



Not Recommended for New Designs (NRND)  
See Model 755A-04.1

# ANALOG MODULES, INC.

**MODEL 755A**  
HYBRID EYESAFE  
LASER RANGEFINDER RECEIVER

## HYBRID EYESAFE LASER RANGEFINDER RECEIVER

- HIGH SENSITIVITY
- HERMETIC TO-8 PACKAGE, 0.1 CU INCH
- FAST RECOVERY – LOW MINIMUM RANGE
- DUAL WAVELENGTH InGaAs APD DETECTOR
- SINGLE SUPPLY, ONLY 85 mW
- LOW COST



### DESCRIPTION:

The **Model 755A** hybrid eyesafe laser rangefinder receiver is designed for laser ranging/surveying equipment. Because of the compact construction (Modified TO-8 header) and the PCB mounting capability, it is ideal for miniature applications. Fast recovery from T<sub>o</sub> overload allows ranging to close objects without compromising long range performance. The incorporation of an InGaAs APD gives very high sensitivity with time programmed gain to minimize false targets. Operation at both 1.06  $\mu\text{m}$  and 1.54  $\mu\text{m}$  is possible over a wide range of pulse widths.

### SPECIFICATIONS:

| PARAMETER  | MODEL 755A-03             |         |       | MODEL 755A-04 |         |       | Units              |
|--|---------------------------|---------|-------|---------------|---------|-------|--------------------|
|  | Min.                      | Typical | Max.  | Min.          | Typical | Max.  |                    |
| InGaAs APD Active Diameter   | 75                        | 80      | 85    | 180           | 200     | 220   | $\mu\text{m}$      |
| Sensitivity (1.54 $\mu\text{m}$ , 20ns pulse, 50% Pd, 0.1% FAR)    | 1.5                       | 3       | 5     | 1.5           | 5       | 7     | nW                 |
| Sensitivity (1.06 $\mu\text{m}$ , 20ns pulse, 50% Pd, 0.1% FAR)    | 3                         | 6       | 10    | 3             | 10      | 14    | nW                 |
| Low Gain Sensitivity (1.54 $\mu\text{m}$ Optical, 50% Pd)          | 0.6                       | 2.4     | 8     | 0.6           | 3       | 7     | $\mu\text{W}$      |
| Time Programmed Gain (TPG)*  | 26                        | 29      | 32    | 26            | 28      | 31    | dB                 |
| Target Separation (1:1 power ratio)*                               | -                         | 22      | 25    | -             | 22      | 25    | m                  |
| 10mW Overload Recovery (1:1 power ratio)*                          | -                         | 0.55    | 1     | -             | 0.55    | 1     | $\mu\text{S}$      |
| Output (TTL or CMOS compatible, negative logic) <b>HI</b>          | 2.4                       | 3.3     | 4.5   | 2.4           | 3.3     | 4.5   | V                  |
| <b>LOW</b>   | 0                         | 0.5     | 0.6   | 0             | 0.5     | 0.6   |                    |
| Supply Voltage   | +4.85                     | +5.0    | +12.6 | +4.85         | +5.0    | +12.6 | V                  |
| Current Draw @ High Gain   | 11                        | 13      | 15    | 11            | 13      | 15    | mA                 |
| Current Draw @ Low Gain  | 20                        | 22      | 25    | 20            | 22      | 25    | mA                 |
| APD Bias Voltage (Pin 10)  | 40                        | 70      | 82    | 40            | 70      | 82    | V                  |
| Bias Current into Pin 10 ( see application note)                   | 10                        | 20      | 80    | 10            | 20      | 80    | $\mu\text{A}$      |
| Operating Temperature <b>@ +5V</b>                                 | -40                       | -       | +85   | -40           | -       | +85   | $^{\circ}\text{C}$ |
| <b>@ +12V</b>  | -40                       | -       | +71   | -40           | -       | +71   | $^{\circ}\text{C}$ |
| Storage Temperature  | -55                       | -       | +100  | -55           | -       | +100  | $^{\circ}\text{C}$ |
| MTBF (Ground benign at 55 $^{\circ}\text{C}$ per Telcordia SR-332) | 150,000                   |         |       |               |         |       | Hours              |
| Size   | 0.6 $\varnothing$ x 0.425 |         |       |               |         |       | Inches             |
| Weight   | 0.14 oz (4.1 grams)       |         |       |               |         |       |                    |

\*See Application Note for details. All measurements made at 20  $^{\circ}\text{C}$

Specifications subject to change without notice.

### APPLICATIONS:

*Laser Ranging and Surveying*

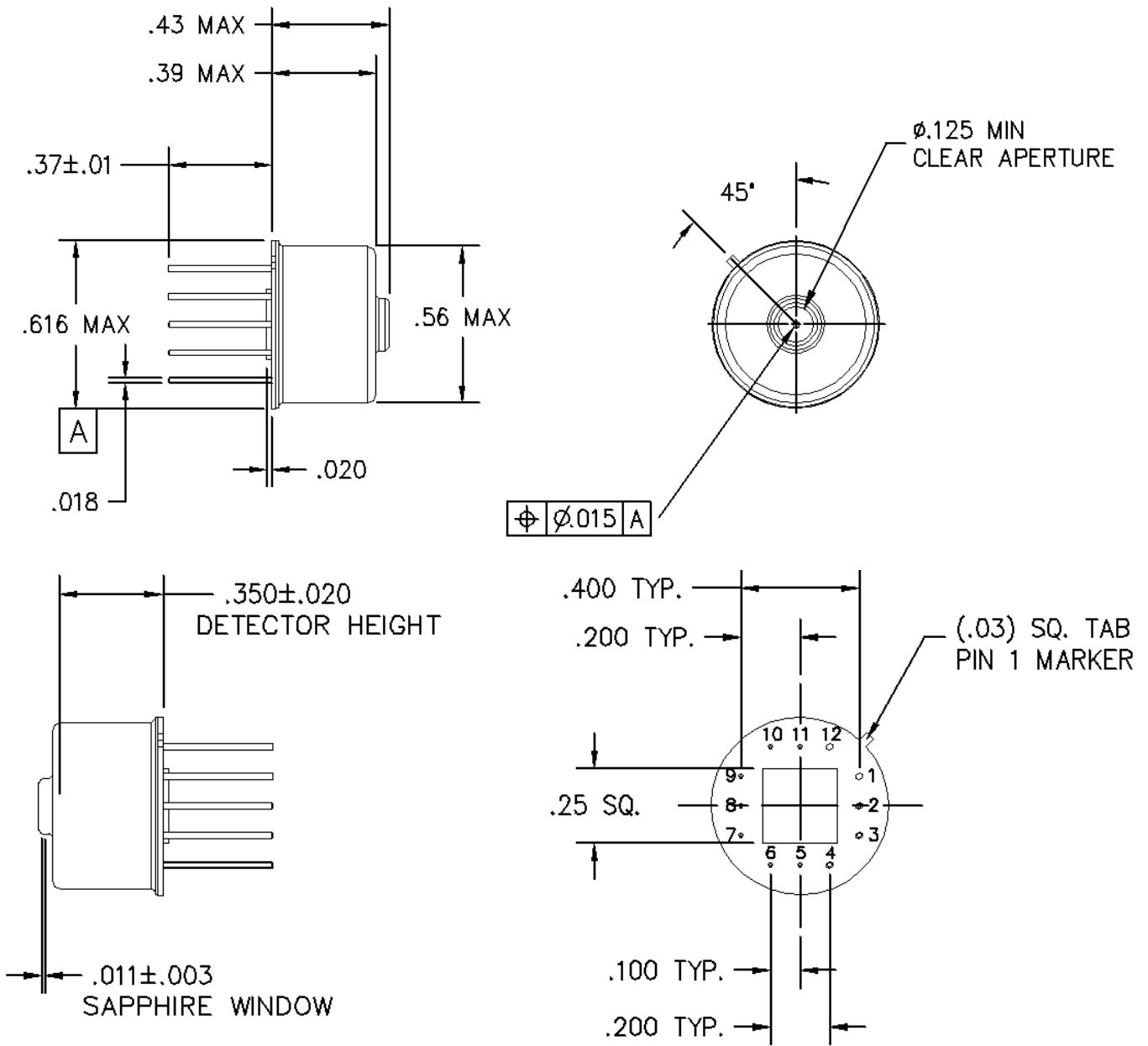
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## OPERATING NOTES:

See application notes for detailed operating information.



8181TK.DWG

UNITS: INCHES

| TOLERANCES |
|------------|
| .XX=±.02   |
| .XXX=±.005 |

WINDOW REFRACTIVE INDEX: 1.746 @ 1.550um AND 1.754 @ 1.064um