UN78MXX Series

ROHS

Three-Terminal Positive Voltage Regulator

www.unsemi.com.tw

Features

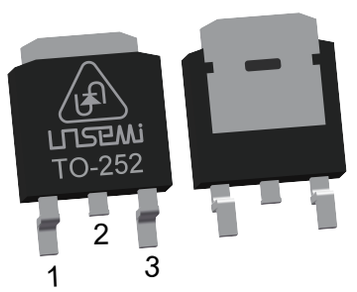
- Maximum Output Current I_{OM}: 0.5 A
- Output Voltage V_O: 5V,6V,8V,9V,12V
- Continuous Total Dissipation P_D: 1.25W

Configuration

- JEDEC TO-252 Package
- Molding Compound Flammability Rating : UL 94V-O
- Quantity Per Reel : 2,500pcs

Configuration

TO-252



1.IN
2.GND
3.OUT

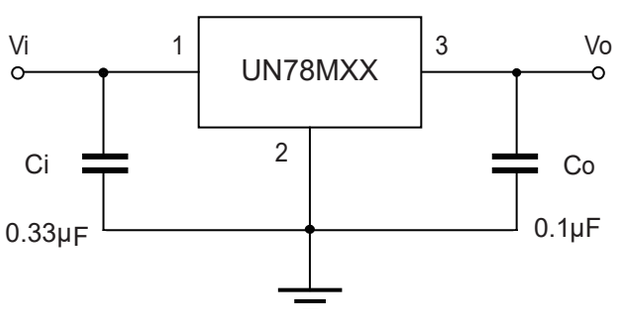
Absolute Maximum Ratings(Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Units
Input Voltage	Vi	25/35 (1)	V
Operating Junction Temperature Range	T_{OPR}	-20~+125/0~+125 (2)	ºC
Storage Temperature Range	T_{STG}	-65 to +150	ºC

Note: (1)UN78M06,08,09:25V , UN78M05,12:35V

(2)UN78M09:-20~+125 , UN78M05,06,08,12:0~+125

Typical Application



UN78M05 Electrical Characteristic (Vi=10V,Io=350mA, Ci=0.33μF,Co=0.1μF,unless otherwise specified)

Parameter	Symbol	Test conditions		Min.	Typ.	Max.	Units
Output Voltage	Vo	-	25℃	4.8	5.0	5.2	V
		Vi=7V to 20V, Io=5mA to 350mA, Po≤15W	0~125℃	4.75	5.0	5.25	V
Load Regulation	ΔVo	Io=5mA to 500mA	25℃	-	15	100	mV
		Io=5mA to 200mA	25℃	-	5.0	50	mV
Line Regulation	ΔVo	Vi=7V to 25V, Io=200mA	25℃	-	3.0	100	mV
		Vi=8V to 25V, Io=200mA	25℃	-	1.0	50	mV
Quiescent Current	Iq	-	25℃	-	4.2	6.0	mA
Quiescent Current Change	ΔIq	Vi=8V to 25V, Io=200mA	0~125℃	-	-	0.8	mA
		Io=5mA to 350mA	0~125℃	-	-	0.5	mA
Output Noise Voltage	V_N	f=10Hz to 100KHz	25℃	-	40	200	uV
Ripple Rejection	R_R	Vi=8V to 18V,f=120Hz,Io=300mA	0~125℃	62	80	-	dB
Dropout Voltage	Vd	Io=350mA	25℃	-	2.0	2.5	V
Short Circuit Current	Isc	Vi=10V	25℃	-	300	-	mA
Peak Current	Ipk	-	25℃	-	0.5	-	A

UN78M06 Electrical Characteristics(Vi=11V,Io=350mA,Ci=0.33μF,Co=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions		Min.	Typ.	Max.	Units
Output Voltage	Vo		25℃	5.75	6.0	6.25	V
		Vi=8V to 21V, Io=5 to 350mA,Po≤15W	0~125℃	5.7	6.0	6.3	V
Load Regulation	△Vo	Io=5mA to 500mA	25℃	-	18	120	mV
		Io=5mA to 200mA	25℃	-	10	60	mV
Line Regulation	△Vo	Vi=8V to 25V, Io=200mA	25℃	-	5.0	100	mV
		Vi=9V to 25V, Io=200mA	25℃	-	1.5	50	mV
Quiescent Current	Iq	-	25℃	-	4.3	6.0	mA
Quiescent Current Change	△Iq	Vi=9V to 25V, Io=200mA	0~125℃	-	-	0.8	mA
		Io=5mA to 350mA	0~125℃	-	-	0.5	mA
Output Noise Voltage	V_N	f=10Hz to 100KHz	25℃	-	45	-	μV
Ripple Rejection	R_R	Vi=9V to 19V,f=120Hz, Io=300mA	0~125℃	59	80	-	dB
Dropout Voltage	Vd	Io=350mA	25℃	-	2.0	-	V
Short Circuit Current	Isc	Vi=11V	25℃	-	270	-	mA
Peak Current	Ipk	-	25℃	-	0.5	-	A

UN78M08 Electrical Characteristics(Vi=10V,Io=350mA,Ci=0.33μF,Co=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Output Voltage	Vo	Vi=10.5V to 23V, Io=5mA to 350mA,Po≤15W	7.6	8.0	8.4	V
Load Regulation	△Vo	Io=5mA to 500mA	-	20	160	mV
		Io=5mA to 200mA	-	10	80	mV
Line Regulation	△Vo	Vi=10.5V to 25V, Io=200mA	-	6.0	100	mV
		Vi=11V to 25V, Io=200mA	-	2.0	50	mV
Quiescent Current	Iq	-	-	4.6	6.0	mA
Quiescent Current Change	△Iq	Vi=10.5V to 25V, Io=200mA	-	-	0.8	mA
		Io=5mA to 350mA	-	-	0.5	mA
Output Noise Voltage	V_N	f=10Hz to 100KHz	-	52	-	μV
Ripple Rejection	R_R	Vi=11.5V to 21.5V,f=120Hz, Io=300mA	56	80	-	dB
Dropout Voltage	Vd	Io=350mA	-	2.0	-	V
Short Circuit Current	Isc	Vi=14V	-	250	-	mA
Peak Current	Ipk	-	-	0.5	-	A

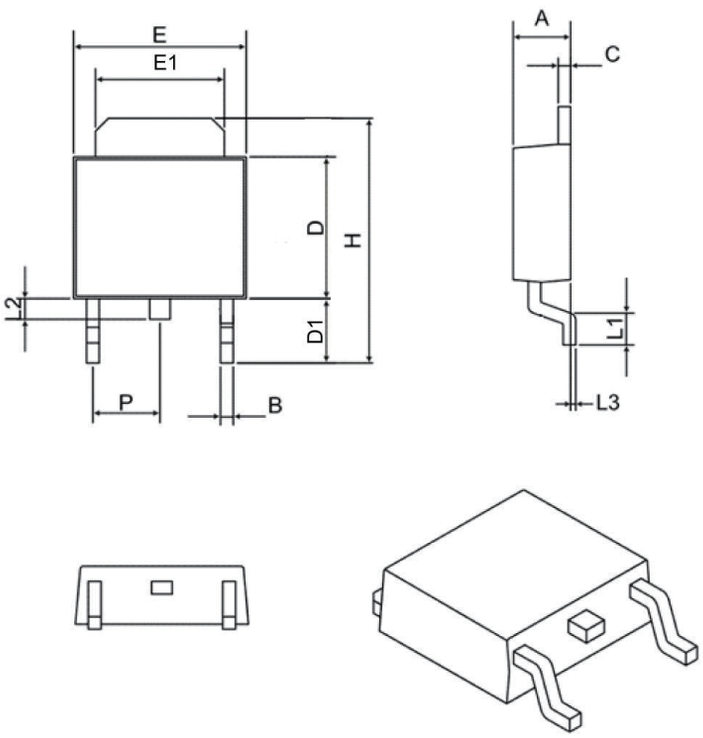
UN78M09 Electrical Characteristic(Vi=16V, Io=350mA,Ci=0.33μF,Co=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions		Min.	Typ.	Max.	Units
Output Voltage	Vo	-	25℃	8.65	9.0	9.35	V
		Vi=11.5V to 24V, Io=5mA to 350mA, Po≤15W	0~125℃	8.55	9.0	9.45	V
Load Regulation	ΔVo	Io=5mA to 500mA	25℃	-	20	180	mV
		Io=5mA to 200mA	25℃	-	10	90	mV
Line Regulation	ΔVo	Vi=11.5V to 25V, Io=200mA	25℃	-	6.0	100	mV
		Vi=12V to 25V, Io=200mA	25℃	-	2.0	50	mV
Quiescent Current	Iq	-	25℃	-	4.6	6.0	mA
Quiescent Current Change	ΔIq	Vi=11.5V to 25V, Io=200mA	0~125℃	-	-	0.8	mA
		Io=5mA to 350mA	0~125℃	-	-	0.5	mA
Output Noise Voltage	V_N	f=10Hz to 100KHz	25℃	-	60	-	uV
Ripple Rejection	R_R	Vi=13V to 23V,f=120Hz,Io=300mA	0~125℃	56	80	-	dB
Dropout Voltage	Vd	Io=350mA	25℃	-	2.0	-	V
Short Circuit Current	Isc	Vi=16V	25℃	-	250	-	mA
Peak Current	Ipk	-	25℃	-	0.5	-	A

UN78M12 Electrical Characteristic(Vi=19V,Io=350mA,Ci=0.33μF,Co=0.1μF, unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Units
Output Voltage	Vo	-	11.5	12.0	12.5	V
		Vi=14.5V to 27V, Io=5mA to 350mA	11.4	12.0	12.6	V
Load Regulation	△Vo	Io=5mA to 500mA, Tj=25℃	-	-	240	mV
		Io=5mA to 200mA,Tj=25℃	-	-	120	mV
Line Regulation	△Vo	Vi=14.5V to 30V, Io=200mA	-	-	240	mV
		Vi=16V to 30V, Io=200mA	-	-	120	mV
Quiescent Current	Iq	-	-	-	6.0	mA
Quiescent Current Change	△Iq	Io=5mA to 350mA	-	-	0.5	mA
		Vi=14.5V to 30V, Io=200mA	-	-	0.8	mA
Output Voltage Drift	△Vo/△T	Io=5mA, Tj=0 to 25℃	-	1.0	-	mV/℃
Supply Voltage Rejection	SVR	Vi=15V to 25V,f=120Hz, Io=300mA	55	-	-	dB
Output Noise Voltage	V_N	f=10Hz to 100kHz	-	75	-	μV
Dropout Voltage	Vd	-	-	2.0	-	V
Short Circuit Current	Isc	Vi=35V		50		mA

Package Outline



Symbol	Min.	Max.
A	2.10	2.50
B	0.40	0.90
C	0.40	0.90
D	5.30	6.30
D1	2.20	2.90
E	6.30	6.75
E1	4.80	5.50
L1	0.90	1.80
L2	0.50	1.10
L3	0.00	0.20
H	8.90	10.40
P	2.30BSC	

優恩半導體 UNSEMI

ROHS

Disclaimer

UNSEMI RESERVES THE RIGHT TO MAKE CHANGE ON OUR PRODUTS , PRODUCTS SPECIFICATION AND DATA WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

UN SEMICONDUCTOR LIMITED its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “UNSEMI”)does not give any representations or warranties for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

In no event shall UNSEMI be liable for any indirect, incidental, punitive, special or consequential damages (including any and all implied warranties, warranties of fitness for particular purpose, non-infringement and merchantability.) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Statements regarding the suitability of products for certain types of applications are based on UNSEMI knowledge of typical requirements that are often placed on UNSEMI products in generic applications. Such statements are not binding, statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify UNSEMI's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Unless otherwise agreed in writing, UNSEMI product is not designed, authorized or warranted to be suitable for use in medical life-saving, or life-sustaining application , nor in applications where failure or malfunction of a UNSEMI product can reasonably be expected to result in personal injury, death or severe property or environmental damage. UNSEMI and its suppliers accept no liability for inclusion or use of UNSEMI products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

All referenced brands, product names, service names and trademarks are the property of their respective owners.