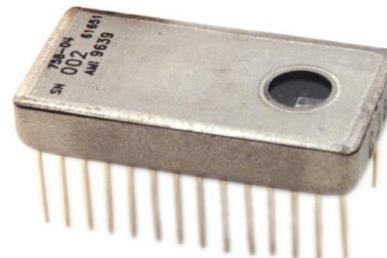




### HIGH PERFORMANCE HYBRID EYESAFE LASER RANGEFINDER RECEIVER

- Super High Sensitivity Down to 3 nW
- Optimized for Multiple Target Resolution
- Hybrid Construction
- Fast Recovery from Overload
- Thermo-Electrically Cooled Detector
- Time Programmed Gain
- Noise Tracking Threshold
- 28 Pin DIL Hermetic Package
- No Negative Supply Needed
- Non-Critical Laser Pulse Timing



### DESCRIPTION:

The **Model 758A.1** is a new generation of eyesafe laser rangefinder receivers optimized for ultra high sensitivity, excellent overload performance and exceptional ability to discriminate between two close targets. Pulse widths from 1 to 40 ns are processed over seven orders of magnitude dynamic range, and operation is possible from 1.0 to 1.6  $\mu$ m. The detector and critical pre-amplifier components are thermoelectrically-cooled to minimize noise using a built-in temperature sensor and controller. A choice of different sizes of InGaAs APD detectors is available to achieve optimum performance in different rangefinders. Time-programmed gain is triggered at  $T_0$  to eliminate false echoes at short ranges. Linear outputs are available for custom applications. Low-impedance output is provided for a range counter. The **Model 758A.1** is designed to meet the demanding requirements of military applications and offers the highest sensitivity of our family of rangefinder receivers. The small size and PCB mounting make it ideal for compact systems requiring high target fidelity and maximum performance. The **Model 758A.1** is used in AMI's high performance range counter module. See Model 7558 Laser Rangefinder Receiver-Range Processor Module.

### SPECIFICATIONS:

#### Detectors/Sensitivity

(50% detection; 6ns pulse; 0.1% FAR; TEC set for 15°C)  
Detector type: InGaAs APD

MODEL	DET Ø	TYP.	MAX.
758A-03.1	80 $\mu$ m	3 nW	6 nW
758A-04.1	200 $\mu$ m	4 nW	9 nW

At 1.06  $\mu$ m, multiply sensitivity value by 2.

#### Multiple Target Resolution

Small Signal	(50 nW)	10 meters typical
Large Signal	(1 mW)	20 meters typical

#### Dynamic Range

10<sup>7</sup>:1

Package	28 pin DIL-0.6" spacing, 0.1" pin spacing Ni plated, Kovar finish. Sapphire window, AR coated for <1% loss at 1.55 $\mu$ m.
Base heatsink required	

Weight	0.5 oz (14 g)
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Time Programmed Gain Range	Via external start signal, adjustable, programmable
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<b>Output</b>	AC coupled, negative going pulse 5.9 to 6.5 V no load 50 ohm source impedance (see Application Note, page 7)
<b>Power</b>	+12 VDC $\pm$ 0.2 V at 65 mA typical 0.9 V at 0.7 A maximum for TEC TEC cool down rate: 10°C/s HV bias $\geq$ 100 V, 10 $\mu$ A Built-in temperature-corrected shunt regulator for APD and TEC controller to drive an external power transistor.
<b>Size</b>	1.47" x 0.77" x 0.27" (0.3 cu. in.) (37.3 mm) x (19.6 mm) x (6.9 mm) Pin length: 0.375" (9.5 mm) typ.
<b>Optical</b>	>0.24" (6.1 mm) dia. clear aperture. Detector <0.040" (1 mm) below 0.020" (0.5 mm) thick window.
<b>Temperature</b>	Operating: -40°C to +71°C Storage: -55°C to +85°C

See application notes for more information.

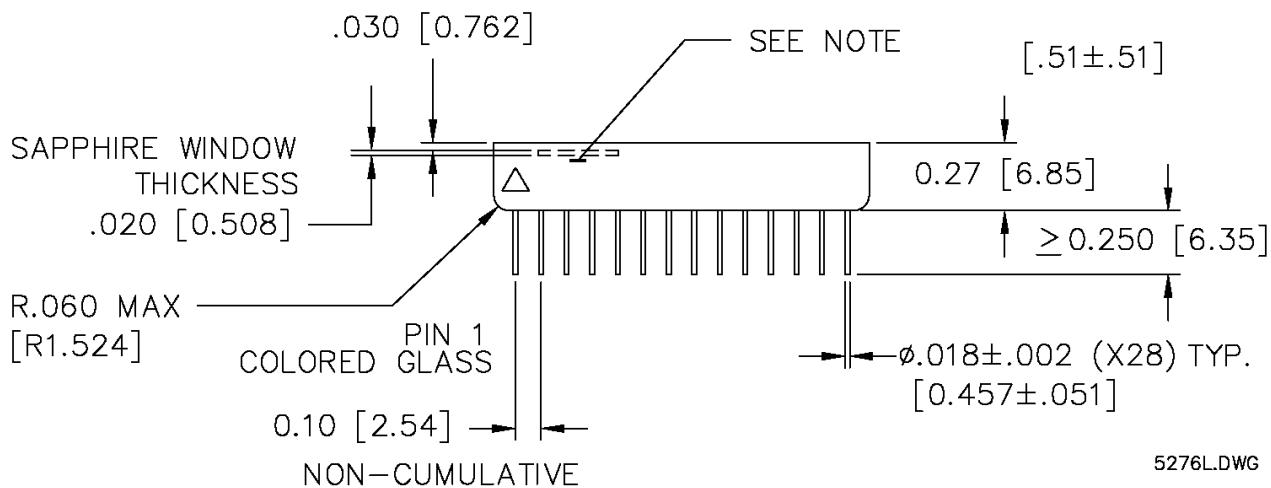
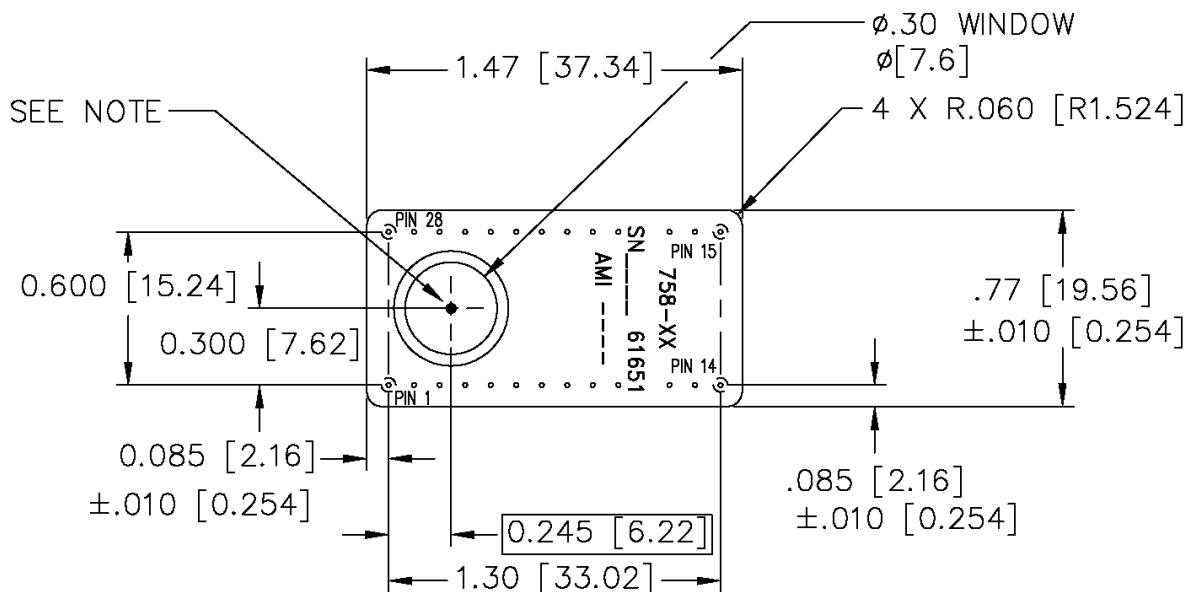
Specifications subject to change without notice.

U.S. Patent No. 6,650,404

### APPLICATIONS:

*Laser Rangefinder Systems, Target Detection Systems*

"In the event this commodity will be transferred to a "foreign person" as defined in 22 CFR 120.16, either outside or within the United States, a validated US State Department license is required."



NOTE:

CLEARANCE TO CENTER TOP SURFACE OF DETECTOR IS  $0.020 \pm 0.020$ ,  
AND DETECTOR CENTER POINT IS LOCATED WITHIN 0.050 INCHES RADIALLY  
WITH REFERENCE TO ITS NOMINAL POSITION.

DIMENSIONS AND PACKAGE DETAIL

5276L.DWG