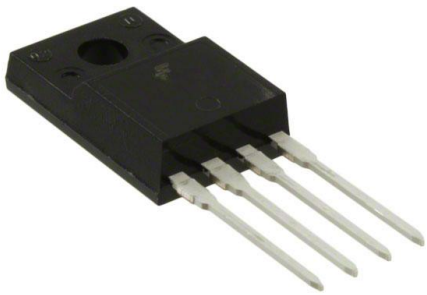


KA378R12CTU Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	KA378R12CTU-DG
Manufacturer	onsemi
Manufacturer Product Number	KA378R12CTU
Description	IC REG LINEAR 12V 3A TO220F-4L
Detailed Description	Linear Voltage Regulator IC Positive Fixed 1 Output 3A TO-220F-4L

This model KA378R12CTU is available at DiGi Electronics.

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Purchase and inquiry

Manufacturer Product Number:

KA378R12CTU

Series:

-

Output Configuration:

Positive

Number of Regulators:

1

Voltage - Output (Min/Fixed):

12V

Voltage Dropout (Max):

0.5V @ 3A

Current - Quiescent (Iq):

10 mA

Control Features:

-

Operating Temperature:

-20°C ~ 80°C

Package / Case:

TO-220-4 Full Pack

Base Product Number:

KA378

Manufacturer:

onsemi

Product Status:

Obsolete

Output Type:

Fixed

Voltage - Input (Max):

35V

Voltage - Output (Max):

-

Current - Output:

3A

PSRR:

-

Protection Features:

Over Current, Over Temperature, Over Voltage, Short Circuit

Mounting Type:

Through Hole

Supplier Device Package:

TO-220F-4L

Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8542.39.0001



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KA378R12C

Low Dropout Voltage Regulator

Features

- 3A/12V Output Low Dropout Voltage Regulator
- TO-220 Full-Mold Package (4Pin)
- Overcurrent Protection, Thermal Shutdown
- Overvoltage Protection, Short Circuit Protection
- With Output Disable Function

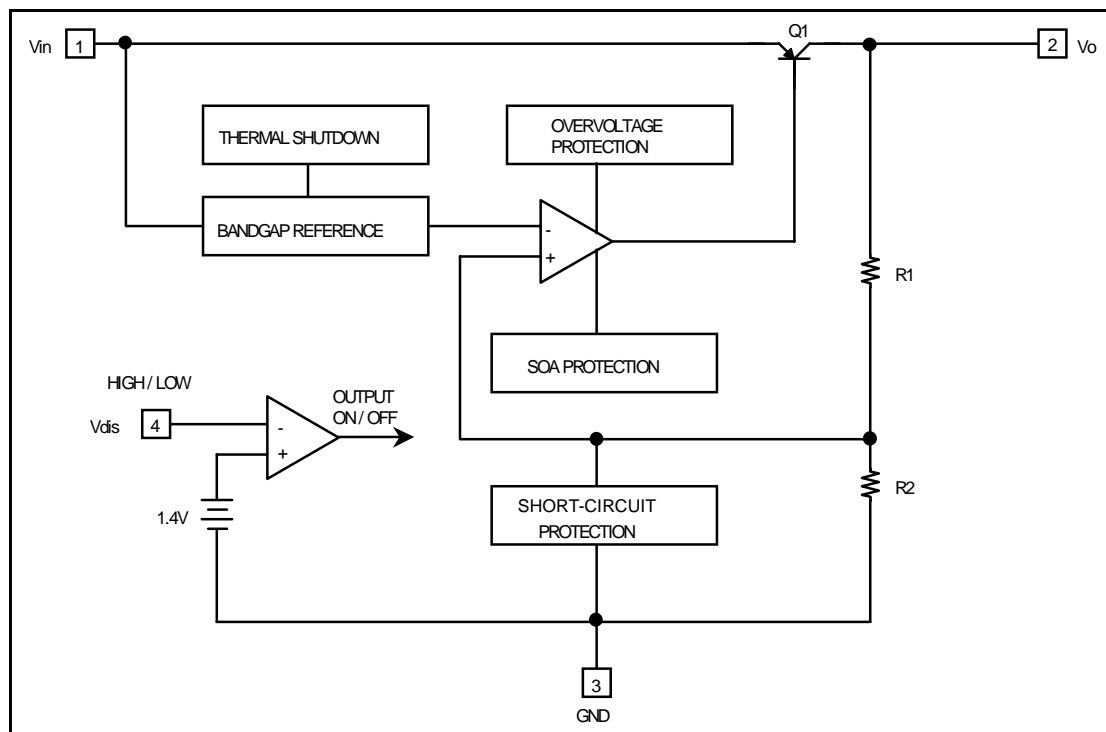
Description

The KA378R12C 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 KA378R12C 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

Internal Block Diagram



KA378R12C

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Remark
Input Voltage	Vin	35	V	-
Disable Voltage	Vdis	35	V	-
Output Current	Io	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	-
Thermal Resistance, Junction-to Case(Note2)	Rθjc	2.9	°C/W	-
Thermal Shutdown Temperature	Ttsd	150	°C	-
Storage Temperature	Tstg	-65 ~ 150	°C	-

Electrical Characteristics

(Vin = 15V, Io = 1.5A, Ta = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vo	-	11.7	12.0	12.3	V
Load Regulation	Rload	5mA < Io < 3A	-	0.1	2.0	%
Line Regulation	Rline	13V < Vin < 29V	-	0.5	2.5	%
Ripple Rejection Ratio	RR	Note1	45	55	-	dB
Dropout Voltage	Vdrop	Io = 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	Iq	Io = 0A	-	-	10	mA

Note:

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

Typical Performance Characteristics

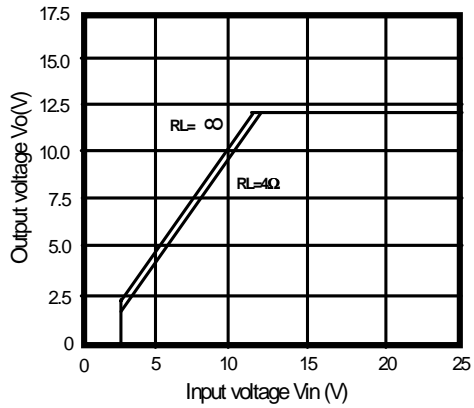


Figure 1. Output Voltage vs. Input Voltage

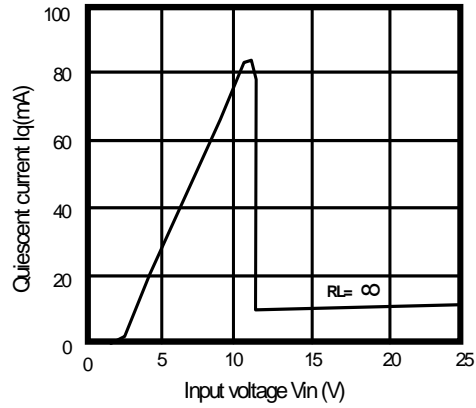


Figure 2. Quiescent Current vs. Input Voltage

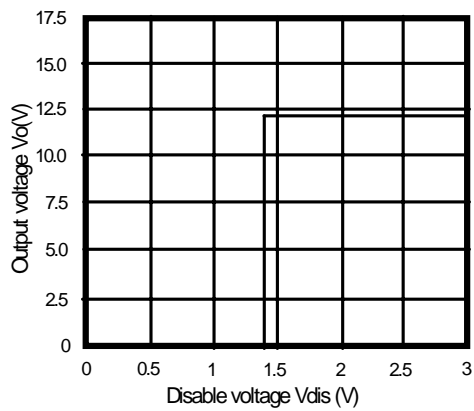


Figure 3. Output Voltage vs. Disable Voltage

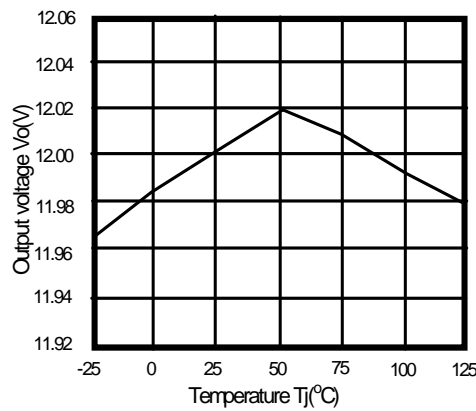


Figure 4. Output Voltage vs. Temperature(Tj)

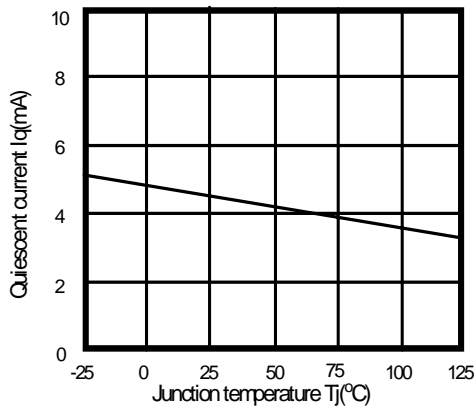


Figure 5. Quiescent Current vs. Temperature(Tj)

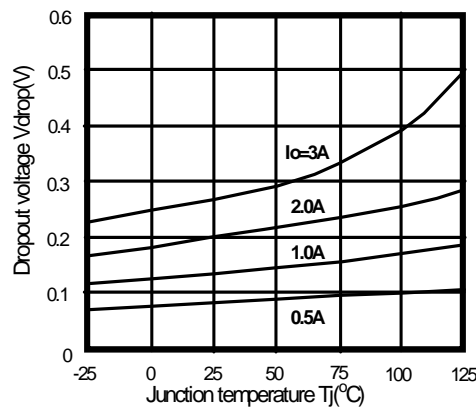


Figure 6. Dropout Voltage vs. Junction Temperature

Typical Performance Characteristics (Continued)

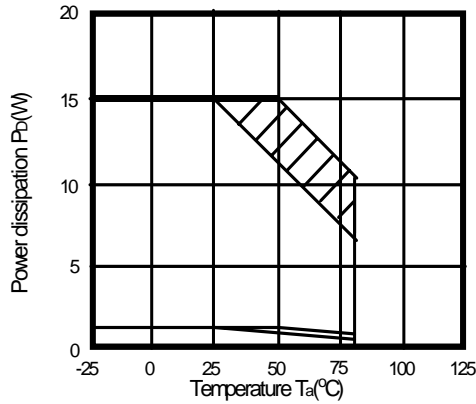


Figure 7. Power Dissipation vs. Temperature(Ta)

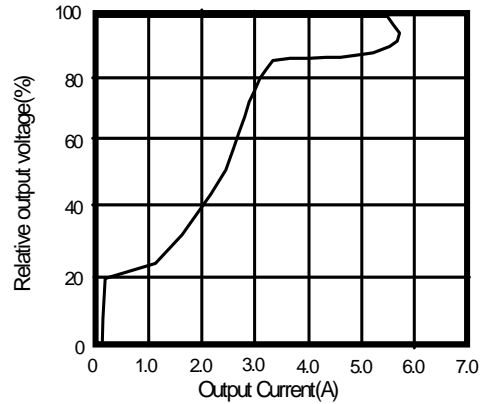


Figure 8. Overcurrent Protection Characteristics (Typical value)

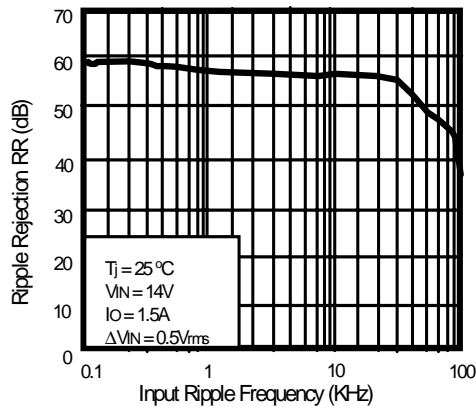


Figure 9. Ripple Rejection vs. Input Ripple Frequency

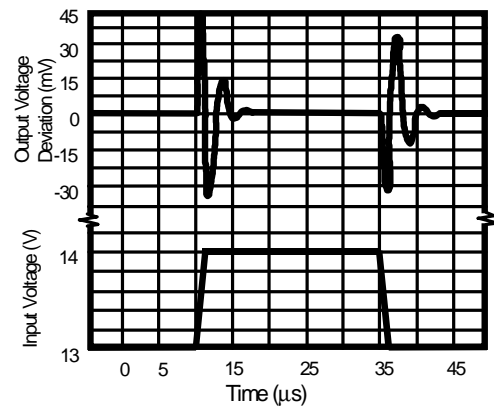


Figure 10. Line Transient Response

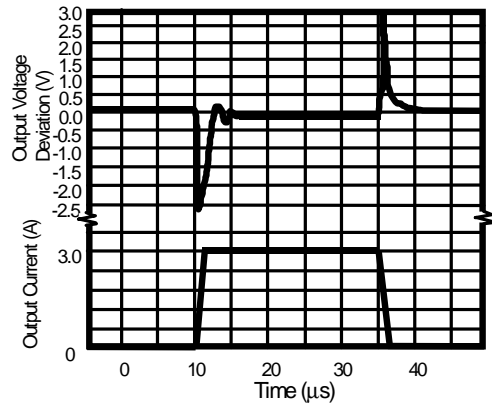


Figure 11. Load Transient Response

Typical Application

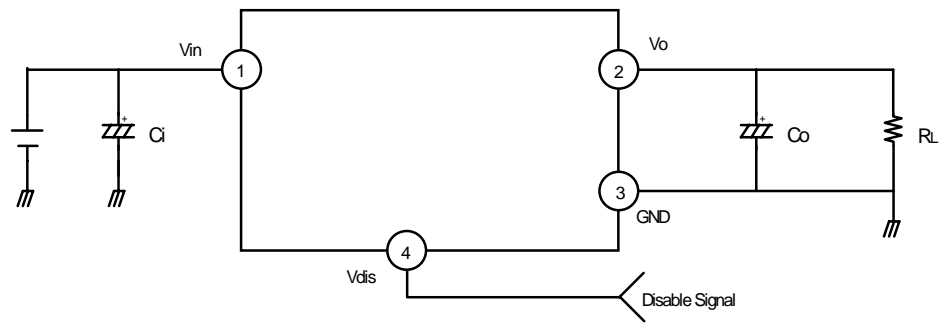


Figure 1. Application Circuit

- C_i is required if regulator is located an appreciable distance from power supply filter.
- C_o improves stability and transient response. ($C_o > 47\mu\text{F}$)

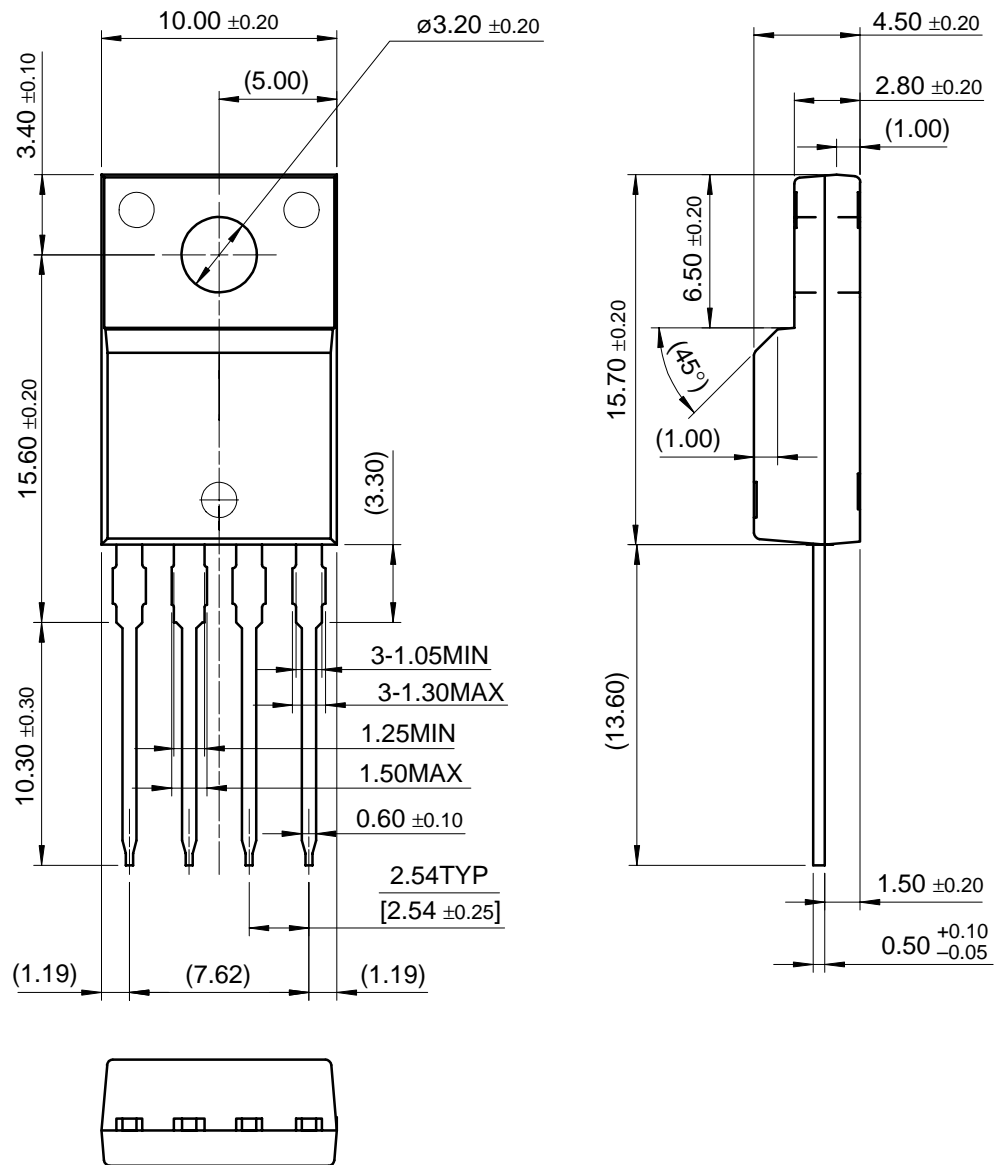
KA378R12C

Mechanical Dimensions

Package

Dimensions in millimeters

TO-220F-4L



Ordering Information

Product Number	Package	Operating Temperature
KA378R12C	TO-220F-4L	-20°C to +80°C

KA378R12C


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