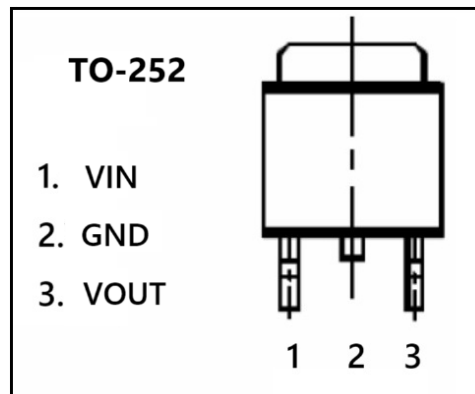


Positive-Voltage Regulators 78M05

FEATURES

- Output current to 1.0 A
- Output voltages of 5V
- Thermal overload protection
- Short circuit protection
- Output Transistor Operating Area Protection
- Package: TO-252



DESCRIPTION

The 78M series of three-terminal positive regulators is available in TO-252 packages and with several fixed output voltages, making it useful in a wide range of applications. Each type employs internal current limiting, thermal shutdown and safe area protection, resulting in it being essentially indestructible. If adequate heat sinking is provided, they can deliver over 1.0A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltage and currents.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Input voltage	V_I	35	V
Output current	I_O	Internally limited	A
Power dissipation	P_D	Internally limited	W
Storage Temperature	T_{STG}	-65~ 150	°C
Operating Temperature	T_{OP}	-40~+125	

THERMAL DATA

Parameter	Symbol	VALUE	UNIT
Thermal resistance junction-case	R_{thJC}	5.5	°C/W
Thermal resistance junction-ambient	R_{thJA}	80	°C/W

ELECTRICAL CHARACTERISTICS

7805

($V_I=10V$, $I_O=500mA$, $C_I = 0.33 \mu F$, $C_O = 0.1 \mu F$, $T_J=-40$ to $125^{\circ}C$, unless otherwise noted.)

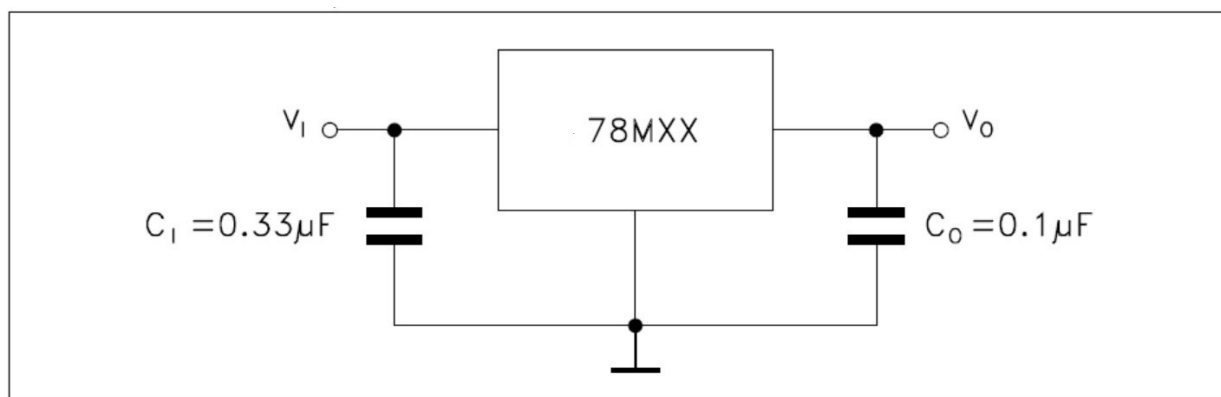
Parameter	Symbol	Test Conditions	T_J	Min	Typ	Max	Unit
Output voltage	V_O		$25^{\circ}C$	4.80	5	5.20	V
		$I_O=5mA$ to $1A$, $V_I=7$ to $20V$		4.75	5	5.25	
Line Regulation ⁽¹⁾	Regline	$V_I=7$ to $25V$	$25^{\circ}C$			100	mV
		$V_I=8$ to $12V$				50	
Load Regulation ⁽¹⁾	Regload	$I_O=5mA$ to $1A$	$25^{\circ}C$			100	mV
		$I_O=250$ to $750mA$				50	
Quiescent Current	I_Q		$25^{\circ}C$			8	mA
Quiescent current change	ΔI_Q	$I_O=5mA$ to $1A$				0.5	
		$V_I=7$ to $25V$				1.3	
Output Voltage Drift ⁽²⁾	$\Delta V_O/\Delta T$	$I_O = 5 mA$			-0.8		mV/ $^{\circ}C$
Output noise voltage	V_N	$f=10Hz$ to $100kHz$	$25^{\circ}C$		42		μV
Ripple Rejection ⁽²⁾	RR	$V_I=8$ to $18V$, $f = 120Hz$		62	73		dB
Dropout voltage	V_{DROP}	$I_O=1A$	$25^{\circ}C$		2		V
Output Resistance ⁽²⁾	R_O	$f = 1 kHz$			15		m Ω
Short-Circuit Current	I_{SC}	$V_I = 35 V$	$25^{\circ}C$		230		mA
Peak Current	I_{PK}		$25^{\circ}C$		2.2		A

Notes:

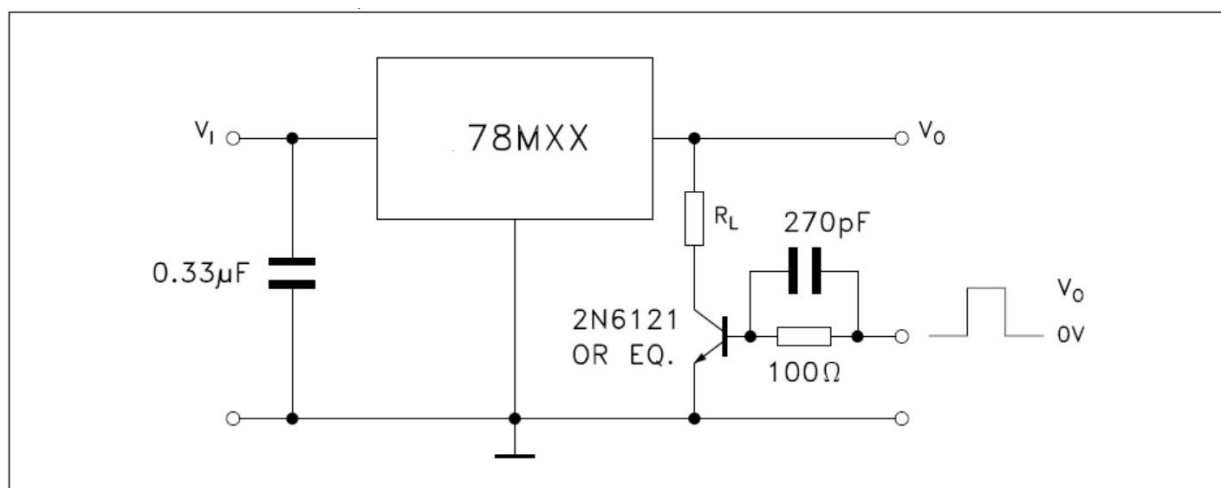
1. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty is used.
2. These parameters, although guaranteed, are not 100% tested in production.

TEST CIRCUITS

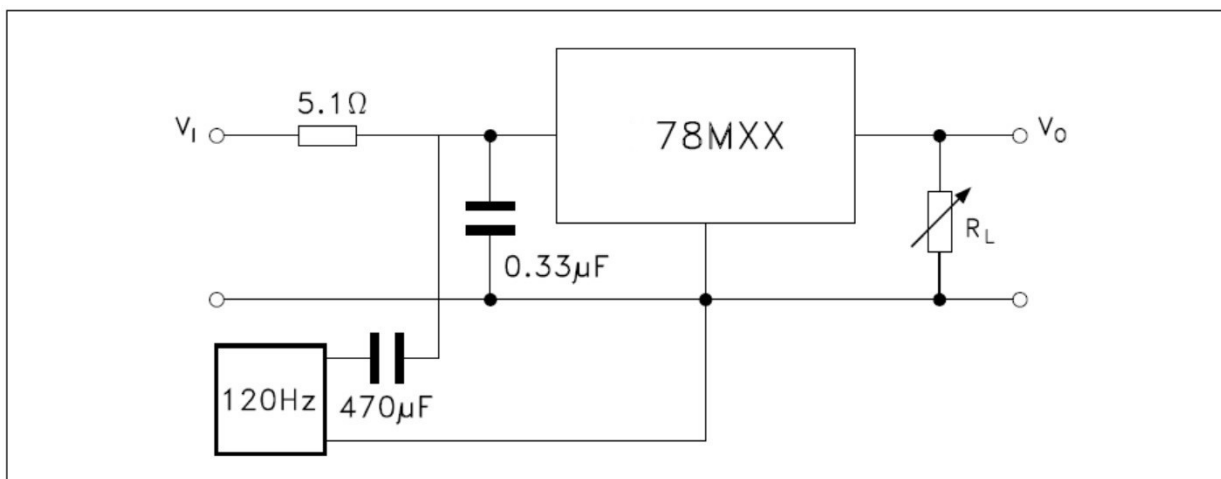
DC parameter



Load regulation

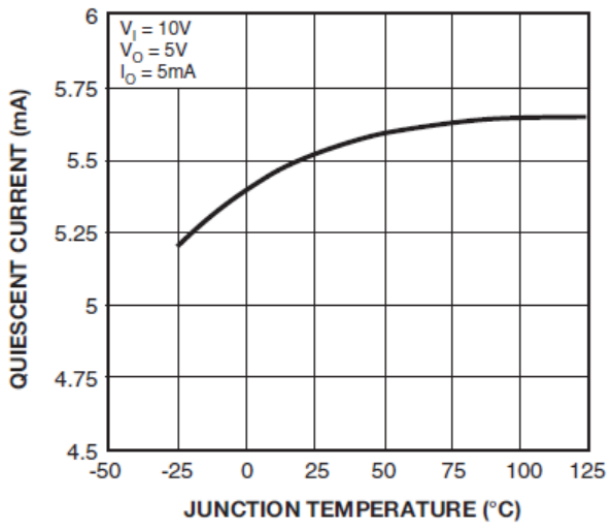


Ripple rejection

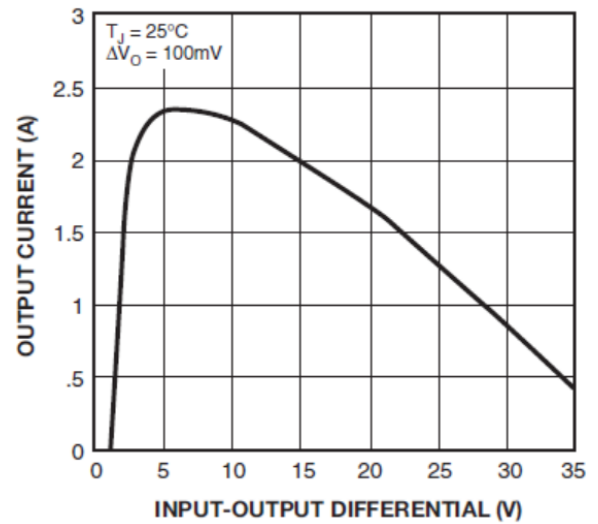


TYPICAL PERFORMANCE CHARACTERISTICS

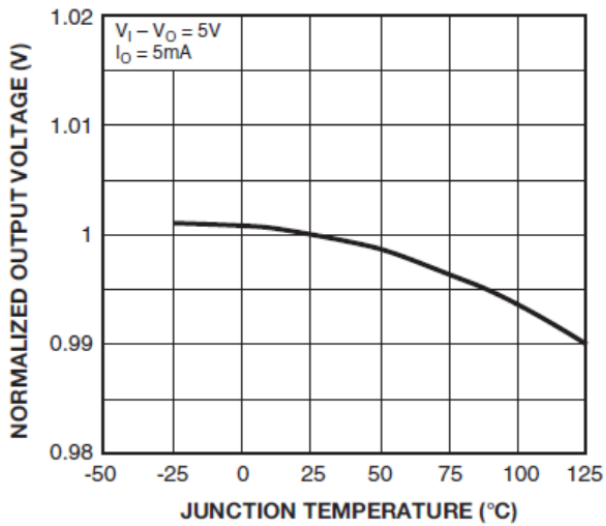
Quiescent Current



Peak Output Current



Output Voltage



Quiescent Current

