

LOW POWER GROUND FAULT INTERRUPTER

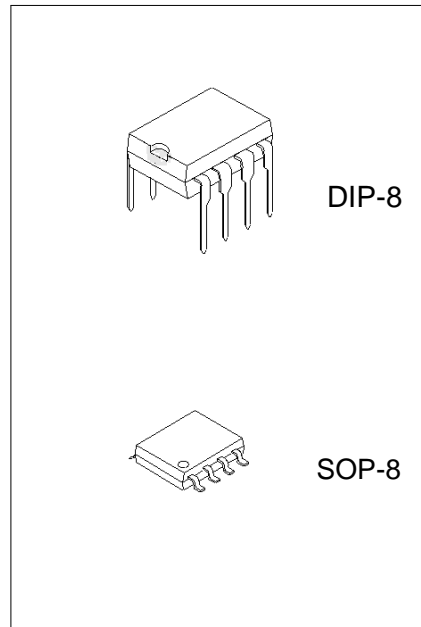
DESCRIPTION

The HT4145A is a low power controller for AC outlet ground fault interrupters. These devices detect hazardous grounding conditions, such as equipment (connected to opposite phases of the AC line) in contact with a pool of water and open circuits the line before a harmful or lethal shock occurs.

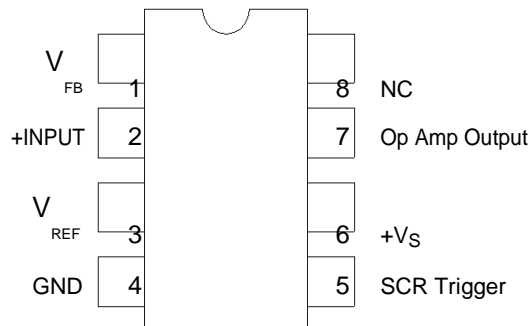
Contained internally are a 26V zener shunt regulator, an opamp, and an SCR driver. With the addition of two sense transformers, a bridge rectifier, an SCR, a relay, and a few additional components, the HT4145A will detect and protect against both hot wire to ground and neutral wire to ground faults. Ease of application and long-term reliability.

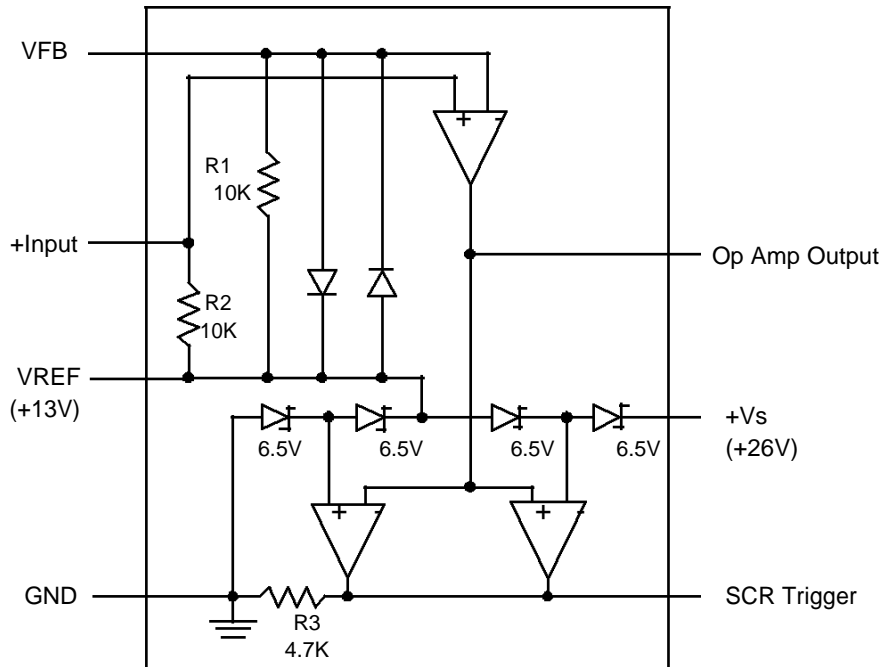
FEATURES

- *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 CONFIGURATION




ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Current	I _{CC}	18	mA
Power Dissipation	P _D	500	mW
Storage Temperature Range	T _{stg}	-65~+150	°C
Operating Temperature Range	T _{opr}	-35~+85	°C
Junction Temperature	T _J	125	°C
Lead Soldering Temperature			
DIP-8 (60 Sec)	T _{LED}	300	°C
SOP-8 (10 Sec)		260	°C
PD TA <50°C			
DIP-8	P _D	468	mW
SOP-8		300	mW
For TA >50°C Derate at			
DIP-8	P _D	6.25	mW/°C
SOP-8		4.1	mW/°C

THERMAL DATE

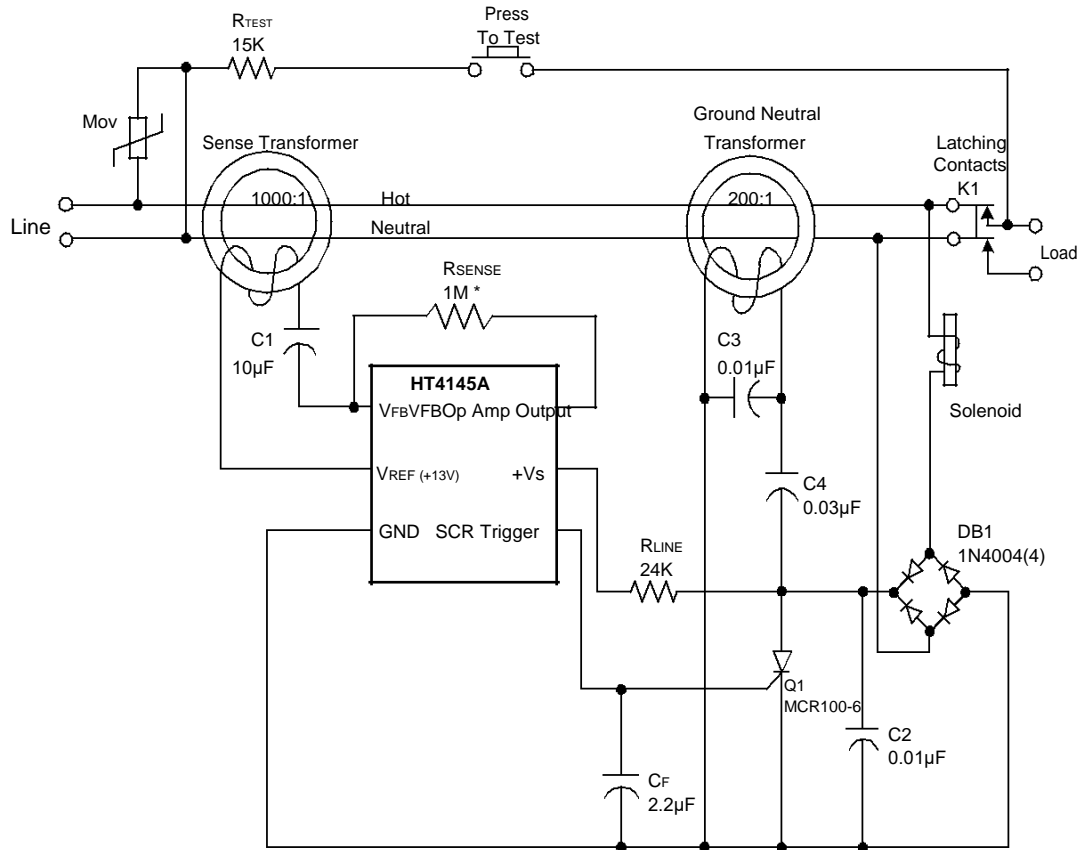
PARAMETER	SYMBOL	VALUE	UNIT
Thermal resistance	DIP-8 SOP-8	θ_{JA}	160
			240
			$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$, $I_s=1.5\text{mA}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Detector Reference Voltage	$V_{REF(DET)}$	Pin 7 to Pin 3	6.8	7.2	8.1	$\pm\text{V}$
Shunt Regulator						
Zener Voltage	V_Z	Pin 6 to Pin 4	25	26	29.2	V
Reference Voltage	V_{REF}	Pin 3 to Pin 4	12.5	13	14.6	V
Quiescent Current	I_Q	$+V_s=24\text{V}$		450	750	μA
Operational Amplifier						
Offset Voltage	V_{OS}	Pin 2 to Pin 3	-3.0	0.5	+3.0	mV
+Output Voltage Swing	V_{OH}	Pin 7 to Pin 3	6.8	7.2	8.1	V
- Output Voltage Swing	V_{OL}	Pin 7 to Pin 3	-9.5	-11.2	-13.5	V
+Output Source Current	$I_{O(SOURCE)}$	Pin 7 to Pin 3		650		μA
- Output Source Current	$I_{O(SINK)}$	Pin 7 to Pin 3		1.0		mA
Gain Bandwidth Product	GBW	$F=50\text{KHZ}$	1.0	1.8		MHZ
R1 Resistors	R1	Pin 1 to Pin 3, $I_s=0\text{mA}$		10		K Ω
R2 Resistors	R2	Pin 2 to Pin 3, $I_s=0\text{mA}$		10		K Ω
R3 Resistors	R3	Pin 5 to Pin 4, $I_s=0\text{mA}$	3.5	4.7	5.9	K Ω
SCR Trigger Voltage Detector On	$V_{ON(SCR)}$	Pin 5 to Pin 4	1.5	2.8		V
SCR Trigger Voltage Detector Off	$V_{OFF(SCR)}$	Pin 5 to Pin 4	0	1	10	mV

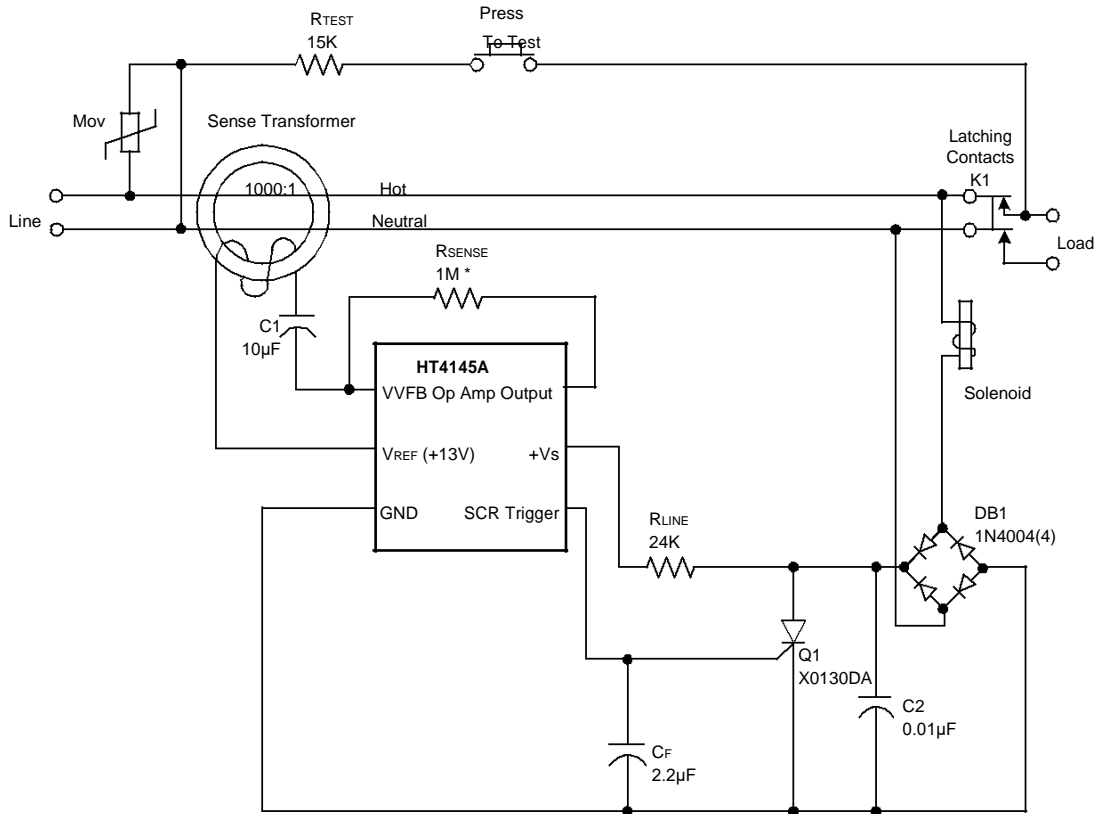
ELECTRICAL CHARACTERISTICS ($-35^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$, $I_s=1.5\text{mA}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Detector Reference Voltage	$V_{REF(DET)}$	Pin 7 to Pin 3	6.5	7.2	8.3	$\pm\text{V}$
Shunt Regulator						
Zener Voltage	V_Z	Pin 6 to Pin 4	24	26	30	V
Reference Voltage	V_{REF}	Pin 3 to Pin 4	12	13	15	V
Quiescent Current(I_s)	I_Q	$+V_s=23\text{V}$		500		μA
Operational Amplifier						
Offset Voltage	V_{OS}	Pin 2 to Pin 3	-5.0	0.5	+5.0	mV
+Output Voltage Swing	V_{OH}	Pin 7 to Pin 3	6.5	7.2	8.3	V
- Output Voltage Swing	V_{OL}	Pin 7 to Pin 3	-9.	-11.2	-14	V
Gain Bandwidth Product	GBW	$F=50\text{KHZ}$		1.8		MHz
Resistors R1	R1	Pin 1 to Pin 3, $I_s=0\text{mA}$		10		K Ω
Resistors R2	R2	Pin 2 to Pin 3, $I_s=0\text{mA}$		10		K Ω
Resistors R3	R3	Pin 5 to Pin 4, $I_s=0\text{mA}$	3.5	4.7	5.9	K Ω
SCR Trigger Voltage Detector On	$V_{ON(SCR)}$	Pin 5 to Pin 4	1.3	2.8		V
SCR Trigger Voltage Detector Off	$V_{OFF(SCR)}$	Pin 5 to Pin 4	0	3	50	mV



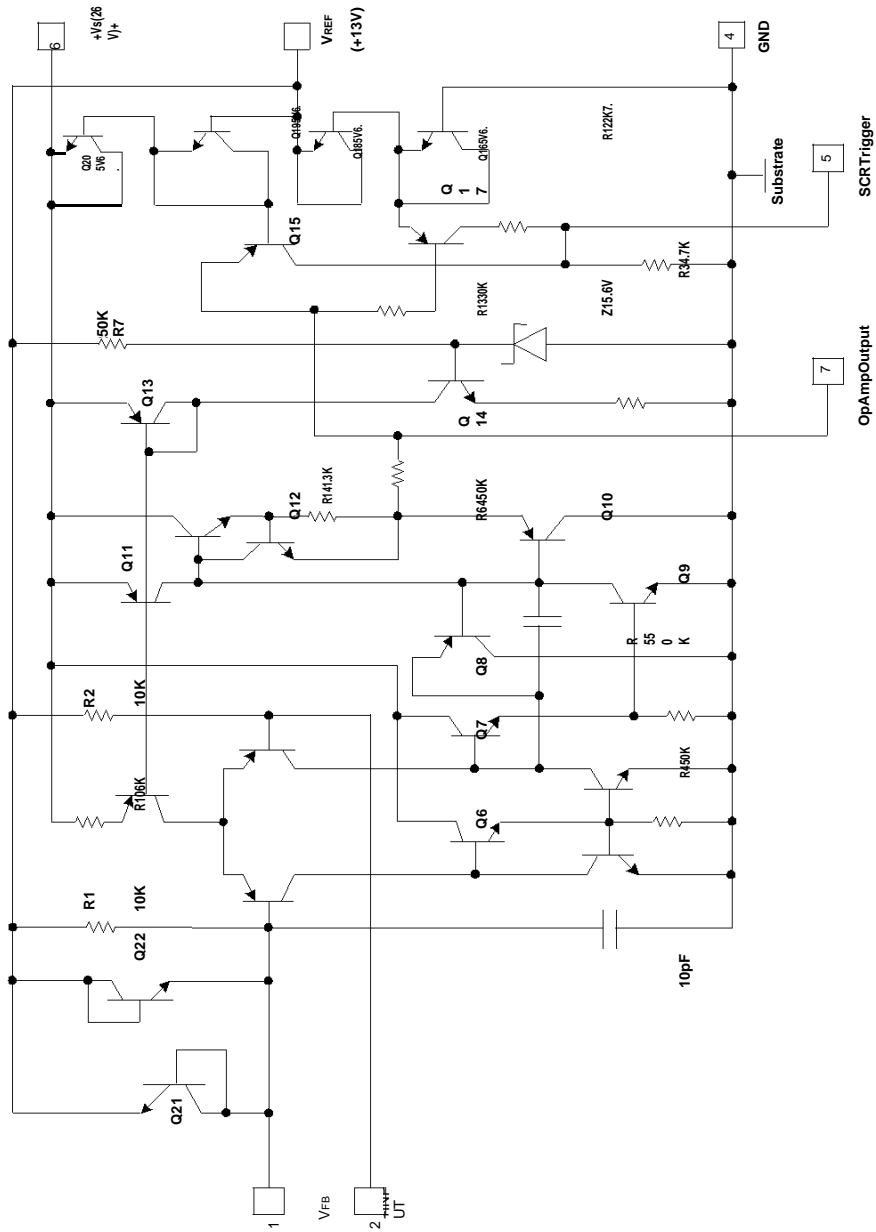
* Value depends on transformer characteristics.

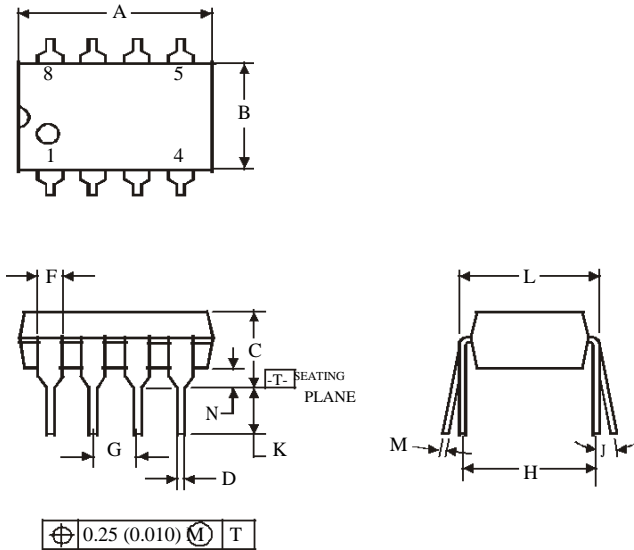
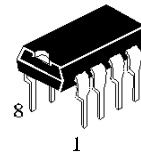
FIGURE 1. GFI Application Circuit (Three-Wire Outlet)



* Value depends on transformer characteristics.

FIGURE 2. GFI Application Circuit (Two-Wire Outlet)

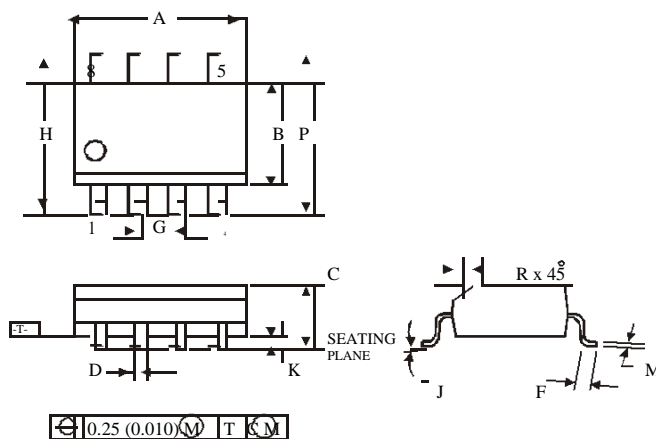
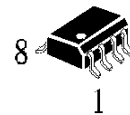


(DIP8)


Symbol	Dimension, mm	
	MIN	MAX
A	8.51	10.16
B	6.1	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G	2.54	
H	7.62	
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.2	0.36
N	0.38	

NOTES:

- Dimensions "A", "B" do not include mold flash or protrusions.
Maximum mold flash or protrusions 0.25 mm (0.010) per side.

(SOP8)


Symbol	Dimension, mm	
	MIN	MAX
A	4.8	5
B	3.8	4
C	1.35	1.75
D	0.33	0.51
F	0.4	1.27
G	1.27	
H	5.72	
J	0°	8°
K	0.1	0.25
M	0.19	0.25
P	5.8	6.2
R	0.25	0.5

NOTES:

- Dimensions A and B do not include mold flash or protrusion.
- Maximum mold flash or protrusion 0.15 mm (0.006) per side for A; for B - 0.25 mm (0.010) per side.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [HTCSEMI](#) manufacturer:

Other Similar products are found below :

[HT03AM-12](#) [HT03ARTZ](#) [HT07ARZ](#) [HT1000ARWZ](#) [HT1015AREZ](#) [HT1117AH-ADJ](#) [HT1117AM-3.3](#) [HT1188ARTZ](#) [HT11961ARWZ](#)
[HT1232ARZ](#) [HT1274ARZ](#) [HT12885ARWZ](#) [HT1302ANZ](#) [HT1302ARSZ](#) [HT1302ARZ](#) [HT1307ANZ](#) [HT1307ARZ](#) [HT1308ARZ](#)
[HT13636ARZ](#) [HT1403ARZ](#) [HT1403BRZ](#) [HT1413ARZ](#) [HT1482ARZ](#) [HT1488ARTZ](#) [HT1496ARTZ](#) [HT1541ARTZ](#) [HT1561ARTZ](#)
[HT1562ARZ](#) [HT1584AREZ](#) [HT1621BRQZ](#) [HT1621BRQZ44](#) [HT1621BRSZ](#) [HT1628BRWZ](#) [HT1652ARMZ](#) [HT1652ARZ](#) [HT17358ARZ](#)
[HT1881ARZ](#) [HT18B20ARTZ](#) [HT2003ARZ](#) [HT20072ARZ](#) [HT20074ARZ](#) [HT2171ARZ](#) [HT2172ARZ](#) [HT2177ANZ](#) [HT2177BNZ](#)
[HT2206ARWZ](#) [HT2244ARZ](#) [HT2262ARZ](#) [HT2262BRZ](#) [HT2264ARZ](#)