



复旦微电子

FM2145

Low Power Ground Fault Interrupter

Specification

May. 2008

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Product Description

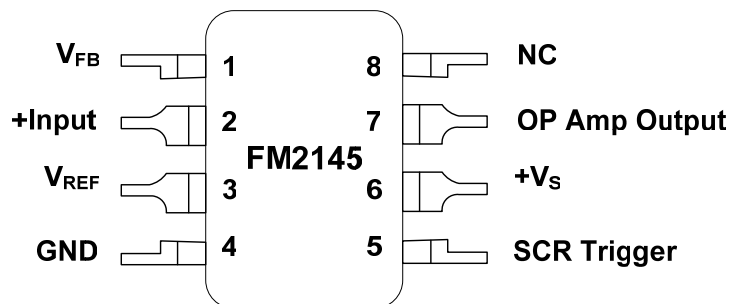
Description

The FM2145 is a low power controller for AC outlet ground fault interrupters. Contained internally are a 26V zener shunt regulator, an op amp, and an SCR driver. With the addition of two sense transformers, a bridge rectifier, an SCR, a relay, and a few additional components, the FM2145 will detect and protect against both hot wire to ground and neutral wire to ground faults.

Features

- ◆ No potentiometer required
- ◆ Direct interface to SCR
- ◆ Supply voltage derived from AC line
—26V shunt
- ◆ Adjustable sensitivity
- ◆ Grounded neutral fault detection
- ◆ Meets U.L. 943 standards
- ◆ 450 μ A quiescent current
- ◆ Ideal for 120V or 220V systems

Pin Assignments



Pin Function

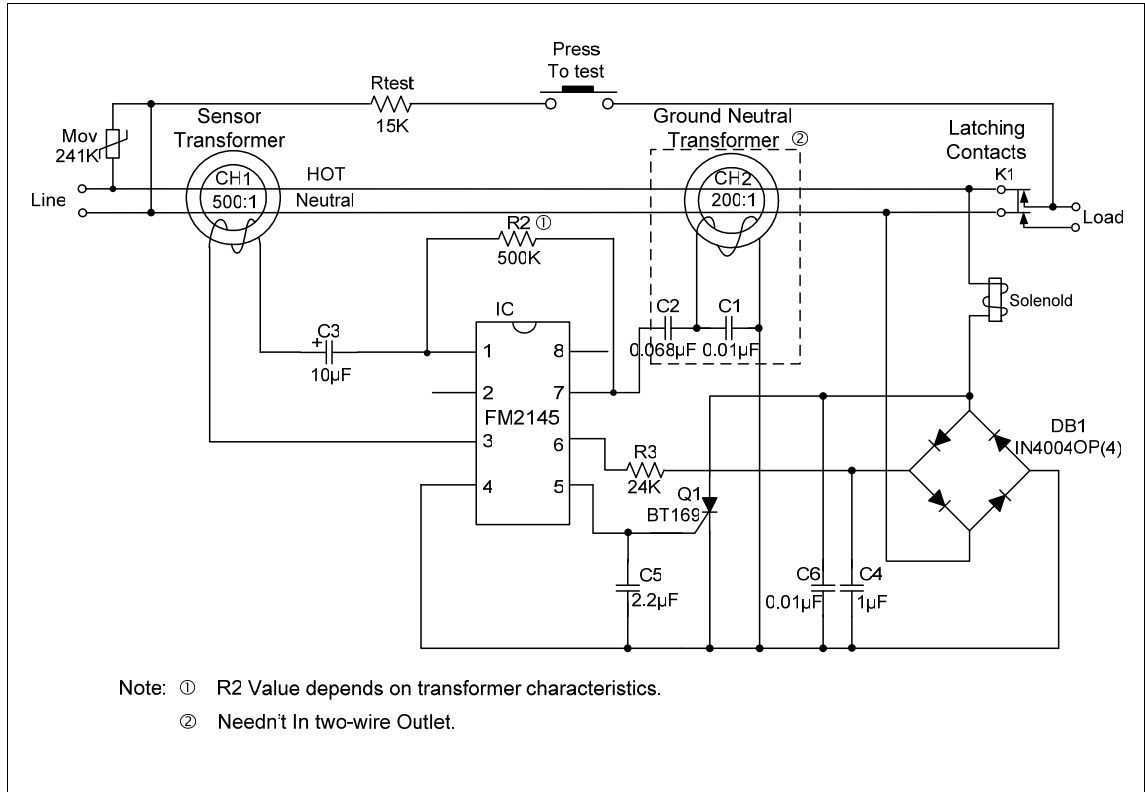
Pin	Symbol	Functions
1	V_{FB}	Operational Amplifier-input
2	+Input	Operational Amplifier + input
3	V_{REF}	Reference Voltage
4	GND	Ground
5	SCR Trigger	SCR trigger
6	+ V_s	Neutral
7	Op Amp Output	Operational Amplifier output
8	NC	Not connected

Electrical Characteristics

$I_s = 1.5\text{mA}$ and $T_A = +25^\circ\text{C}$

Parameter	Test Conditions	Min	Typ	Max	Unit
Detector Reference Voltage	Pin7 to Pin3	6.8	7.2	8.1	$\pm\text{V}$
Shunt Regulator					
Zener Voltage ($+V_s$)	Pin6 to Pin4	25	26	29.2	V
Reference Voltage (V_{REF})	Pin3 to Pin4	12.5	13	14.6	V
Quiescent Current (I_s)	$+V_s = 24\text{V}$	-	450	750	μA
Operational Amplifier					
Offset Voltage	Pin2 to Pin3	-3.0	0.5	+3.0	mV
+Output Voltage Swing	Pin7 to Pin3	6.8	7.2	8.1	V
-Output Voltage Swing	Pin7 to Pin3	-13.5	-11.2	-9.5	V
+Output Source Current	Pin7 to Pin3	-	650	-	μA
-Output Source Current	Pin7 to Pin3	-	1.0	-	MA
Gain Bandwidth Product	$F = 50\text{KHz}$	1.0	1.8	-	MHz
Resistors					
$I_s = 0\text{mA}$					
R1	Pin1 to Pin3	-	10	-	K Ω
R2	Pin2 to Pin3	-	10	-	K Ω
R3	Pin5 to Pin4	3.5	4.7	5.9	K Ω
SCR Trigger Voltage					
Pin5 to Pin4					
Detector On		1.5	2.8	-	V
Detector Off		0	1.0	10	mV

Application Circuit



Revision History

Version	Publication date	Pages	Paragraph or Illustration	Revise Description
1.0	Jun. 2006	2		Initial Release.
2.0	Oct. 2007	7		Updated Format.
2.1	May. 2008	7	Sales and service	Updated the address of HK office.

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