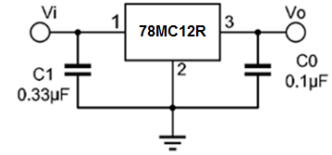




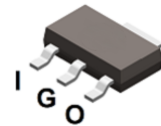
### Features

- If adequate heat sinking is provided, they can deliver over 1.0A output current
- Thermal overload protection
- Short circuit protection
- Output transistor SOA protection



### Mechanical Data

- Case: SOT-223
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



SOT-223

### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
78MC12R	SOT-223	4000 pcs / Tape & Reel	78MC12R

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V <sub>I</sub>	35	V

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-to-Air	R <sub>θJA</sub>	138	°C/W
Operating Temperature Range	T <sub>OPR</sub>	-40 ~ +125	°C
Storage Temperature Range	T <sub>STG</sub>	-65 ~ +150	°C

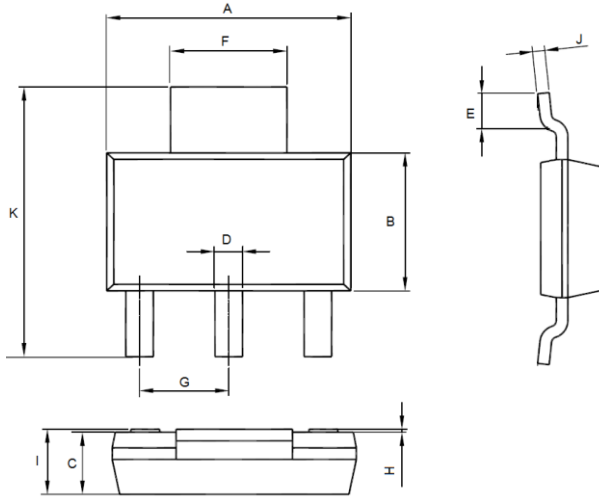


### Electrical Characteristics ( $I_o = 500\text{mA}$ , $V_i = 19\text{V}$ , $C_i = 0.33\mu\text{F}$ , $C_o = 0.1\mu\text{F}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Output Voltage	$V_o$	$T_J = 25^\circ\text{C}$	11.5	12	12.5	V
		$5\text{mA} < I_o < 1\text{A}$ , $P_o < 15\text{W}$ $15.5\text{V} \leq V_i \leq 27\text{V}$	11.4	12	12.6	V
Line Regulation	$\Delta V_o$	$14.5\text{V} \leq V_i \leq 30\text{V}$ , $T_J = 25^\circ\text{C}$	-	-	240	mV
		$16\text{V} \leq V_i \leq 22\text{V}$ , $T_J = 25^\circ\text{C}$	-	-	120	mV
Load Regulation	$\Delta V_o$	$5\text{mA} \leq I_o \leq 1\text{A}$ , $T_J = 25^\circ\text{C}$	-	-	240	mV
		$0.25\text{A} \leq I_o \leq 0.75\text{A}$ , $T_J = 25^\circ\text{C}$	-	-	120	mV
Quiescent Current	$I_q$	$T_J = 25^\circ\text{C}$	-	4.4	8	mA
Quiescent Current Change	$\Delta I_q$	$5\text{mA} \leq I_o \leq 1\text{A}$	-	-	0.5	mA
		$15\text{V} \leq V_i \leq 30\text{V}$ , $I_o = 0.5\text{A}$	-	-	0.8	mA
Output Voltage Drift	$\Delta V_o / \Delta T$	$I_o = 5\text{mA}$ , $0 \leq T_J \leq 125^\circ\text{C}$	-	1.5	-	mV/ $^\circ\text{C}$
Output Noise Voltage	$V_N$	$10\text{Hz} \leq f \leq 100\text{kHz}$ , $T_A = 25^\circ\text{C}$	-	42	-	$\mu\text{V}/V_o$
Ripple Rejection	RR	$15\text{V} \leq V_i \leq 25\text{V}$ , $f = 120\text{Hz}$	-	60	-	dB
Dropout Voltage	$V_D$	$I_o = 1\text{A}$ , $T_J = 25^\circ\text{C}$	-	2	-	V
Output resistance	$R_o$	$f = 1\text{kHz}$	-	18	-	m $\Omega$
Short Circuit Current	$I_{sc}$	$V_i = 35\text{V}$ , $T_A = 25^\circ\text{C}$	-	200	-	mA



### Package Outline Dimensions (Unit: mm)



SOT-223		
Dimension	Min.	Max.
A	6.10	6.50
B	3.30	3.70
C	1.50	1.70
D	0.66	0.82
E	0.90	1.15
F	2.90	3.10
G	2.20	2.40
H	0.02	0.10
I	1.52	1.80
J	0.20	0.40
K	6.70	7.30

### Mounting Pad Layout (Unit: mm)

#### SOT-223

