

### Features

- Non-contact switching.
- Fast switching speed.
- For direct PC board or dual-in-line socket mounting.
- Choice of mounting configuraton.

### Application

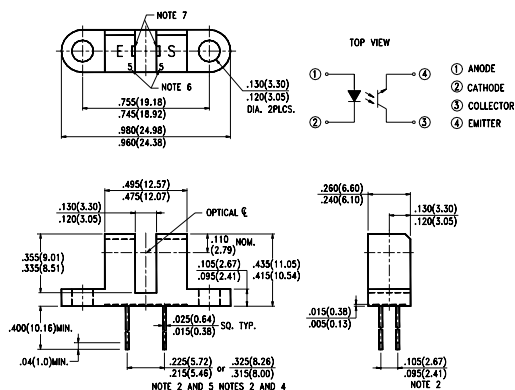
- FAX machine
- Scanner
- Copy machine
- Disk driver

### Description

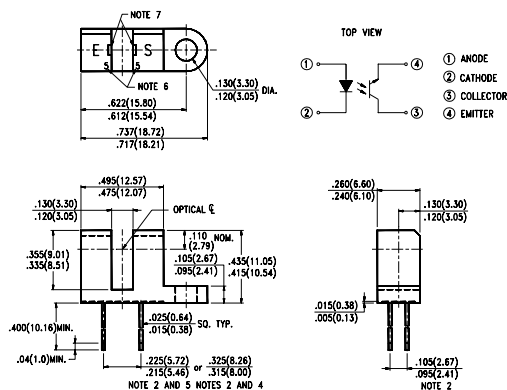
The LTH-860/LTH-870 series provide the design engineer with the flexibility of a custom device from a standard product line. The user can specify (1) electrical output parameters, (2) mounting tab configuration, (3) choice of lead spacing, (4) discreet shell material and (5) aperture width.

### Package Dimensions

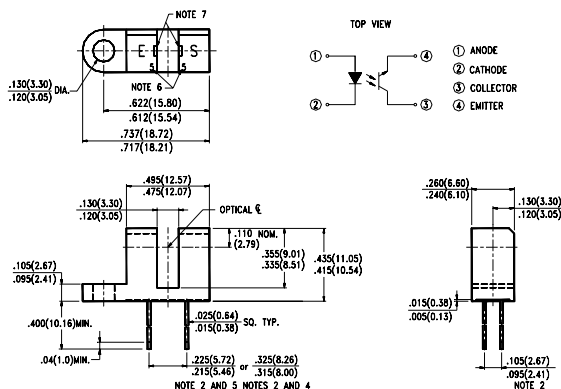
Package Configuration T



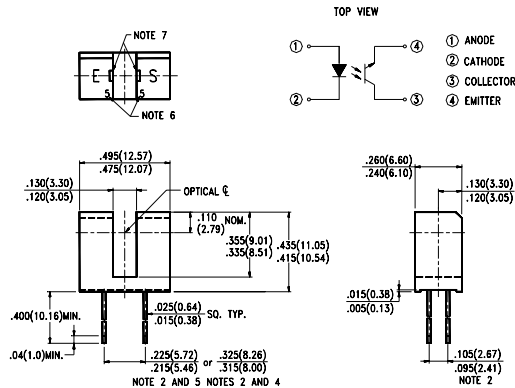
Package Configuration P



Package Configuration L



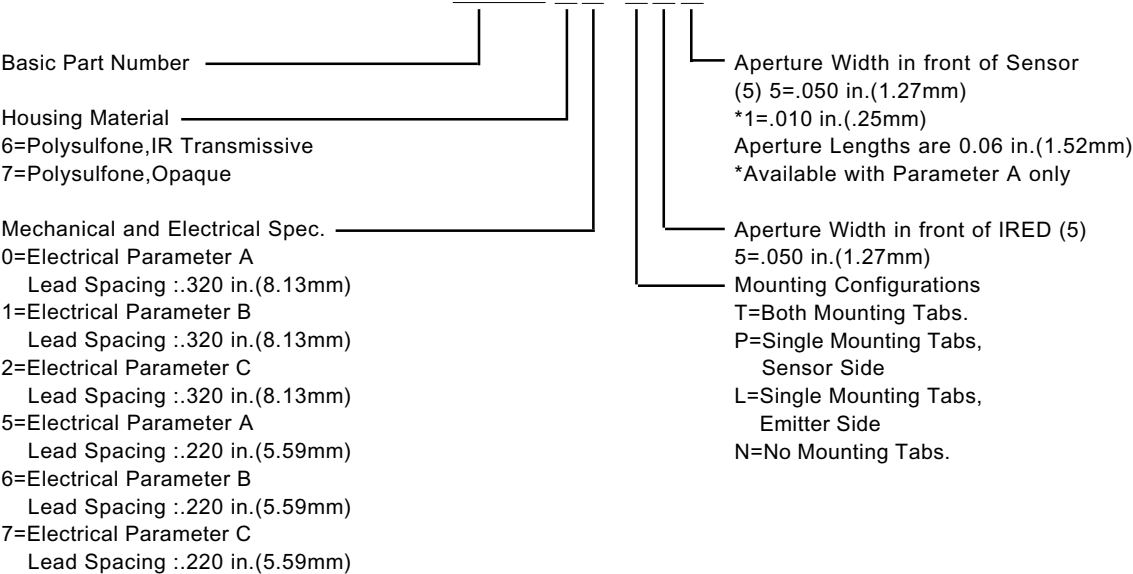
Package Configuration N



Notes:

- 1.All dimensions are in inches (millimeters).
- 2.Dimension controlled at housing surface only.
- 3.Housing is soluble in chlorinated hydrocarbons and ketones.
- 4.LTH-860, LTH-861, LTH-862, LTH-870, LTH-871, LTH-872.
- 5.LTH-865, LTH-866, LTH-867, LTH-875, LTH-876, LTH-877.
- 6.Molded number to identify aperture size. See part number guide.
- 7.Dimensions of aperture opening dependent on housing material. See part number guide.
- 8.Housing shown are opaque polysulfone.

Part Numbering Guide  
LTH - 8 X X - X X X



### Absolute Maximum Ratings at Ta=25°C

| Parameter                                                |                                                        | Symbol           | Maximum Rating      | Unit |
|----------------------------------------------------------|--------------------------------------------------------|------------------|---------------------|------|
| Input LED                                                | Continuous Forward Current                             | I <sub>F</sub>   | 60                  | mA   |
|                                                          | Reverse Voltage                                        | V <sub>R</sub>   | 5                   | V    |
|                                                          | Peak Forward Current<br>(Pulse Wide=10 $\mu$ S,300PPS) | I <sub>CP</sub>  | 1                   | A    |
|                                                          | Power Dissipation                                      | P <sub>D</sub>   | 75                  | mW   |
| Output phototransistor                                   | Collector Current                                      | I <sub>C</sub>   | 20                  | mA   |
|                                                          | Power Dissipation                                      | P <sub>C</sub>   | 100                 | mW   |
|                                                          | Collector-emitter Voltage                              | V <sub>CEO</sub> | 30                  | V    |
|                                                          | Emitter-collector Voltage                              | V <sub>ECO</sub> | 5                   | V    |
| Operating Temperature Range                              |                                                        | T <sub>opr</sub> | -25°C to + 85°C     |      |
| Storage Temperature Range                                |                                                        | T <sub>stg</sub> | -40°C to + 100°C    |      |
| Lead Soldering Temperature<br>[1.6mm(.063 in.)from body] |                                                        | T <sub>s</sub>   | 260°C for 5 Seconds |      |

### Electrical Optical Characteristics at Ta=25°C

| Parameter                            |             | Symbol               | Part No. | Min. | Typ. | Max. | Unit    | Test Condition                                                          |
|--------------------------------------|-------------|----------------------|----------|------|------|------|---------|-------------------------------------------------------------------------|
| Input LED                            |             |                      |          |      |      |      |         |                                                                         |
| Forward Voltage                      |             | V <sub>F</sub>       |          |      | 1.2  | 1.6  | V       | I <sub>F</sub> =20mA                                                    |
| Reverse Current                      |             | I <sub>R</sub>       |          |      |      | 100  | $\mu$ A | V <sub>R</sub> =5V                                                      |
| Output phototransistor               |             |                      |          |      |      |      |         |                                                                         |
| Collector Dark Current               |             | I <sub>CEO</sub>     |          |      |      | 100  | nA      | V <sub>CE</sub> =10V                                                    |
| Coupler                              |             |                      |          |      |      |      |         |                                                                         |
| Collector-Emitter Saturation Voltage | Parameter A | V <sub>CE(sat)</sub> |          |      |      |      | V       | I <sub>C</sub> =0.25mA,I <sub>F</sub> =20mA                             |
|                                      | Parameter B |                      |          |      |      | 0.4  |         | I <sub>C</sub> =0.5mA,I <sub>F</sub> =20mA                              |
|                                      | Parameter C |                      |          |      |      |      |         | I <sub>C</sub> =0.9mA,I <sub>F</sub> =20mA                              |
| On State Collector Current           | Parameter A | I <sub>C(ON)</sub>   |          | 0.5  |      |      | mA      | V <sub>CE</sub> =5V,I <sub>F</sub> =20mA                                |
|                                      | Parameter B |                      |          | 1.0  |      |      |         |                                                                         |
|                                      | Parameter C |                      |          | 1.8  |      |      |         |                                                                         |
| Response Time                        | Rise Time   | t <sub>r</sub>       |          |      | 3    | 15   | $\mu$ S | V <sub>CE</sub> =5V,I <sub>C</sub> =2mA<br>R <sub>L</sub> =100 $\Omega$ |
|                                      | Fall Time   | t <sub>f</sub>       |          |      | 4    | 20   |         |                                                                         |

Typical Electrical/Optical Characteristic Curves  
(25°C Ambient Temperature Unless Otherwise Noted)

Fig.1 Power Dissipation vs.  
Ambient Temperature

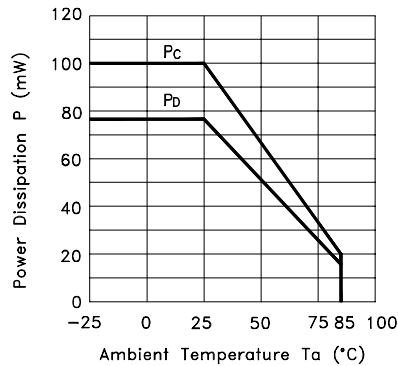


Fig.2 Forward Current vs.  
Forward Voltage

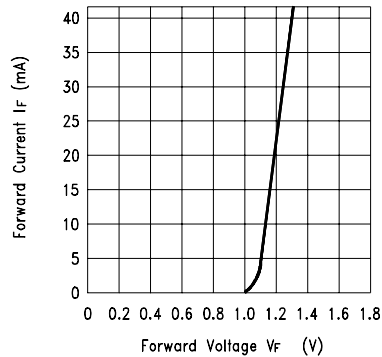


Fig.3 Collector Current vs.  
Collector-emitter Voltage

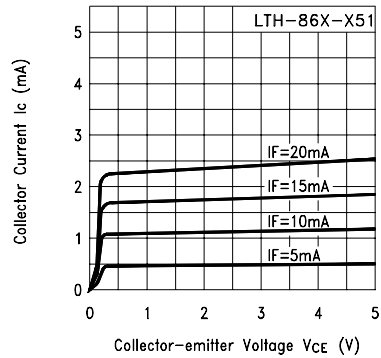


Fig.4 Collector Current vs.  
Collector-emitter Voltage

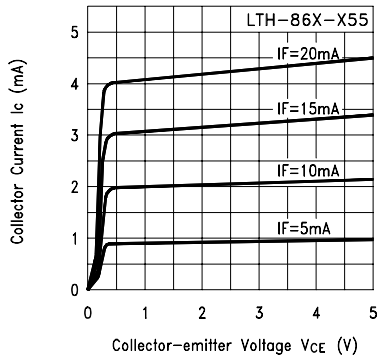


Fig.5 Collector Current vs.  
Collector-emitter Voltage

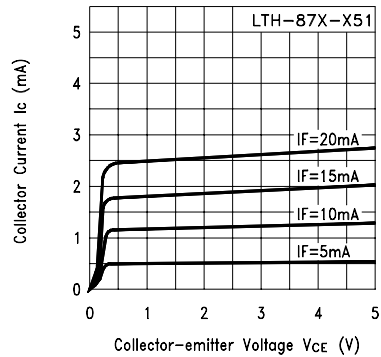
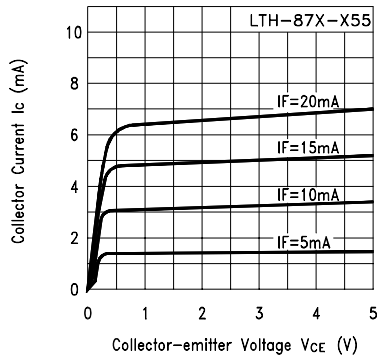


Fig.6 Collector Current vs.  
Collector-emitter Voltage



# Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

Fig.7 Collector Current vs. Ambient Temperature

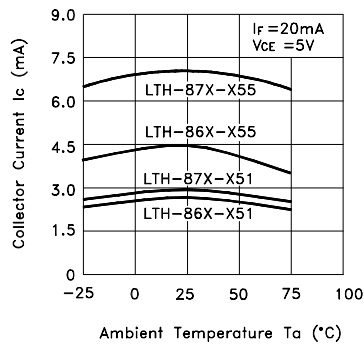


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

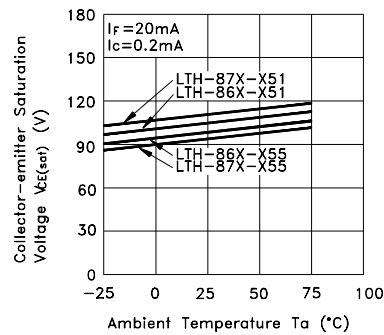
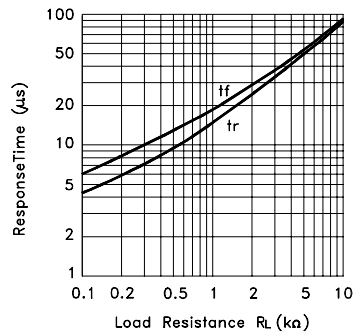


Fig.9 Response Time vs. Load Resistance



Test Circuit for Response Time

