

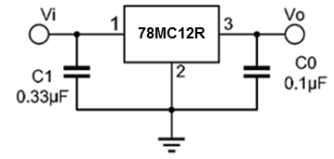
Features

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

HF

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
BL78MC12R	SOT-223	4000 pcs / Tape & Reel	78MC12R

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V _I	35	V

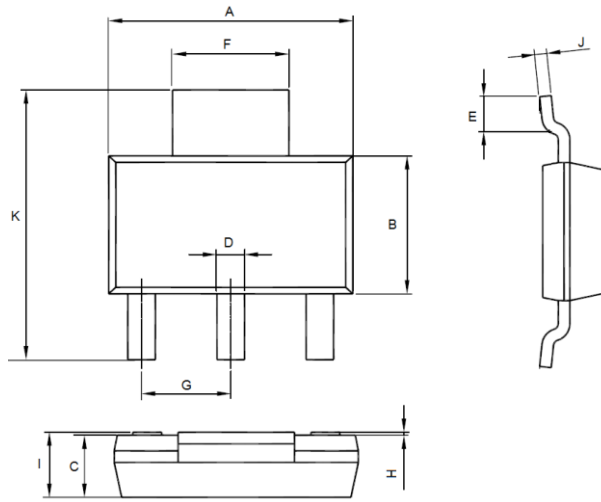
Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-to-Air	R _{θJA}	138	°C/W
Operating Temperature Range	T _{OPR}	-40 ~ +125	°C
Storage Temperature Range	T _{STG}	-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	ΔV_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	ΔV_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	ΔI_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 Ω
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

