

Features

- Input voltage: up to 35V
- Output voltage: 12V
- Output current up to 500 mA, internal thermal overload protection and short-circuit current limiting.

Application

- Voltage Regulator.

Package and Pin Configuration



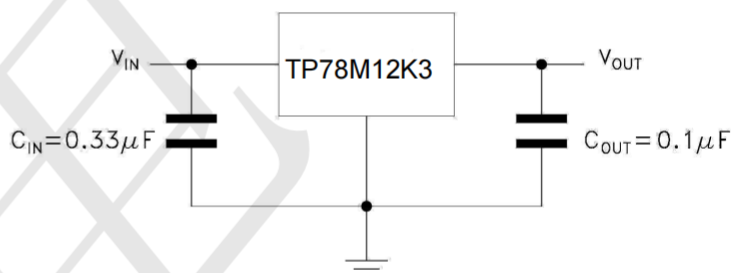
Marking:



"78M09" is part number, fixed

"xx" is internal code

Standard Application Circuit



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

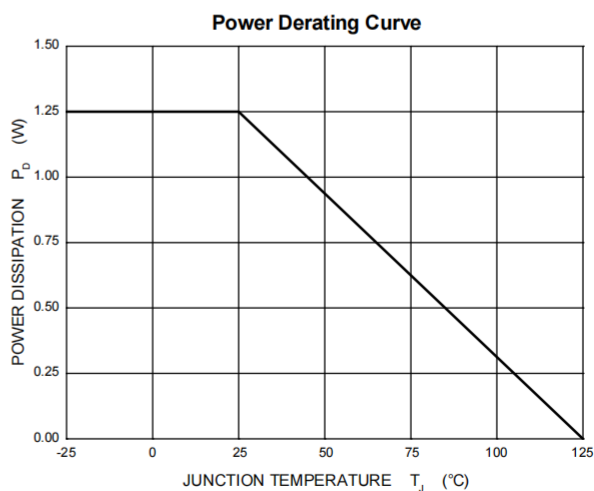
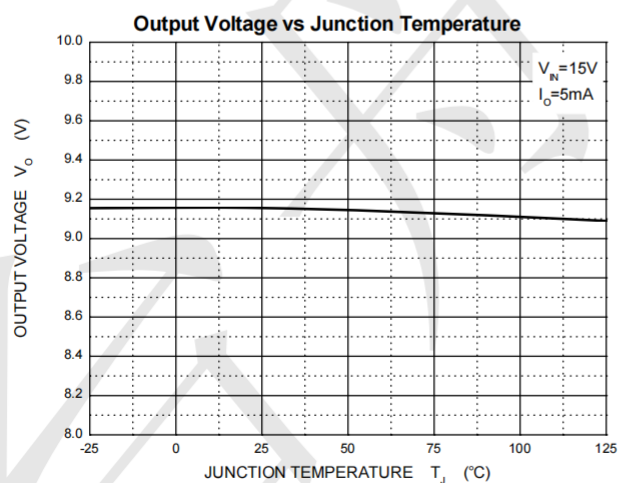
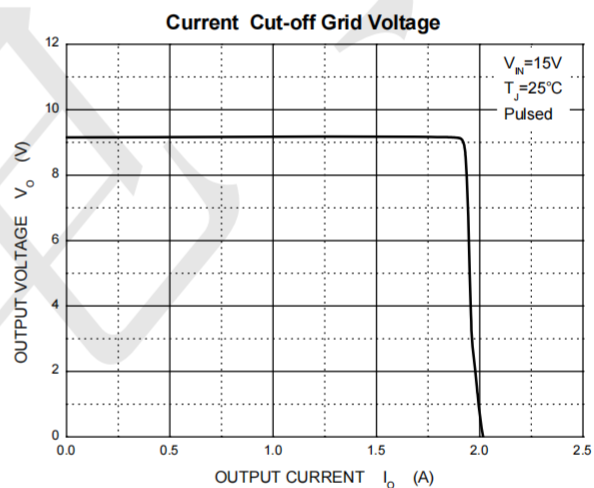
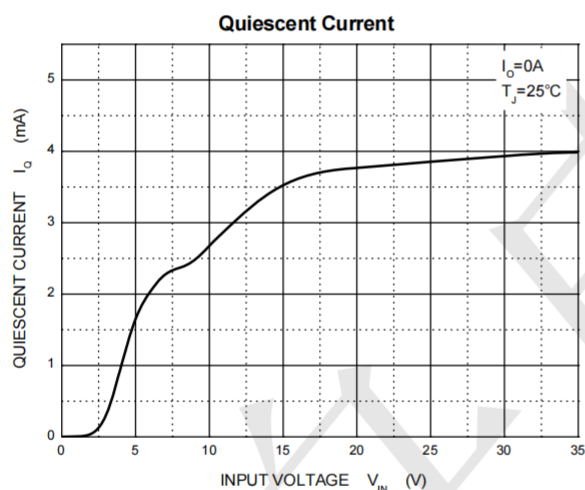
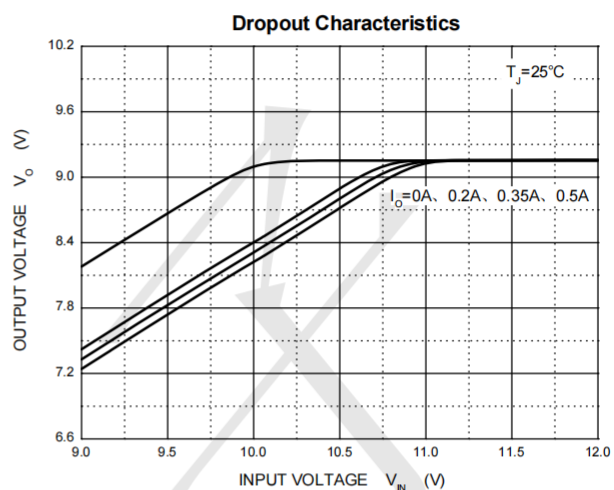
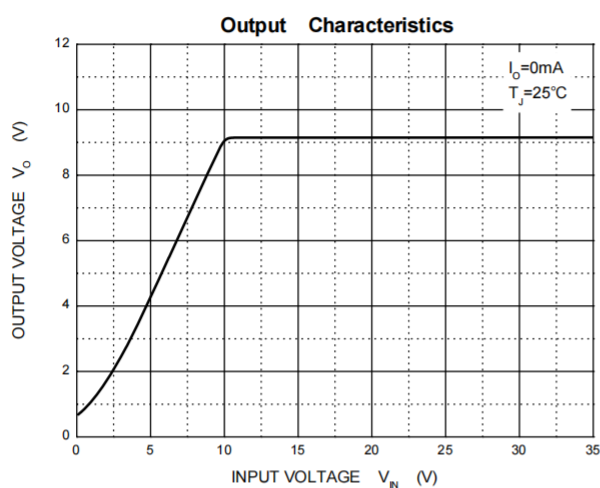
Parameter	Symbol	Value	Unit
Input Voltage	V_I	35	V
Thermal Resistance, Junction-to-Air	$R_{\theta JA}$	100	°C/W
Operating Temperature Range	T_{OPR}	-40 to +125	°C
Storage Temperature Range	T_{STG}	-65 to +150	°C

Electrical Characteristics

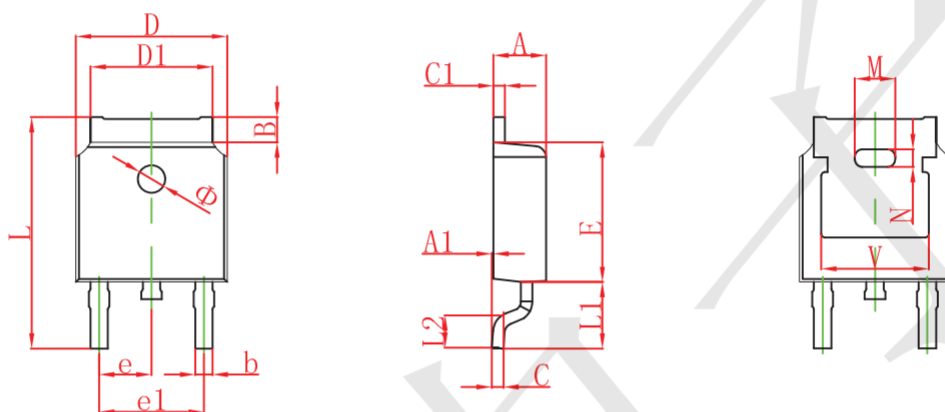
Ratings at $T_J = 25^\circ\text{C}$, $V_I = 10\text{V}$, $I_O = 40\text{mA}$, $C_i = 0.33\mu\text{F}$, $C_o = 0.1\mu\text{F}$, unless otherwise specified.

Parameter	Symbols	Test Conditions	Min	Typ	Max	Unit
Output Voltage	V_O	$T_J = 25^\circ\text{C}$	11.5	12	12.5	V
		$5\text{mA} \leq I_O \leq 350\text{mA}$ $V_I = 14.5\text{V to } 27\text{V}$	11.4	12	12.6	
Line Regulation	ΔV_O	$V_O = 14.5\text{ V to } 30\text{ V}$			100	mV
		$V_I = 16\text{ V to } 30\text{ V}$			50	mV
Load Regulation	ΔV_O	$I_O = 5\text{ mA to } 500\text{ mA}$			240	mV
		$I_O = 5\text{ mA to } 200\text{ mA}$			120	mV
Ripple Rejection	RR	$V_I = 15\sim 25\text{ V}$, $f = 120\text{Hz}$	55	80		dB
Output Noise Voltage	V_N	$f = 10\text{Hz} \sim 100\text{Hz}$, $T_J = 25^\circ\text{C}$		75		μV
Dropout Voltage	V_D	$I_O = 1\text{A}$		2		V
Quiescent Current	I_Q	$T_J = 25^\circ\text{C}$			6	mA
Quiescent Current Change	ΔI_Q	$I_O = 5\text{ mA to } 350\text{ mA}$, $T_J = 25^\circ\text{C}$			0.5	mA
		$V_I = 14.5\text{ V to } 30\text{ V}$, $T_J = 25^\circ\text{C}$			0.8	

Typical Characteristics



TO252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778 REF.		0.070 REF.	
N	0.762 REF.		0.018 REF.	
L	9.800	10.400	0.386	0.409
L1	2.9 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051