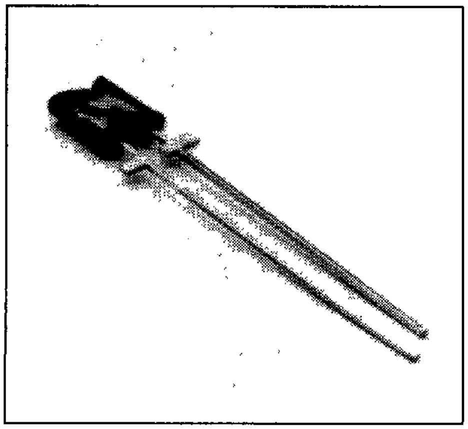
SIEMENS

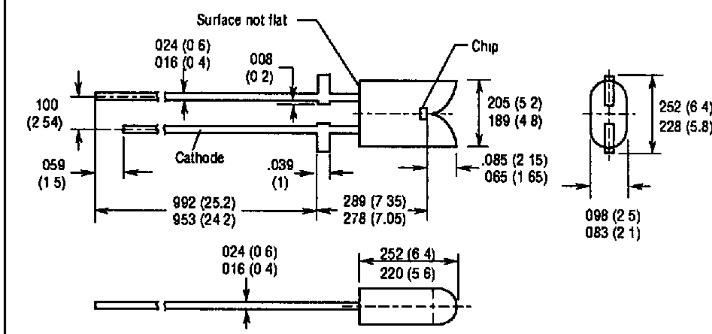
SFH 435

GaAs INFRARED EMITTER DOUBLE EMITTING DIODE

T-41-11



Package Dimensions in Inches (mm)



FEATURES

- **Package: Special Case, Grey Tinted Epoxy Resin, Solder Tabs, 2.54 mm (1/10") Lead Spacing**
- **Cathode Marking: Short Solder Tab**
- **High Reliability**
- **Long Life**
- **Diametrical Radiation**
- **High Pulse Handling Capability**
- **Good Spectral Matching with Silicon Photodetectors**

DESCRIPTION

The SFH 435 is a two-beam GaAs infrared emitting diode with one chip. The beams emerge diametrically from the diode in a half angle of 8 degrees.

The radiation is emitted in the near infrared range. It is excited by a current flowing in forward direction, dc as well as pulse operation with simultaneous modulation are possible

The SFH 435 is especially suitable for application in dual photo interrupters, i.e., light reflection switches, tape end control

Maximum Ratings

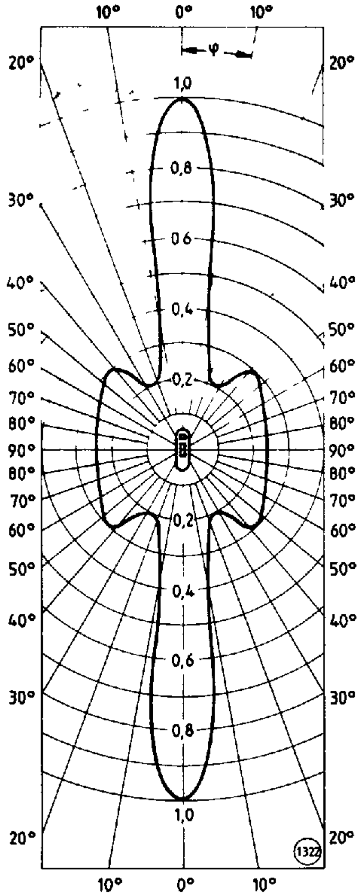
Reverse Voltage (V_R)	5 V
Forward Current (I_F)	100 mA
Surge Current ($t_p \leq 10$ µs) (I_{FS})	3 A
Junction Temperature (T_J)	100°C
Storage Temperature Range (T_{STG})	-55°C to +100°C
Soldering Temperature at Dip Soldering (≥2 mm distance from case bottom) (t ≤5 sec) (T_S)	260°C
Soldering Temperature at Iron Soldering (≥2 mm distance from case bottom) (t ≤3 sec) (T_S)	300°C
Total Power Dissipation (P_{TOT}) $T_{amb} \leq 25$°C	165 mW
Thermal Resistance (R_{THJA})	450 K/W

Characteristics (T_{amb}=25°C)

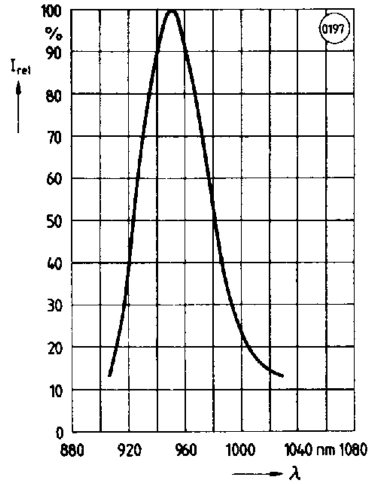
Parameter	Symbol		Unit
Wavelength at Peak Emission (I_F=100 mA, t_p=20 ms, t_{OFF}=180 ms)	λ_{PEAK}	950 ±20	nm
Spectral Bandwidth at 50% of I_{REL} (I_F=100 mA, t_p=20 ms)	Δλ	70	nm
Half Angle per Major Lobe	φ	8	Deg
Active Chip Area	A	0 09	mm²
Dimensions of Active Chip Area	L × W	0 3 × 0.3	mm²
Switching Times (I_E from 10% to 90%, I_F = 100 mA)	t_R, t_F	1	µs
Capacitance (V_R=0 V)	C_0	25	pF
Forward Voltage (I_F=100 mA)	V_F	1.35 (≤1 65)	V
(I_F=1 A, t_p=100 µs)	V_F	2 0 (≤2.7)	V
Breakdown Voltage (I_R=100 µA)	V_{BR}	30 (≥5)	V
Reverse Current (V_R=5 V)	I_R	0 01 (≤10)	µA
Temperature Coefficient of I_E or ϕ_E	T_C	-0 55	%/K
Temperature Coefficient of V_F	T_C	-1.5	mV/K
Temperature Coefficient of λ_{PEAK}	T_C	+0 3	nm/K
Radiant Intensity in Axial Direction at a Steradian Ω≥0 01 sr or 6 5 degrees (measured in direction of major lobes) (I_F=100 mA, t_p=20 ms)	I_E	8 (typ)	mW/sr
(I_F=1 A, t_p=100 µs)	I_E	60 (typ.)	mW/sr
Radiant Flux, Total (I_F=100 mA, t_p=20 ms)	ϕ_E	13 (typ)	mW

Infrared Emitters

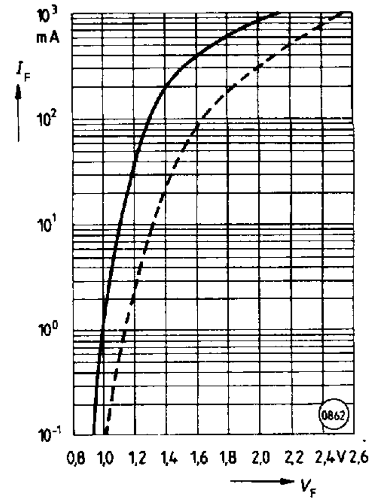
Radiation characteristic
Relative spectral emission
versus half angle



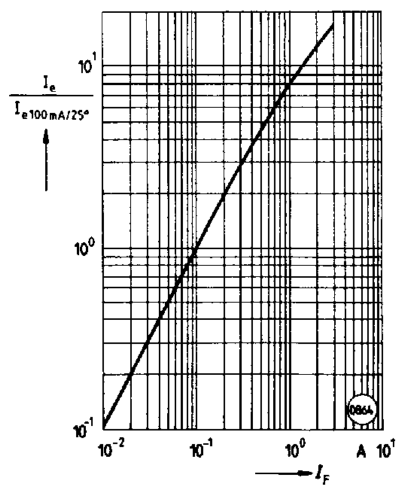
Relative spectral emission
versus wavelength



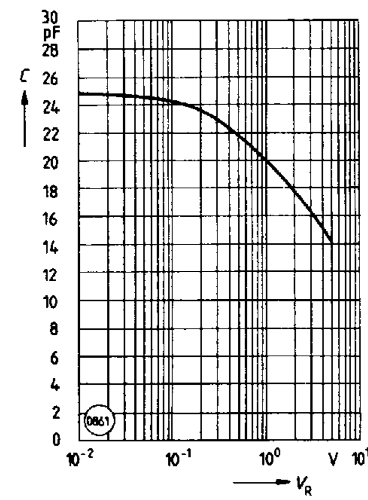
Forward current versus
forward voltage



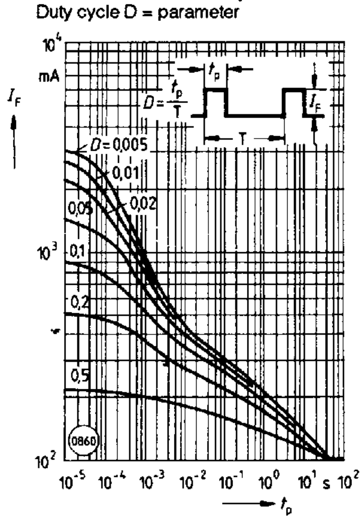
Radiant intensity versus
forward current
pulse width 5 µs, pulse spacing 5 ms



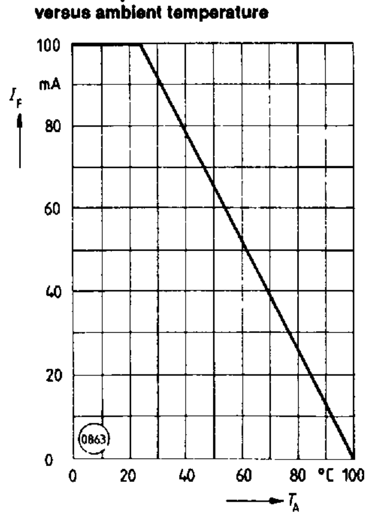
Capacitance versus reverse voltage



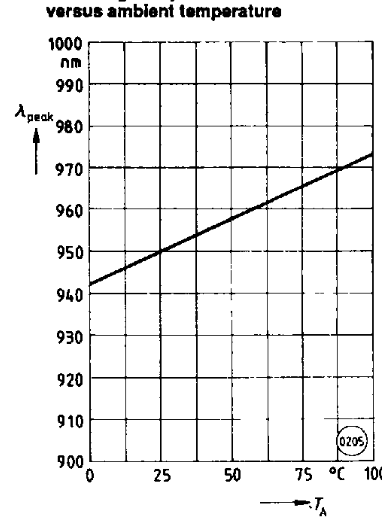
Permissible pulse handling capability
Forward current versus pulse width
Duty cycle D = parameter



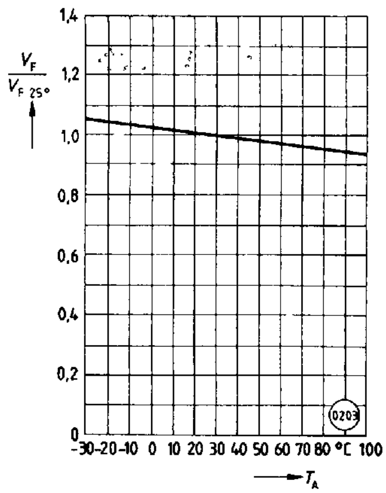
Maximum permissible forward current
versus ambient temperature



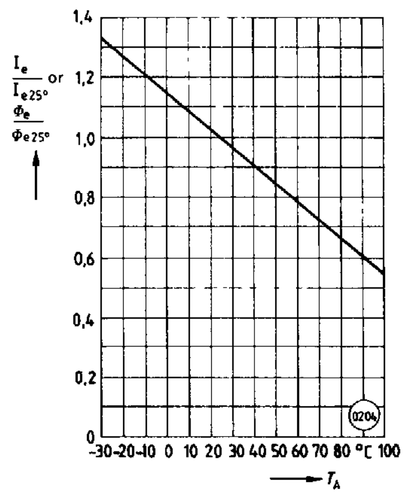
Wavelength at peak emission
versus ambient temperature



Forward voltage versus ambient temperature



Radiant intensity versus ambient temperature



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