

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV

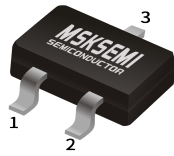


GDT



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)

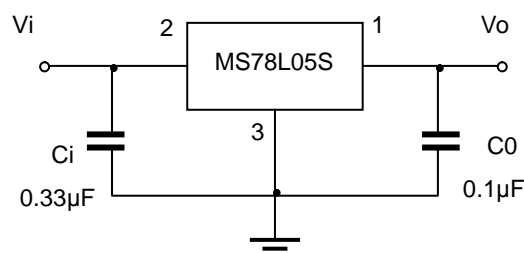
Parameter	Symbol	Value	Unit
Input Voltage	$V_i$	30	V
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	160	$^\circ\text{C/W}$
Operating Junction Temperature Range	$T_{OPR}$	-40~+125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65~+150	$^\circ\text{C}$

## 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 V
Load Regulation	$\Delta V_O$	$I_O=1\text{mA} \sim 100\text{mA}$ , $T_J=25^\circ\text{C}$		15	60	mV
		$I_O=1\text{mA} \sim 40\text{mA}$ , $T_J=25^\circ\text{C}$		8	30	mV
Line regulation	$\Delta V_O$	$7\text{V} \leq V_i \leq 20\text{V}$		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	$\Delta I_q$	$8\text{V} \leq V_i \leq 20\text{V}$			1.5	mA
	$\Delta I_q$	$1\text{mA} \leq V_i \leq 40\text{mA}$			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

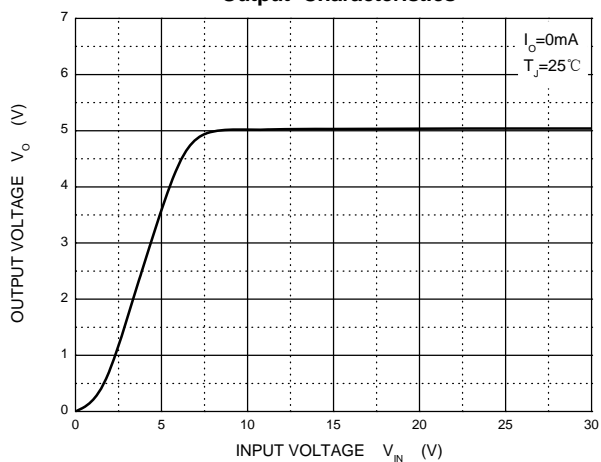
\* Pulse test.

## TYPICAL APPLICATION

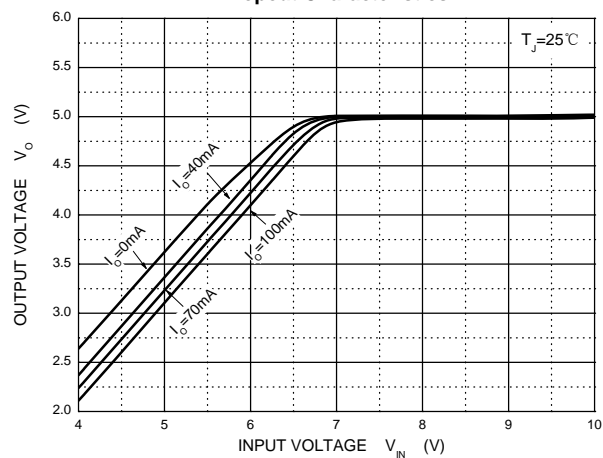


Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

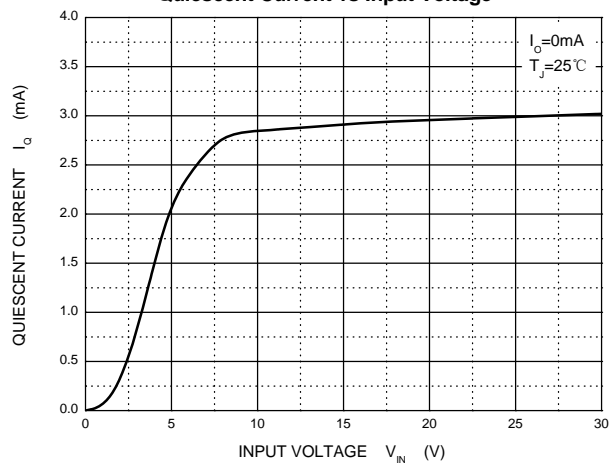
**Output Characteristics**



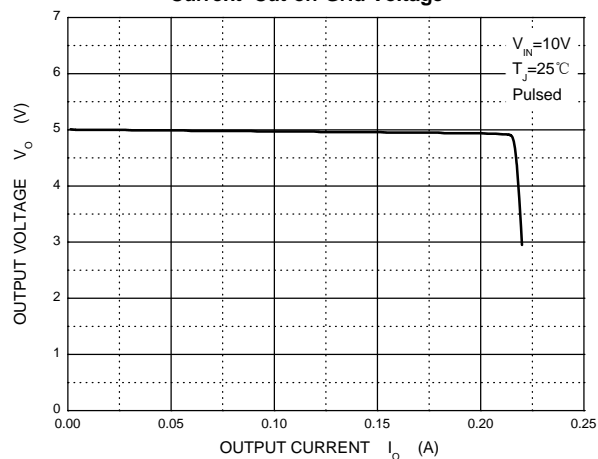
**Dropout Characteristics**



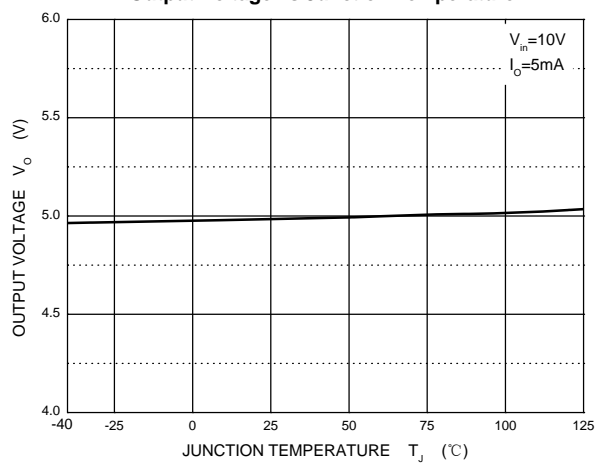
**Quiescent Current vs Input Voltage**



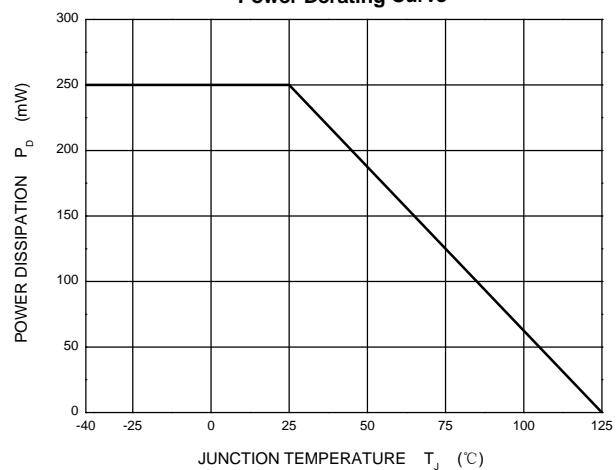
**Current Cut-off Grid Voltage**



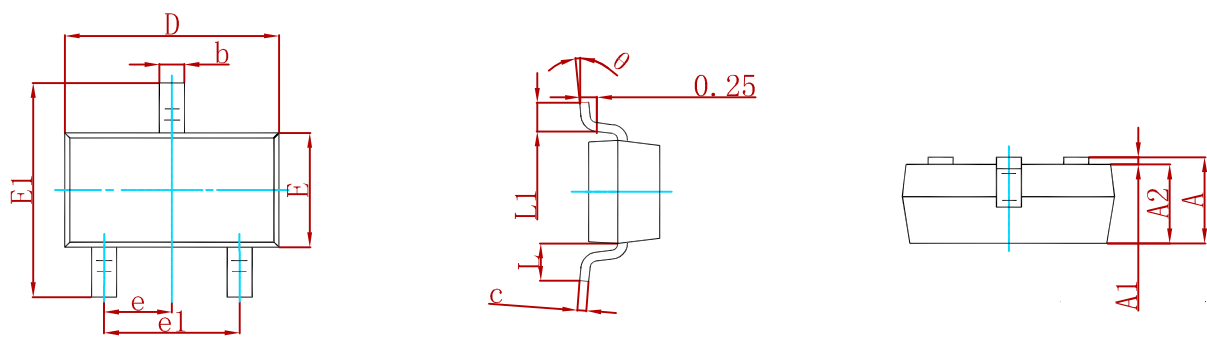
**Output Voltage vs Junction Temperature**



**Power Derating Curve**

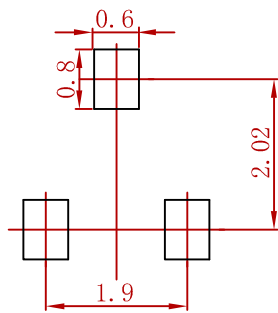


PACKAGE MECHANICAL DATA



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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