

78L05

DATASHEET

Specification Revision History:

Version	Date	Description
V1.0	2021/01	New
V1.1	2023/09	Modify Ordering Information
V1.2	2025/02	Modify Ordering Information
V1.3	2025/03	Add application precautions and overall typesetting.
V1.4	2026/07	Add outline dimensions.

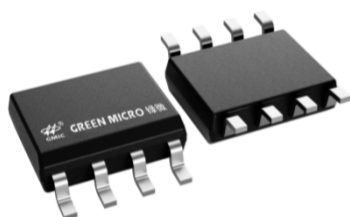
DESCRIPTION

The 78L05 family is monolithic fixed voltage regulator integrated circuit. They are suitable for applications that required supply current up to 100mA

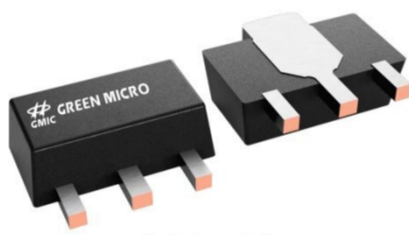
FEATURES

- * Output current up to 100mA
- * Output voltage of 5V
- * Thermal overload shutdown protection
- * Short circuit current limiting

THE APPEARANCE OF THE PRODUCT



SOP-8

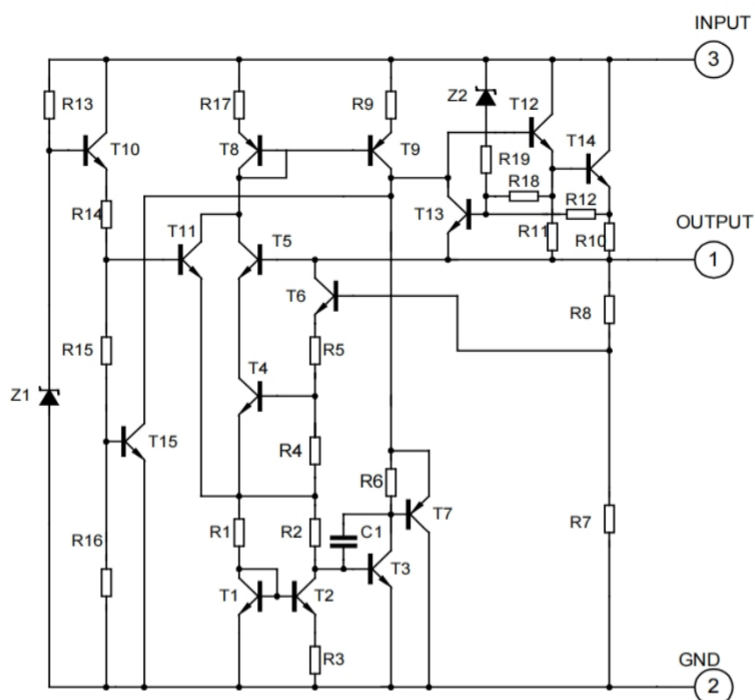


SOT-89-3

ORDERING INFORMATION

Product Model	Package Type	Packing	Packing Qty
L78L05ABS	SOP-8	REEL	2500PCS/REEL
78L05AFO	SOT-89-3	REEL	1000PCS/REEL

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

(Operating temperature range applies unless otherwise specified)

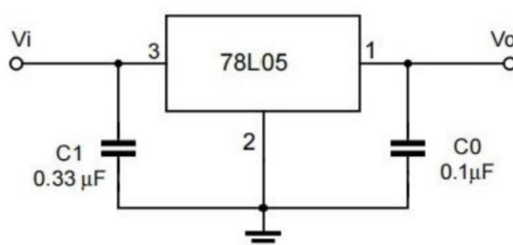
PARAMETER	SYMBOL	MIN.	MAX.	UNIT
Input voltage(for $V_o=5\sim 9V$)	V_i		32	V
Output Current	I_o		100	mA
Power Dissipation SOP-8 TO-92 SOT-89	P_D		300 500 350	mW
operating Junction Temperature Range	T_{OPR}	-10	+110	°C
Storage Temperature Range	T_{STG}	-55	+150	°C

78L05 ELECTRICAL CHARACTERISTICS

($V_I=10V$, $I_O=40mA$, $0^{\circ}C < T_J < 125^{\circ}C$, $C_1=0.33\mu F$, $C_O=0.1\mu F$, unless otherwise specified)(Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP.	MAX	UNIT
Output Voltage	V_O	$T_J=25^{\circ}C$	4.80	5.0	5.20	V
		$7V \leq V_K=20V, I_O=5mA-40mA$	4.75		5.25	V
Load Regulation	V_O	$T_i=25^{\circ}C, I_O=5mA-100mA$		11	80	mV
		$T_J=25^{\circ}C, I_O=5mA-40mA$		5.0	40	mv
Line regulaion	V_O	$7V \leq V_I \leq 20V, T_J=25^{\circ}C$		8	150	mV
		$8V \leq V_I \leq 20V, T_J=25^{\circ}C$		6	100	mV
Quiescent Current	ΔI_q	$V_{IN}=10V, I_O=0mA, T_J=25^{\circ}C$		2.0	5.5	mA
Quiescent Current Change	ΔI_q	$8V \leq V_I \leq 20V$			1.5	mA
	ΔI_q	$5mA \leq V_I \leq 40mA$			0.1	mA
Output Noise Voltage	V_N	$10Hz \leq f \leq 100kHz$		40		μV
Temperature coefficient of V_O	V_O/T	$I_O=5mA$		-0.65		mV/C
Ripple Rejection	RR	$8V \leq V_I \leq 20V, f=120Hz, T_J=25^{\circ}C$	41	80		dB
Dropout Voltage	V_d	$T_J=25^{\circ}C$		1.7		

APPLICATION CIRCUIT

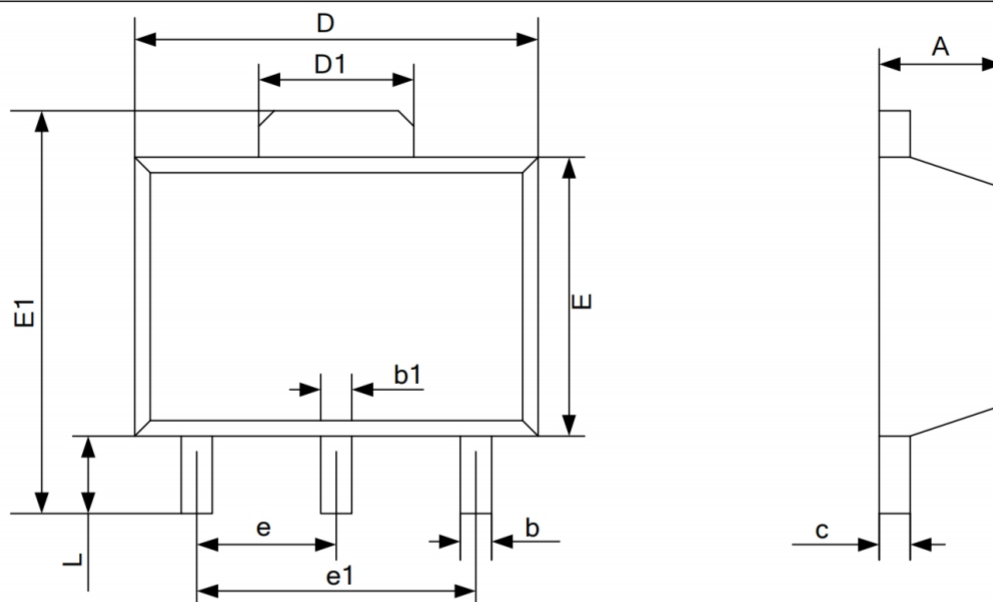


Note 1: To specify an output voltage, substitute voltage value for "XX".

Note 2: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

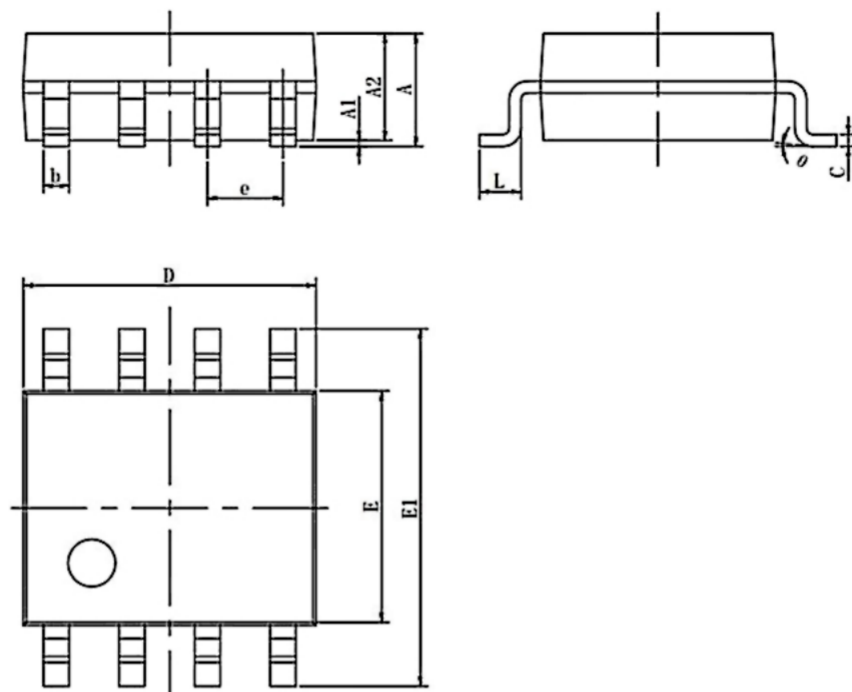
OUTLINE DIMENSIONS

SOT-89-3



SYMBOL	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 TYP		0.061 TYP	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060 TYP	
e1	3.000 TYP		0.118 TYP	
L	0.900	1.200	0.035	0.047

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.800	0.053	0.071
A1	0.050	0.250	0.004	0.010
A2	1.250	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
C	0.170	0.250	0.006	0.010
D	4.780	5.000	0.185	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Important Notice

- Green Micro chip reserves the right to change products and documents without notice. Customers should obtain and verify the completeness of the latest technical information before placing orders. Meanwhile, Green Micro chip shall not assume any responsibility or obligation for non-officially revised documents.
- Any parameters in the entire product specification are for reference only, and actual application testing shall prevail. When customers use the products for system design, they must comply with safety regulations and independently assume the following responsibilities: selecting suitable Green Micro chip products according to application requirements; completing design verification and full-link testing of the application; and ensuring that the application complies with safety regulations or other requirements of the target market. Customers shall bear all personal or property losses caused by design defects or illegal operations, which shall have no relation to Green Micro chip.
- Green Micro chip products are prohibited from being used in scenarios such as life support, military equipment, and key aerospace applications. All accidents and legal liabilities arising from out-of-scope use shall be borne by the user, and Green Micro chip shall not be held responsible.
- All technical resources of Green Micro chip (including data sheets and reference designs) are provided "as is", without guarantee of no defects or universality, and without any express or implied warranties. The documents are only authorized for product development and research described in this document. Unauthorized use of intellectual property, public reproduction, and reverse engineering are strictly prohibited. All claims and losses caused by illegal use shall be borne by the user, and Green Micro chip shall not be liable.