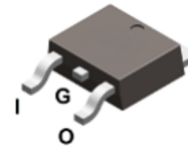
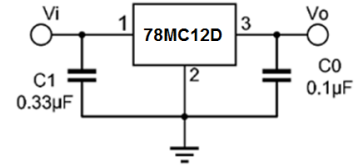




Features

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



TO-252

Mechanical Data

- Case: TO-252
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
78MC12D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	78MC12D

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}	105	°C/W
Thermal Resistance Junction-to-Case	R _{θJC}	5	°C/W
Operating Temperature Range	T _{OPR}	-40 ~ +125	°C
Junction Temperature	T _J	150	°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



TYPICAL CHARACTERISTICS (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

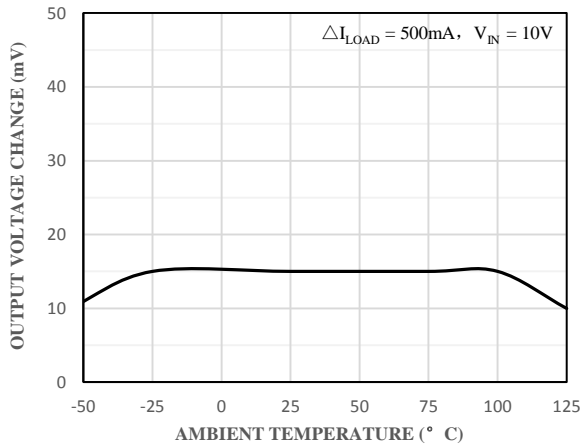


Fig 1 Load Regulation vs. Temperature

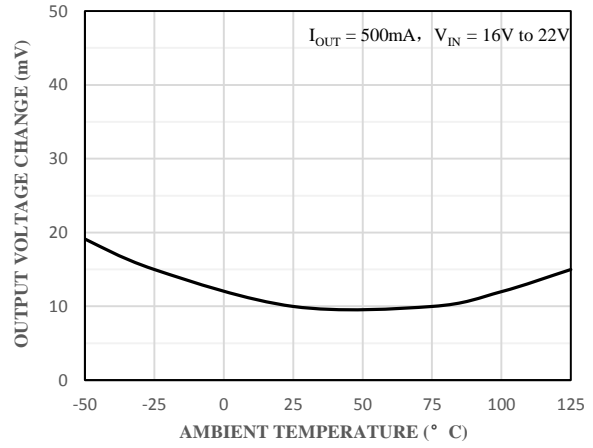


Fig 2 Line Regulation vs. Temperature

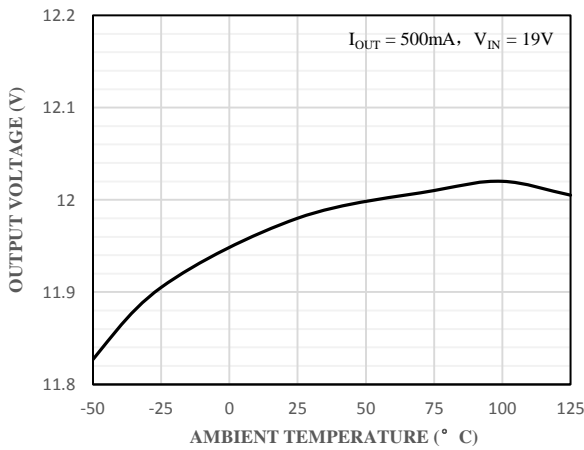


Fig 3 Output Voltage vs. Temperature

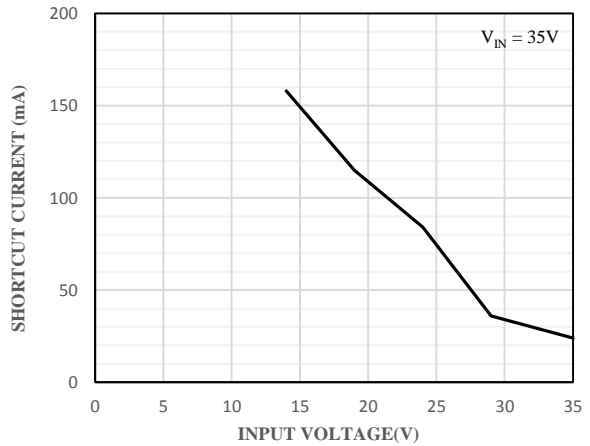


Fig 4 Shortcut Current vs. Input Voltage

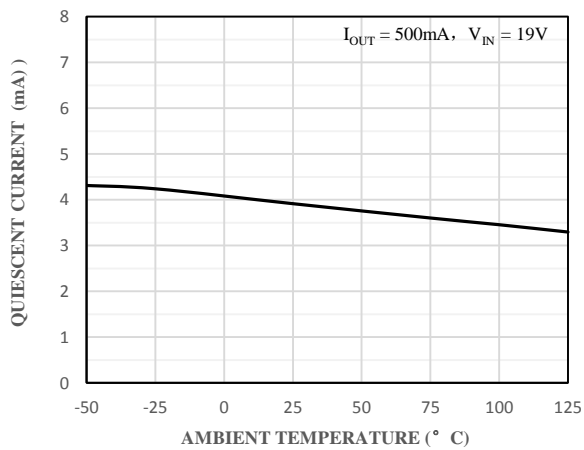


Fig 5 Quiescent Current vs. Temperature

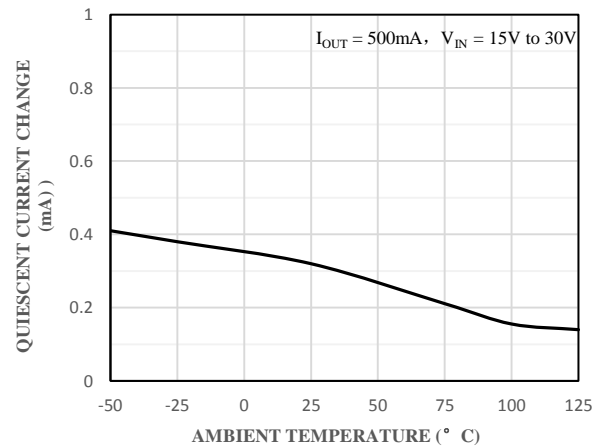


Fig 6 Quiescent Current Change vs. Temperature

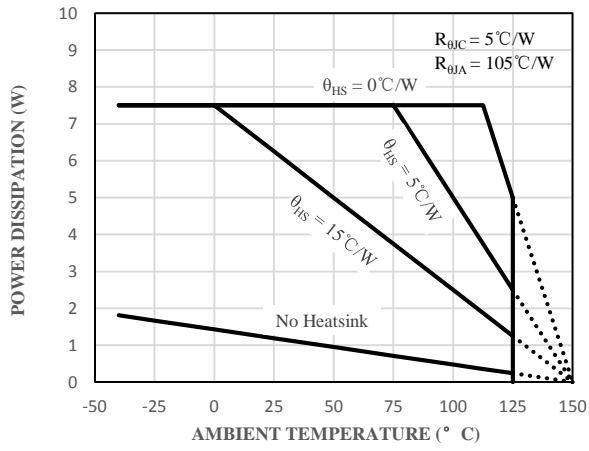


Fig 7 Power Dissipation vs. Temperature

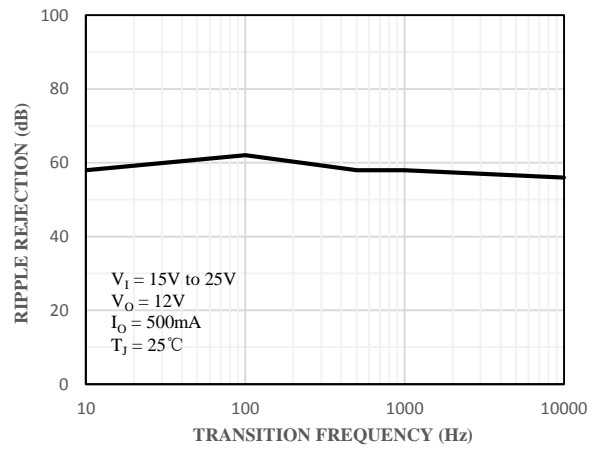
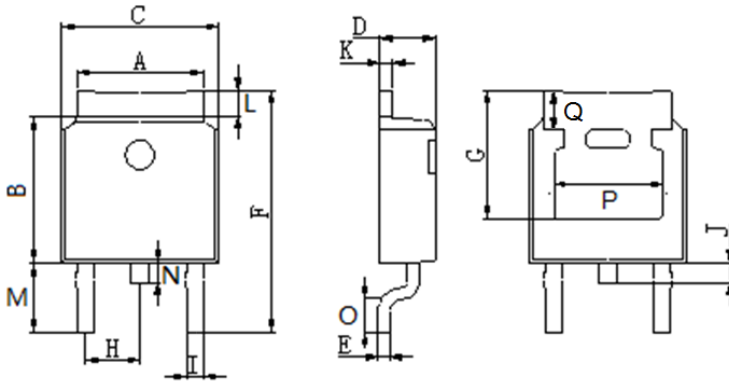


Fig 8 Ripple Rejection vs. Transition Frequency



Package Outline Dimensions (Unit: mm)



TO-252		
Dimension	Min.	Max.
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.7
K	0.40	0.60
L	0.80	1.20
M	2.70	3.10
N	0.50	0.70
O	1.10	1.50
P	4.70	4.90
Q	1.25	1.45

Mounting Pad Layout (Unit: mm)

TO-252

