Low Dropout Voltage Regulators

DESCRIPTION

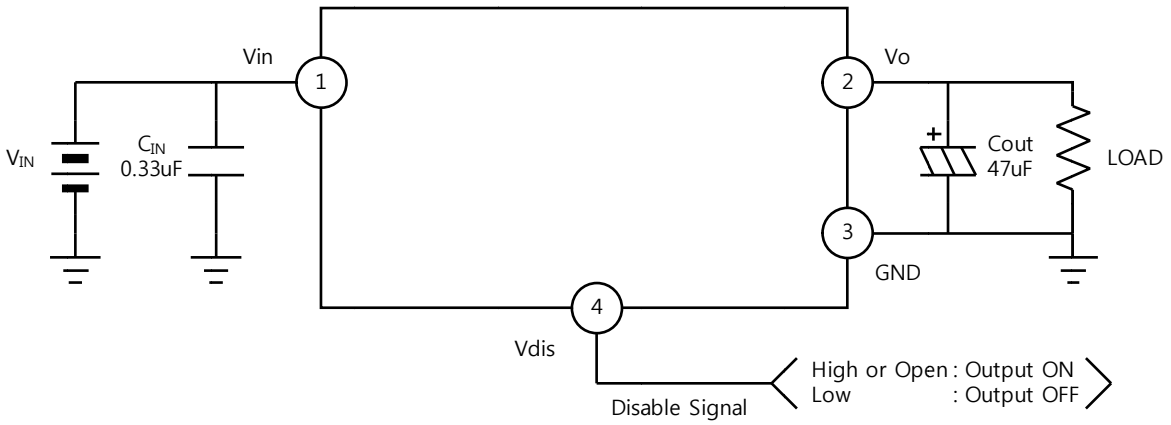
The ISP278R12 is a low-dropout voltage regulator suitable for various electronic equipments. Dropout voltage of ISP278R12 Series is below 0.5V in full rated current (1.6A).

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

- **IOUT=1.6A ; VOUT=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**

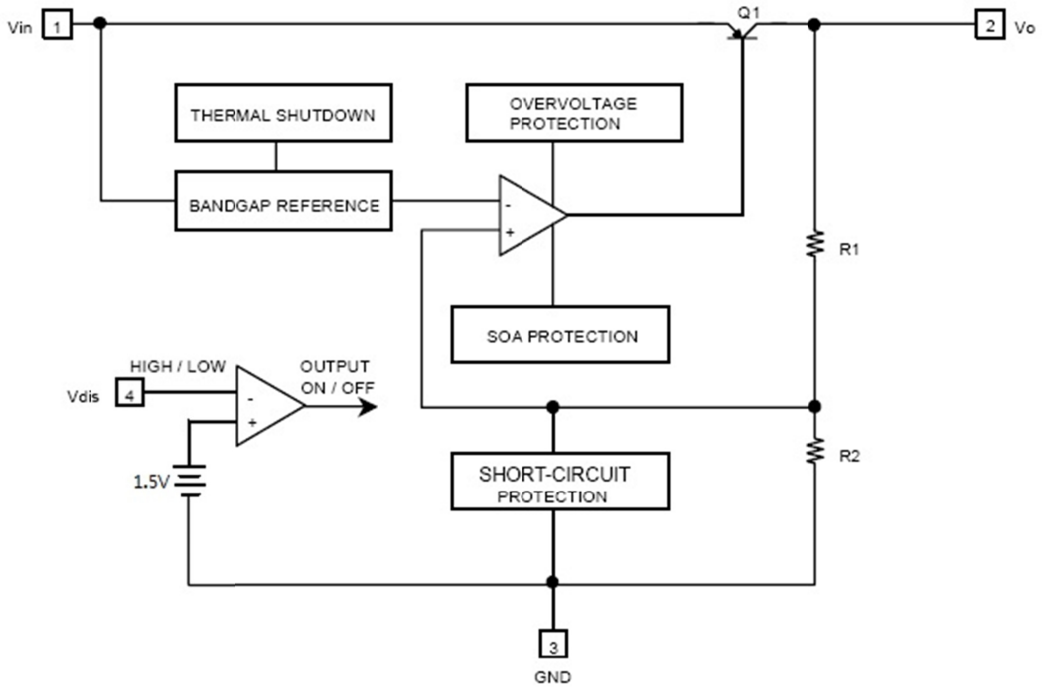
Typical Application Circuit



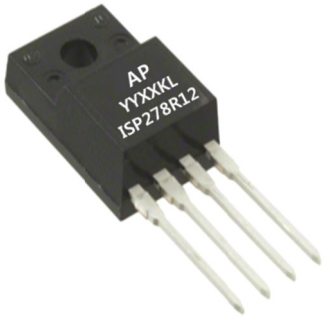
Maximum Ratings

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	^{O}C
Operating Temperature Range	Topr	-20 ~ 80	°C
Storage Temperature Range	Tstg	-50 ~ 150	°C
Thermal shutdown Temperature	Ttsd	150	°C

Internal Block Diagram



Package Information



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
ISP278R12	TO-220F-4L	Tube	Sn	Free	5,000	

Electrical Characteristics

Operating Conditions: V_I =14V, Io = 1A, $V_{CT(High)}$=2.7V, Ta = 25°C, unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Output Voltage	Vo	ISP278R12 V_I=13V~16V	11.7	12.0	12.3	V
Line Regulation	$\triangle V_{O(\triangle VI)}$	Note, Io=1.0A	-	0.5	2.5	%
Load Regulation	$\triangle V_{O(\triangle IL)}$	5mA≤Io≤2.0A	-	0.2	2.0	%
Quiescent Current	I_{QC}	Io=0mA	-	-	10	mA
Ripple Rejection Ratio	RR	V_I = 18V, Io=50mA f=120Hz	45	55	-	dB
Dropout Voltage	V_{DROP}	Io=1.0A	-	-	0.3	V
		Io=2.0A	-	-	0.5	V
Control Voltage High	$V_{CT(High)}$	Io=0mA, Output ON	2.0	-	-	V
Control Voltage Low	$V_{CT(Low)}$	Io=0mA, Output OFF	-	-	0.8	V
Disable Bias Current H	IdisH	Vdis=2.7V	-	-	20	uA
Disable Bias Current L	IdisL	Vdis=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.

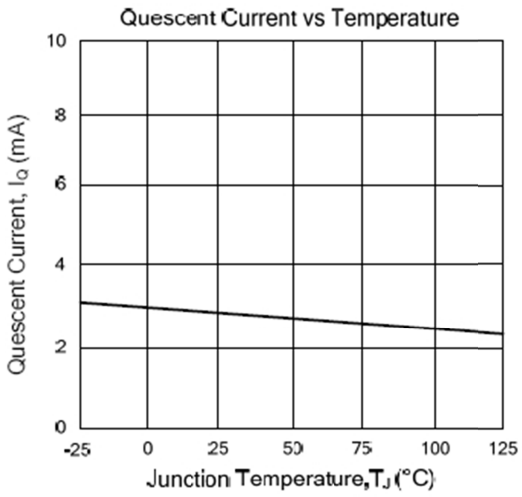
-. Pneumatic heat sink fixture.,

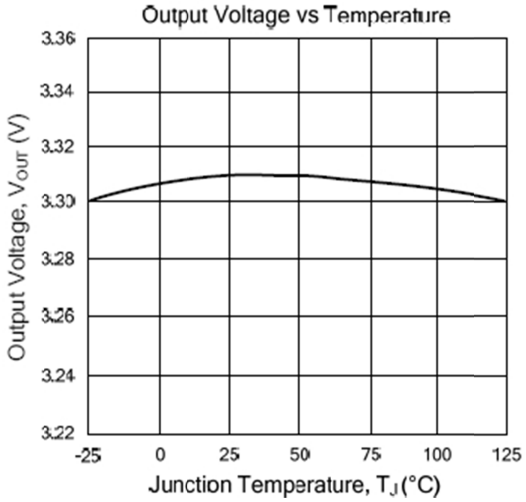
-. Clamping pressure 60psi through 12mm diameter cylinder.

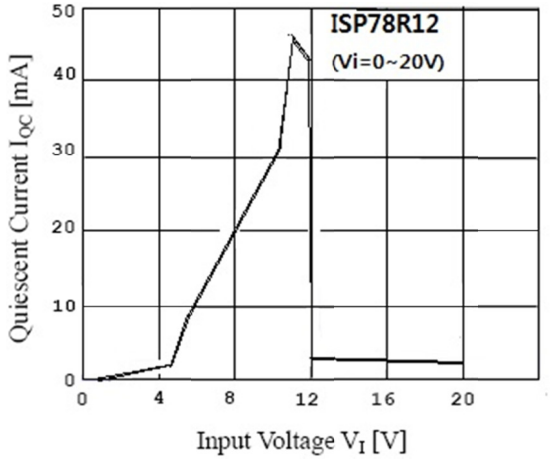
-. Thermal grease applied between PKG and heat sink fixture

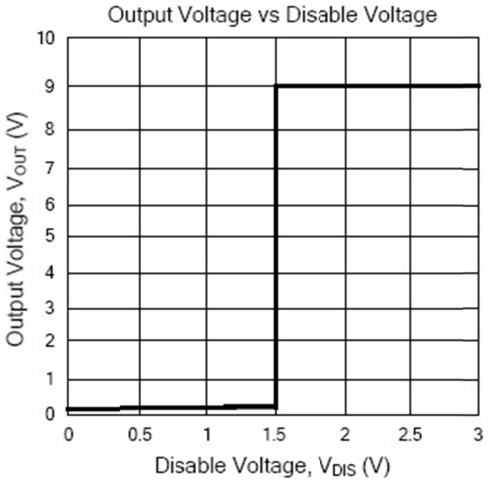
3. Connect V_{CT} to V_{IN} when not using V_{CT} pin.

Electrical Characteristics Curves





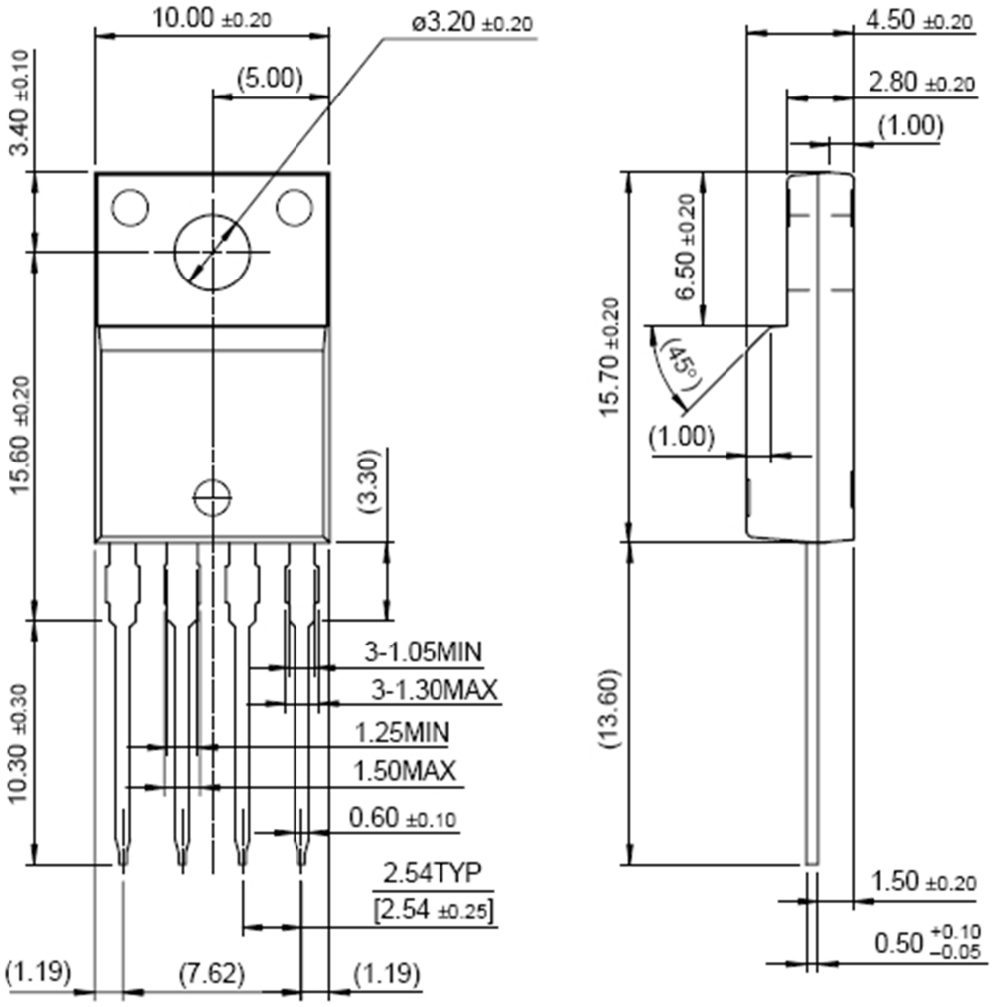




Package Dimension

Unit : mm

TO-220F-4L



Revision History

No	Date	Contents
1	2015-01-30	Initial Brief Datasheet Release
2	2015-06-22	Added Ttsd ability (150℃)

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