

**ROHM****OPTOELECTRONICS****RPI-141****PHOTO INTERRUPTER****ABSOLUTE MAXIMUM RATINGS (TA=25°C)***Infrared Emitter*

|                   |       |      |
|-------------------|-------|------|
| Forward Current   | $I_F$ | 50mA |
| Reverse Voltage   | $V_R$ | 5V   |
| Power Dissipation | $P_d$ | 80mW |

*Phototransistor*

|                             |           |      |
|-----------------------------|-----------|------|
| Collector-Emitter Voltage   | $V_{CEO}$ | 30V  |
| Emitter-Collector Voltage   | $V_{ECO}$ | 5V   |
| Collector Power Dissipation | $P_c$     | 80mW |

*Operating Temperature* $T_{opr}$  -25°C~+85°C*Storage Temperature* $T_{stg}$  -30°C~+100°C*Soldering Temp\** $T_{sol}$  260°C

(\*5 sec)

**ELECTRICAL OPTICAL CHARACTERISTICS (TA=25°C)**

## 1) ELECTRICAL-OPTICAL CHARACTERISTICS OF THE INFRARED LIGHT EMITTING DIODE

| Item                     | Symbol      | Min. | Typ. | Max. | Unit    | Condition        |
|--------------------------|-------------|------|------|------|---------|------------------|
| Forward Voltage          | $V_F$       | -    | 1.1  | 1.4  | V       | $I_F=1.5mA$      |
| Reverse Current          | $I_R$       | -    | -    | 10   | $\mu A$ | $V_R=5V$         |
| Terminal Capacitance     | $C_T$       | -    | 50   | -    | pF      | $V_R=0V, f=1Mhz$ |
| Input-Output Frequency   | $f_c$       |      | 1    |      | MHz     | $I_F=50mA$       |
| Peak Emission Wavelength | $\lambda_p$ |      | 950  |      | nm      | $I_F=50mA$       |

## 2) ELECTRICAL-OPTICAL CHARACTERISTICS OF THE PHOTOTRANSISTOR

| Item                                | Symbol     | Min. | Typ. | Max. | Unit    | Condition         |
|-------------------------------------|------------|------|------|------|---------|-------------------|
| Dark Current                        | $I_{CEO}$  | -    | -    | 0.5  | $\mu A$ | $V_{CE}=10V$      |
| Collector-Emitter Breakdown Voltage | $BV_{CEO}$ | 30   | -    | -    | V       | $I_{CE}=50 \mu A$ |
| Emitter-Collector Breakdown Voltage | $BV_{ECO}$ | 4.5  | -    | -    | V       | $I_{EC}=50 \mu A$ |

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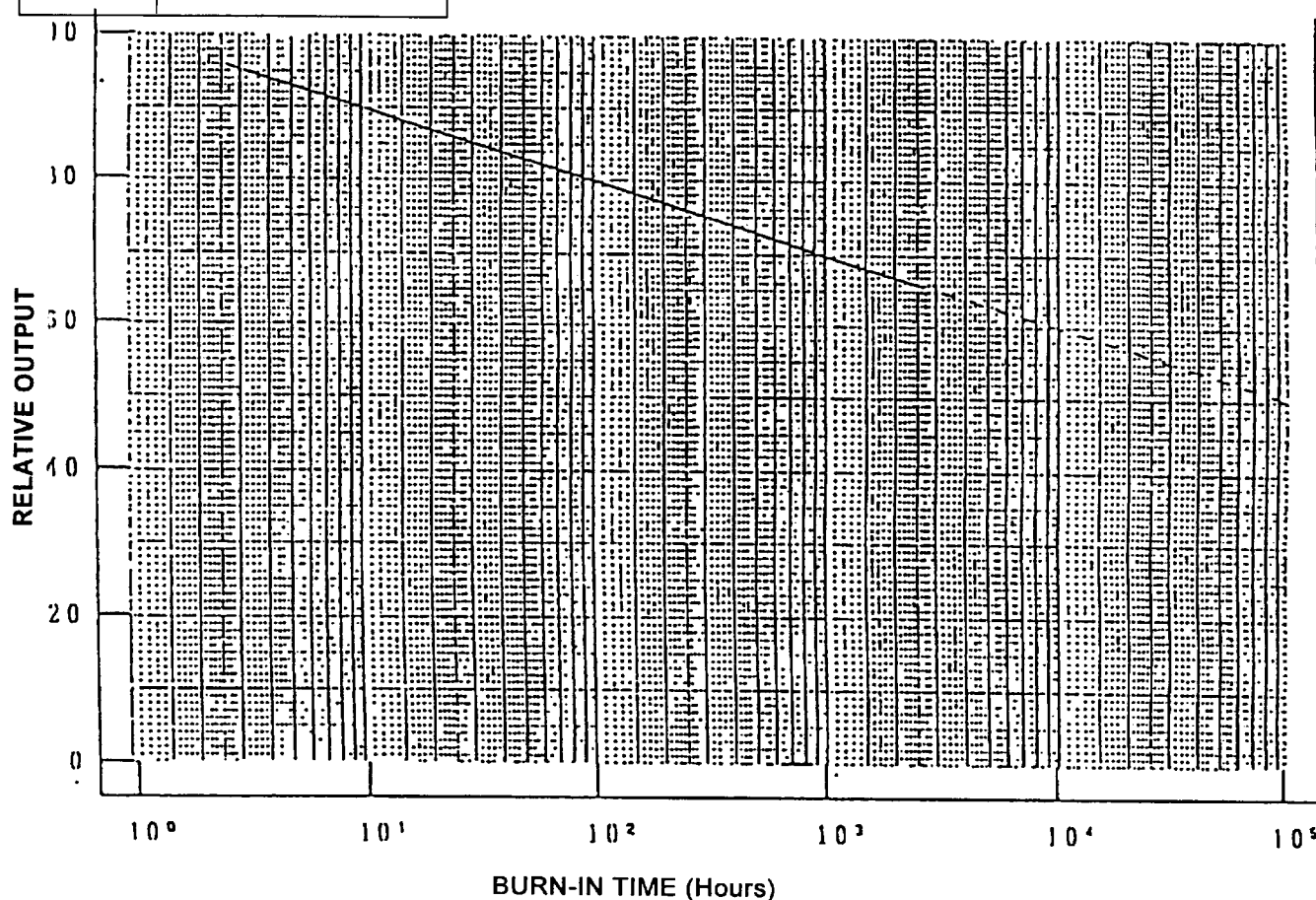
APPROVED:  DATE: 8-25-93

RPI141.PM5. OPTOELECTRONICS. O-37 8/3/93

## 2) ELECTRICAL-OPTICAL CHARACTERISTICS OF THE PHOTOTRANSISTOR (Continued from page one)

| Item                                 | Symbol        | Min | Typ | Max | Unit    | Condition                     |
|--------------------------------------|---------------|-----|-----|-----|---------|-------------------------------|
| Collector Current                    | $I_C$         | 30  | 150 | —   | $\mu A$ | $V_{CE}=5V, I_F=1.5mA$        |
| Collector-Emitter Saturation Voltage | $V_{CE}(Sat)$ | -   | -   | 0.4 | V       | $I_F=1.5mA, I_C=30 \mu A$     |
| Rise Time, Fall Time                 | $t_r, t_f$    | -   | 50  | 120 | $\mu S$ | $I_F=1.5mA, V_C=5V, R_L=100W$ |

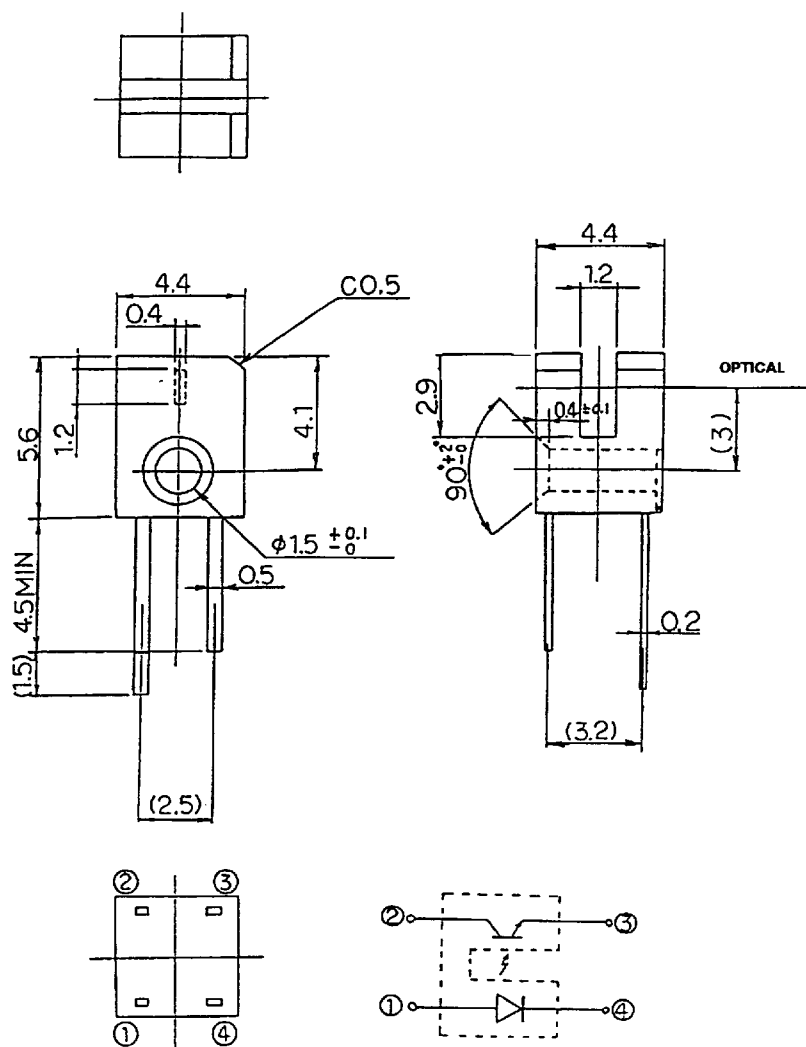
|           |                                            |
|-----------|--------------------------------------------|
| Type No.  | <b>RPI-141</b>                             |
| Data      | A burn-in degradation                      |
| Condition | $I_F=20mA$<br>$V_C=5V$<br>$T_a=25^\circ C$ |



THIS CURVE IS MAX DEGRADATION

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## SLOTTED OPTICAL SWITCH



- 1) Anode
- 2) Collector
- 3) Emitter
- 4) Cathode

- 1) Bracket measurement is for the lead pin at the base of the mold.
- 2) Tolerance is  $\pm 0.15$ mm unless otherwise indicated.