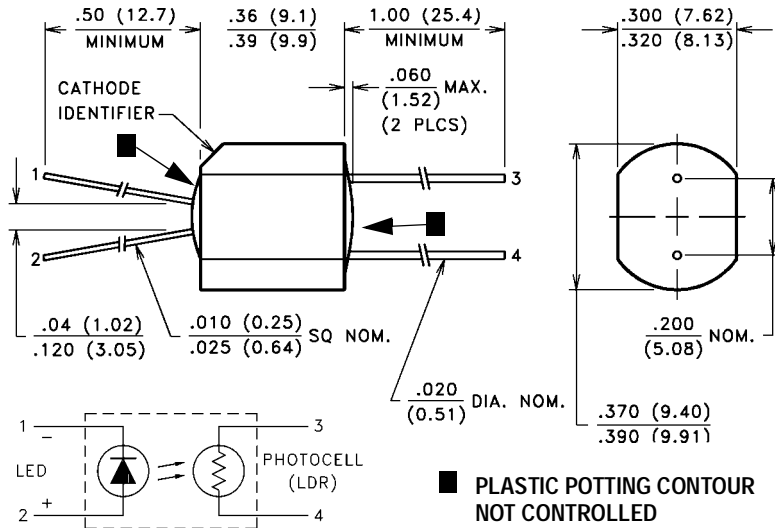


## PACKAGE DIMENSIONS inch (mm)



## DESCRIPTION

VTL5C1 offers 100db dynamic range, fast response time, and very high dark resistance.

VTL5C2 features a very steep slope, low temperature coefficient of resistance, and a small light history memory.

## ABSOLUTE MAXIMUM RATINGS @ 25°C

|                                |                |   |                                 |
|--------------------------------|----------------|---|---------------------------------|
| Maximum Temperatures           |                | LED Forward Voltage Drop @ 20 mA:           | 2.0V (1.65V Typ.)               |
| Storage and Operating:         | -40°C to 75°C  | Min. Isolation Voltage @ 70% Rel. Humidity: | 2500 VRMS                       |
| Cell Power:                    | 175 mW         | Output Cell Capacitance:                    | 5.0 pF                          |
| Derate above 30°C:             | 3.9 mW/°C      | Cell Voltage:                               | 100V (VTL5C1),<br>200V (VTL5C2) |
| LED Current:                   | 40 mA <b>1</b> | Input - Output Coupling Capacitance:        | 0.5 pF                          |
| Derate above 30°C:             | 0.9 mA/°C      |   |                                 |
| LED Reverse Breakdown Voltage: | 3.0 V          |   |                                 |

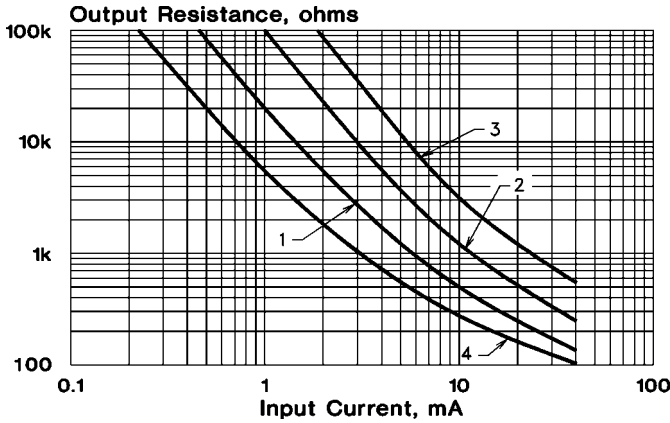
## ELECTRO-OPTICAL CHARACTERISTICS @ 25°C

| Part Number | Material Type | ON Resistance <b>2</b> |                          | OFF <b>3</b> Resistance @ 10 sec. (Min.) | Slope (Typ.) @ 0.5 mA / R @ 5 mA | Dynamic Range (Typ.) R <sub>DARK</sub> / R @ 20 mA | Response Time <b>4</b>                      |                                   |
|-------------|---------------|------------------------|--------------------------|--|----------------------------------|--|---|-----------------------------------|
|             |               | Input current          | Dark Adapted (Typ.)      |  |                                  |  | Turn-on to 63% Final R <sub>ON</sub> (Typ.) | Turn-off (Decay) to 100 kΩ (Max.) |
| VTL5C1      | 1             | 1 mA<br>10 mA<br>40 mA | 20 kΩ<br>600 Ω<br>200 Ω  | 50 MΩ                                    | 15                               | 100 db   | 2.5 ms                                      | 35 ms                             |
| VTL5C2      | 0             | 1 mA<br>10 mA<br>40 mA | 5.5 kΩ<br>800 Ω<br>200 Ω | 1 MΩ                                     | 24                               | 69 db  | 3.5 ms                                      | 500 ms                            |

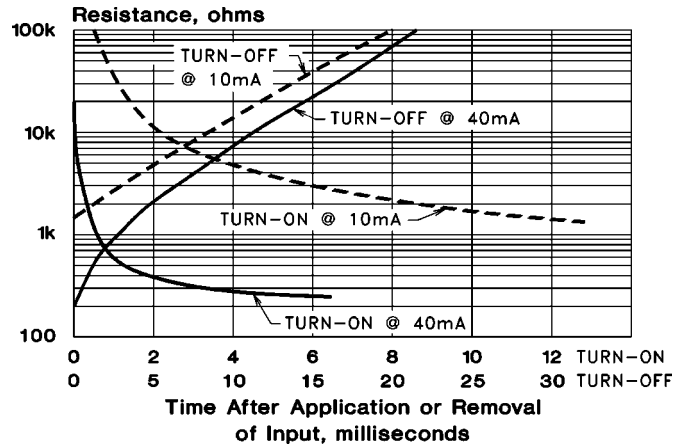
Refer to Specification Notes, page 41.

# Typical Performance Curves

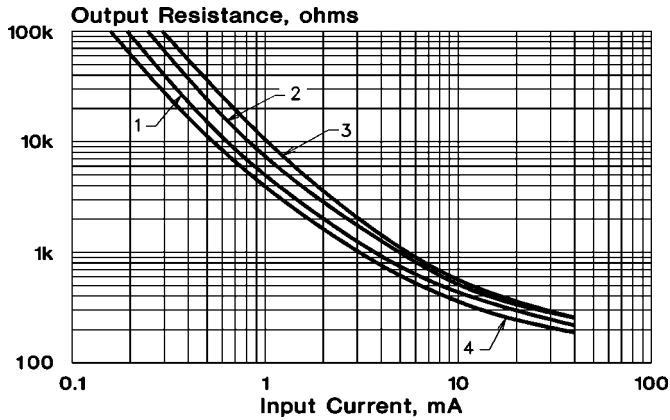
Output Resistance vs. Input Current  
VTL5C1



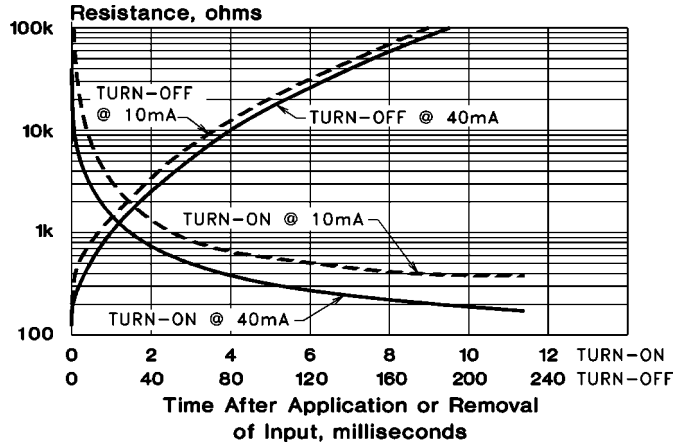
Response Time  
VTL5C1



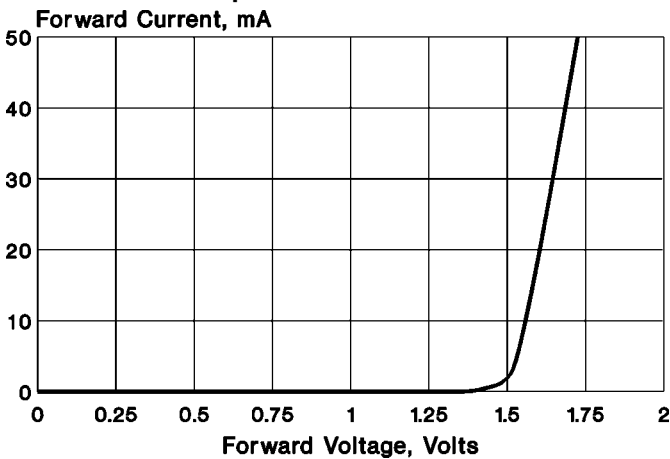
Output Resistance vs. Input Current  
VTL5C2



Response Time  
VTL5C2



Input Characteristics



## Notes:

- At 1.0 mA and below, units may have substantially higher resistance than shown in the typical curves. Consult factory if closely controlled characteristics are required at low input currents.
- Output resistance vs input current transfer curves are given for the following light adapt conditions:
  - 25°C — 24 hours @ no input
  - 25°C — 24 hours @ 40 mA input
  - +50°C — 24 hours @ 40 mA input
  - 20°C — 24 hours @ 40 mA input
- Response time characteristics are based upon test following adapt condition (2) above.