

## 7805 Three-terminal positive voltage regulator

### Features:

Maximum Output current  $I_{OM}$ : 1.2 A

Output voltage  $V_o$ : 5 V

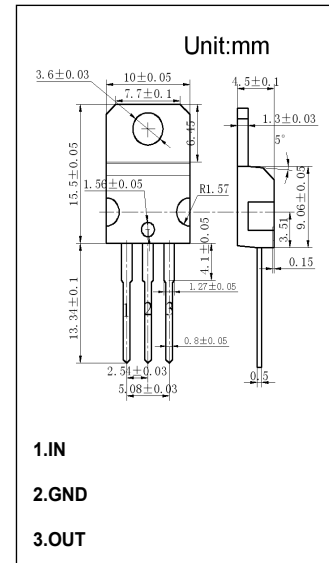
Continuous total dissipation

$P_D$ : 1.5W ( $T_a=25^\circ\text{C}$ )

15W ( $T_c=25^\circ\text{C}$ )

### Absolute Maximum Ratings (Operating temperature range applies unless otherwise specified)

Symbol	Parameter	Value	Unit
$V_i$	Input Voltage	35	V
$T_{OPR}$	Operating Junction Temperature Range	0 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	83.3	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance from Junction to Case	8.3	$^\circ\text{C/W}$

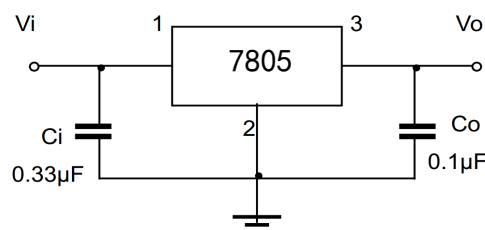


### Electrical Characteristics At Specified Virtual Junction Temperature

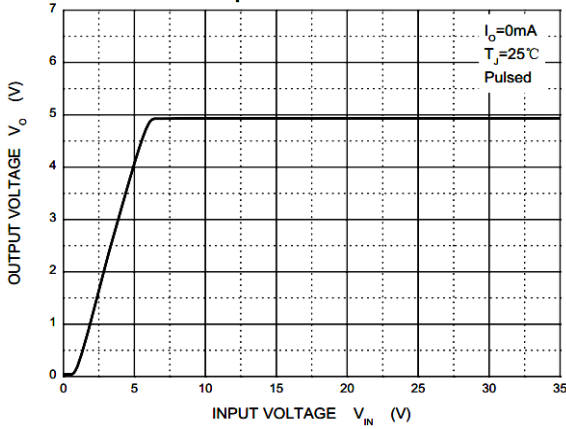
( $V_i=10\text{V}, I_o=500\text{mA}, C_i=0.33\mu\text{F}, C_o=0.1\mu\text{F}$ , unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_o$	Output Voltage	$25^\circ\text{C}$	4.8	5.0	5.2	V
		$7\text{V} \leq V_i \leq 20\text{V}, I_o=5\text{mA}-1\text{A}, P \leq 15\text{W}$	0-125 $^\circ\text{C}$	4.75	5.00	5.25
$\Delta V_o$	Load Regulation	$I_o=5\text{mA} - 1.2\text{A}$	$25^\circ\text{C}$	9	100	mV
		$I_o=250\text{mA} - 750\text{mA}$	$25^\circ\text{C}$	4	50	mV
$\Delta V_o$	Line Regulation	$7\text{V} \leq V_i \leq 25\text{V}$	$25^\circ\text{C}$	4	100	mV
		$8\text{V} \leq V_i \leq 12\text{V}$	$25^\circ\text{C}$	1.6	50	mV
$I_q$	Quiescent Current	$25^\circ\text{C}$		5	8	mA
$\Delta I_q$	Quiescent Current Change	$7\text{V} \leq V_i \leq 25\text{V}$	0-125 $^\circ\text{C}$	0.3	1.3	mA
$\Delta I_q$		$5\text{mA} \leq I_o \leq 1\text{A}$	0-125 $^\circ\text{C}$	0.03	0.5	mA
$\Delta V_o/\Delta T$	Output Voltage Drift	$I_o=5\text{mA}$	0-125 $^\circ\text{C}$	-1.1		mV/ $^\circ\text{C}$
$V_N$	Output Noise Voltage	$f = 10\text{Hz to } 100\text{KHz}$	$25^\circ\text{C}$	42		$\mu\text{V}$
RR	Ripple Rejection	$f = 120\text{Hz}, 8\text{V} \leq V_i \leq 18\text{V}$	0-125 $^\circ\text{C}$	62	73	dB
$V_d$	Dropout Voltage	$I_o=1.0\text{A}$	$25^\circ\text{C}$	2		V
$R_o$	Output Resistance	$f = 1\text{KHz}$	$25^\circ\text{C}$	10		m $\Omega$
$I_{sc}$	Short Circuit Current	$25^\circ\text{C}$		230		mA
$I_{pk}$	Peak Current	$25^\circ\text{C}$		2.2		A

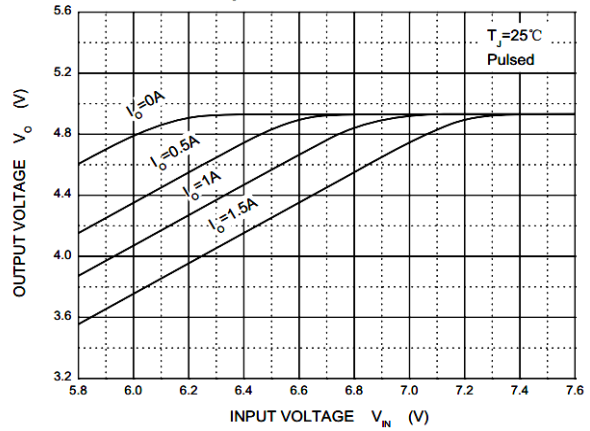
### Typical Application



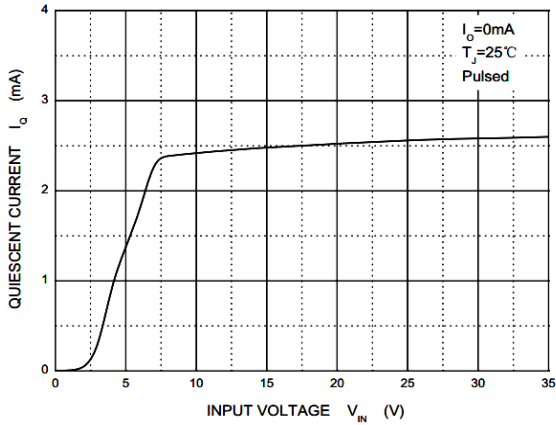
Output Characteristics



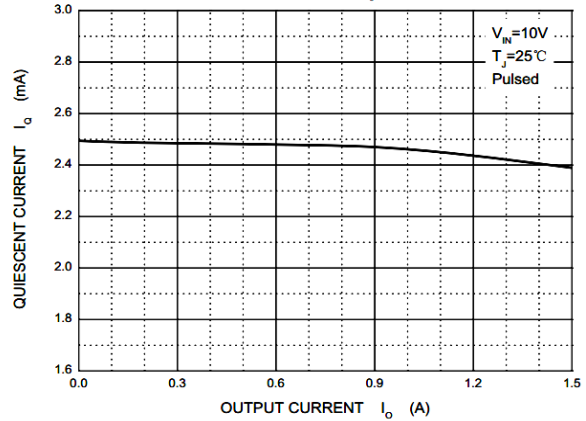
Dropout Characteristics



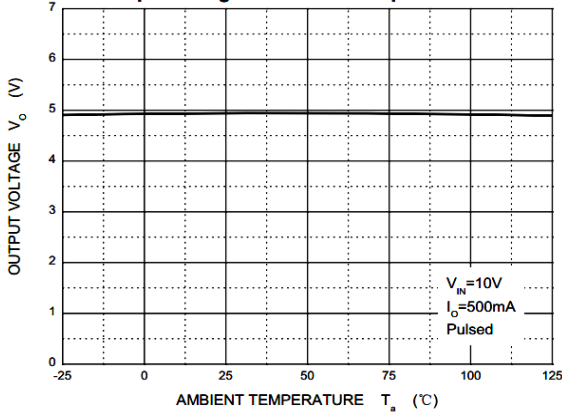
Quiescent Current



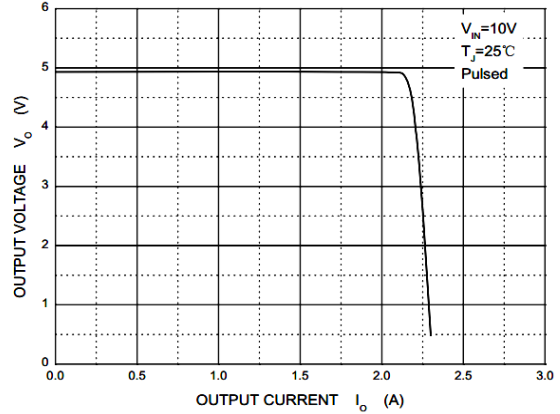
Quiescent Current vs Output Current



Output Voltage vs Ambient Temperature



Current Cut-off Grid Voltage



Power Derating Curve

