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SEMICONDUCTOR



ESD



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MOV

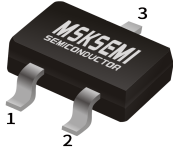


GDT



PLED

Product data sheet



SOT-23

- 1. OUT
- 2. IN
- 3. GND

FEATURE

Maximum Output Current I_O : 0.1 A
 Output Voltage V_O : 5 V
 Continuous Total Dissipation
 P_D : 0.25 W ($T_a = 25^\circ\text{C}$)

MARKING: L05

ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

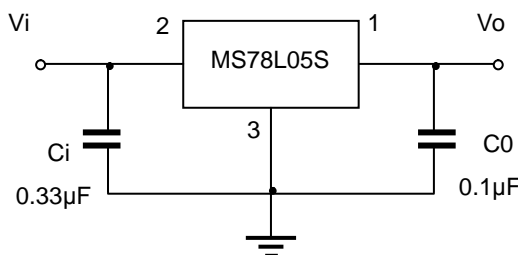
Parameter	Symbol	Value	Unit
Input Voltage	V_i	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_{OPR}	-40~+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65~+150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS AT SPECIFIED VIRTUAL JUNCTION TEMPERATURE ($V_i=10\text{V}, I_o=40\text{mA}, C_i=0.33\mu\text{F}, C_o=0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit	
Output voltage	V_o	$T_J=25^\circ\text{C}$	3%	4.85	5.0	5.15	V
			2%	4.90	5.0	5.10	V
		$7\text{V} \leq V_i \leq 20\text{V}, I_o=1\text{mA} \sim 40\text{mA}$		4.75	5.0	5.25	V
			$I_o=1\text{mA} \sim 70\text{mA}$		4.75	5.0	5.25
Load Regulation	ΔV_o	$I_o=1\text{mA} \sim 100\text{mA}, T_J=25^\circ\text{C}$		15	60	mV	
		$I_o=1\text{mA} \sim 40\text{mA}, T_J=25^\circ\text{C}$		8	30	mV	
Line regulation	ΔV_o	$7\text{V} \leq V_i \leq 20\text{V}$		32	150	mV	
		$8\text{V} \leq V_i \leq 20\text{V}, T_J=25^\circ\text{C}$		26	100	mV	
Quiescent Current	I_q	$T_J=25^\circ\text{C}$		3.8	6	mA	
Quiescent Current Change	ΔI_q	$8\text{V} \leq V_i \leq 20\text{V}$			1.5	mA	
		$1\text{mA} \leq V_i \leq 40\text{mA}$			0.1	mA	
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{KHz}, T_J=25^\circ\text{C}$		42		$\mu\text{V}/V_o$	
Ripple Rejection	RR	$8\text{V} \leq V_i \leq 20\text{V}, f=120\text{Hz}$	41	49		dB	
Dropout Voltage	V_d	$T_J=25^\circ\text{C}$		1.7		V	

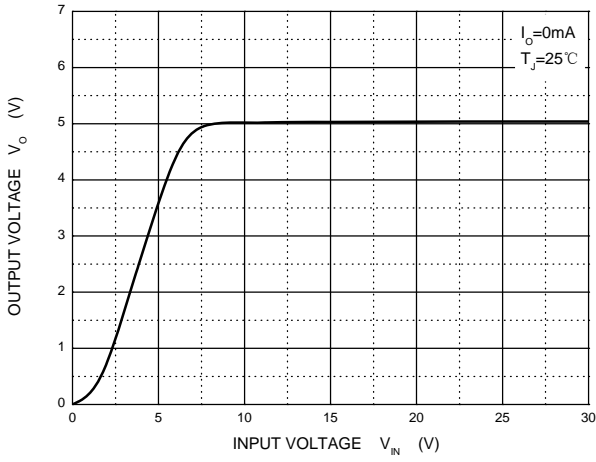
* Pulse test.

TYPICAL APPLICATION

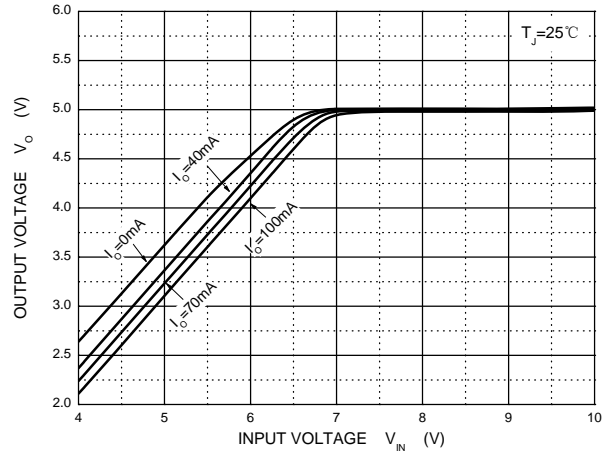


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

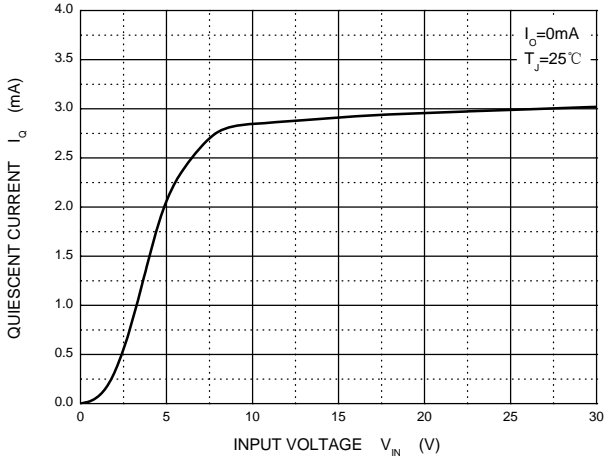
Output Characteristics



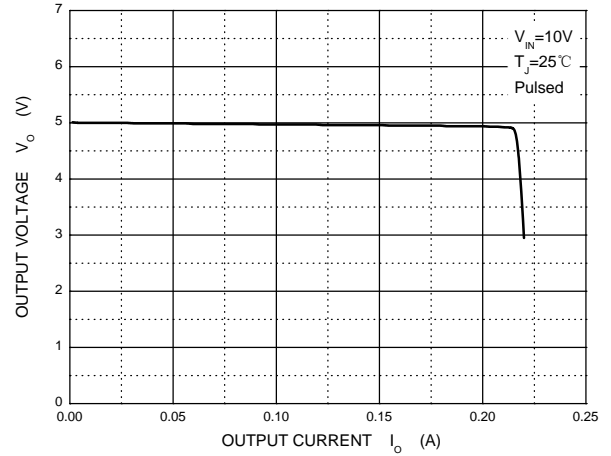
Dropout Characteristics



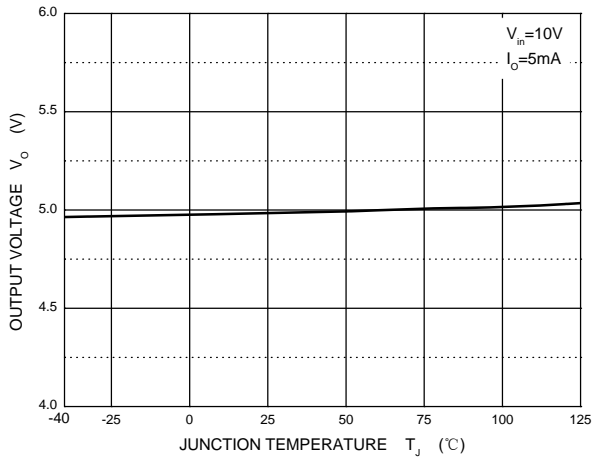
Quiescent Current vs Input Voltage



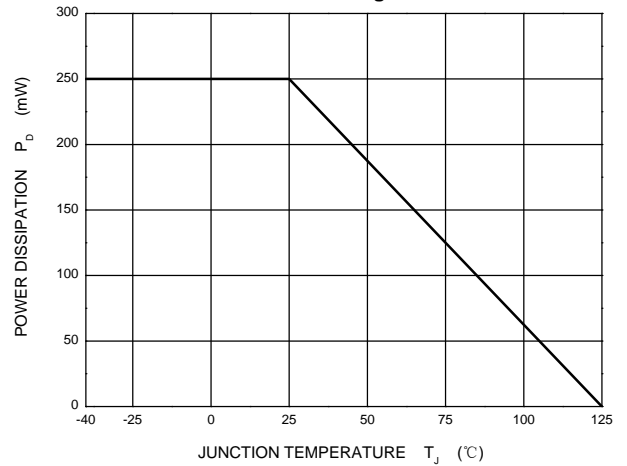
Current Cut-off Grid Voltage



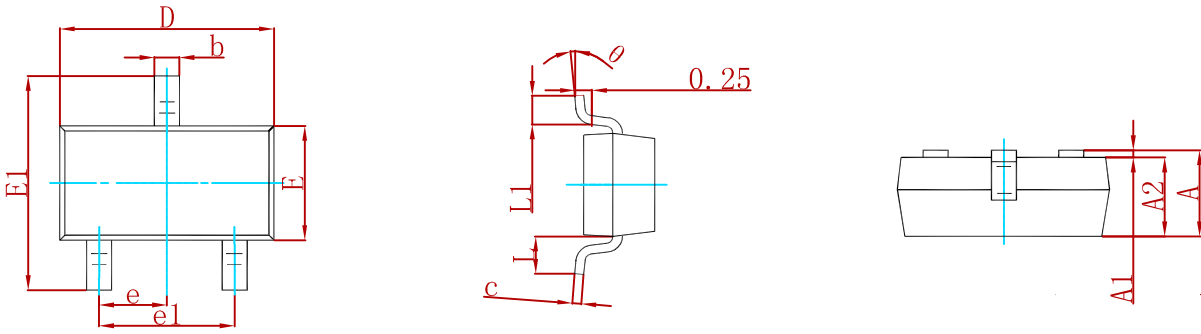
Output Voltage vs Junction Temperature



Power Derating Curve

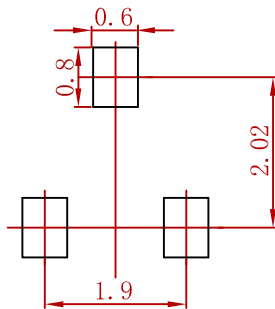


PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05mm.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
MS78L05S	SOT-23	3000

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