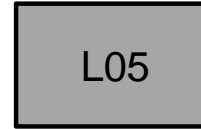


## FEATURES

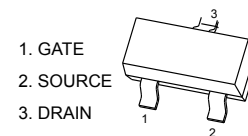
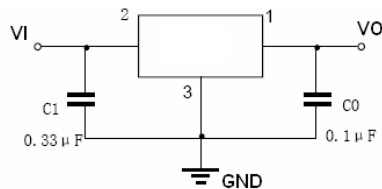
- Wide range of available, fixed output voltage.
- Low cost.
- Internal short-circuit current limiting.
- Internal thermal overload protection.
- No external components required.
- Complementary negative regulators offered



## SOT-23

## APPLICATIONS

Three-terminal positive voltage regulator.



## Absolute Maximum Rating

Symbol	Parameter	Value	Units
$V_I$	Input voltage	30	V
$I_{CM}$	Maximum output current	100	mA
$P_D$	Power dissipation	350	mW
$T_{OPR}$	Operating junction temperature	0 to +125	°C
$T_j, T_{stg}$	Storage temperature range	-40 to +150	°C

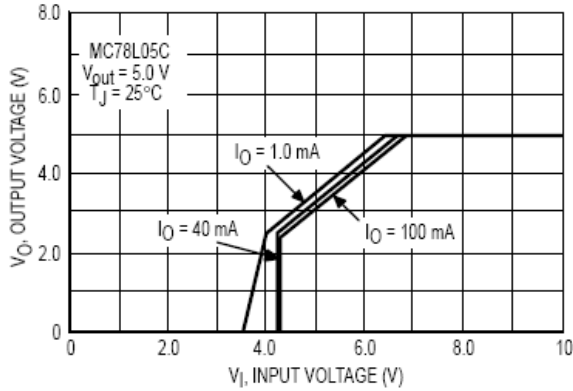
## Electrical Characteristics

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

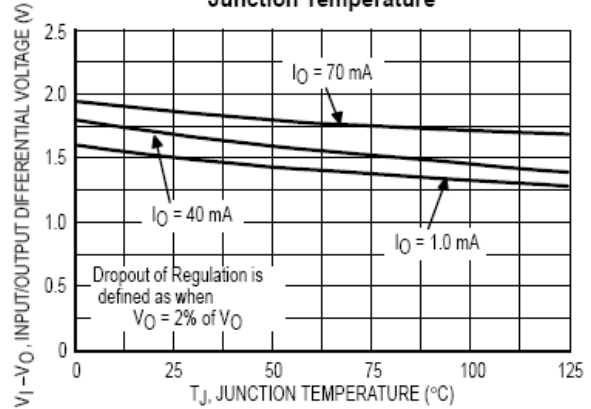
Parameter	Symbol	Test conditions	78L05S			UNIT
			MIN	TYP	MAX	
Output voltage	$V_O$	$T_J=25^\circ C$ $7V \leq V_i \leq 20V, I_O=1mA-40mA$ $V_i=10V, I_O=1mA-70mA$	4.8 4.75 4.75	5.0	5.2 5.25 5.25	V
Load regulation	$Reg_{load}$	$T_J=25^\circ C, I_O=1mA-100mA$ $T_J=25^\circ C, I_O=1mA-40mA$		11 5	60 30	mV
Line regulation	$Reg_{line}$	$7V \leq V_i \leq 20V, T_J=25^\circ C$ $8V \leq V_i \leq 20V, T_J=25^\circ C$		55 45	150 100	mV
Input Bias Current	$I_{IB}$	$T_J=25^\circ C$ $T_J=125^\circ C$		3.8	6.0 5.5	mA
Input Bias Current Change	$\Delta I_{IB}$	$8V \leq V_i \leq 20V$ $1mA \leq I_O \leq 40mA$			1.5 0.1	mA
Output noise voltage	$V_N$	$10Hz \leq f \leq 100KHz$		40		$\mu V$
Ripple rejection	RR	$I_O=40mA, 8V \leq V_i \leq 18V, f=120Hz$ $, T_J=25^\circ C$	41	49		dB
Dropout voltage	$V_I-V_O$	$T_J=25^\circ C$		1.7		V

RATING AND CHARACTERISTIC CURVES

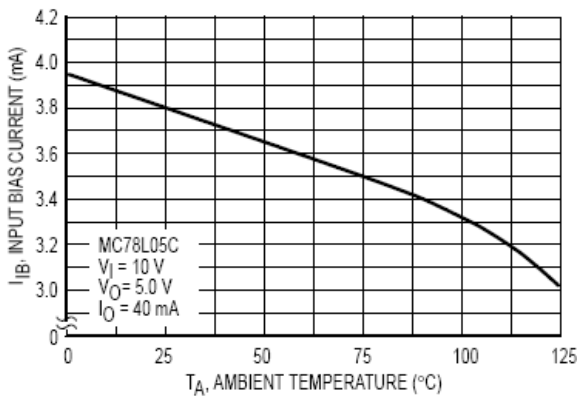
**Figure 1. Dropout Characteristics**



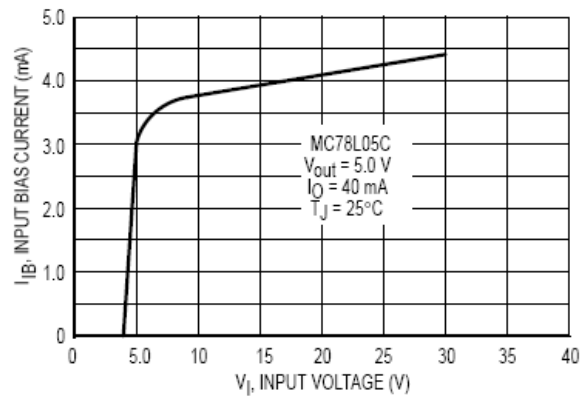
**Figure 2. Dropout Voltage versus Junction Temperature**



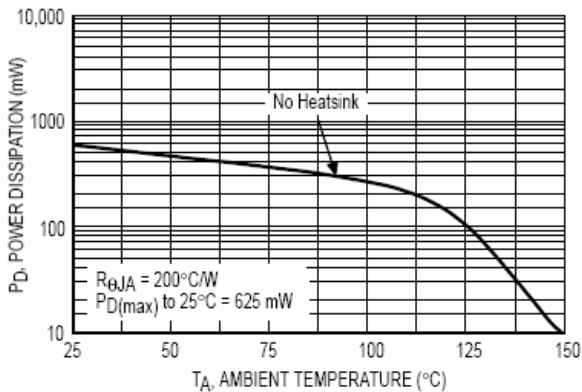
**Figure 3. Input Bias Current versus Ambient Temperature**



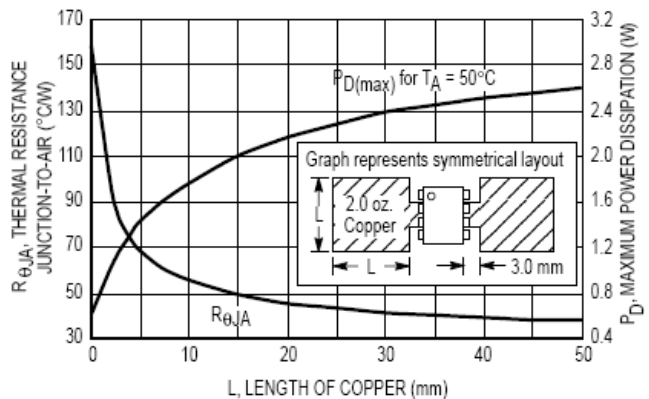
**Figure 4. Input Bias Current versus Input Voltage**



**Figure 5. Maximum Average Power Dissipation versus Ambient Temperature – TO-92 Type Package**



**Figure 6. SOP-8 Thermal Resistance and Maximum Power Dissipation versus P.C.B. Copper Length**



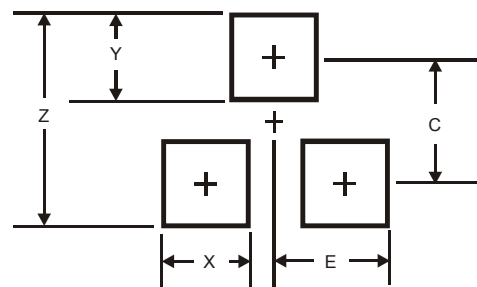
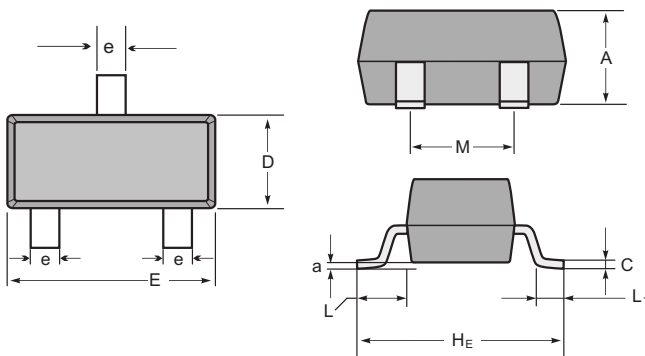
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	+150°C
	-Temperature Max( $T_{s(max)}$ )	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak)		3°C/sec. Max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature( $T_L$ )(Liquid us)	+217°C
	-Temperature( $t_L$ )	60-150 secs.
Peak Temp ( $T_P$ )		+260(+0/-5)°C
Time within 5°C of actual Peak Temp ( $t_p$ )		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp ( $T_P$ )		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

UNIT	A	C	D	E	He	e	M	L	L <sub>1</sub>	a	
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	0.0
	min	35	3	47	110	87	12	67			6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape		Symbol	Dimension (mm)		
		P0	4.00±0.10		
		P1	4.00±0.10		
		P2	2.00±0.10		
		D0	1.55±0.10		
		D1	1.05±0.10		
		E	1.55±0.10		
		F	3.60±0.10		
		W	8.00±0.10		
		A0	3.80±0.20		
		B0	3.25±0.20		
		K0	1.45±0.10		
		T	0.25±0.05		
		7" Reel		D2	178.0±3.0
				D3	55Min.
D4	R24.0±3.0				
G	R82.0±3.0				
I	13.0±2.0				
W1	11.0±3.0				
Quantity: 3000PCS					