



1A Output Low Dropout Voltage Regulators

DESCRIPTION

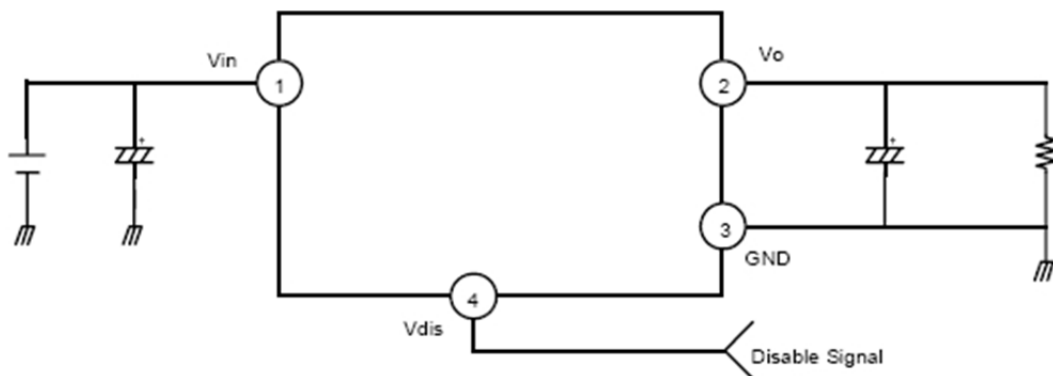
The ISP78RXX Series is a low-dropout voltage regulator suitable for various electronic equipment. Dropout voltage of ISP78RXX Series is below 0.5V in full rated current (1A).

Cause the series have been designed for high current loads, so they are also used in lower current, extremely low dropout-critical systems (in which their tiny dropout voltage and ground current values are important attributes).

FEATURES

- $I_{OUT}=1A$; $V_{OUT}=3.3V, 5V, 12V$
- TO-220 Full Mold Package (4 pin)
- Internal over current protection, internal thermal shutdown
- Internal overvoltage protection, internal short-circuit protection
- Output disable function

Typical Application Circuit

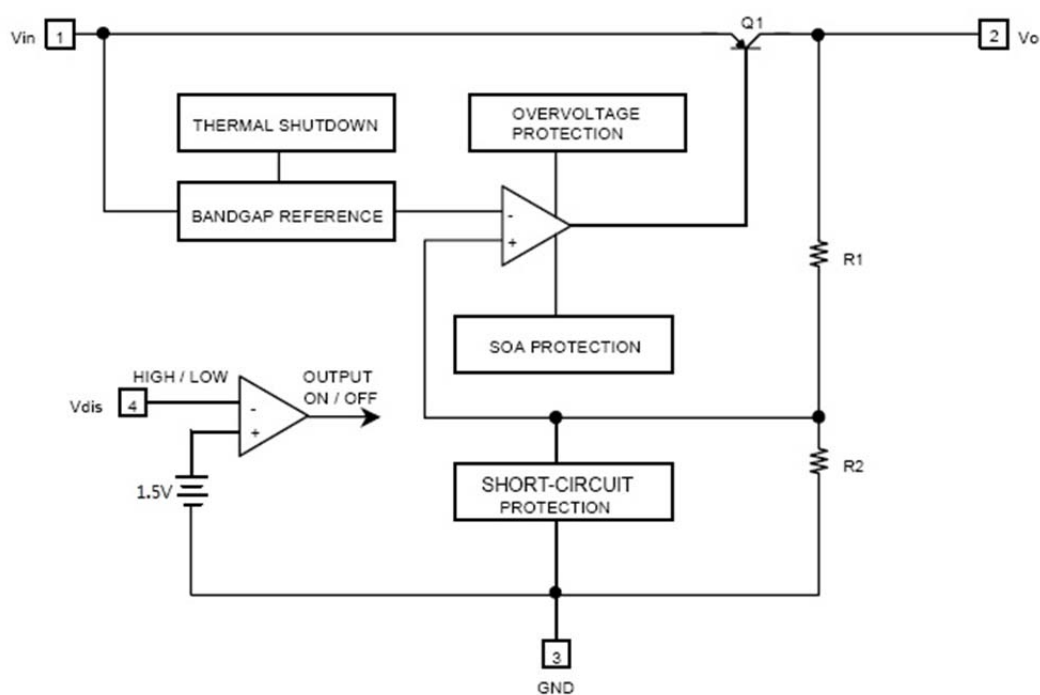




Maximum Ratings

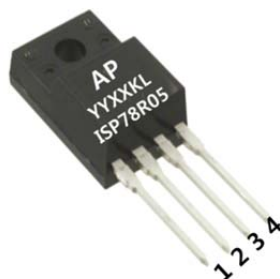
Characteristic	Symbol	Rating	Units
Input Voltage	V_I	35	V
Control Input Voltage	V_{CT}	35	V
Power Dissipation	Pd1(No Heat sink)	1.5	W
	Pd2(With Heat sink)	15	W
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Operating Temperature Range	T_{opr}	-20 ~ 80	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-50 ~ 150	$^{\circ}\text{C}$

Internal Block Diagram





Package Information



TO-220F-4L

Package	Pin Info.
(TO-220F-4L)	1.Vin 2.Vout 3.GND 4.Vdis

Ordering Information

Part No	Package	Packing	Finish	Halogen	Packing Unit	Remark
ISP78RXX	TO-220F-4L	Tube	Sn	Free	5,000	*XX : Output Voltage Option

*XX : Output Voltage Option
33=3.3V, 05=5V, 12=12V



Electrical Characteristics

Operating Conditions: $V_I = V_O + 2V$, $I_O = 500mA$, $V_{CT(High)} = 2.7V$, $T_a = 25^\circ C$, unless otherwise specified

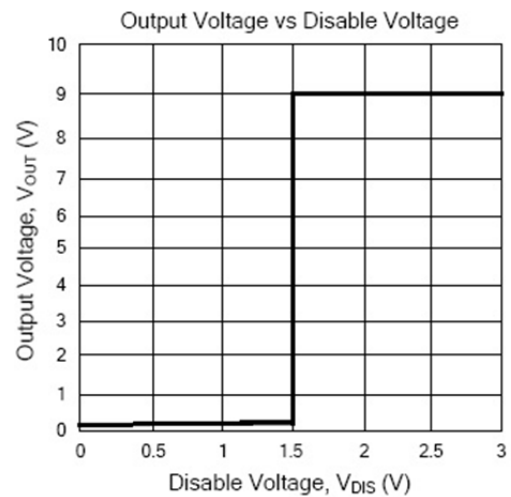
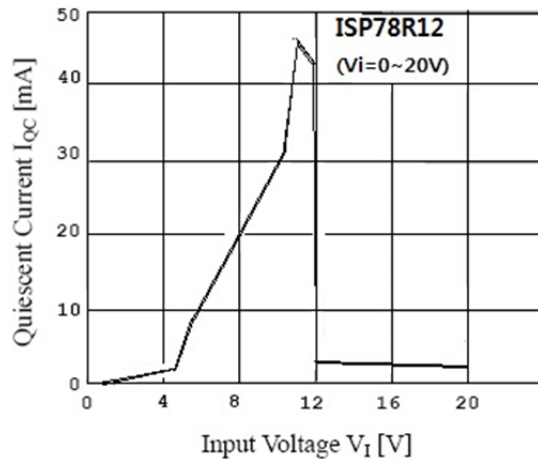
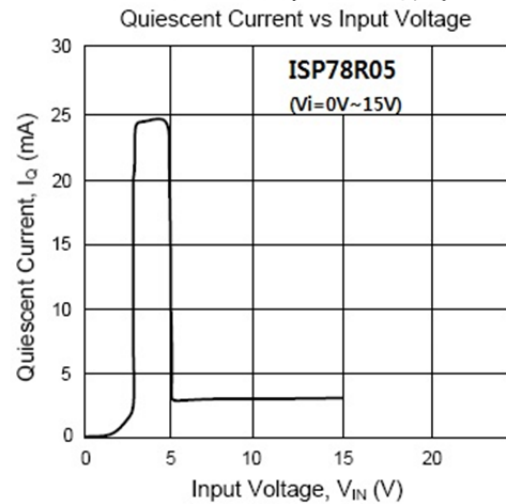
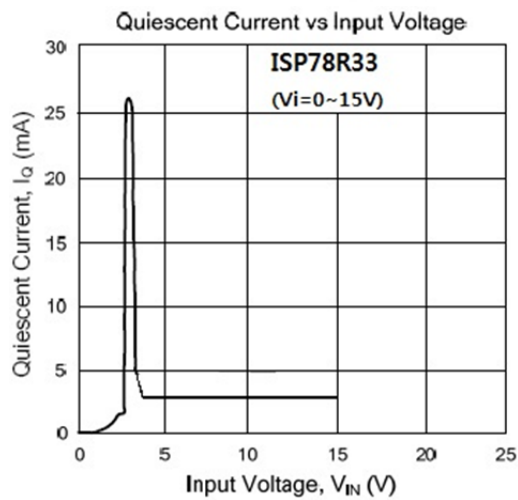
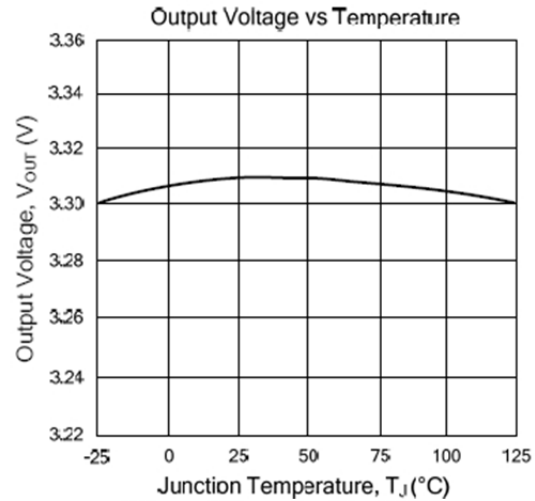
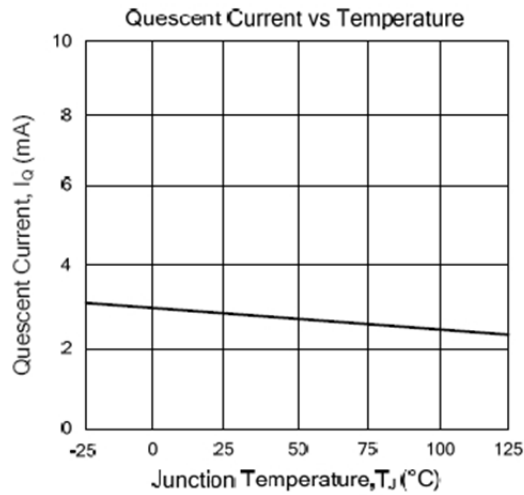
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Output Voltage	V_O	ISP78R33 $V_I = 4.3V \sim 12V$	3.22	3.3	3.38	V
		ISP78R05 $V_I = 6V \sim 12V$	4.88	5.0	5.12	V
		ISP78R12 $V_I = 13V \sim 16V$	11.7	12.0	12.3	V
Line Regulation	$\Delta V_O(\Delta V_I)$	Note1, $I_O = 500mA$	-	0.5	2.5	%
Load Regulation	$\Delta V_O(\Delta I_L)$	$5mA \leq I_O \leq 1.0A$	-	0.2	2.0	%
Quiescent Current	I_{QC}	$I_O = 0mA$	-	-	10	mA
Ripple Rejection Ratio	RR	$(V_O + 2V) \leq V_I \leq 12V$, $I_O = 50mA$ $f = 120Hz$	45	55	-	dB
Dropout Voltage	V_{DROP}	$I_O = 1.0A$	-	-	0.5	V
Control Voltage High	$V_{CT(High)}$	$I_O = 0mA$, Output ON	2.0	-	-	V
Control Voltage Low	$V_{CT(Low)}$	$I_O = 0mA$, Output OFF	-	-	0.8	V
Disable Bias Current H	I_{disH}	$V_{dis} = 2.7V$	-	-	20	μA
Disable Bias Current L	I_{disL}	$V_{dis} = 0.4V$			-0.4	mA

Notes

1. These parameters, although guaranteed, are not 100% tested in production.
2. Junction -to -case thermal resistance test environments.
 - . Pneumatic heat sink fixture.
 - . Clamping pressure 60psi through 12mm diameter cylinder.
 - . Thermal grease applied between PKG and heat sink fixture.

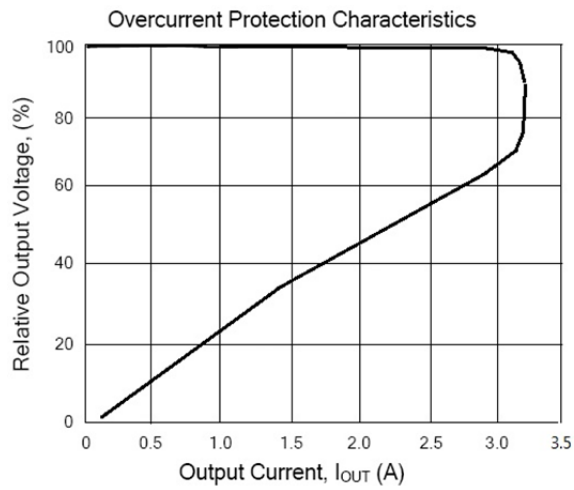


Electrical Characteristics Curves





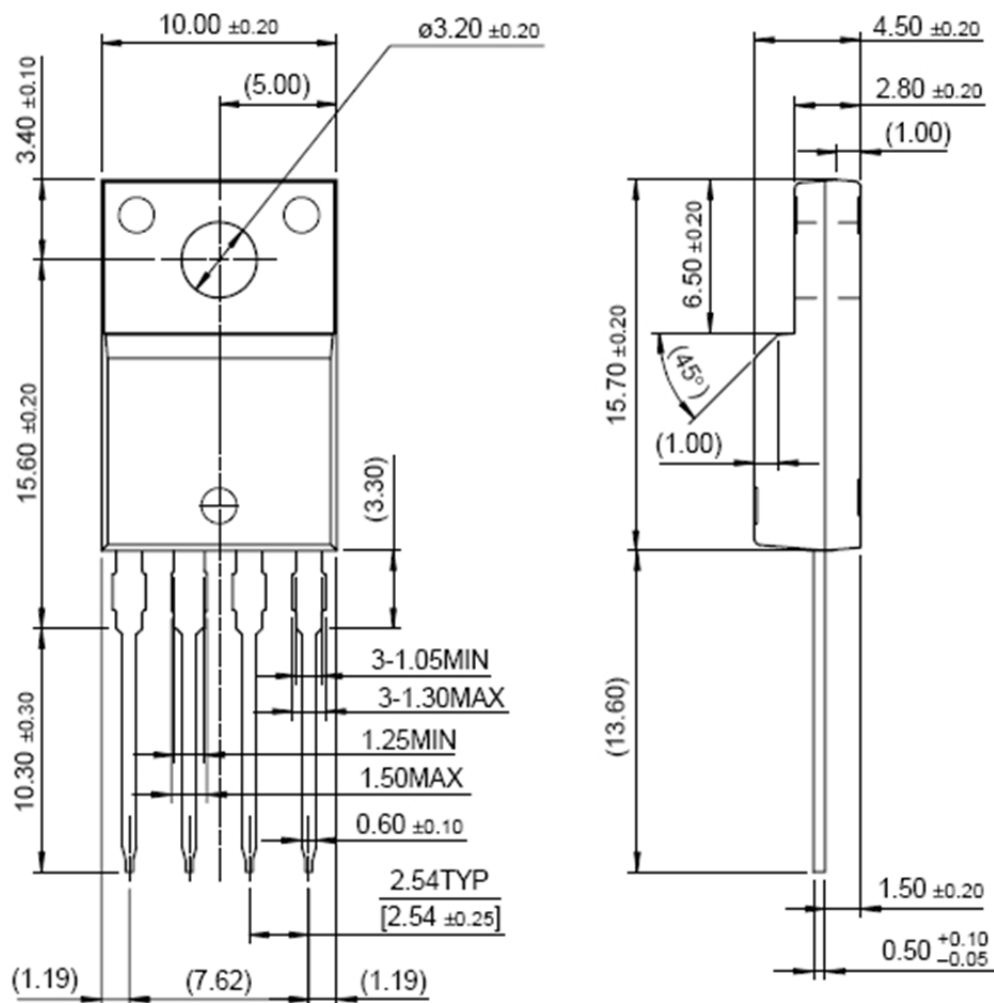
Electrical Characteristics Curves



Package Dimension

TO-220F-4L

Unit : mm





Revision History

No	Date	Contents
1	2015-01-30	Initial Brief Datasheet Release



Semi
Advanced Power Semiconductor

ISP78RXX

<http://www.apsemi.com>

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