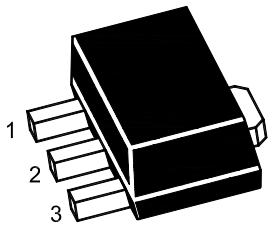
TN78MxxSQ

3-Terminal Voltage Regulator

Features

- Input voltage:up to 35V
- Output voltage:5V、12V
- Output current up to 500 mA, internal thermal overload protection and short-circuit current limiting.

SOT-89



1. VOUT 2. GND 3. VIN

Marking Code

- TN78M05SQ：78M05
- TN78M12SQ：78M12

Absolute Maximum Ratings

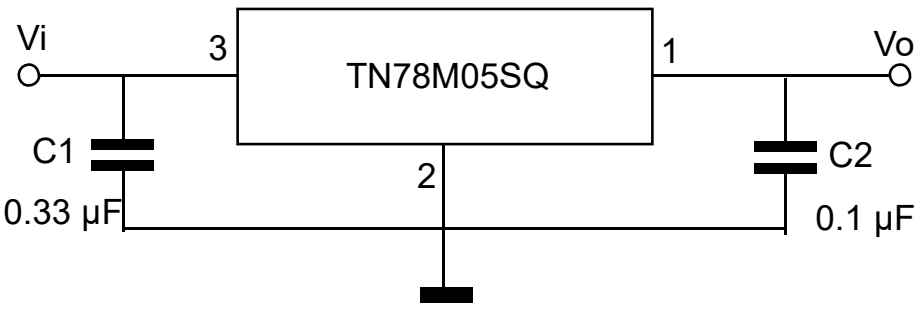
Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Input Voltage	V_I	35	V
Output Current	I_O	500	mA
Maximum Power Dissipation Note1	P_D	1	W
Junction Temperature	T_J	150	°C
Operating Temperature Range	T_{OPR}	-40 to +125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Note:

1. P.C.B.mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

Typical Application Circuit



TN78M05SQ Electrical Characteristics

Ratings at V_I=10V,I_O=300mA, C_I=0.33μF,C_O=0.1μF,With heat sink, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O		4.8	5.0	5.2	V
		I_O=5mA to 350mA, V_I=7V to 20V	4.75	5.0	5.25	V
Line Regulation	$\triangle V_O$	V_I=7V to 25V, I_O=200mA	--	--	100	mV
		V_I=8V to 25V, I_O=200mA	--	--	50	mV
Load Regulation	$\triangle V_O$	I_O=5mA to 500mA ,T_J=25°C	--	--	100	mV
		I_O=5mA to 200 mA, T_J=25°C	--	--	50	mV
Ripple Rejection	RR	V_I=8V to18V, f=120Hz, I_O=300mA	62	--	--	dB
Dropout Voltage	V_D		--	2	--	V
Quiescent Current	I_Q		--	--	6	mA
Quiescent Current Change	$\triangle I_Q$	V_I=8V to 25V,I_O=200mA	--	--	0.8	mA
		I_O=5mA to 350mA	--	--	0.5	mA
Output Noise Voltage	V_N	10Hz≤f≤100KHz	--	40	--	μV

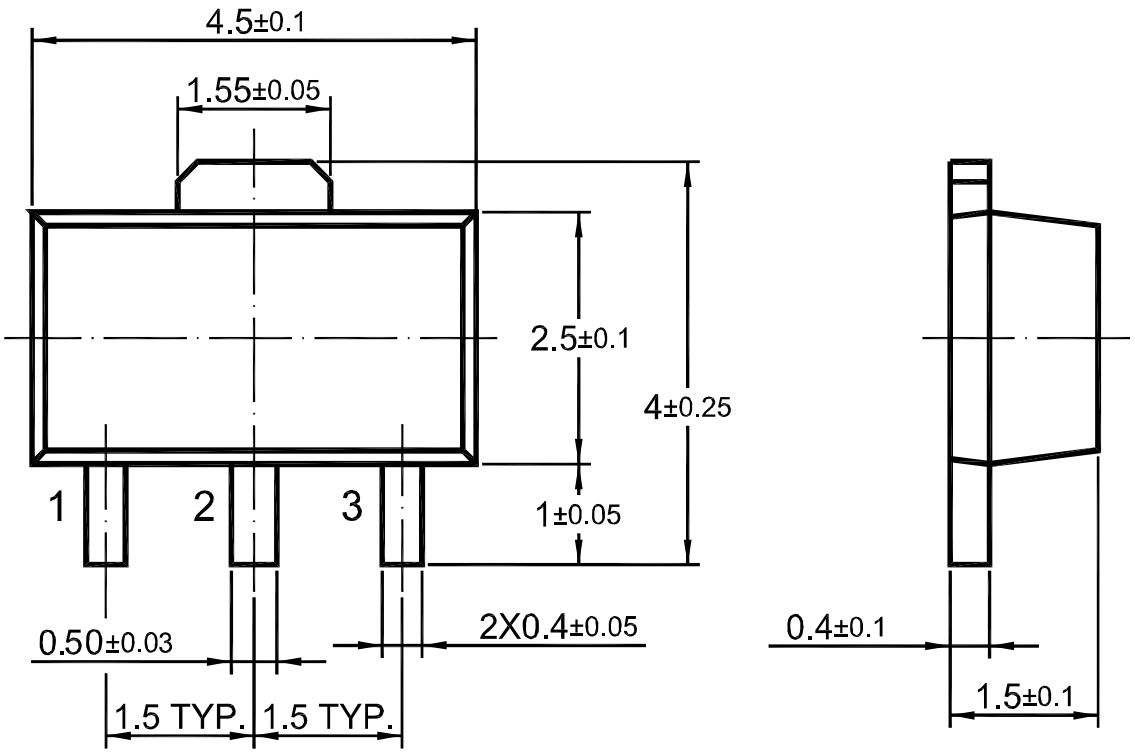
TN78M12SQ Electrical Characteristics

Ratings at T_A = 25℃ , With heak sink, V_I=19V, I_O=40mA, C_I=0.33μF,C_O=0.1μF,unless otherwise specified.

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O		11.5	12	12.5	V
		I_O=5mA to 350mA, V_I=14.5V to 27V	11.4	12	12.6	V
Line Regulation	$\triangle V_O$	V_I=14.5V to 30V, I_O=200mA	--	--	240	mV
		V_I=16V to 30V, I_O=200mA	--	--	120	mV
Load Regulation	$\triangle V_O$	I_O=5mA to 500mA, T_J=25°C	--	--	240	mV
		I_O=5mA to 200 mA, T_J=25°C	--	--	120	mV
Ripple Rejection	RR	V_I=15V to 25V, f=120Hz, I_O=300mA	55	--	--	dB
Dropout Voltage	V_D		--	2	--	V
Quiescent Current	I_Q		--	--	6	mA
Quiescent Current Change	$\triangle I_Q$	V_I=14.5V to 30V,I_O=200mA	--	--	0.8	mA
		I_O=5mA to 350mA	--	--	0.5	mA
Output Noise Voltage	V_N	10Hz≤f≤100kHz	--	75	--	μV/Vo

Package Outline

SOT-89 Dimensions in mm



Ordering Information

Device	Package	Shipping
TN78MXXSQ	SOT-89	1,000PCS/Reel&7inches
		3,000PCS/Reel&13inches

Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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Product Specification Statement

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The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. TANI shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and TANI assumes no responsibility for the application of the product. TANI strives to provide accurate and up -to- date information to the best of our ability. However, due to technical, human, or other reasons, TANI cannot guarantee that the information provided in the product specification is entirely accurate and error-free. TANI shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications.

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Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

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