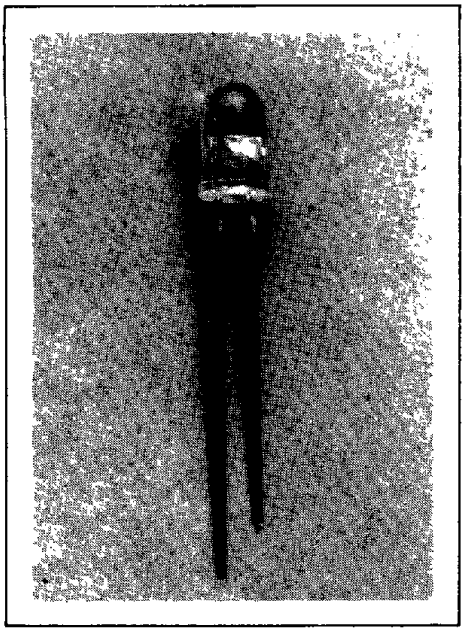
# SIEMENS

# SFH 485

## GaAlAs INFRARED EMITTER

T-41-13



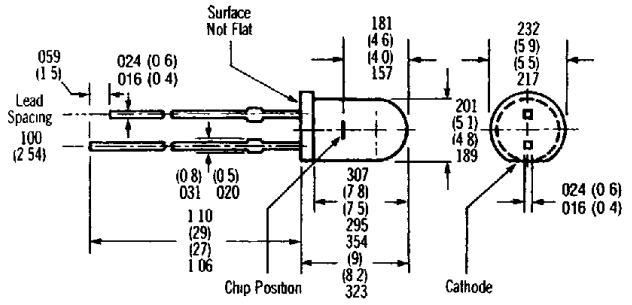
### FEATURES

- **Radiant Intensity Selections**
  **SFH485-1 16–32**
  **SFH485-2 25–50**
  **SFH485-3 ≥40**
- **Perfect Spectral Match with Silicon Photodetectors**
- **Gallium Aluminum Arsenide Material**
- **Low Cost**
- **T1¾ Package**
- **Clear Blue Tinted Plastic Lens**
- **Long Term Stability**
- **Medium Wide Beam, 40°**
- **Very High Power, 20 mW Typical at 100 mA**
- **High Intensity, 40 mW/sr at 100 mA**

### DESCRIPTION

SFH 485, an infrared emitting diode, emits radiation in the near infrared range (880 nm peak). The emitted radiation, which can be modulated, is generated by forward flowing current. The device is enclosed in a 5 mm plastic package. Uses for SFH 485 include: IR remote control of color TV receivers, smoke detectors, and other applications requiring very high power, such as IR touch screens.

Package Dimensions in Inches (mm)




### Maximum Ratings

| | | | |
|---|---|---|---|
| Storage temperature | $T_{stg}$ | −55 to +100 | °C |
| Soldering temperature at dip soldering (≥2mm distance from the case bottom, soldering time t≤5 sec) | $T_{sold}$ | 260 | °C |
| Soldering temperature at iron soldering (≥2mm distance from the case bottom, soldering time t≤3 sec) | $T_{sold}$ | 300 | °C |
| Junction temperature | $T_j$ | 100 | °C |
| Reverse voltage | $V_R$ | 5 | V |
| Forward current | $I_F$ | 100 | mA |
| Surge current ($\tau$ = 10 µsec) | $I_{FS}$ | 2 5 | A |
| Power dissipation ($T_{amb}$ = 25°C) | $P_{tot}$ | 200 | mW |
| Thermal resistance* | $R_{th}JA$ | 375 | K/W |

### Characteristics ($T_{amb}$ = 25°C)

| | | | |
|---|---|---|---|
| Wavelength at peak emission at $I_F$ = 10mA | λpeak | 880 | nm |
| Wavelength at peak emission at $I_F$ = 100 mA, $t_{pulse}$ = 20 ms, Duty cycle = 1 12 | λpeak | 883 | nm |
| Wavelength at peak emission at $I_F$ = 1A, $t_{pulse}$ = 100 µs, Duty cycle = 1 100 | λpeak | 886 | nm |
| Spectral bandwidth at $I_F$ = 10mA | Δλ | 80 | nm |
| Half angle | ϑ | ±20 | Deg |
| Active chip area | A | 0 16 | mm² |
| Dimensions of active chip area | L×W | 0 4×0 4 | mm |
| Distance chip surface to case surface | D | 4 0 to 4 6 | mm |
| Switching time ($I_e$ from 10% to 90%, and from 90% to 10% $I_F$ = 100 mA) | $t_r$,$t_f$ | 0 6/0 5 | µs |
| Capacitance ($V_R$ = 0V, f = 1MHz) | $C_o$ | 25 | pF |
| Forward voltage ($I_F$ = 100 mA, $t_{pulse}$ = 20 ms) | $V_F$ | 1 5 (≤1 8) | V |
| ($I_F$ = 1 A, $t_{pulse}$ = 100 µs) | $V_F$ | 3.0 (≤3 8) | V |
| Breakdown voltage ($I_R$ = 10 µA) | $V_{BR}$ | 30 (≥5) | V |
| Reverse current ($V_R$ = 5V) | $I_R$ | 0 01 (≤1) | µA |
| Temperature coefficient of $I_e$ or $\Phi_e$ | TC | −0 5 | %/K |
| Temperature coefficient of $V_F$ | TC | −0 2 | %/K |
| Temperature coefficient of λpeak | TC | 0 25 | nm/K |

**Radiant Intensity $I_E$ in Axial Direction Measured at a Solid Angle of Ω = 0.01sr**

| Group | SFH 485-1 | SFH 485-2 | SFH 485-3 | |
|---|---|---|---|---|
| Radiant Intensity $I_E$ ($I_F$ = 100 mA $T_P$ = 20 ms) | 16–32 | 25–50 | ≥40 | mW/sr |
| ($I_F$ = 1 A $T_P$ = 100 µs) | 180 | 280 | 340 | mW/sr |
| Total Radiant Flux $\Phi_E$ ($I_F$ = 100 mA $T_P$ = 20 ms) | 21 | 23 | 25 | mW |