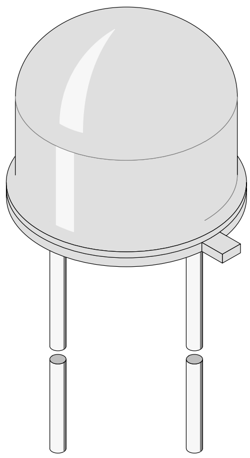
GaAs Infrared Emitting Diode with Metal Socket

Description

CQX19 is a high power GaAs infrared emitting diode in a special case, consisting of a solid metal TO–5 header with a molded clear plastic lens.
This allows the user to mount the device on a heatsink and thus reduce the thermal resistance to one tenth.
Unlike standard IR diodes, drive currents up to 250 mA DC or pulse currents up to 10 amps are possible.



Features

- Extremely high radiant power
- High loading capability in pulse operation
- Suitable for pulse operation till 10 A
- Metal base with waterclear plastic lens
- Angle of half intensity $\varphi = \pm 15°$
- Peak wavelength $\lambda_p = 950$ nm

Applications

Radiation source in near infrared range, i.e. remote control, light barrier and telecommunication

Absolute Maximum Ratings

$T_{amb} = 25°C$

Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	5	V
DC Forward Current		I_F	250	mA
Peak Forward Current	$t_p/T=0.001$, $t_p \leqq 20$ μs	I_{FM}	10	A
Power Dissipation		P_V	300	mW
Junction Temperature		T_j	100	°C
Storage Temperature Range		T_{stg}	–25...+85	°C
Thermal Resistance Junction/Ambient		R_{thJA}	250	K/W
Thermal Resistance Junction/Case		R_{thJC}	25	K/W

Basic Characteristics

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	I_F = 250 mA, $t_p \leqq$ 100 ms	V_F		1.2		V
Forward Voltage at Pulse Operation	I_F = 4 A	V_F		2.2	3	V
Breakdown Voltage	I_R = 100 μA	$V_{(BR)}$	5			V
Junction Capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		600		pF
Radiant Intensity	I_F = 250 mA, $t_p \leqq$ 100 ms	I_e		40		mW/sr
	I_F= 4A, t_p/T=0.0003, t_p=20μs	I_e	330	500		mW/sr
	I_F=10A, t_p/T=0.0003, t_p=20μs	I_e		1000		mW/sr
Radiant Power	I_F = 250 mA, $t_p \leqq$ 100 ms	ϕ_e		20		mW
	I_F=10A, t_p/T=0.0003, t_p=20μs	ϕ_e		500		mW
Temp. Coefficient of ϕ_e		$TK_{\phi e}$		–1		%/K
Angle of Half Intensity		φ		±15		deg
Peak Wavelength	I_F = 100 mA	λ_p		950		nm
Spectral Bandwidth	I_F = 100 mA	Δλ		50		nm
Rise Time	I_F=1.5A, t_p/T=0.01, $t_p \leqq$100μs	t_r		700		ns
Fall Time	I_F=1.5A, t_p/T=0.01, $t_p \leqq$100μs	t_f		830		ns

Typical Characteristics (T$_{amb}$ = 25°C unless otherwise specified)

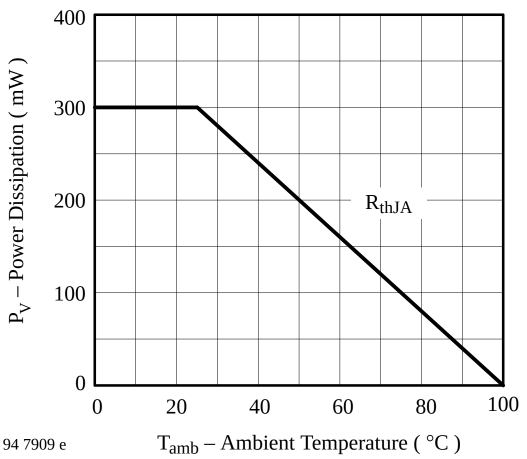


Figure 1. Power Dissipation vs. Ambient Temperature

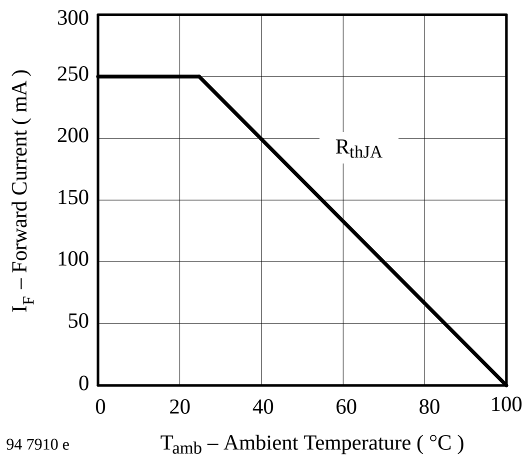


Figure 2. Forward Current vs. Ambient Temperature

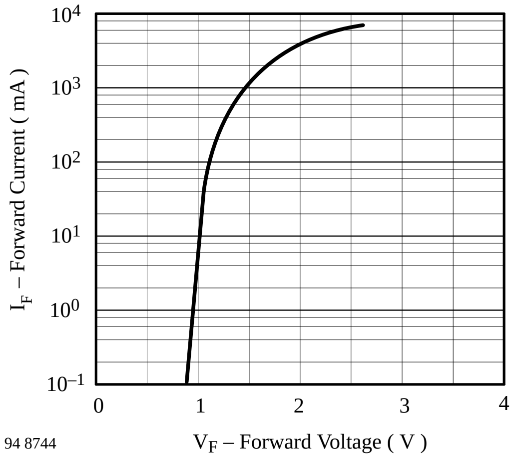


Figure 3. Forward Current vs. Forward Voltage

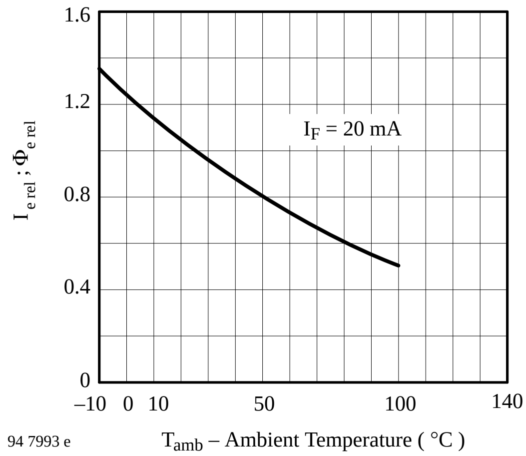


Figure 6. Rel. Radiant Intensity\Power vs. Ambient Temperature

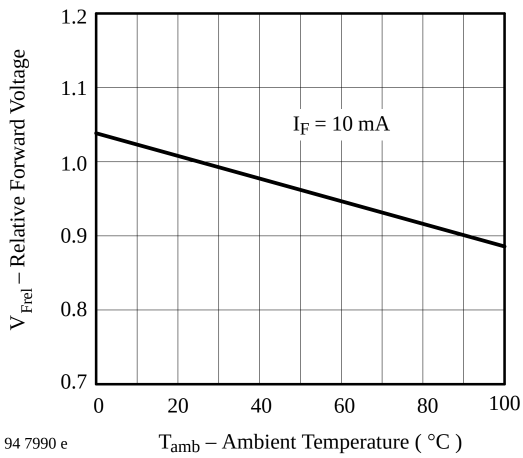


Figure 4. Relative Forward Voltage vs. Ambient Temperature

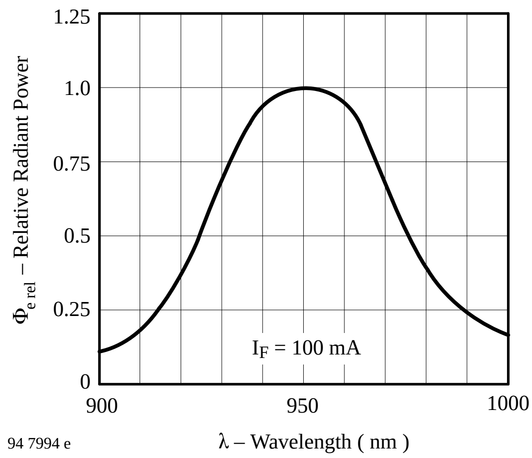


Figure 7. Relative Radiant Power vs. Wavelength

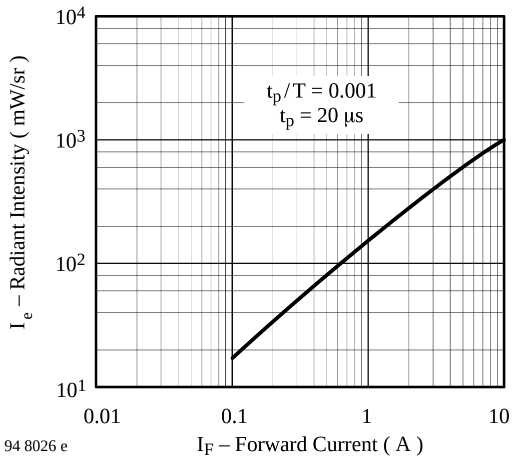


Figure 5. Radiant Intensity vs. Forward Current

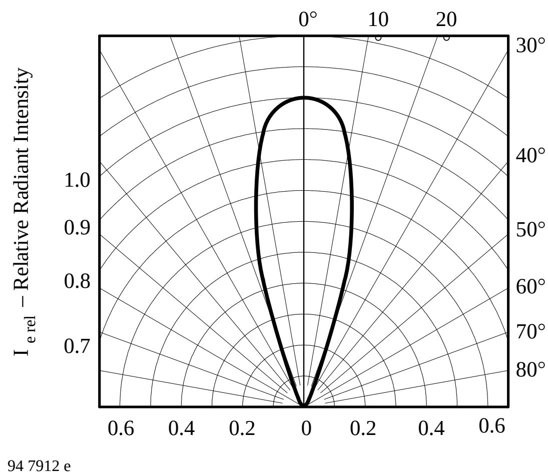


Figure 8. Relative Radiant Intensity vs. Angular Displacement

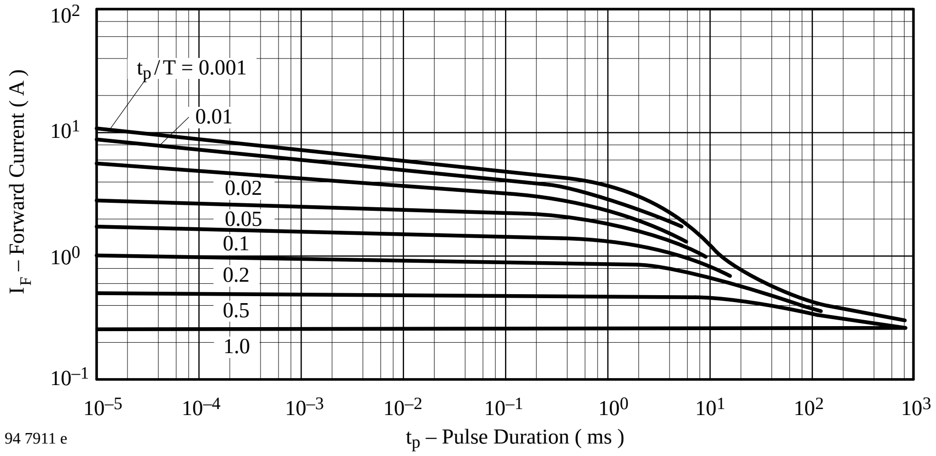
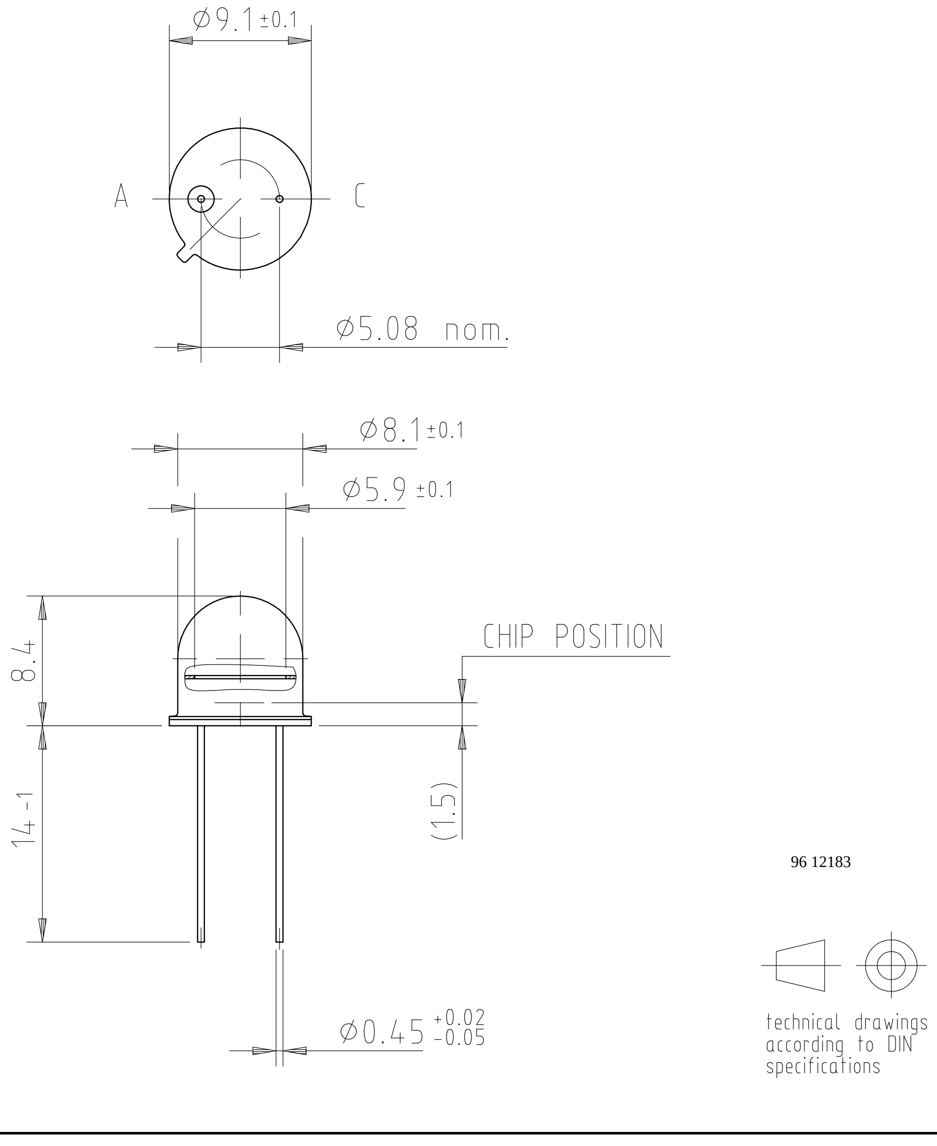


Figure 9. Pulse Forward Current vs. Pulse Duration

Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

TEMIC TELEFUNKEN microelectronic GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423