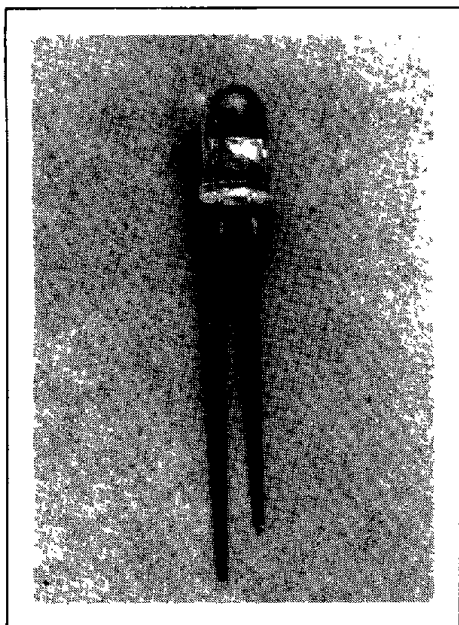


SIEMENS**SFH 485****GaAlAs INFRARED EMITTER**

T-41-13

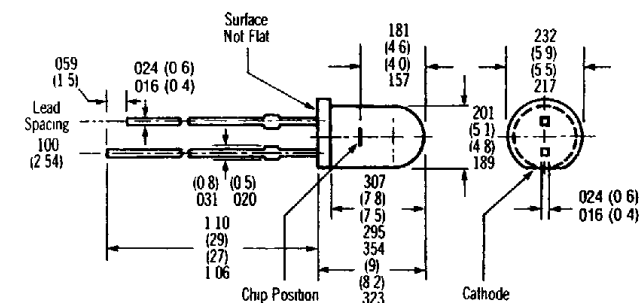
**FEATURES**

- **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**
- **T1 $\frac{3}{4}$ 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 ($\geq 2\text{mm}$ distance from the case bottom, soldering time $t \leq 5\text{ sec}$)	T_{sold}	260	°C
Soldering temperature at iron soldering ($\geq 2\text{mm}$ distance from the case bottom, soldering time $t \leq 3\text{ sec}$)	T_{sold}	300	°C
Junction temperature	T_j	100	°C
Reverse voltage	V_R	5	V
Forward current	I_F	100	mA
Surge current ($\tau = 10\text{ }\mu\text{sec}$)	I_{FS}	2.5	A
Power dissipation ($T_{\text{amb}} = 25^\circ\text{C}$)	P_{tot}	200	mW
Thermal resistance*	R_{thJA}	375	K/W

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

Wavelength at peak emission at $I_F = 10\text{mA}$	λ_{peak}	880	nm
Wavelength at peak emission at $I_F = 100\text{ mA}$, $t_{\text{pulse}} = 20\text{ ms}$, Duty cycle = 1:12	λ_{peak}	883	nm
Wavelength at peak emission at $I_F = 1\text{A}$, $t_{\text{pulse}} = 100\text{ }\mu\text{s}$, Duty cycle = 1:100	λ_{peak}	886	nm
Spectral bandwidth at $I_F = 10\text{mA}$	$\Delta\lambda$	80	nm
Half angle	θ	± 20	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	4.0 to 4.6	mm
Switching time (I_F from 10% to 90%, and from 90% to 10% $I_F = 100\text{ mA}$)	t_r, t_f	0.6/0.5	μs
Capacitance ($V_R = 0\text{V}$, $f = 1\text{MHz}$)	C_o	25	pF
Forward voltage ($I_F = 100\text{ mA}$, $t_{\text{pulse}} = 20\text{ ms}$)	V_F	1.5 (≤ 1.8)	V
($I_F = 1\text{ A}$, $t_{\text{pulse}} = 100\text{ }\mu\text{s}$)	V_F	3.0 (≤ 3.8)	V
Breakdown voltage ($I_R = 10\text{ }\mu\text{A}$)	V_{BR}	30 (≥ 5)	V
Reverse current ($V_R = 5\text{V}$)	I_R	0.01 (≤ 1)	μA
Temperature coefficient of I_e 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 $\Omega = 0.01\text{sr}$

Group	SFH 485-1	SFH 485-2	SFH 485-3	
Radiant Intensity I_e ($I_F = 100\text{ mA}$, $T_P = 20\text{ ms}$) ($I_F = 1\text{ A}$, $T_P = 100\text{ }\mu\text{s}$)	16-32 180	25-50 280	≥ 40 340	mW/sr mW/sr
Total Radiant Flux Φ_e ($I_F = 100\text{ mA}$, $T_P = 20\text{ ms}$)	21	23	25	mW