

SIEMENS

SFH 484

GaAlAs INFRARED EMITTER



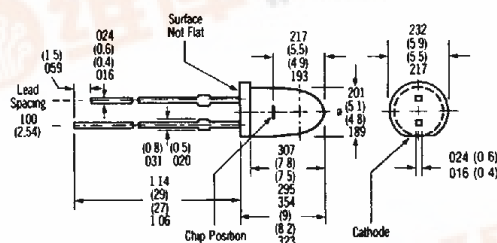
FEATURES

- Three Radiant Intensity Selections
SFH484-1 50-100
SFH484-2 80-160
SFH484-3 ≥ 125
- Good Spectral Match with Silicon Photo Detector
- Gallium Aluminum Arsenide Material
- Low Cost
- T-1 $\frac{1}{2}$ Package
- Clear Plastic Lens
- Long Term Stability
- Narrow Beam, 16°
- Very High Power, 20 mW Typical at 100 mA
- High Intensity, 100 mW/sr at 100 mA
- For Smoke Detection Application: Use SFH484-E7517

DESCRIPTION

SFH 484, 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 5mm plastic package. Uses for SFH 484 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 (≥ 2 mm distance from the case bottom; soldering time $t \leq 5$ sec)	T_{sld}	260	°C
Soldering temperature at iron soldering (≥ 2 mm distance from the case bottom, soldering time $t \leq 3$ sec)	T_{sld}	300	°C
Junction temperature	T_j	100	°C
Reverse voltage	V_R	5	V
Forward current	I_F	100	mA
Surge current ($\tau = 10$ μ s)	I_{SC}	2.5	A
Power dissipation ($T = 25^\circ\text{C}$)	P_{tot}	200	mW
Thermal Resistance*	R_{thA}	375	K/W

Characteristics ($T_{amb} = 25^\circ\text{C}$)

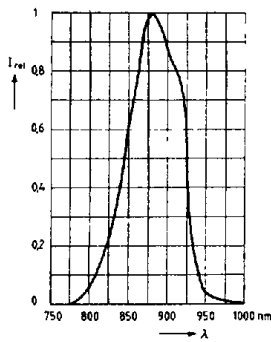
Wavelength at peak emission at $I_F = 10$ mA	λ_{peak}	880	nm
Wavelength at peak emission at $I_F = 100$ mA, $t_{pulse} = 20$ ms, Duty cycle = 1:12	λ_{peak}	883	nm
Wavelength at peak emission at $I_F = 1$ A, $t_{pulse} = 100$ μ s, Duty cycle = 1:100	λ_{peak}	886	nm
Spectral bandwidth at $I_F = 10$ mA	$\Delta\lambda$	80	nm
Half angle	φ	± 8	Deg
Active chip area	A	0.16	mm ²
Dimensions of active chip area	L x W	0.4 x 0.4	mm
Distance chip surface to case surface	D	4.9 5.5	mm
Switching time (I_b from 10% to 90%, and from 90% to 10% $I_F = 100$ mA)	t_r, t_f	0.6/0.5	μ s
Capacitance ($V_R = 0$ V, $f = 1$ MHz)	C_o	25	pF
Forward Voltage ($I_F = 100$ mA, $t_{pulse} = 20$ ms) ($I_F = 1$ A, $t_{pulse} = 100$ μ s)	V_F	1.5 (≤ 1.8) 3.0 (≤ 3.8)	V
Breakdown voltage ($I_R = 10$ μ A)	V_{BR}	30 (≥ 5)	V
Reverse current ($V_R = 5$ V)	I_R	0.01 (≤ 1)	μ A
Temperature coefficient of I_b or Φ_e	TC	-0.5	%/K
Temperature coefficient of V_F	TC	-0.2	%/K
Temperature coefficient of λ_{peak}	TC	0.25	nm/K

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

Group	SFH 484-1	SFH 484-2	SFH 484-3	
Radiant Intensity I_E ($I_F = 100$ mA, $T_P = 20$ ms) ($I_F = 1$ A, $T_P = 100$ μ s)	50-100 560	80-160 900	≥ 125 975	mW/sr mW/sr
Total Radiant Flux Φ_E ($I_F = 100$ mA, $T_P = 20$ ms)	21	23	25	mW

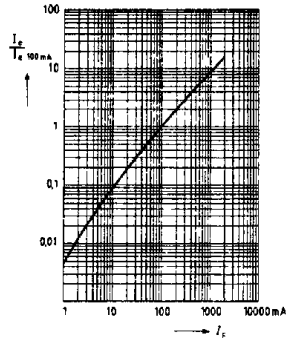
T-41-13

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

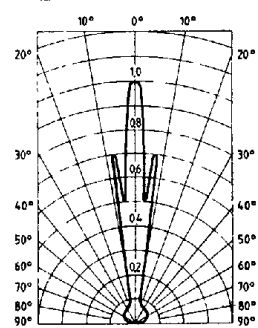


Radiant intensity

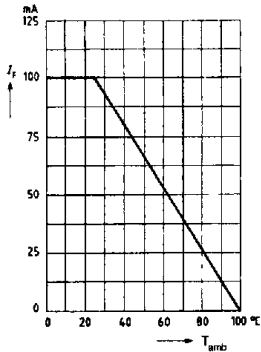
$$\frac{I_e}{I_{e, 100 \text{ mA}}} = f(I_e)$$



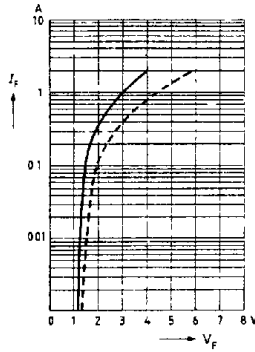
Radiant characteristics
 $I_{rel} = f(\varphi)$



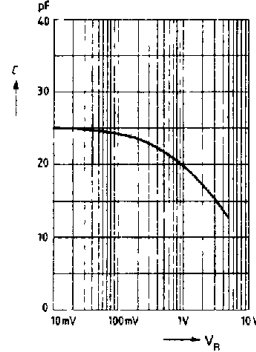
Maximum permissible forward current
 $I_F = f(T_{amb})$



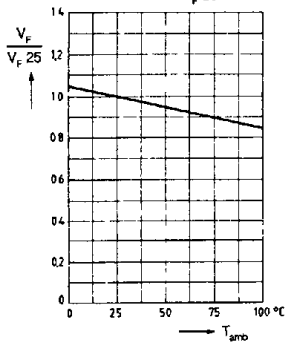
Forward current
 $I_F = f(V_F)$



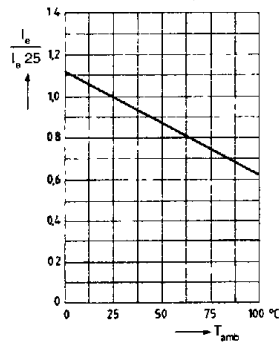
Capacitance
 $C = f(V_R)$



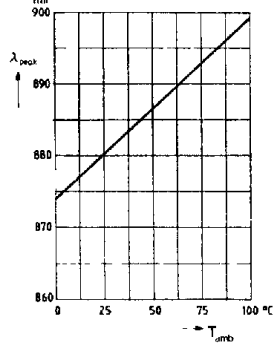
Forward voltage
 $V_F = f(T_{amb})$



Radiant intensity
 $\frac{I_e}{I_{e, 25}} = f(T_{amb})$



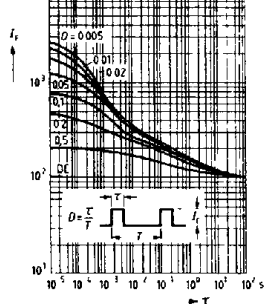
Wavelength at peak emission
 $\lambda_{peak} = f(T_{amb})$



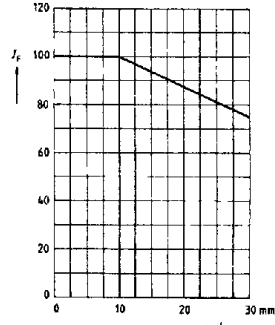
Permissible pulse load

$$I_F = f(t)$$

Duty cycle D = Parameter



Forward current (max):
dependent upon the lead length
from the package bottom to the
PC board.



Infrared
Emitters