



GF2140

LINEAR INTEGRATED CIRCUIT

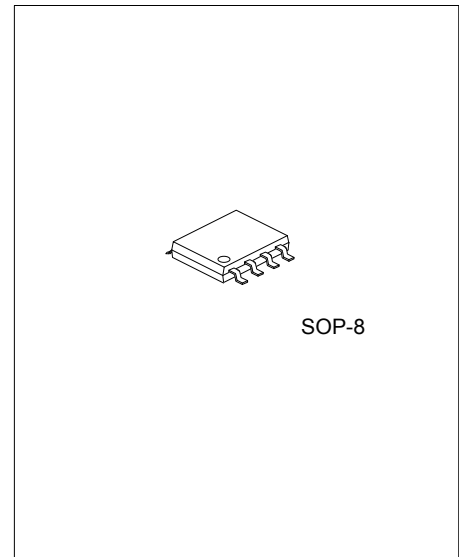
LOW POWER TWO-WIRE GROUND FAULT INTERRUPTER

DESCRIPTION

As a low power controller for AC output appliance leakage current interrupters, the UTC **GF2140** can detect hazardous current paths to ground, and trigger SCR to protect.

FEATURES

- * Directly powered from the AC line
- * Build-in bridge rectifier
- * Interface to SCR
- * Adjustable trip current and time delay
- * Minimum external components
- * For two-wire system
- * Be used in 110V or 220V system



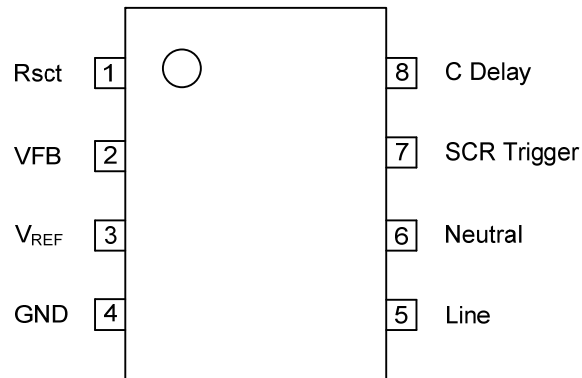
Lead-free: GF2140L
Halogen-free: GF2140G

ORDERING INFORMATION

| Ordering Number | | | Package | Packing |
|-----------------|---------------|---------------|---------|-----------|
| Normal | Lead Free | Halogen Free | | |
| GF2140-S08-R | GF2140L-S08-R | GF2140G-S08-R | SOP-8 | Tape Reel |
| GF2140-S08-T | GF2140L-S08-T | GF2140G-S08-T | SOP-8 | Tube |

| | |
|---|---|
| <p>GF2140L-S08-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p> | <p>(1) R: Tape Reel, T: Tube</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p> |
|---|---|

■ PIN CONNECTIONS



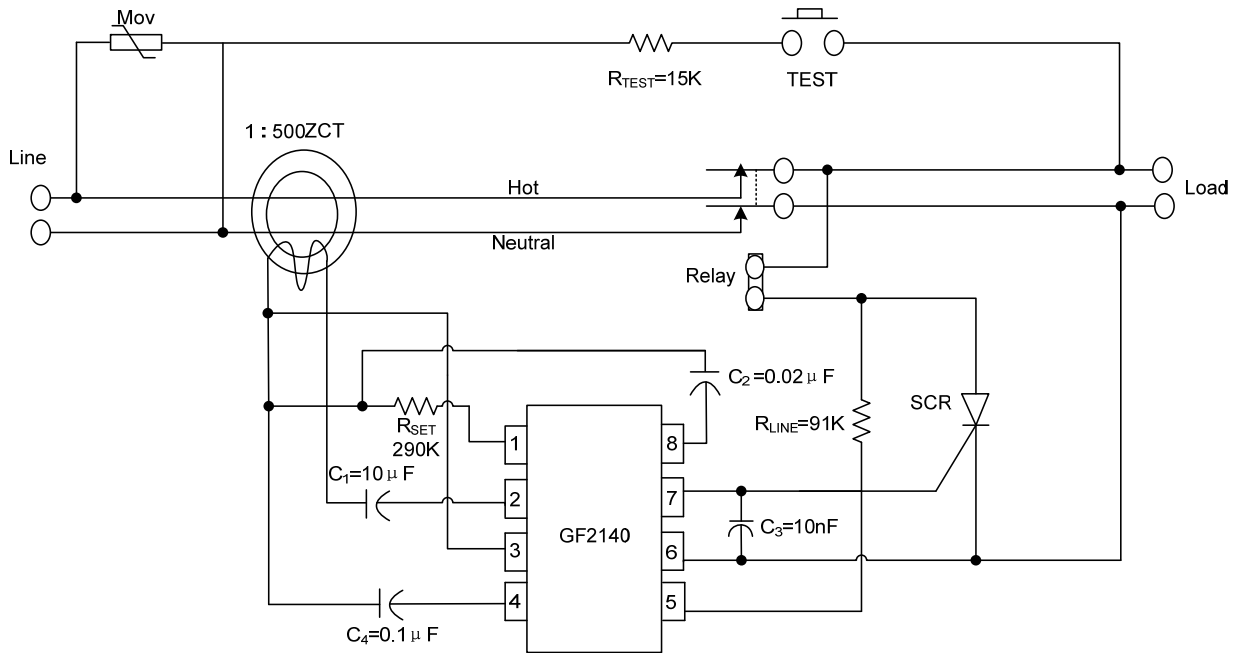
■ PIN DESCRIPTION

| PIN # | PIN NAME | I/O | PIN FUNCTION |
|-------|------------------|-----|---------------------------------|
| 1 | Rscst | O | Output of Leakage current first |
| 2 | VFB | I | Input of leakage current |
| 3 | V _{REF} | I | Reference voltage |
| 4 | GND | | Ground |
| 5 | Line | I | Line input |
| 6 | Neutral | I | Neutral input |
| 7 | SCR Trigger | | SCR Trigger |
| 8 | C Delay | O | The Delay time |

■ **ELECTRICAL CHARACTERISTICS** ($I_{LINE}=1.2mA$, $T_A=25^{\circ}C$, $R_{SET}=290k\Omega$)

| PARAMETER | SYMBOL | CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------------------------|---------------|--|------|------|------|------------|
| Shunt Regulator (PIN 5-4) | | | | | | |
| Regulator Voltage | V_{REG} | $I_{2-3}=11\mu A$ | 6.1 | 6.5 | 7.5 | V |
| | | $I_{LINE}=700\mu A$, $I_{2-3}=9\mu A$ | 6.1 | 6.5 | 7.5 | |
| Sense Amplifier (PIN 2-3) | | | | | | |
| Offset Voltage | $V_{I(OFF)}$ | Design Value | -3.0 | 0 | +3.0 | mV |
| Input Bias Current | $I_{I(BIAS)}$ | Design Value | | 15 | 30 | nA |
| Gain Bandwidth | f_T | Design Value | | 3.44 | | MHz |
| SCR Trigger (PIN 7-6) | | | | | | |
| Output Voltage | V_{OUT} | $I_{2-3}=9\mu A$ | 0 | 0.1 | 10 | mV |
| | | $I_{2-3}=11\mu A$ | 1.4 | 2.0 | 2.6 | V |
| Output Current | I_{OUT} | $V_{7-6}=0V$, $I_{2-3}=11\mu A$ | 300 | 420 | 600 | μA |
| Output Resistance | Z_O | $V_{5-6}=open$, $I_{2-3}=0$ | 4.0 | 4.7 | 5.4 | K Ω |
| Reference Voltage (PIN 3-4) | | | | | | |
| Reference Voltage | V_{REF} | $I_{LINE}=700\mu A$ | 2.6 | 2.9 | 3.4 | V |
| Delay Time (PIN 8-4) | | | | | | |
| Delay Current | I_D | $I_{2-3}=11\mu A$ | 23 | 30 | 43 | μA |
| Delay Time | t_D | $C_{8-4}=20nF$ | | 2.0 | | ms |

■ TYPICAL APPLICATION CIRCUIT



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