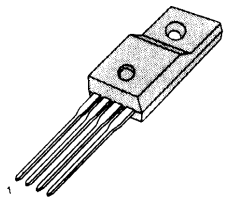
LOW DROPOUT VOLTAGE REGULATOR

The KA378R12 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 KA378R12 is below 0.5V in full rated current (3A).
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

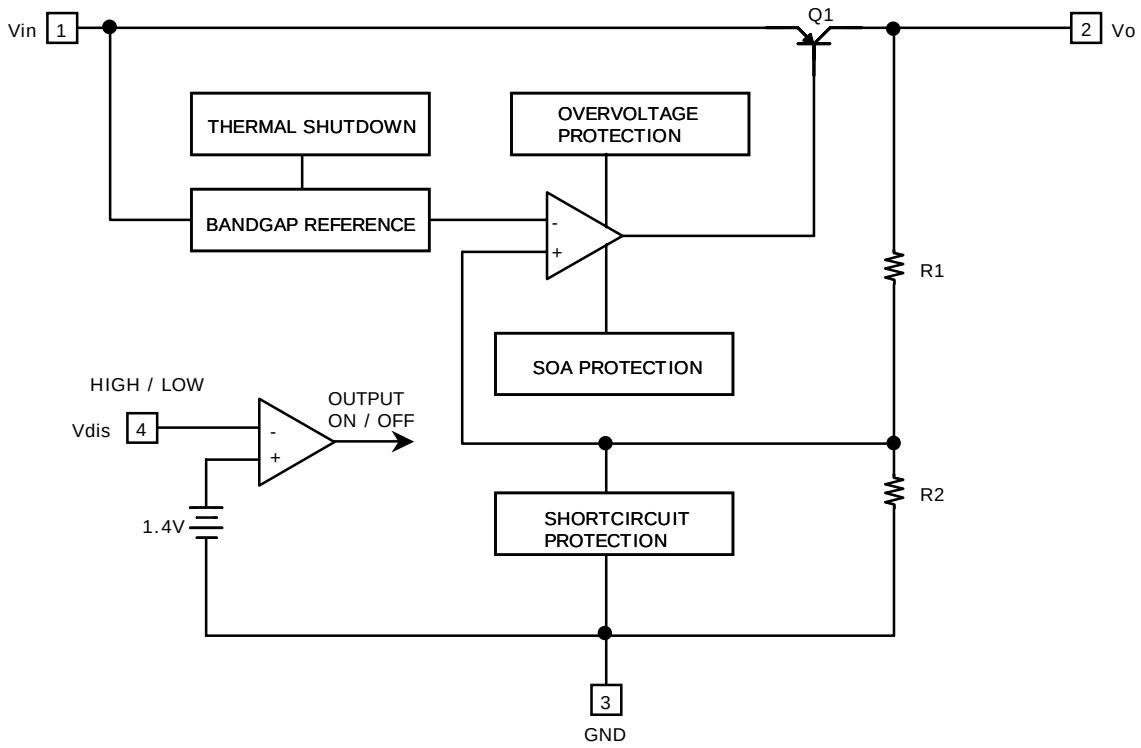
FEATURES

- 3A / 12V Output low dropout voltage regulator
- TO-220 Fulll-Mold package (4Pin)
- Overcurrent protection, Thermal shutdown
- Overvoltage protection, Shortcircuit protection
- With output disable function

ORDERING INFORMATION

Device	Package	Operating Temperature
KA378R12	TO-220F-4L	–20 ~ + 80°C

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit	Remark
Input Voltage	V_{IN}	35	V	–
Disable Voltage	Vdis	35	V	–
Output Current	I_O	3.0	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

(V_{IN} = 15V, I_O = 1.5A, Ta = 25°C, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage	V_O	–	11.7	12.0	12.3	V
Load Regulation	R_{LOAD}	5mA < I_O < 3A	–	0.1	2.0	%
Line Regulation	R_{LINE}	13V < V_{IN} < 29V	–	0.5	2.5	%
Ripple Rejection Ratio note	RR	–	45	55	–	dB
Dropout Voltage	V_{DROP}	I_O = 3A	–	–	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	I_Q	I_O = 0A	–	–	10	mA

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

TYPICAL PERFORMANCE CHARACTERISTICS

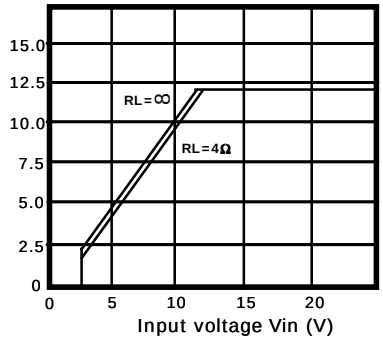


Figure 1. Output Voltage vs. Input Voltage

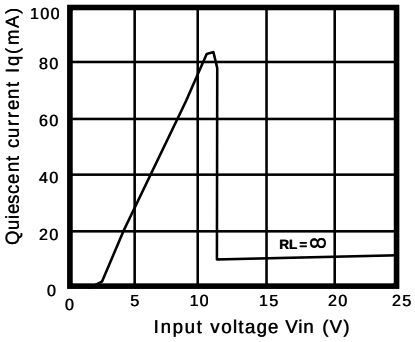


Figure 2. Quiescent Current vs. Input Voltage

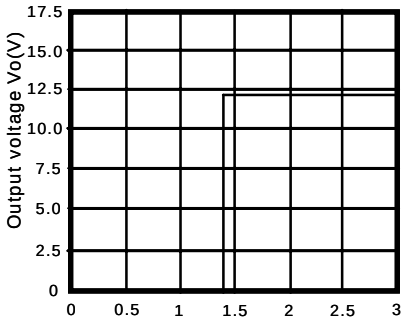


Figure 3. Output Voltage vs. Disable Voltage

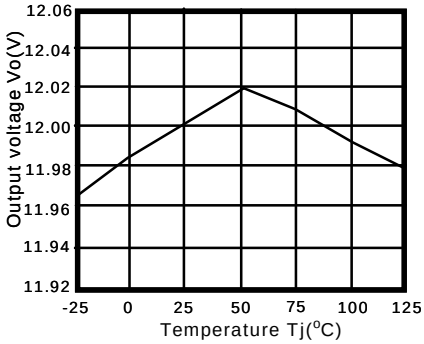


Figure 4. Output Voltage vs. Temperature (Tj)

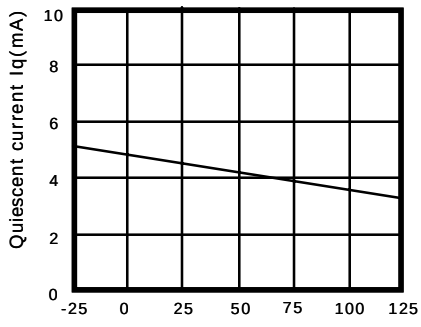


Figure 5. Quiescent Current vs. Temperature (Tj)

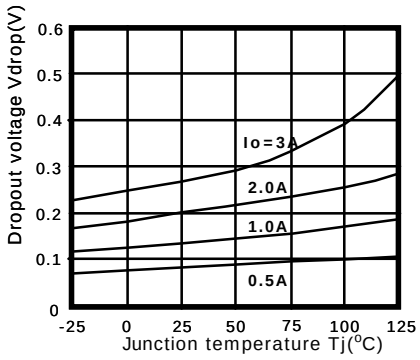


Figure 6. Dropout Voltage vs. Junction Temperature

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

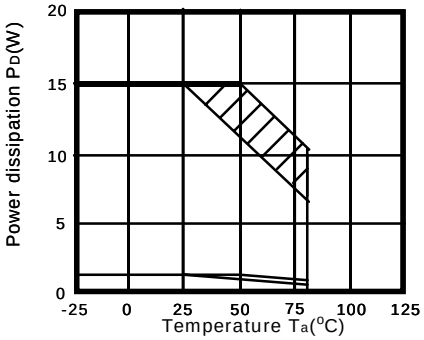


Figure 7. Power Dissipation vs. Temperature (Ta)

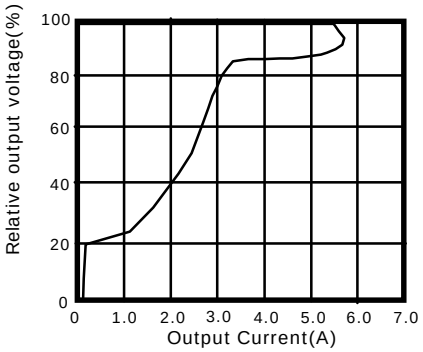


Figure 8. Overcurrent Protection Characteristics (Typical value)

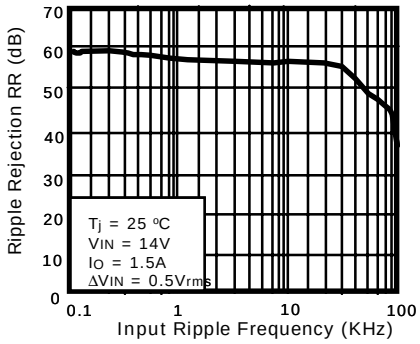


Figure 9. Ripple Rejection vs. Input Ripple Frequency

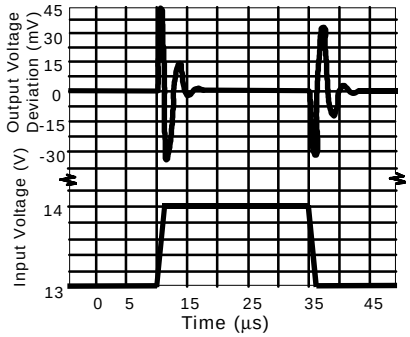


Figure 10. Line Transient Response

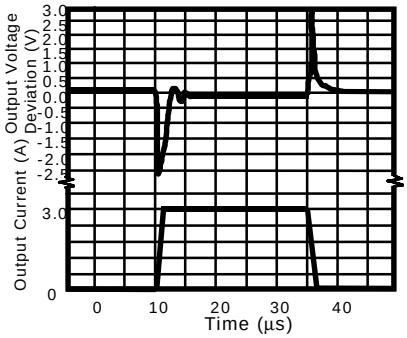


Figure 11. Load Transient Response

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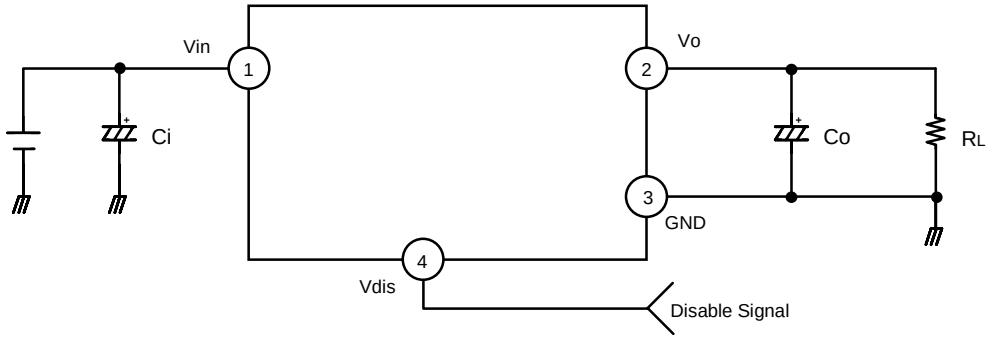
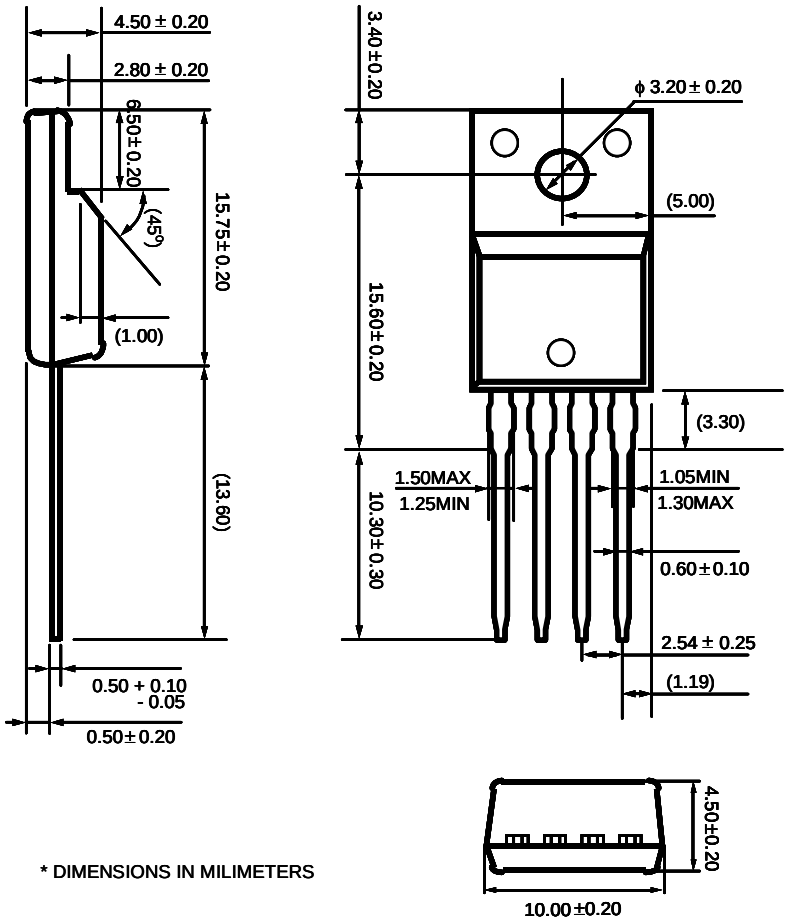
TYPICAL APPLICATION



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

PACKAGE DIMENSIONS

< TO220F-4L >



* DIMENSIONS IN MILIMETERS

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