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KA278R51

Low Dropout Voltage Regulator

Features

- 2A / 5.1V Output low dropout voltage regulator
- TO220 Full-Mold package (4PIN)
- Overcurrent protection, Thermal shutdown
- Overvoltage protection, Short-Circuit protection
- With output disable function

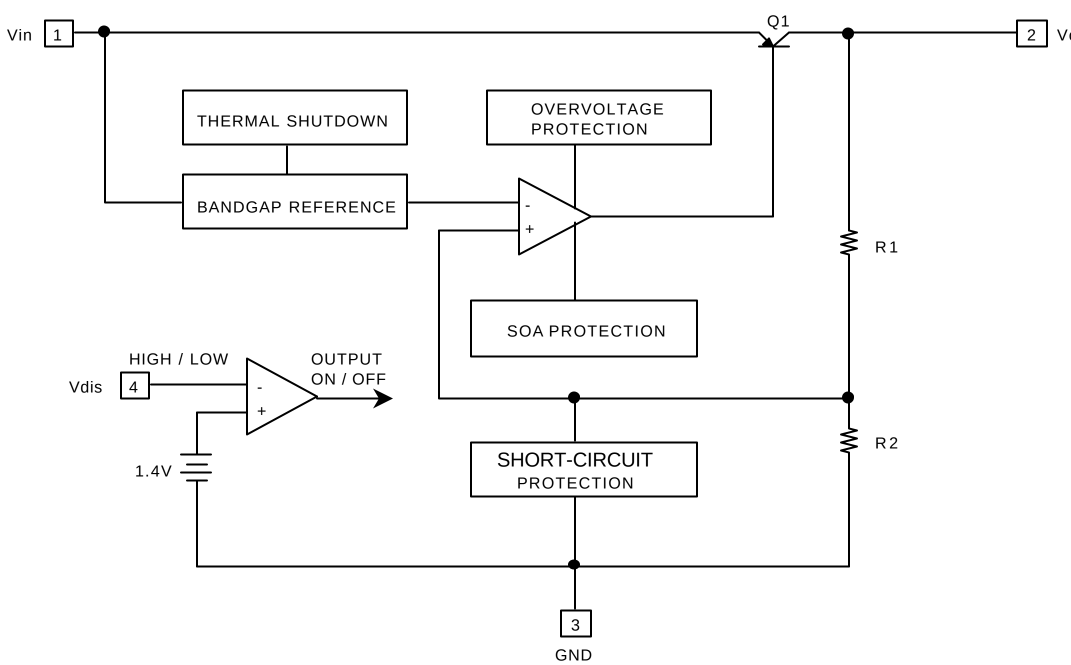
Description

The KA278R51 is a low-dropout voltage regulator suitable for various electronic equipments. It provide constant voltage power source with TO-220 4 lead full mold package. Dropout voltage of KA278R51 is below 0.5V in full rated current(2A). This regulator has various function such as peak current protection, thermal shut down, overvoltage protection and output disable function.

TO-220F-4L

1. Vin 2. Vo 3. GND 4. Vdis

Internal Block Diagram



Rev. 1.0.1

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Remark
Input Voltage	Vin	35	V	-
Disable Voltage	Vdis	35	V	-
Output Current	Io	2.0	A	-
Power Dissipation 1	Pd1	1.5	W	No Heatsink
Power Dissipation 2	Pd2	15	W	With Heatsink
Junction Temperature	Tj	+150	°C	-
Operating Temperature	Topr	-20 ~ +80	°C	-

Electrical Characteristics

(Vin=7V, Io=1.0A, Ta = +25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vo	-	4.98	5.1	5.22	V
Load Regulation	Rload	5mA < Io < 2A	-	0.1	2.0	%
Line Regulation	Rline	6V < Vin < 12V	-	0.5	2.5	%
Ripple Rejection Ratio	RR	note1	45	55	-	dB
Dropout Voltage	Vdrop	Io = 2A	-	-	0.5	V
Disable Voltage High	VdisH	Output Active	2.0	-	-	V
Disable Voltage Low	VdisL	Output Disabled	-	-	0.8	V
Disable Bias Current High	IdisH	Vdis = 2.7V	-	-	20	μA
Disable Bias Current Low	IdisL	Vdis = 0.4V	-	-	-0.4	mA
Quiescent Current	Iq	Io = 0A	-	-	10	mA

Note:
1.These parameters, although guaranteed, are not 100% tested in production.

Typical Perfomance Characteristics

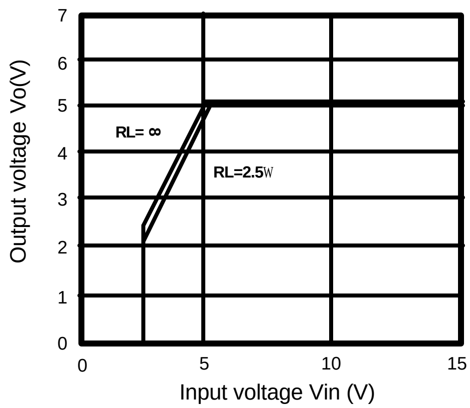


Figure 1.Output Voltage vs. Input Voltage

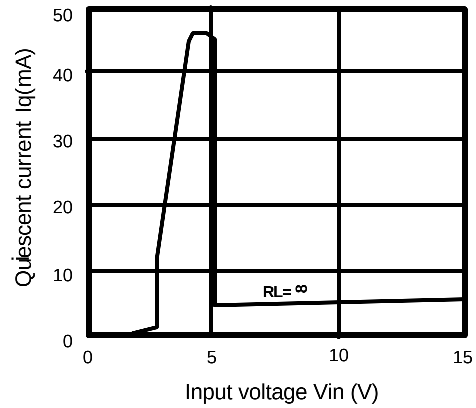


Figure 2.Quiescent Current vs. Input Voltage

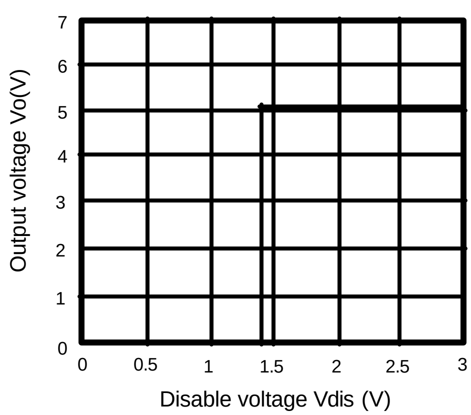


Figure 3.Output Voltage vs. Disable Voltage

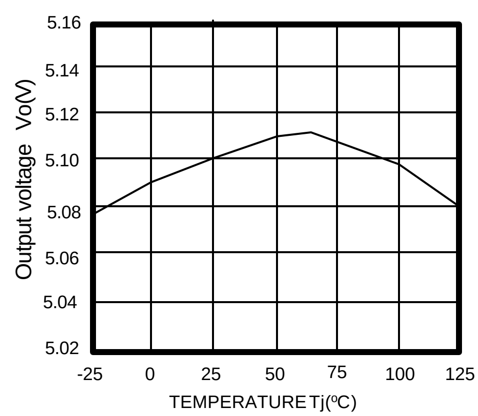


Figure 4.Output Voltage vs. Temperature(Tj)

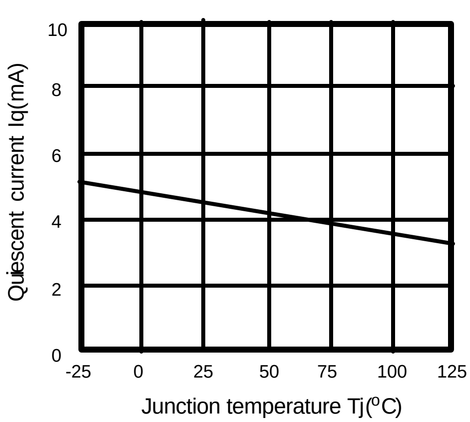


Figure 5.Quiescent Current vs. Temperature(Tj)

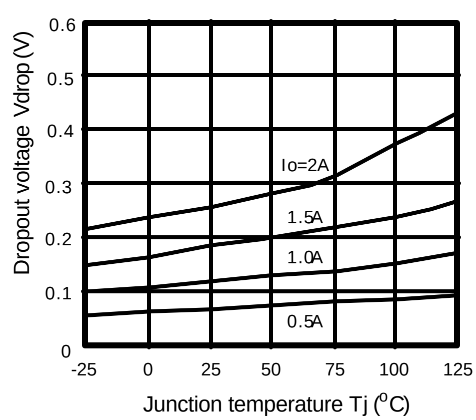


Figure 6.Dropout Voltage vs. Junction Temperature

Typical Perfomance Characteristics (continued)

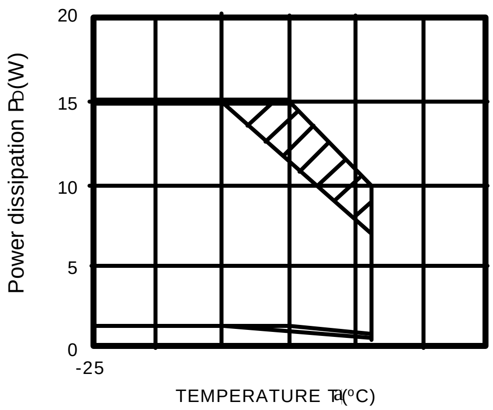


Figure 7.Power Dissipation vs. Temperature(Ta)

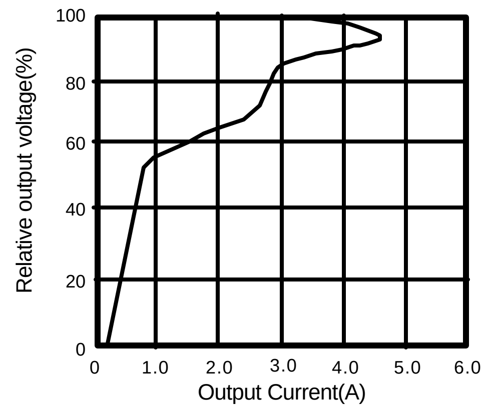


Figure 8.Overcurrent Protection Characteristics(Typical value)

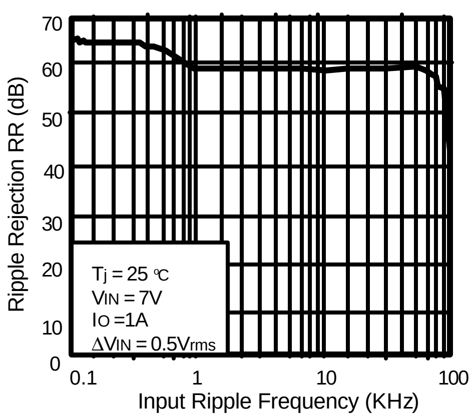


Figure 9.Ripple Rejection vs. Input Ripple Frequency

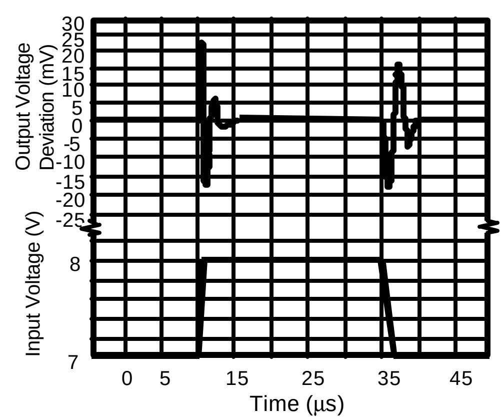


Figure 10.Line Transient Response

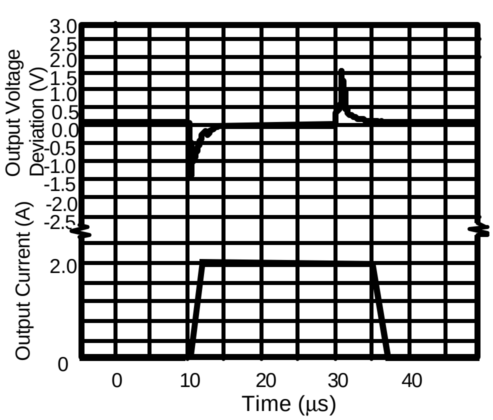


Figure 11.Load Transient Response

Typical Application

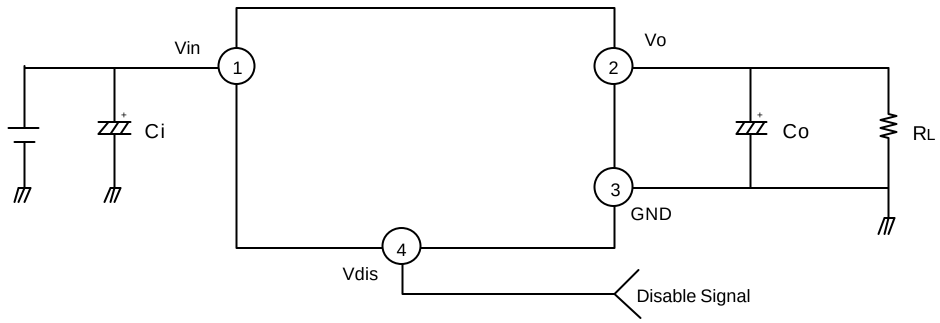


Figure 1.Application Circuit

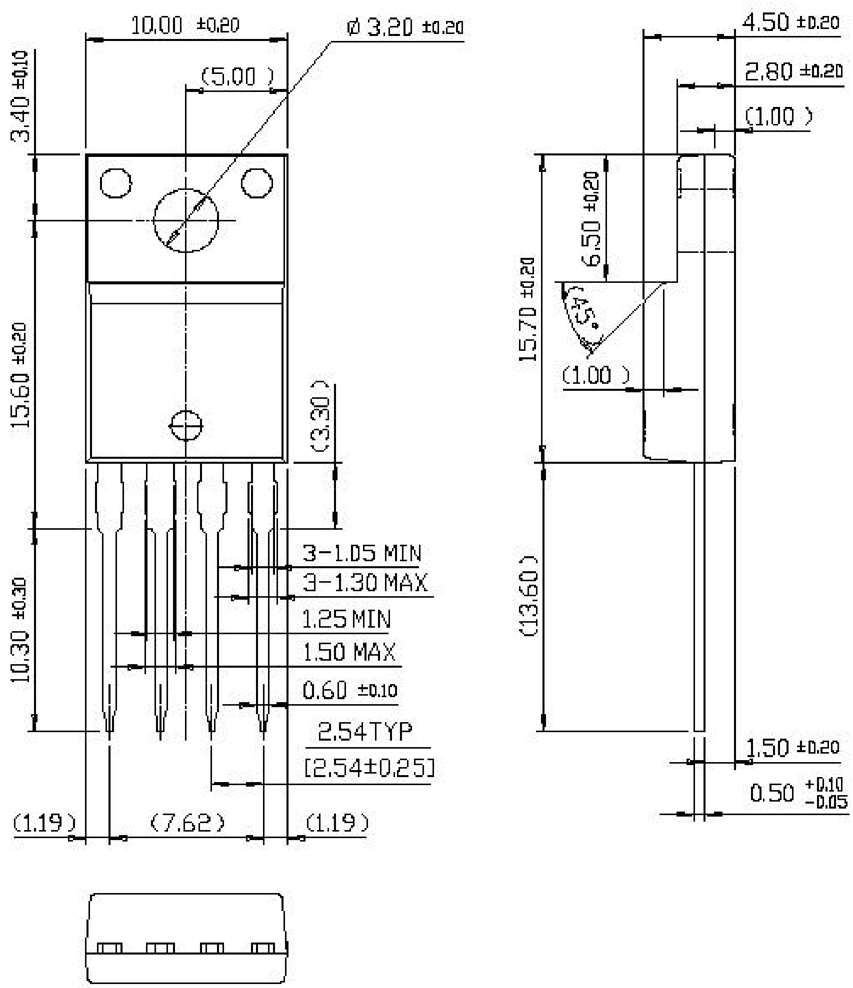
- Ci is required if regulator is located an appreciable distance from power supply filter.
- Co improves stability and transient response.(Co > 47µF)

Mechanical Dimensions

Package

Dimensions in millimeters

TO-220F-4L



Ordering Information

Product Number	Package	Operating Temperature
KA278R51	TO-220F-4L	-20°C to + 80°C

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