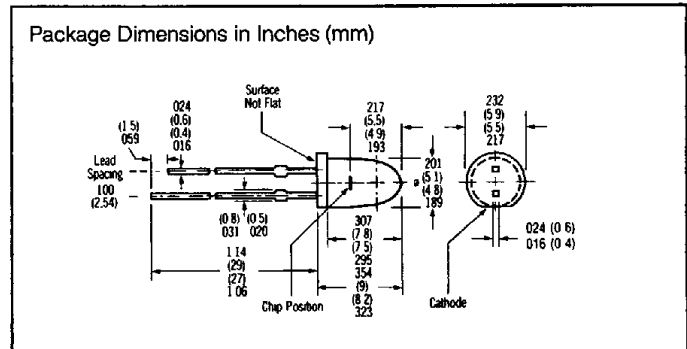
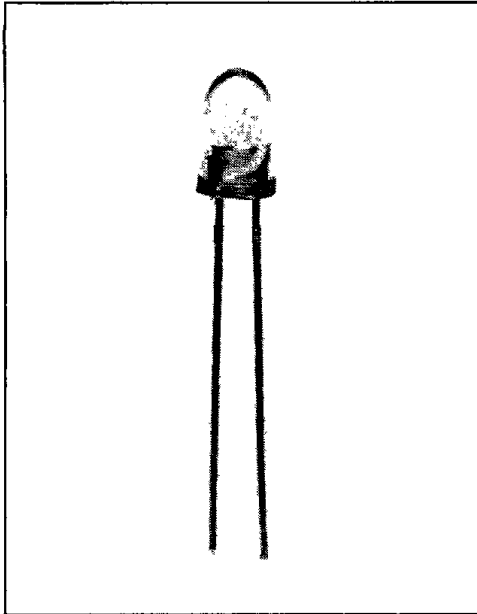


**SIEMENS**

**SFH 484**

**GaAlAs INFRARED EMITTER**

T-41-13



**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 1/4 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.

**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)	$T_{sold}$	260	°C
Soldering temperature at iron soldering (≥ 2 mm distance from the case bottom, soldering time $t \leq 3$ 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 ( $\tau = 10 \mu s$ )	$I_{SC}$	2.5	A
Power dissipation ( $T = 25^\circ C$ )	$P_{tot}$	200	mW
Thermal Resistance*	$R_{thA}$	375	K/W

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

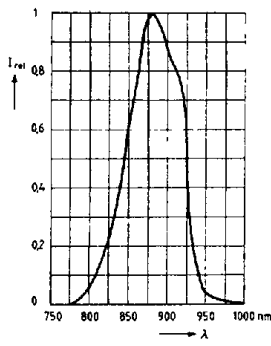
Wavelength at peak emission at $I_F = 10$ mA	$\lambda_{peak}$	880	nm
Wavelength at peak emission at $I_F = 100$ mA, $t_{pulse} = 20$ ms, Duty cycle = 1:12	$\lambda_{peak}$	883	nm
Wavelength at peak emission at $I_F = 1$ A, $t_{pulse} = 100 \mu s$ , Duty cycle = 1:100	$\lambda_{peak}$	886	nm
Spectral bandwidth at $I_F = 10$ mA	$\Delta\lambda$	80	nm
Half angle	$\varphi$	± 8	Deg
Active chip area	A	0.16	mm <sup>2</sup>
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 ( $I_E$ from 10% to 90%, and from 90% to 10% $I_F = 100$ mA)	$t_r, t_f$	0.6/0.5	$\mu s$
Capacitance ( $V_R = 0$ V, $f = 1$ MHz)	$C_o$	25	pF
Forward Voltage ( $I_F = 100$ mA, $t_{pulse} = 20$ ms)	$V_F$	1.5 ( $\leq 1.8$ )	V
( $I_F = 1$ A, $t_{pulse} = 100 \mu s$ )	$V_F$	3.0 ( $\leq 3.8$ )	V
Breakdown voltage ( $I_R = 10 \mu A$ )	$V_{BR}$	30 ( $\geq 5$ )	V
Reverse current ( $V_R = 5$ V)	$I_R$	0.01 ( $\leq 1$ )	$\mu A$
Temperature coefficient of $I_E$ or $\Phi_E$	TC	-0.5	%/K
Temperature coefficient of $V_F$	TC	-0.2	%/K
Temperature coefficient of $\lambda_{peak}$	TC	0.25	nm/K

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

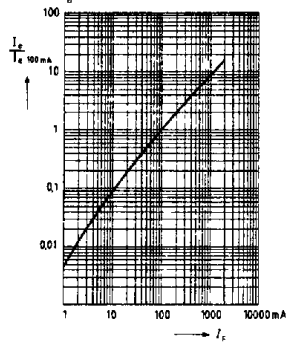
Group	SFH 484-1	SFH 484-2	SFH 484-3	
Radiant Intensity $I_E$ ( $I_F = 100$ mA, $T_p = 20$ ms)	50-100	80-160	≥ 125	mW/sr
( $I_F = 1$ A, $T_p = 100 \mu s$ )	560	900	975	mW/sr
Total Radiant Flux $\Phi_E$ ( $I_F = 100$ mA, $T_p = 20$ ms)	21	23	25	mW

T-41-13

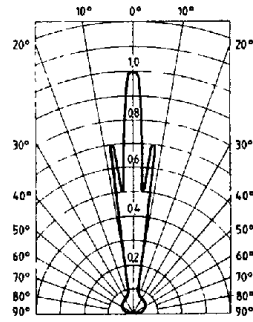
**Relative spectral emission**  
 $I_{rel} = f(\lambda)$



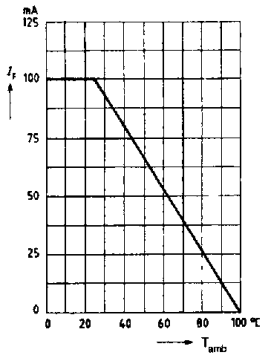
**Radiant intensity**  
 $\frac{I_e}{I_e, 100 \text{ mA}} = f(I_f)$



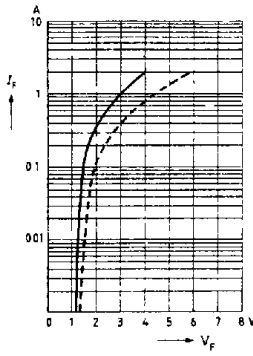
**Radiant characteristics**  
 $I_{rel} = f(\varphi)$



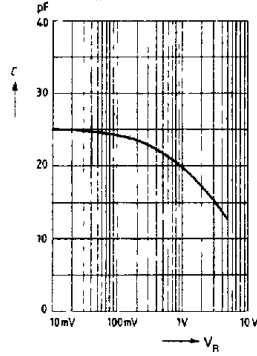
**Maximum permissible forward current**  
 $I_F = f(T_{amb})$



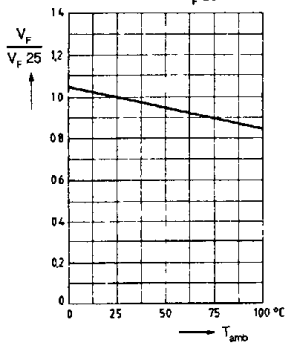
**Forward current**  
 $I_f = f(V_F)$



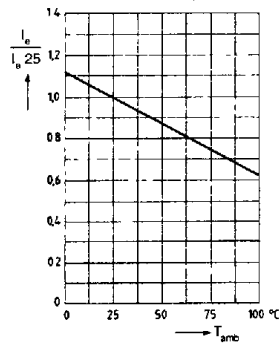
**Capacitance**  
 $C = f(V_R)$



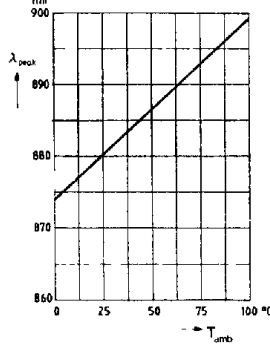
**Forward voltage**  
 $\frac{V_F}{V_F, 25} = f(T_{amb})$



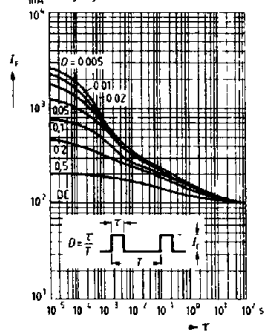
**Radiant intensity**  
 $\frac{I_e}{I_e, 25} = f(T_{amb})$



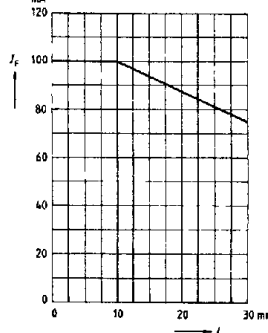
**Wavelength at peak emission**  
 $\lambda_{peak} = f(T_{amb})$



**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