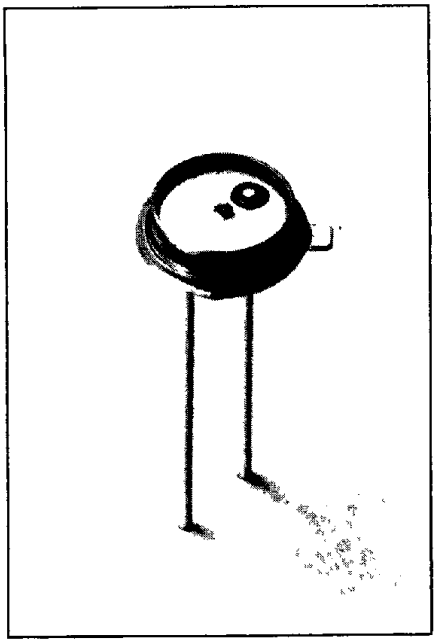
SIEMENS

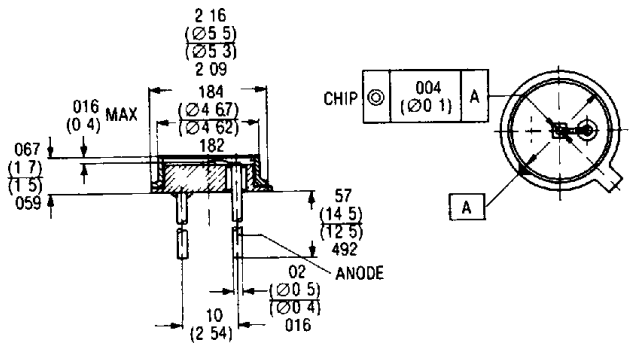
SFH 407 SERIES

INFRARED EMITTER

T-41-07



Package Dimensions in Inches (mm)



FEATURES

- **TO-46 Package**
- **Flat Epoxy Coating**
- **0.1" (2.54 mm) Lead Spacing**
- **For Fiber Optic Communications Up to 5 MBit/s**
- **Two Intensity Ranges SFH 407-2, .63 to 1.25 mW/sr SFH 407-3, 1.0 to 2.0 mW/sr**

DESCRIPTION

The SFH 407 GaAs diode emits radiation in the near infrared range. The radiation emitted is excited by current flowing in the forward direction and can be modulated. This diode is particularly noted for its high radiation ability.

The SFH 407 is mounted in a TO-46 metal case and is coated with epoxy resin. It is designed for applications in fiber optics communications up to 5 MBit/s.

Maximum Ratings

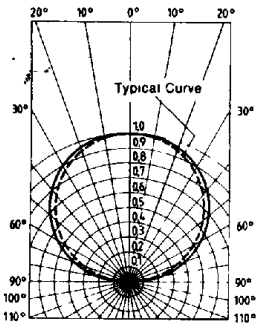
Reverse Voltage (V_R) . . . . . 2 V
Forward Current (I_F) . . . . . 50 mA
Forward Current When Mounted in LWL Socket (I_F), ($T_{amb} \leq 25°C$) . . . . . 100 mA
Surge Current (I_{FS}), $\tau \leq 100\ \mu s$ . . . . . 200 mA
Storage Temperature Range (T_s) . . . . . −40 to +80°C
Junction Temperature (T_j) . . . . . 80°C
Thermal Resistance
Junction-to-Air (R_{thJamb}) . . . . . 750 K/W
Junction-to-Air When Inserted in LWL Socket (R_{thJamb}) . . . . . 400 K/W
Junction-to-Case (R_{thJG}) . . . . . 225 K/W

Characteristics ($T_{amb} = 25°C$)

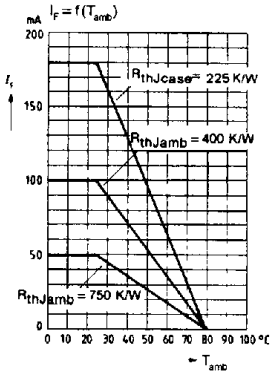
Wavelength at Peak Emission, λ_{peak} . . . . . 900 ± 20 nm
Spectral Bandwidth, $\Delta\lambda$ . . . . . 40 nm
Half-Life Radiant Intensity in Gradient Profile Fiber with Core Diameter 63 μm, N A = 0 2 (I_e = 1 mW/sr), Φ_e . . . . . 2 μW
50 μm, N A = 0 2 (I_e = 1 mW/sr), Φ_e . . . . . 1 25 μW
Rise Time (10% to 90%/I_F = 100 mA), t_r . . . . . 50 ns
Fall Time (90% to 10%/I_F = 100 mA), t_f . . . . . 40 ns
Bandwidth, B . . . . . 7 MHz
Forward Voltage (I_F = 30 mA), V_F . . . . . 1 22 (≤ 1 6) V
Reverse Current (V_R = 2 V), I_R . . . . . 0 01 (≤ 10) μA
Capacitance (V_R = 0 V), C_0 . . . . . 35 pF

Group	−2	−3	
Radiant Intensity, I_e	0 63 to 1 25	1 0 to 2.0	mW/sr
Radiant Flux (Radiant Power) (Total) Typ., Φ_e	3 0	4 7	mW
Radiant power coupled into a stepped index fiber, Φ = 200 μm, N A = 0.4 0m	60 (≥ 40)	90 (≥ 63)	μW
Radiant power coupled into a gradient index fiber, Φ = 50 μm, N A = 0 2	1 1	1 7	μW

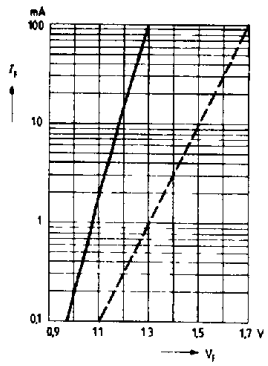
Radiation characteristics
$I_{rel} = f(\varphi)$



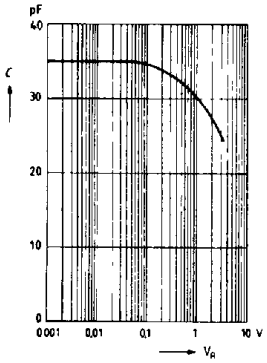
Maximum permissible forward current
$I_F = f(T_{amb})$



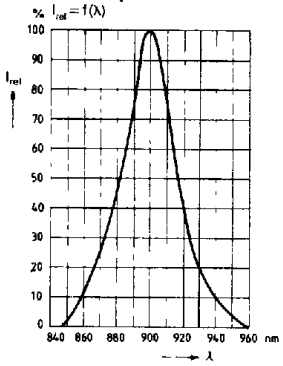
Forward current $I_F = f(V_F)$



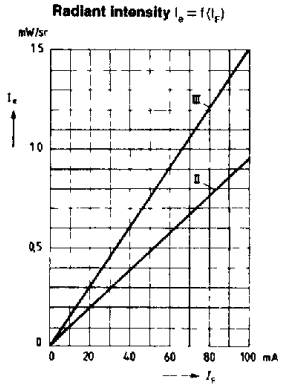
Capacitance $C = f(V_R)$



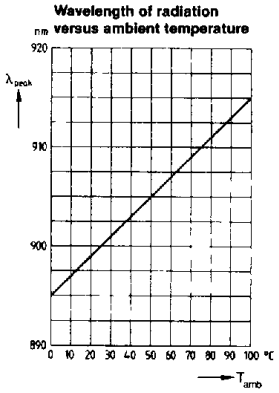
Relative spectral emission
$I_{rel} = f(\lambda)$



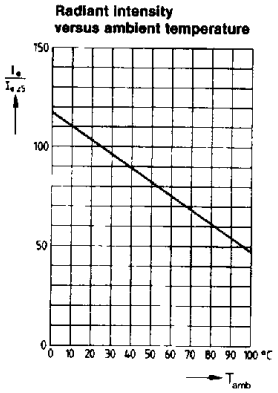
Radiant intensity $I_e = f(I_F)$



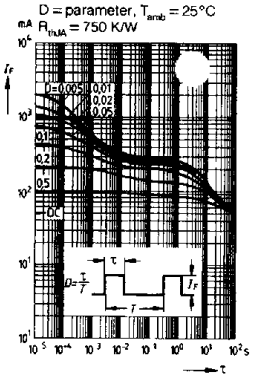
Wavelength of radiation versus ambient temperature



Radiant intensity versus ambient temperature



Permissible pulse handling capability
Forward current versus cycle duration
D = parameter, T_{amb} = 25°C
R_{thJA} = 750 K/W



Relative combined radiated power independent from spacing (d) and lateral shift (v) $\Phi_{in} = f(v)$, d = Parameter