FGM78R05 Low Dropout Voltage Regulator

DESCRIPTION

The FGM78R05 is a low-dropout voltage regulator suitable for various electronic equipments. It provides constant voltage power source with TO-220-4 lead full mold package. Dropout voltage of FGM78R05 is below 0.5V in full rated current (1A). This regulator has various function such as peak current protection, thermal shut down, overvoltage protection and output disable function.

TO-220F-4L

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T_A = -20 ... +80 ° C

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

FEATURES

- 1A / 5V Output low dropout voltage regulator;
- TO220 Full-package (4PIN);
- Overcurrent protection, Thermal shutdown
- Overvoltage protection, Short-Circuit protection;
- With output disable function;

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	Remark
Input Voltage	Vin	35	V	-
Disable Voltage	Vdis	35	V	-
Output Current	Io	1.0	A	-
Junction Temperature	Tj	+ 150	°C	-
Operating Temperature	Topr	-20 ~ +80	°C	-
Thermal Shutdown Temperature	Ttsd	150	°C	-

Electrical Characteristics

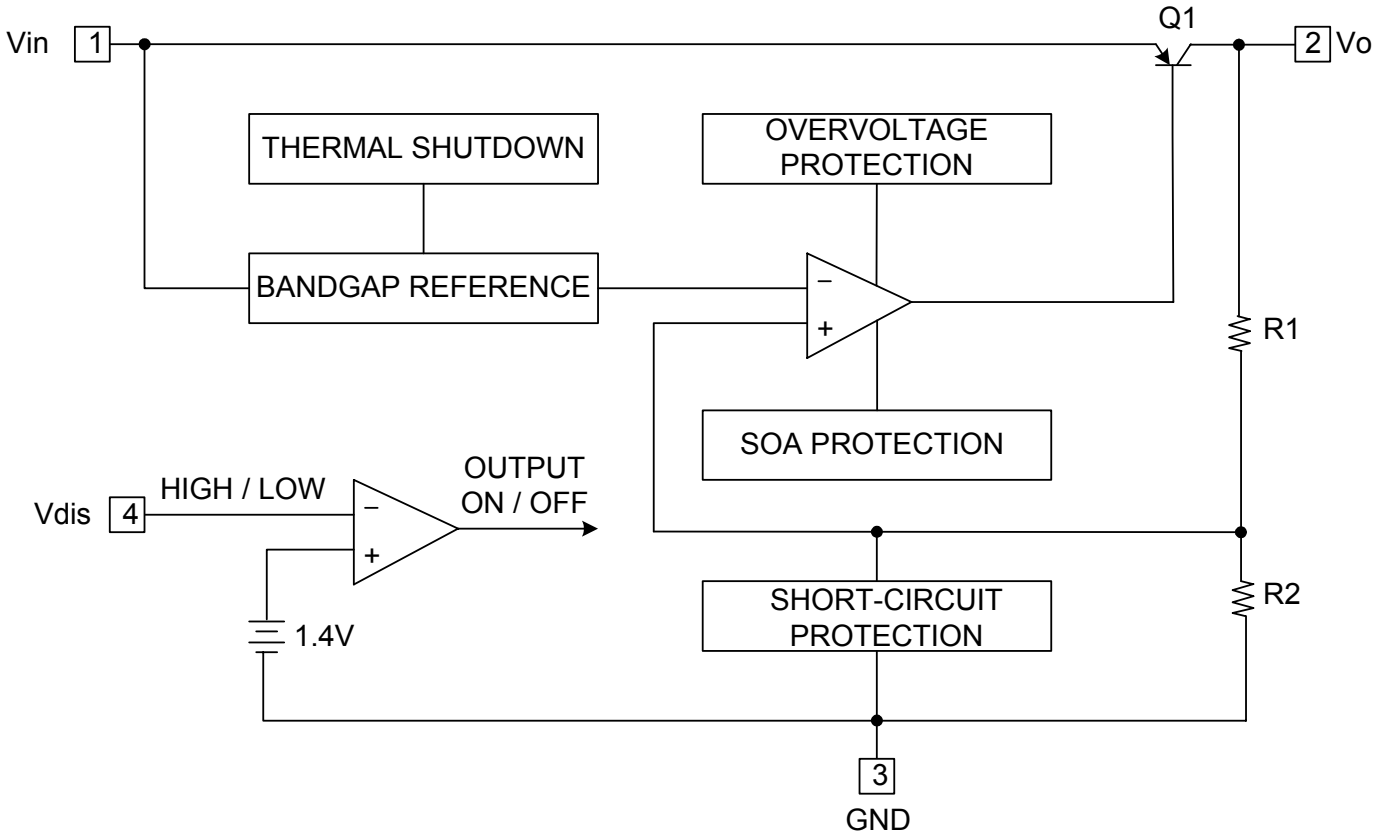
(Vin = 7V, Io = 0.5A, Ta = 25 °C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Output Voltage	Vo	-	4.88	5	5.12	V
Load Regulation	Rload	5mA < Io < 1A	-	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 = 1A	-	-	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.

Internal Block Diagram



Typical Application

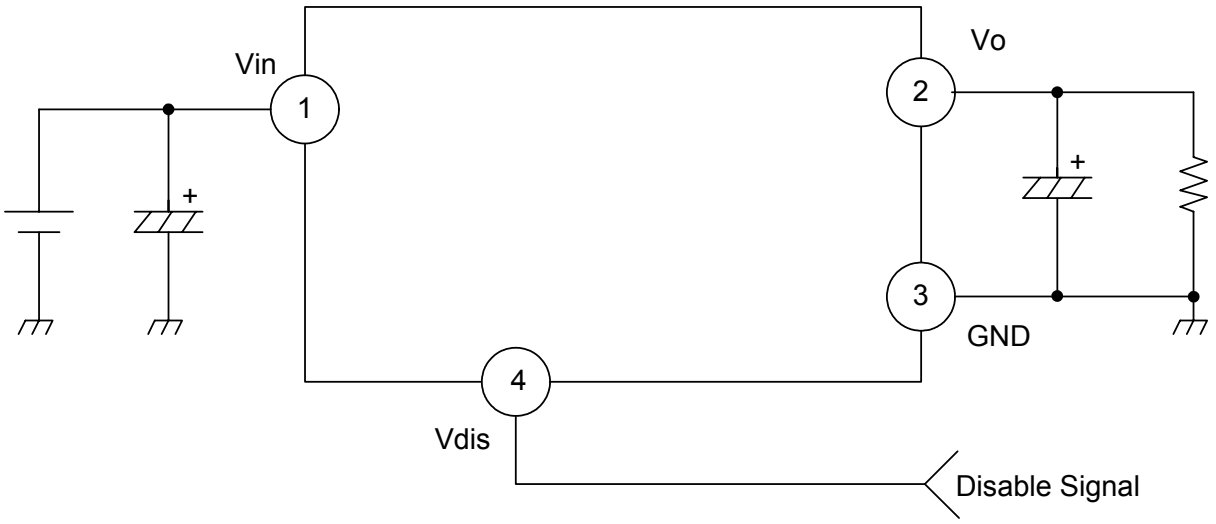


Figure 1. Application Circuit

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

Typical Performance Characteristics

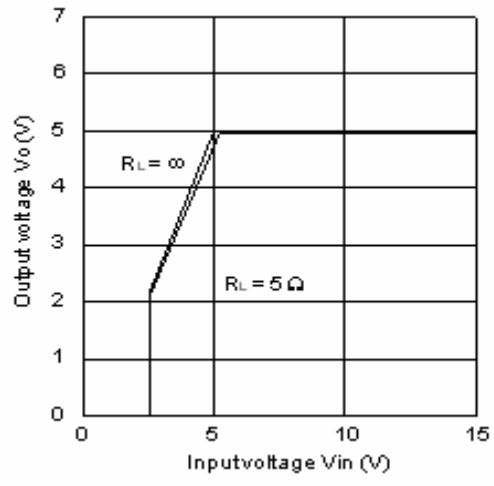


Figure 1. Output Voltage vs. Input Voltage

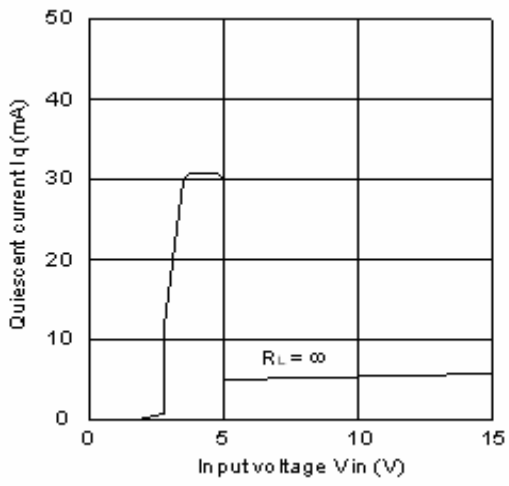


Figure 2. Quiescent Current vs. Input Voltage

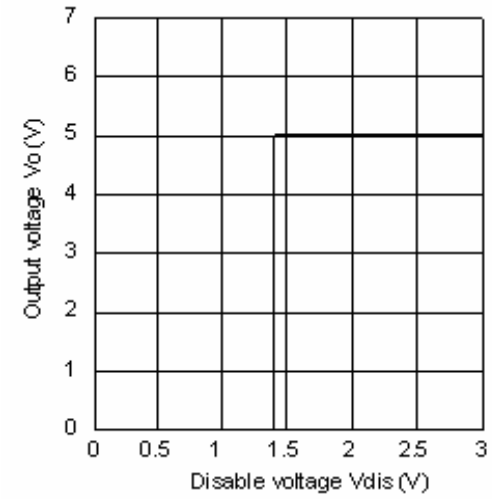


Figure 3. Output Voltage vs. Disable Voltage

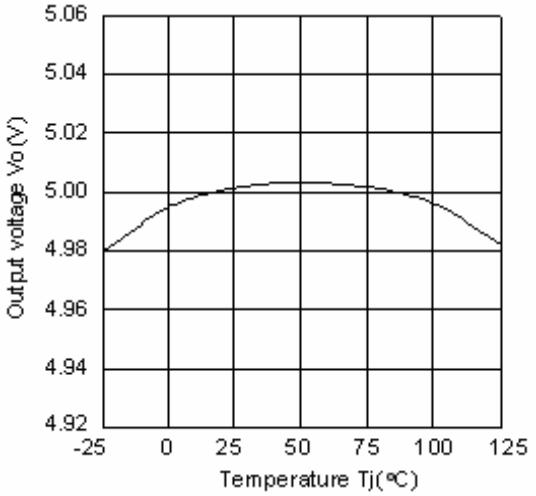


Figure 4. Output Voltage vs. Temperature (Tj)

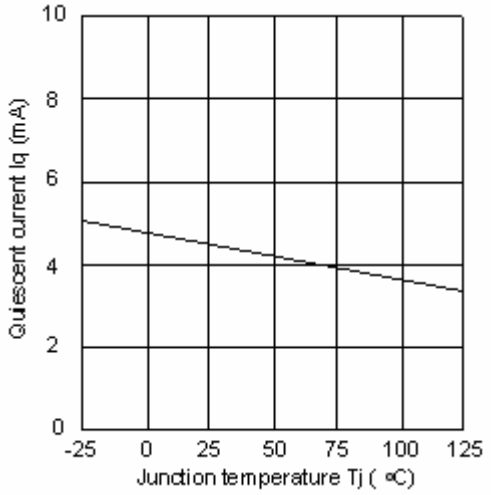


Figure 5. Quiescent Current vs. Temperature (Tj)

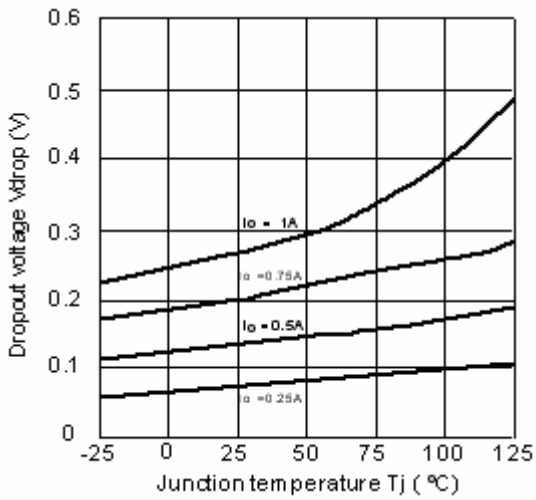
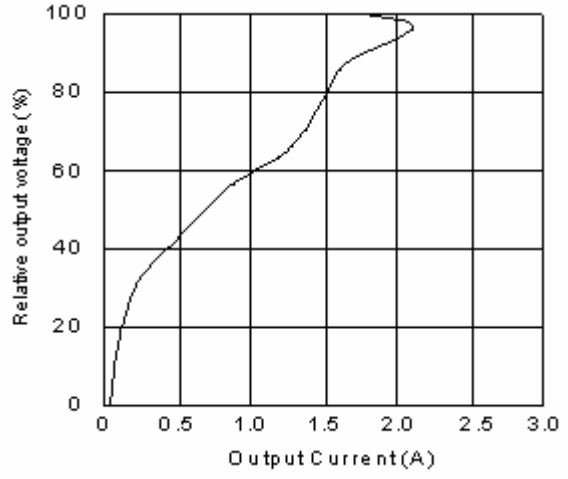
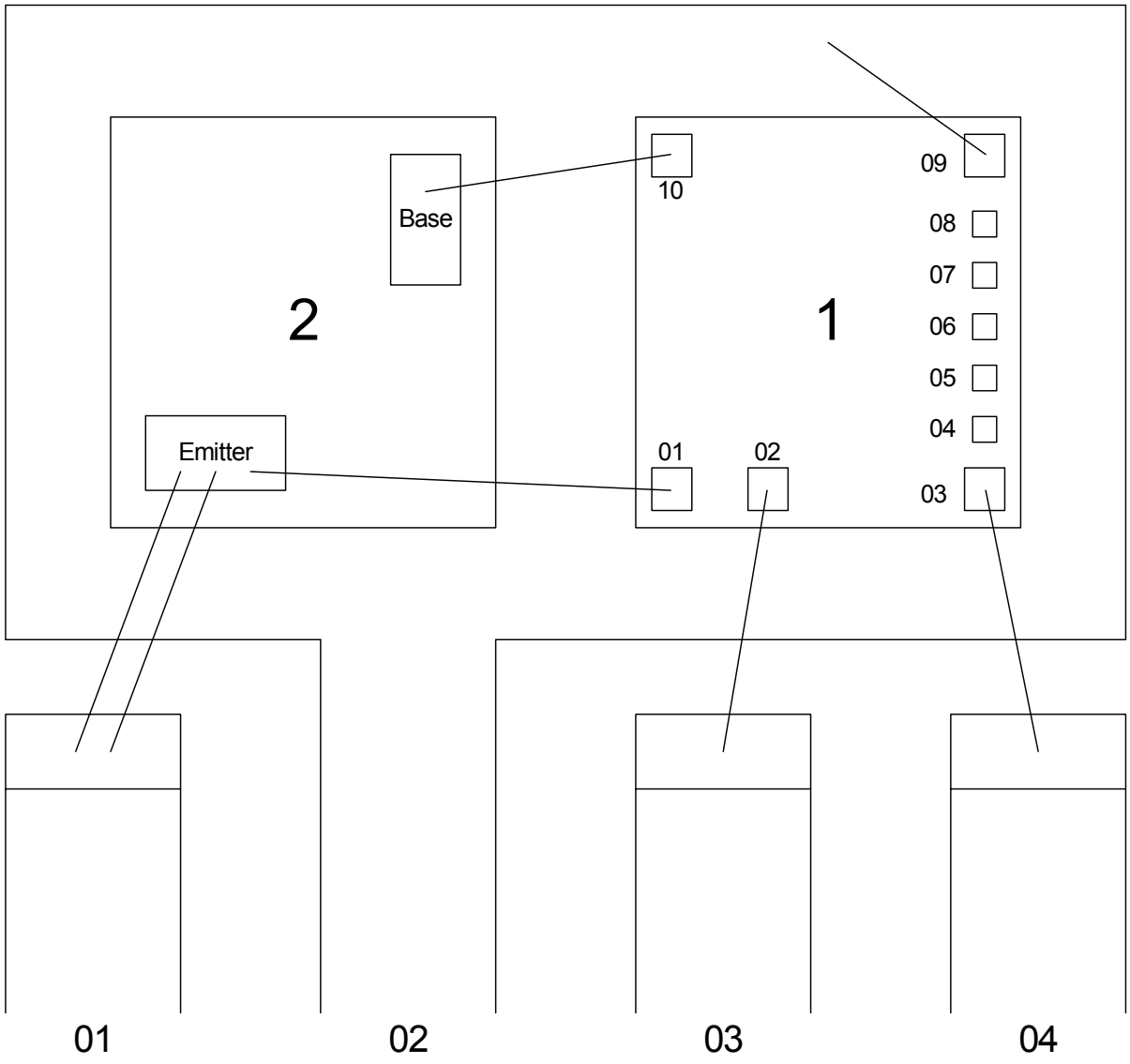


Figure 6. Dropout Voltage vs. Junction Temperature (Tj)

Typical Performance Characteristics (Continued)

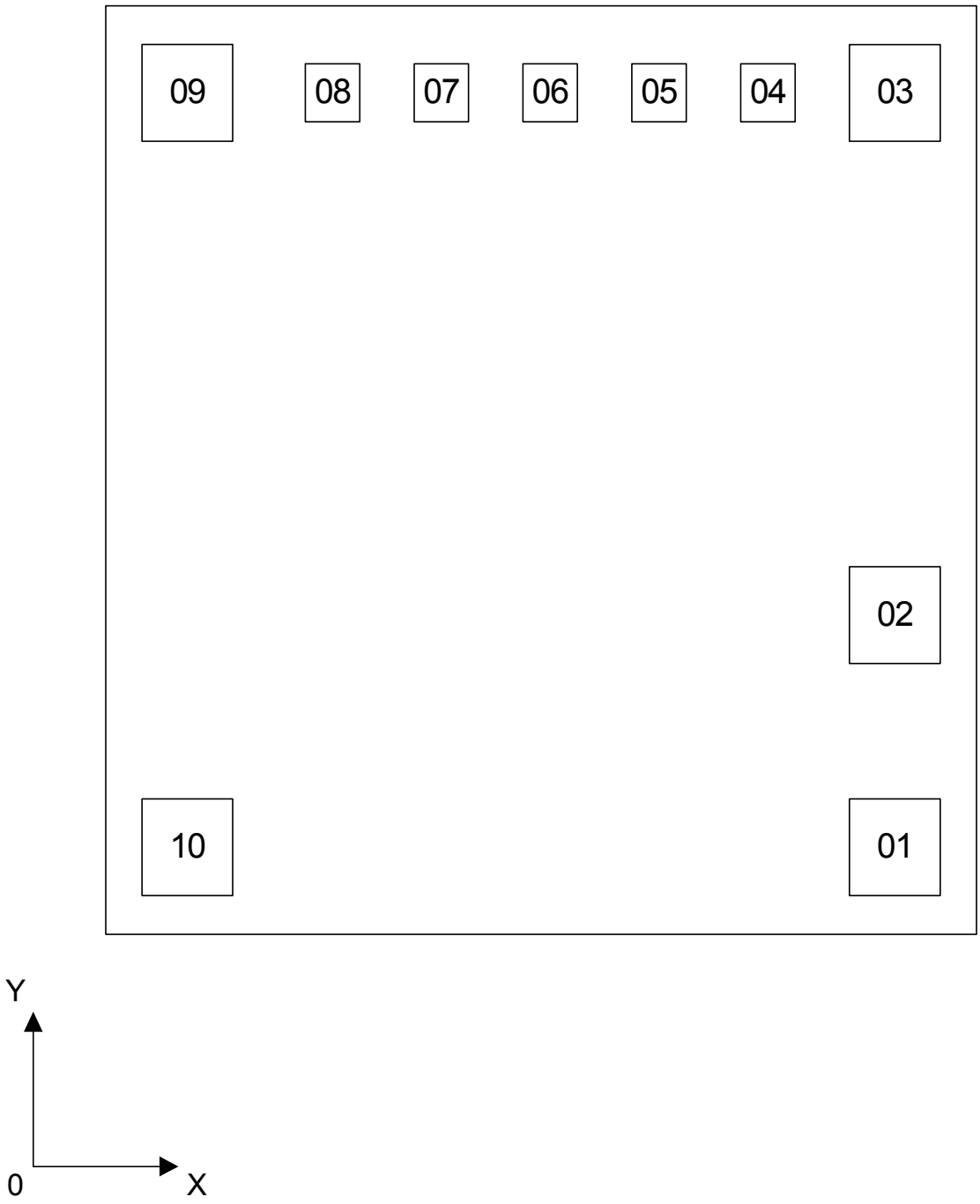




Bonding diagram of FGM78R05

NOTE:

1. The attachment of control chip (chip 1) is made by electrically non-conductive adhesive.
2. The attachment of output p-n-p transistor (chip 2) is made by electrically conductive adhesive.
3. Pin 09 of control chip (chip 1) is bounded to chip carrier.



Pads location of FGM78R05

Die size Xr=1.5мм, Yr=1.5мм (pad size measured by layer “passivation”)

No of pad (by layer “passivation”)	Coordinates left bottom, mm		pad size, mm^2
	X	Y	
01	1,256	0,129	0,120×0,120
02	1,260	0,435	0,120×0,120
03	1,257	1,252	0,120×0,120
04	1,110	1,280	0,070×0,070
05	0,948	1,280	0,070×0,070
06	0,786	1,280	0,070×0,070
07	0,624	1,280	0,070×0,070
08	0,468	1,280	0,070×0,070
09	0,094	1,265	0,120×0,120
10	0,124	0,129	0,120×0,120