

DESCRIPTION

The STS750 is a multi-function telecommunications relay. It combines a 1 Form A solid state relay, phototransistor, Darlington transistor and a bridge rectifier in a 16-pin small outline package. Its ultra-miniature package and low height make it ideal for use in PCMCIA applications where multi-function devices help reduce cost and board space.

FEATURES

- Low input control current
- Function integration
- 35 ohms max on-resistance
- 100mA max continuous load current
- Small outline package
- Darlington transistor
- Phototransistor
- Full wave bridge rectifier

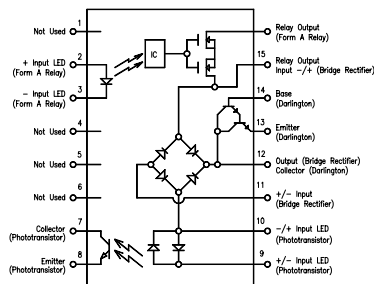
APPLICATIONS

- Telecom switching
- PCMCIA cards
- Fax/modem modules
- Set-top boxes
- DAA arrangements
- Hookswitch
- Loop current detect
- Pulse dialing

OPTIONS/SUFFIXES

- -TR Tape and Reel

SCHEMATIC DIAGRAM



MAXIMUM RATINGS

| PARAMETER | UNIT | MIN | TYP | MAX |
|-------------------------------|------|-----|-----|-----|
| Storage Temperature | °C | -55 | | 120 |
| Operating Temperature | °C | -40 | | 85 |
| Continuous Input Current | mA | | | 40 |
| Transient Input Current | mA | | | 400 |
| Reverse Input Control Voltage | V | 6 | | |
| Output Power Dissipation | mW | | | 400 |

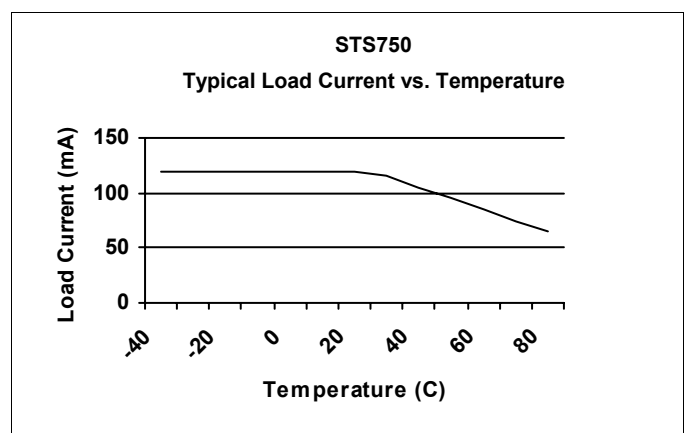
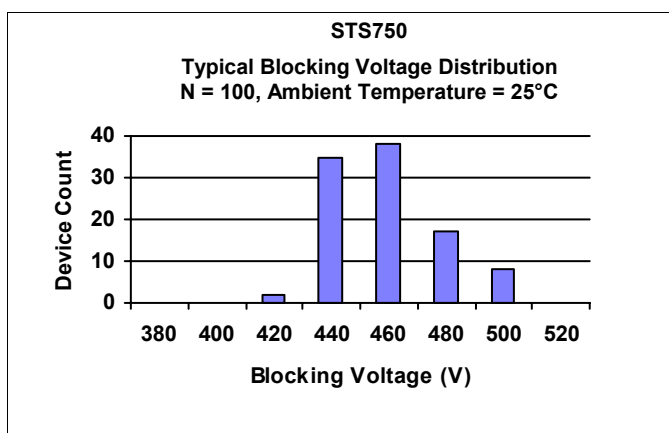
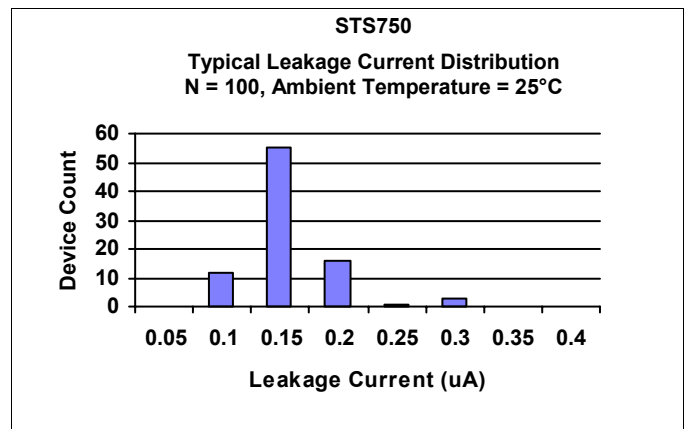
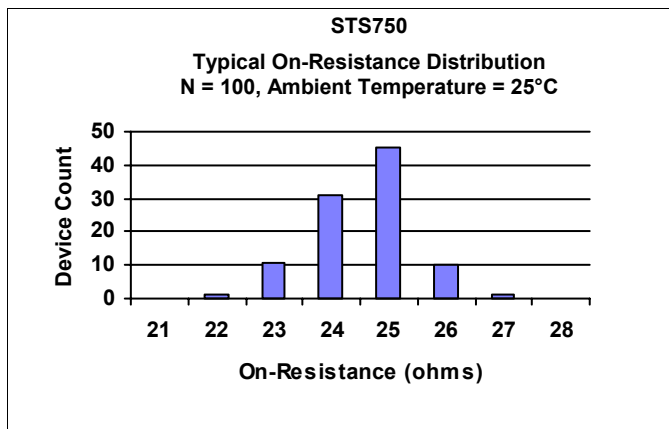
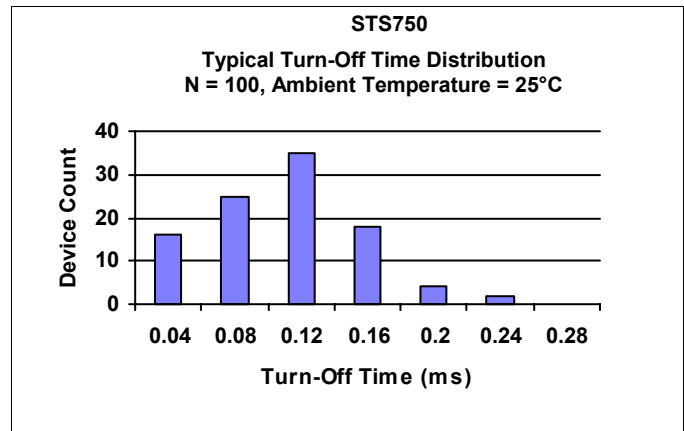
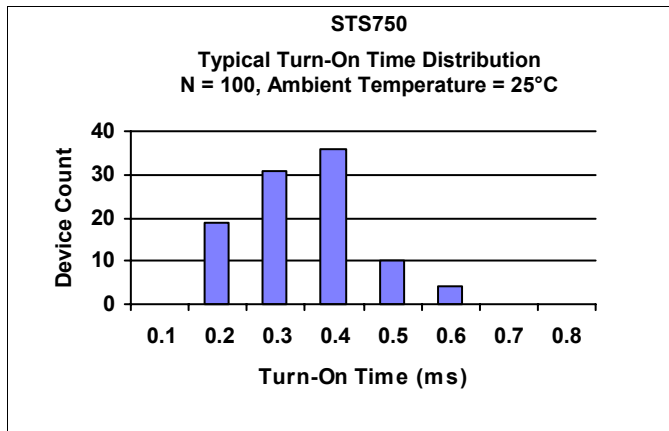
APPROVALS

ELECTRICAL CHARACTERISTICS - 25°

| PARAMETER | UNIT | MIN | TYP | MAX | TEST CONDITIONS |
|--|---------|------|------|-----|-----------------------|
| RELAY INPUT SPECIFICATIONS | | | | | |
| LED Forward Voltage | V | | 1.2 | 1.5 | If = 10mA |
| LED Reverse Voltage | V | 6 | 12 | | Ir = 10uA |
| Turn-On Current | m A | 10 | 5 | | Io = 100mA |
| Turn-Off Current | m A | | 0.5 | | |
| RELAY OUTPUT SPECIFICATIONS | | | | | |
| Blocking Voltage | V | 400 | | | Io = 10uA |
| Continuous Load Current | m A | | | 100 | If = 10mA |
| On-Resistance | Ω | | 25 | 35 | Io = 100mA |
| Leakage Current | μ A | | 0.7 | 10 | Vo = 400V |
| Output Capacitance | p F | | 25 | 50 | Vo = 25V, f = 1.0MHz |
| Offset Voltage | m V | | | 0.2 | If = 10mA |
| Turn-On Time | m s | | 2 | 5 | If = 10mA, Io = 100mA |
| Turn-Off Time | m s | | 0.5 | 1 | If = 10mA, Io = 100mA |
| PHOTOTRANSISTOR INPUT SPECIFICATIONS | | | | | |
| LED Forward Voltage | V | | 1.2 | 1.5 | If = 10mA |
| Turn-On Current | m A | 2 | | | Io = 0.5mA |
| PHOTOTRANSISTOR OUTPUT SPECIFICATIONS | | | | | |
| Breakdown Voltage | V | | | 60 | Io = 10uA |
| Leakage Current | n A | | | 500 | Vce = 20V |
| Collector-Emitter Capacitance | p F | | 6 | | Vce = 0V, f = 1kHz |
| Saturation Voltage | V | | | 0.5 | Io = 5mA |
| Current Transfer Ratio | % | 30 | 100 | 800 | If = 2mA, Vce = 5V |
| COUPLED SPECIFICATIONS | | | | | |
| Isolation Voltage | V | 1500 | | | T = 1 minute |
| -H Suffix | V | 2500 | | | T = 1 minute |
| Contact Transient Ratio | V / μ s | 2000 | 7000 | | dV = 50V |
| FULL WAVE BRIDGE RECTIFIER | | | | | |
| Reverse Voltage | V | 100 | | | Io = 10uA |
| Forward Voltage Drop | V | | 1.5 | 1.8 | Io = 120mA |
| Reverse Leakage Current | μ A | | | 10 | Vr = 100V |
| Continuous Load Current | m A | | | 140 | |
| Peak Forward Current | m A | | | 500 | T = 10us |

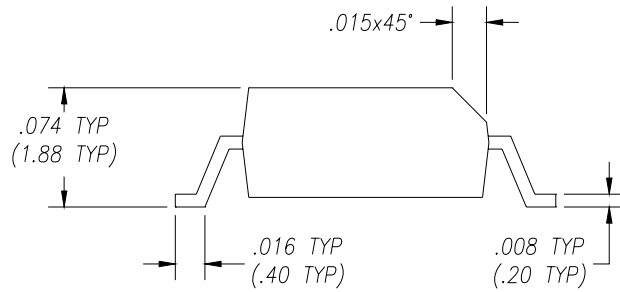
| DARLINGTON TRANSISTOR | | | | | |
|-------------------------------------|---------|----|-----|-----|---------------------------|
| Collector-Emitter Breakdown Voltage | V | 40 | | | $I_c = 10\mu A, I_b = 0$ |
| Continuous Collector Current | m A | | | 120 | $V_{ce} = 5V$ |
| Collector-Emitter Leakage Current | μA | | 0.5 | 1 | $V_{ce} = 10V$ |
| Saturation Voltage | V | | | 1.5 | $I_c = 120mA, I_b = 10mA$ |

PERFORMANCE DATA

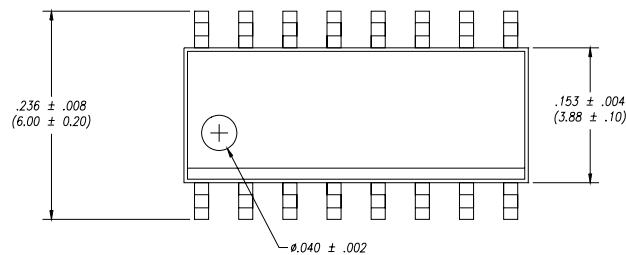


MECHANICAL DIMENSIONS

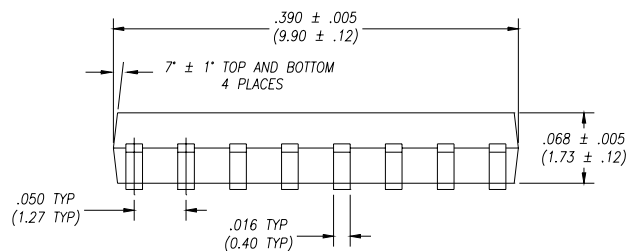
16 PIN SMALL OUTLINE PACKAGE



END VIEW



TOP VIEW



SIDE VIEW