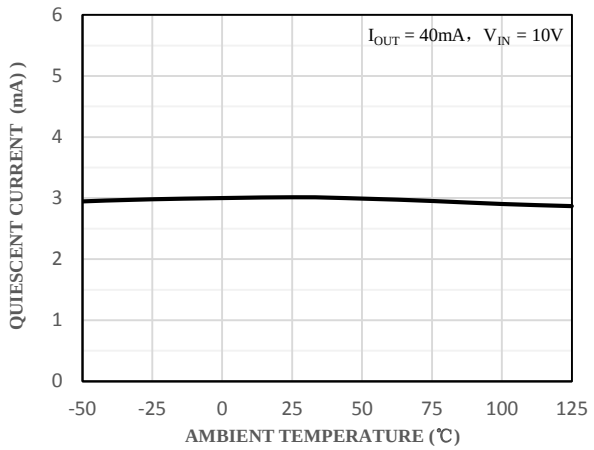


Fig 1 Quiescent Current vs. Temperature

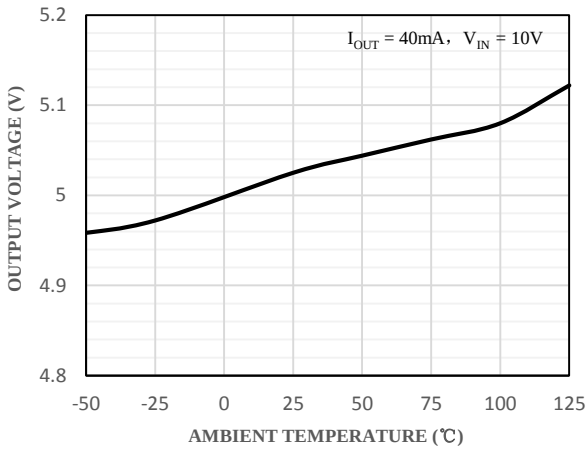


Fig 2 Output Voltage vs. Temperature

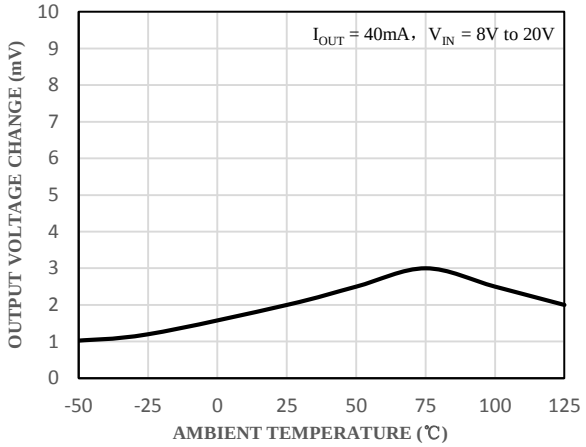


Fig 3 Line Regulation vs. Temperature

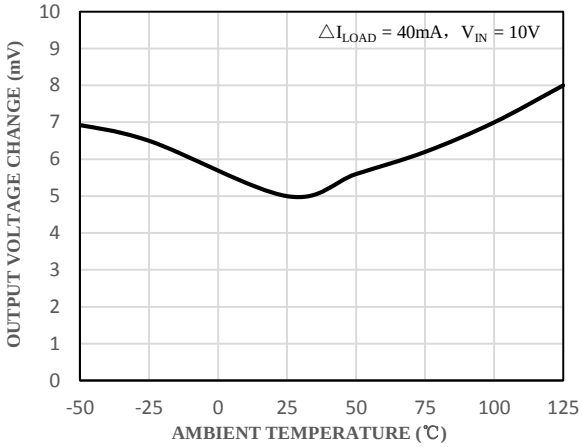


Fig 4 Load Regulation vs. Temperature

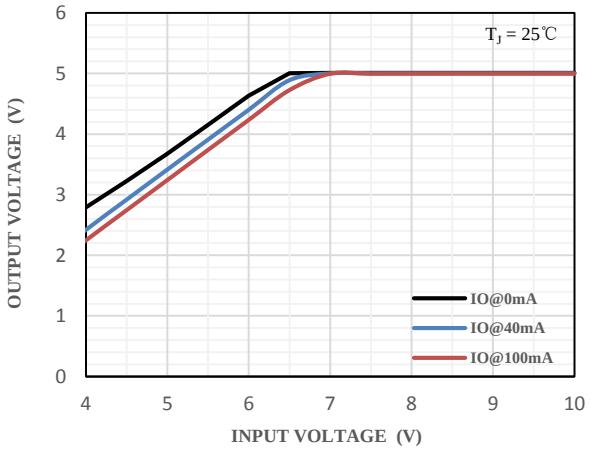


Fig 5 Output Voltage vs. Input Voltage

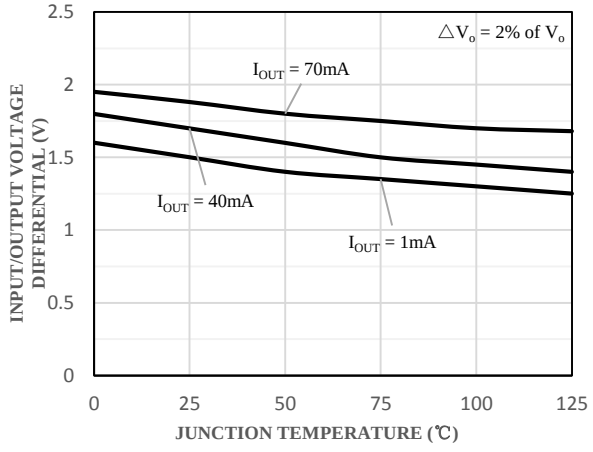


Fig 6 Dropout Voltage vs. Junction Temperature

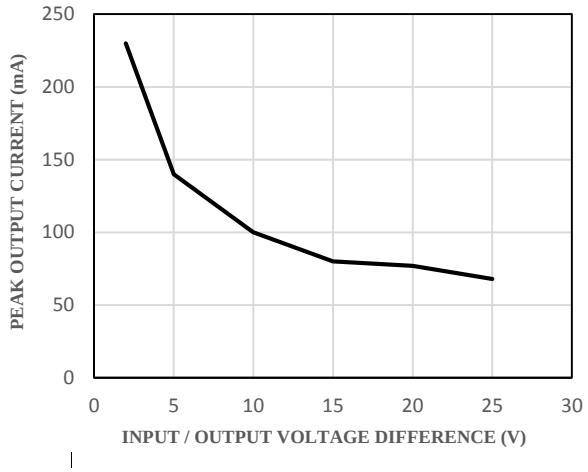


Fig 7 Peak Output Current vs. Dropout Voltage Difference

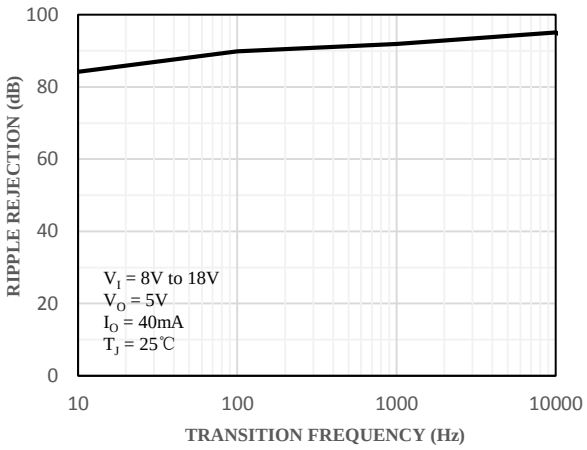
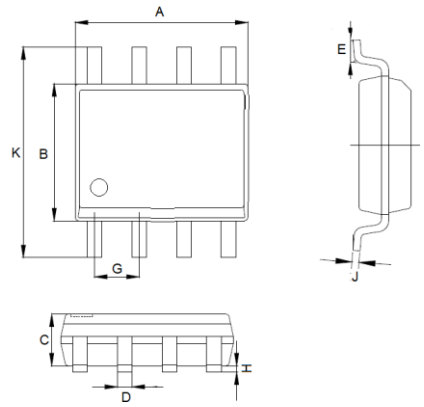


Fig 8 Ripple Rejection vs. Transition Frequency

Package Outline Dimensions (Unit: mm)



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Dimension	**Min.**	**Max.**
A	4.80	5.20
B	3.80	4.20
C	1.30	1.50
D	0.30	0.50
E	0.40	1.00
G	1.17	1.37
H	0.10	0.30
J	0.10	0.30
K	5.80	6.20

Mounting Pad Layout (Unit: mm)

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