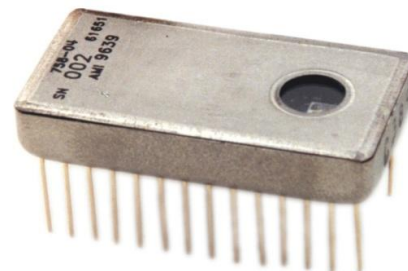


### HIGH PERFORMANCE HYBRID EYESAFE LASER RANGEFINDER RECEIVER

- SUPER HIGH SENSITIVITY DOWN TO 3nW
- OPTIMIZED FOR NARROW 10ns PULSES
- HYBRID CONSTRUCTION
- HIGH RESOLUTION OF MULTIPLE TARGETS
- THERMO-ELECTRICALLY COOLED DETECTOR
- TIME PROGRAMMED GAIN
- NOISE TRACKING THRESHOLD
- 28 PIN DIL HERMETIC PACKAGE
- NO NEGATIVE SUPPLY NEEDED



### DESCRIPTION:

The **Model 758.1** is an eyesafe laser rangefinder receiver optimized for ultra high sensitivity and narrow pulses. Pulsewidths from 1 to 40ns 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. TTL/CMOS compatible output is provided for a range counter. The **Model 758.1** is designed to meet the demanding requirements of military applications and offers among the highest sensitivities 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. An evaluation PCB is available.

### SPECIFICATIONS:

#### Detectors/Sensitivity

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

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

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

#### Multiple Target Resolution

<b>Small Signal</b>	(50nW)	10 meters typical
<b>Large Signal</b>	(1mW)	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** 0.5oz (14 gms)

#### Time Programmed Gain

**Range** >100:1 via external start signal, adjustable, programmable

**Output** TTL logic, inverting and non-inverting  
30ns pulsewidth minimum

**Power** +12VDC at 65mA typical  
0.9V at 0.7A maximum for TEC  
TEC cool down rate: 10°C/s  
HV bias  $\geq$ 100V, 10 $\mu$ A  
Built-in temperature-corrected shunt regulator and TEC controller to drive an external power transistor.

**Size** 1.47" x 0.77" x 0.27" (0.3 cu. in.)  
(37.3mm) x (19.6mm) x (6.9mm)  
Pin length: 0.375" (9.5mm) typ.

**Optical** >0.24" (6.1mm) dia. clear aperture.  
Detector <0.040" (1mm) below  
.020" (0.5mm) thick window.

#### Temperature

Operating: -40°C to +71°C  
Storage: -55°C to +85°C



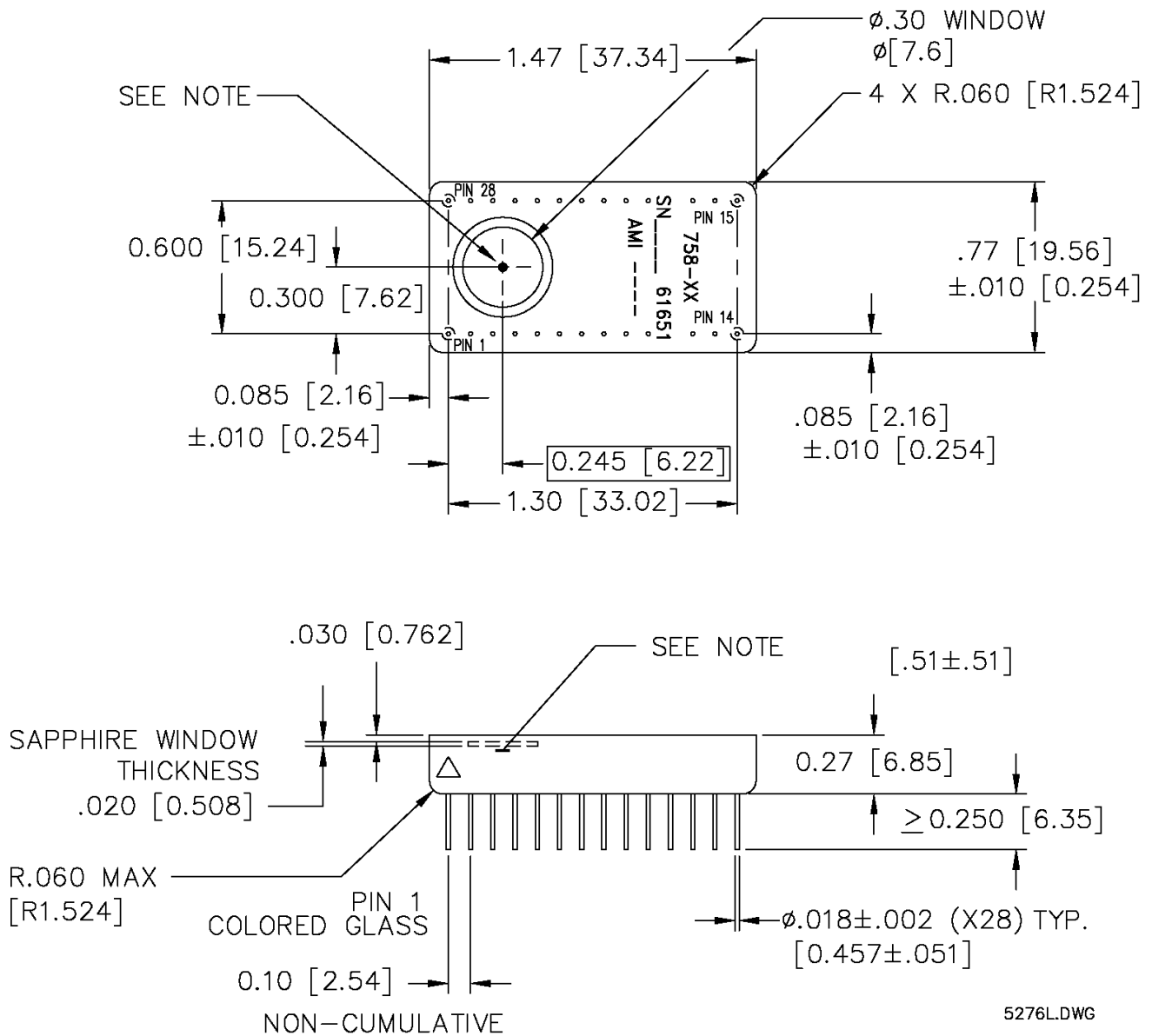
See application notes for more information.

Specifications subject to change without notice.

### 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