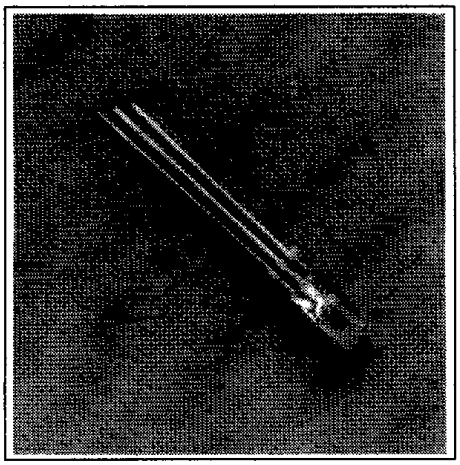
SIEMENS

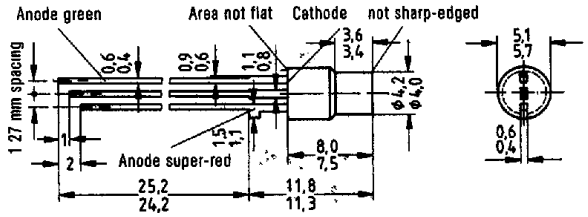
LU H370

TWO-COLOR, RED AND GREEN CYLINDER LED LAMP

T-41-25



Package Dimensions mm



Approx weight 0 4 g

LED Lamps

FEATURES

- **Cylinder Shape**
- **Colorless Clear, Partly Diffused Lens**
- **Two-Color Operation, Red and Green**
- **Three Leads, One of which is Common Cathode**
- **Minimum Lead Length 1″**
- **.05″ Lead Spacing**

DESCRIPTION

The LU H370 series has a colorless case with square, luminous area and a diffuser layer. Two chips (green and red) allow use as optical indicator with two functions.

Because of its very low current consumption and hence low inherent heating as well as high vibration resistance and long service life, this LED is suitable for applications where signal lamps are not or only inadequately useful. Moreover, the LED can be driven by TTL ICs.

Maximum Ratings

Reverse Voltage (V_R) ..... 5 V
Forward Current* (I_F) ..... 45 mA
Surge Current* (I_{FS}), t ≤ 10 µs ..... 1 A
Storage Temperature (T_{STG}) ..... -55°C to +100°C
Junction Temperature (T_J) ..... 100°C
Power Dissipation (P_{TOT}) T_A=25°C ..... 150 mW
Thermal Resistance Junction-to-Air (R_{THJA}) ..... 500 K/W

Characteristics (T_A=25°C)

Parameter	Symbol	Red	Green	Unit
Wavelength of the Emitted Light	λ_{PEAK}	635	565	nm
Dominant Wavelength	λ_{DOM}	628	567	nm
Viewing Angle (Limits for 50% of Luminous Intensity I_V, lateral emission of light screened)	φ	100	100	Deg.
Forward Voltage (I_F=10 mA)	V_F	2 0 (≤2 6)	2 0 (≤2.6)	V
Reverse Current (V_R=5 V)	I_R	0 01 (≤10)	0.01 (≤10)	µA
Rise Time	t_R	300	450	ns
Fall Time	t_F	150	200	ns
Capacitance (V_R=0 V, f=1 MHz)	C_0	12	15	pF

Luminous Intensity

Part Number	*Min.*	*Max.*	*Unit*	*Test Condition*
LU H370-FK	1	12.5	mcd	10 mA
LU H370-GL	0 63	8	mcd	10 mA
LU H370-GK	1 6	12.5	mcd	10 mA

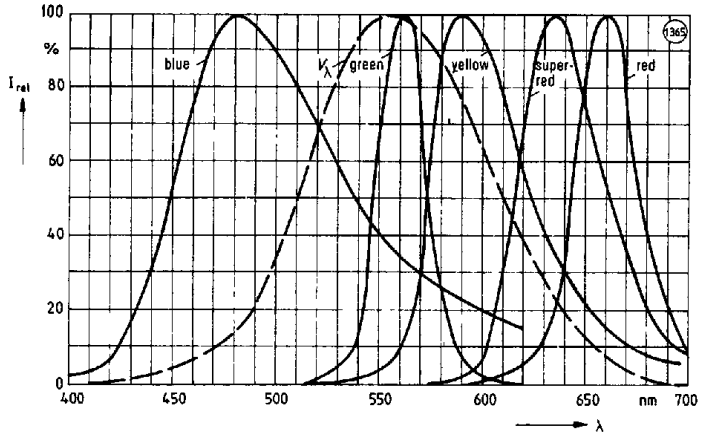
See graph numbers 1, 2G, 3A, 4A, 5A, 6A, 7A, 8, 9, 10 on pages 42 – 48

* The ratings indicated for the forward current I_F or the surge current I_{FS}, respectively, are maximum ratings of the component If both chips are operated simultaneously, the sum of the forward current ratings is not allowed to exceed the indicated maximum value

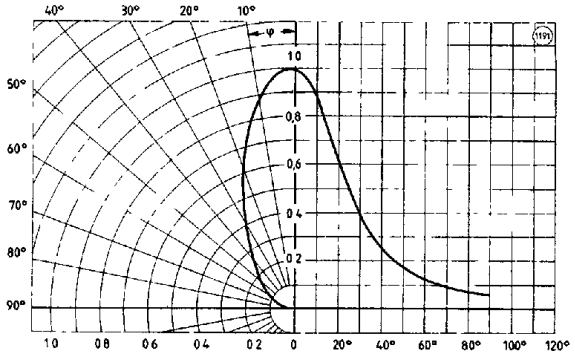
GRAPHS FOR LAMPS

T-91-01

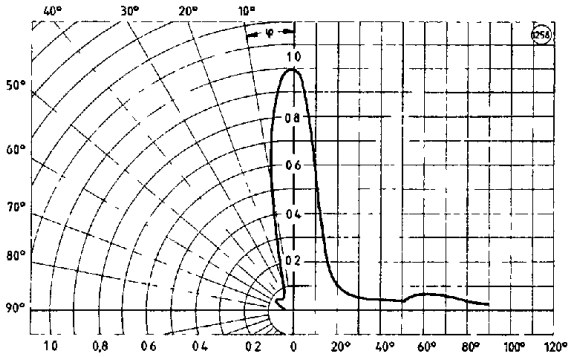
1.
Relative spectral emission versus wavelength
V_λ = standard eye response curve



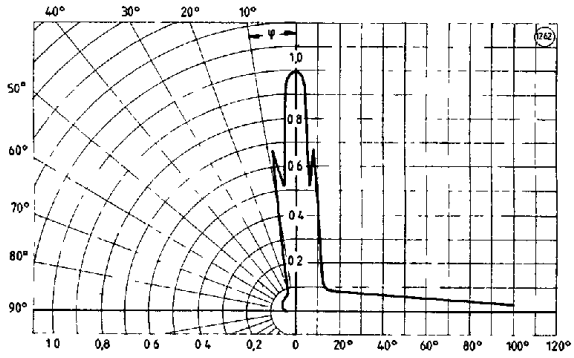
2A.
Radiation characteristic
Relative spectral emission versus half angle



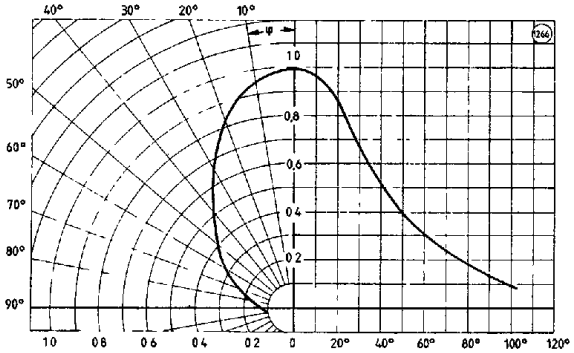
2B.
Radiation characteristic
Relative spectral emission versus half angle



2C.
Radiation characteristic
Relative spectral emission versus half angle



2D.
Radiation characteristic
Relative spectral emission versus half angle



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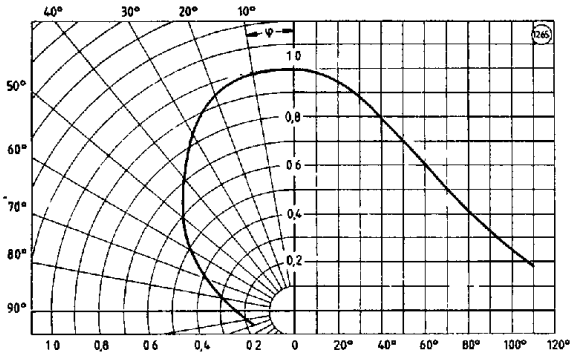
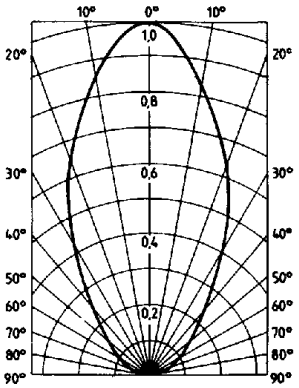
GRAPHS FOR LAMPS (*Cont.*)

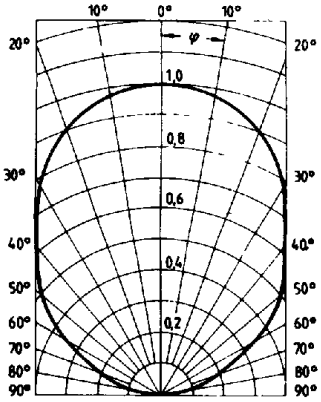
2E.
Radiation characteristic
Relative spectral emission versus half angle



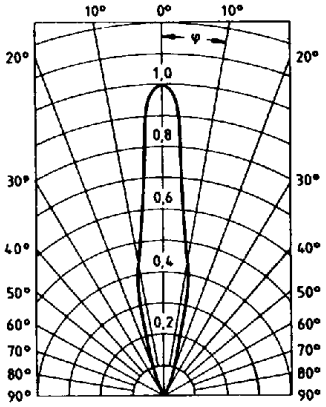
2F.
Radiation characteristic
$I_{REL}=f(\varphi)$



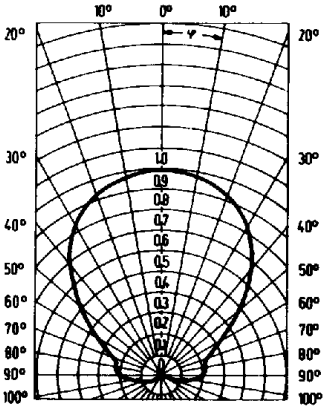
2G.
Radiation characteristic
$I_{REL}=f(\varphi)$



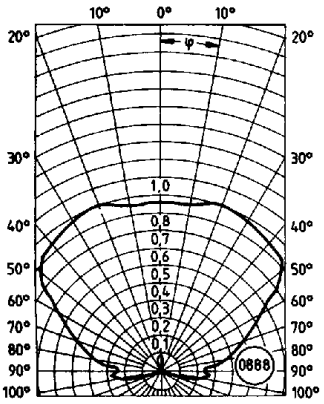
2H.
Radiation characteristic
Relative spectral emission vs. half angle



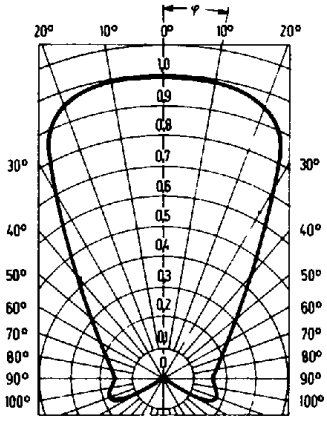
2I.
Radiation characteristic
$I_{REL}=f(\varphi)$



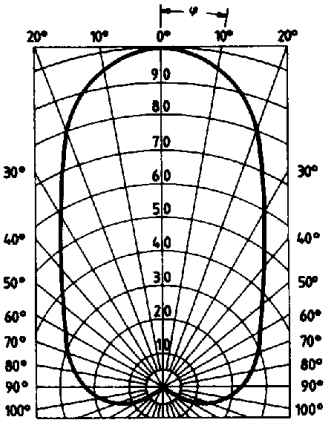
2J.
Radiation characteristic
$I_{REL}=f(\varphi)$



2K.
Radiation characteristic
Relative spectral emission vs. half angle



2L.
Radiation characteristic
Relative spectral emission vs. half angle



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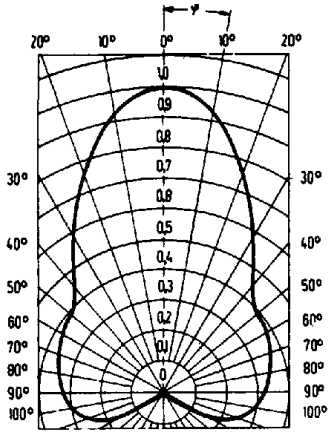
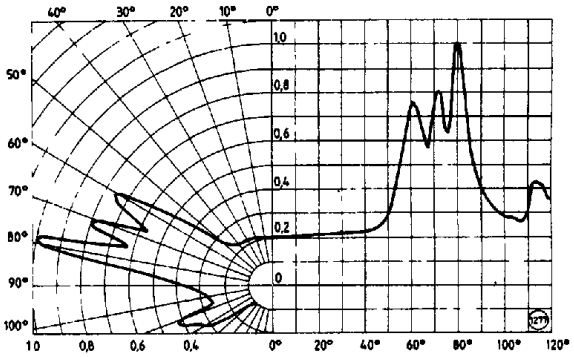
GRAPHS FOR LAMPS (*Cont.*)

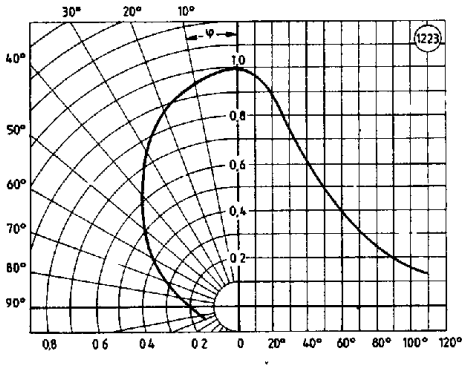
2M.
Radiation characteristic
Relative spectral emission vs. half angle



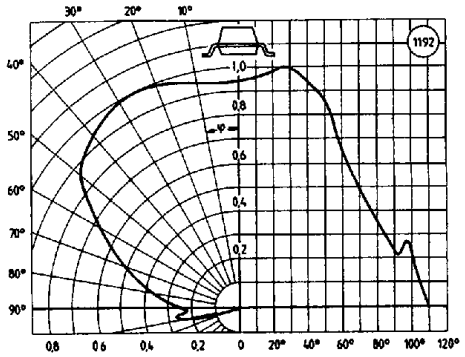
2N.
Radiation characteristic
Relative spectral emission vs. half angle



2O.
Radiation characteristic
Relative spectral emission vs. half angle



2P.
Radiation characteristic
Relative spectral emission vs. half angle



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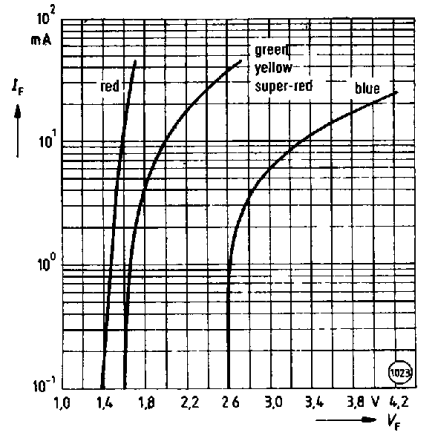
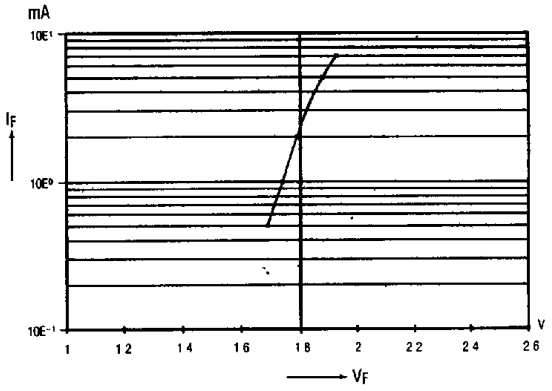
GRAPHS FOR LAMPS (*Cont.*)

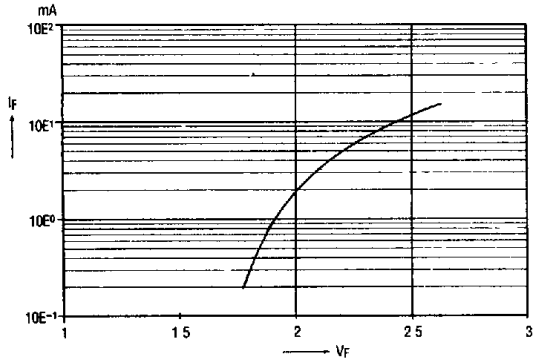
3A.
Forward current versus forward voltage



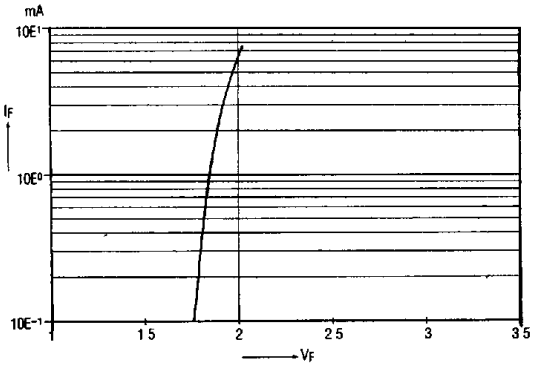
3B.
Forward current versus forward voltage $I_F=f(V_F)$
Super-Red



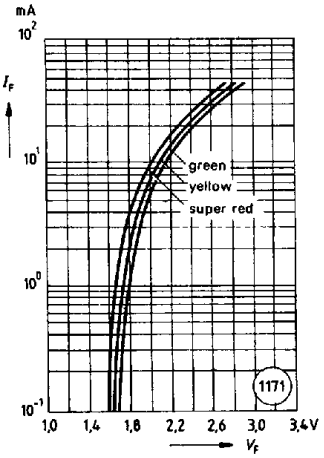
3C.
Forward current versus forward voltage $I_F=f(V_F)$
Yellow



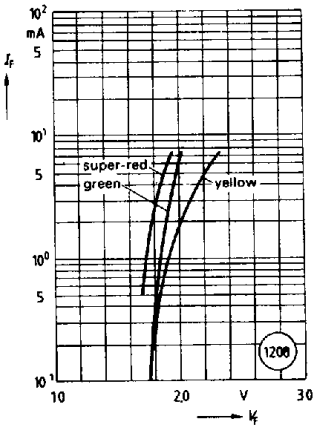
3D.
Forward current versus forward voltage $I_F=f(V_F)$
Green



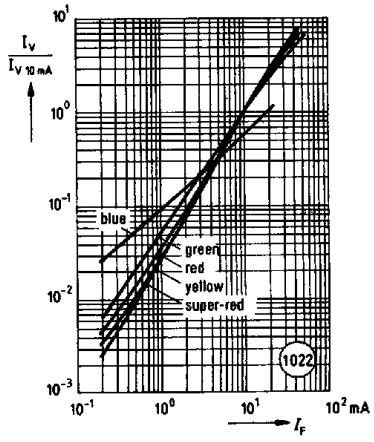
3E.
Forward current versus forward voltage



3F.
Forward current versus forward voltage



4A.
Relative luminous intensity versus forward current



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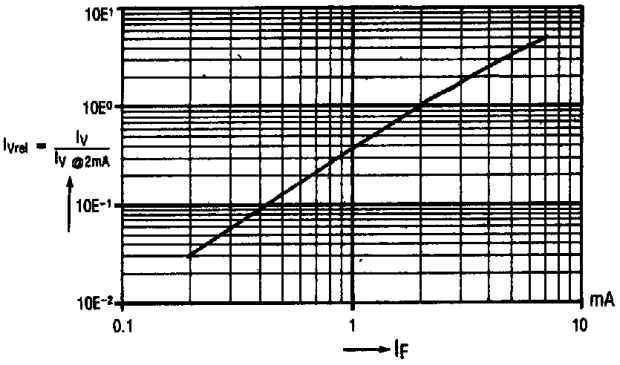
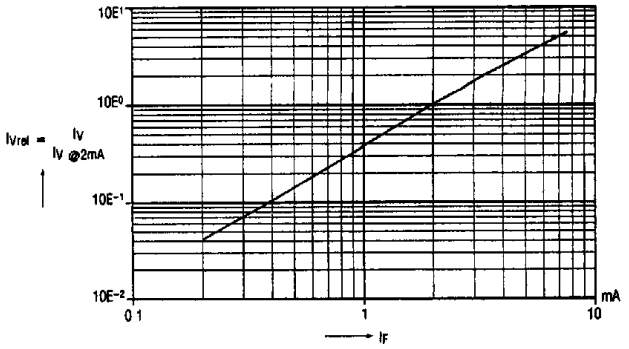
GRAPHS FOR LAMPS (*Cont.*)

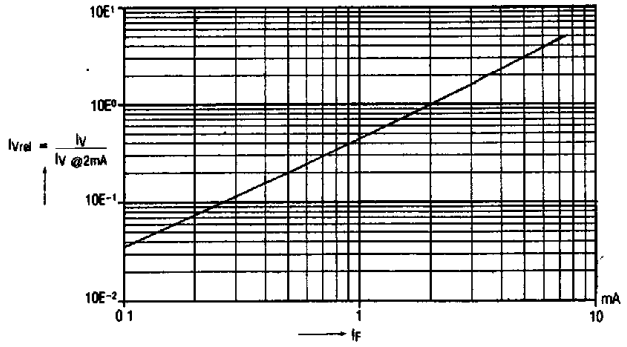
4B.
Relative luminous intensity versus forward current $I_{Vrel}=f(I_F)$
Super-Red



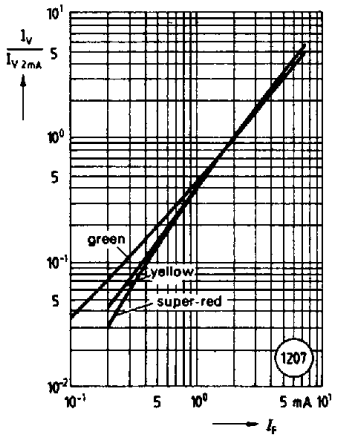
4C.
Relative luminous intensity versus forward current $I_{Vrel}=f(I_F)$
Yellow



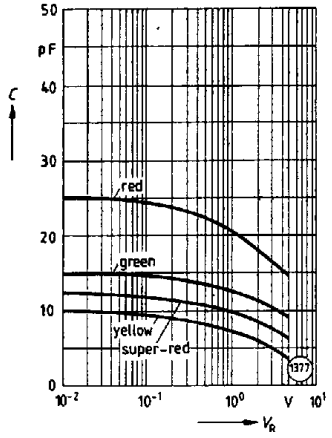
4D.
Relative luminous intensity versus forward current $I_{Vrel}=f(I_F)$
Green



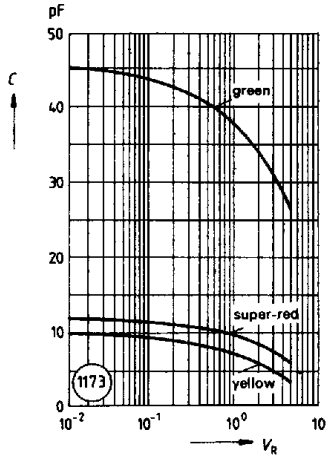
4E.
Relative luminous intensity versus forward current



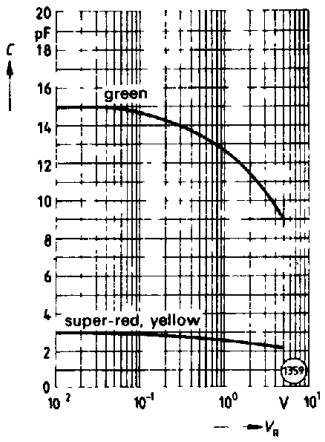
5A.
Capacitance $C=f(V_R)$



5B.
Capacitance versus reverse voltage



5C.
Capacitance versus reverse voltage



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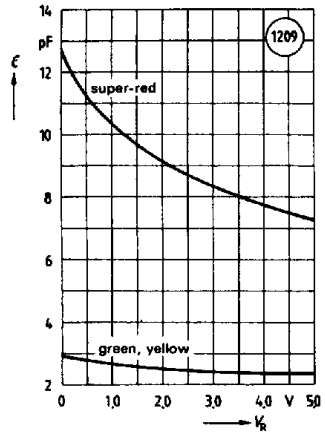
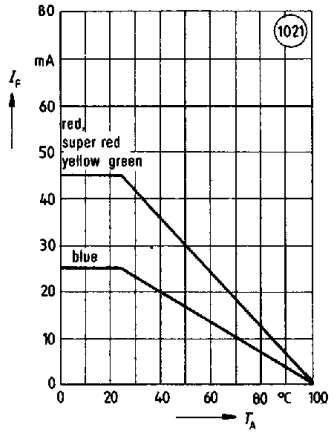
GRAPHS FOR LAMPS (*Cont.*)

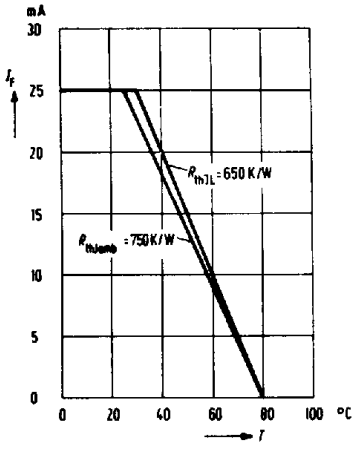
5D.
Capacitance versus reverse voltage



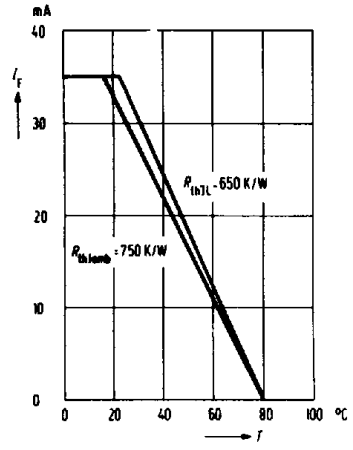
6A.
Maximum permissible forward current versus ambient temperature



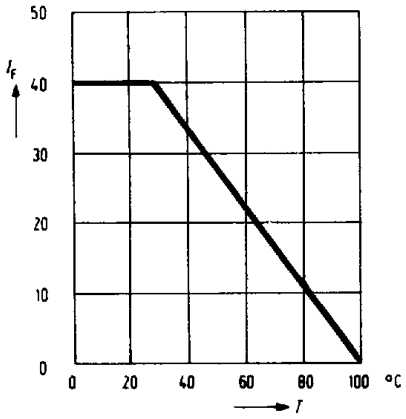
6B.
Maximum permissible forward current
$I_F = f(T)$



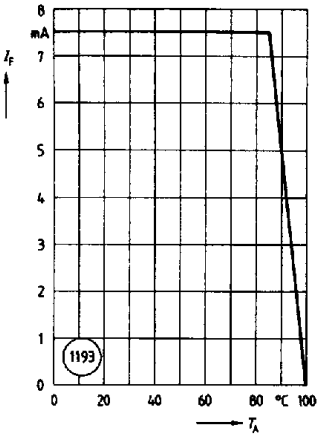
6C.
Maximum permissible forward current
$I_F = f(T)$



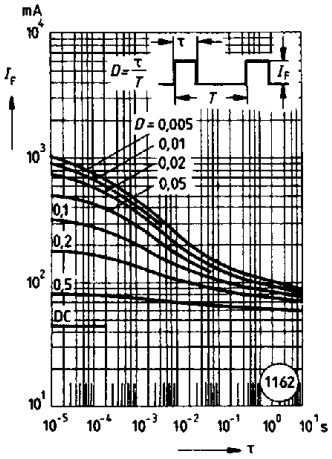
6D.
Maximum permissible forward current
$I_F = f(T)$



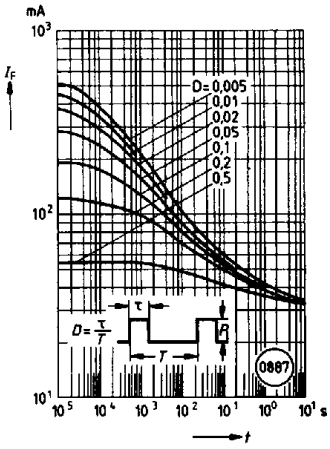
6E.
Maximum permissible forward current versus ambient temperature



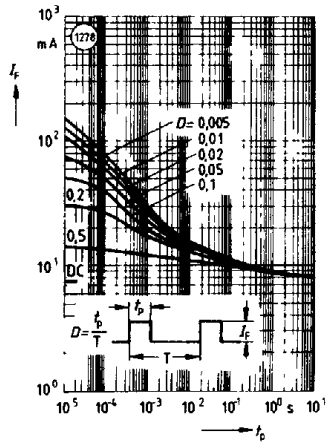
7A.
Permissible pulse handling capability
Forward current versus pulse width
Duty cycle D = parameter (T_A=25°C)



7B.
Permanent pulse handling capability $I_F = f(T)$
Duty cycle D = parameter (T_A=25°C)



7C.
Permissible pulse handling capability
Forward current versus cycle duration
Duty cycle D = parameter (T_A=25°C)



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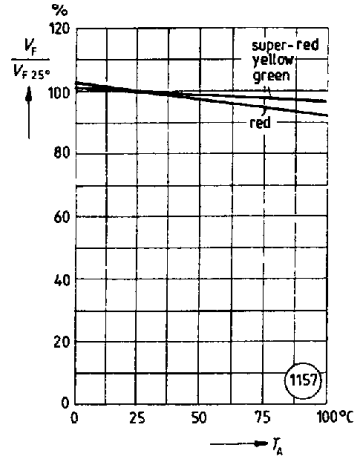
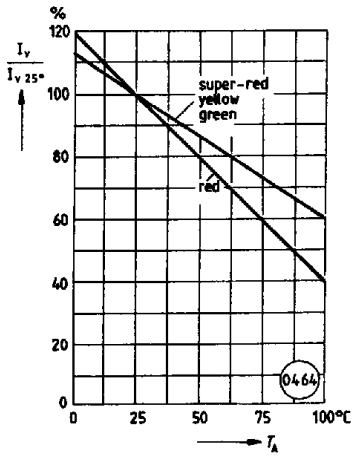
GRAPHS FOR LAMPS (*Cont.*)

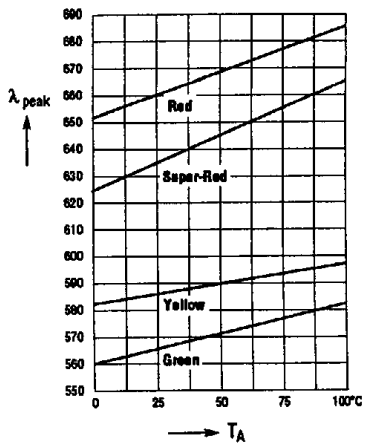
8.
Forward voltage versus ambient temperature



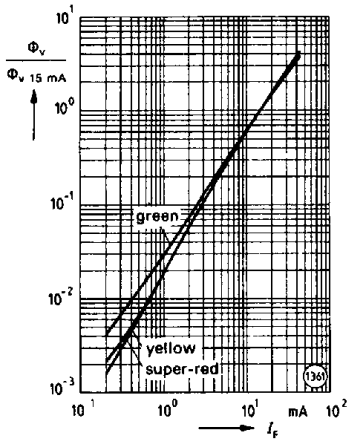
9.
Luminous intensity versus ambient temperature



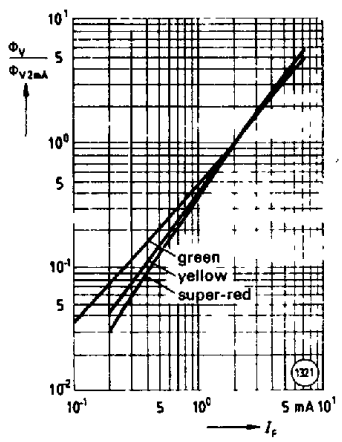
10.
Wavelength of peak emission versus ambient temperature



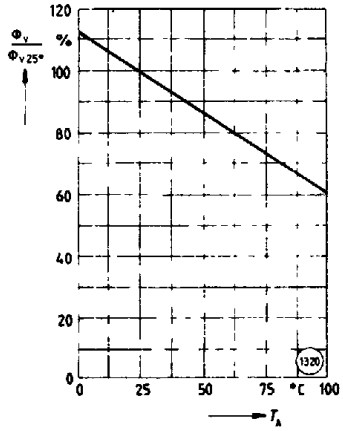
11A.
Relative luminous flux versus forward current



11B.
Relative luminous flux versus forward current



12.
Luminous flux versus ambient temperature



Optocouplers for safe electrical isolation in acc. with VDE 0884

Option 1

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This coupler is suitable for safe electrical isolation **only** within the safety maximum ratings. The compliance with the safety maximum ratings must be ensured by protective circuits.

The partial discharge measurement ensures that no partial discharge occurs during operation at maximum permissible operating isolation voltage (V_{IORM}). Permanent partial discharge affects the insulating materials and can result in a high-voltage breakdown.

It is recommended that tests with the isolation test voltage (V_{ISOL}) should not be made. Otherwise, partial discharges may occur impairing the isolation characteristics. Thus, partial discharges may also occur at the maximum permissible operating isolation voltage.

The isolation test in acc. with VDE 0884 is carried out after all the other high-voltage tests.

Isolation Characteristics

Description	Symbol	Characteristics	Unit
Installation category (DIN VDE 0109, Dec. 83, table 1) for rated line voltages ≤ 300 V_{rms} for rated line voltages ≤ 600 V_{rms}		 I - IV I - III	
IEC climatic category (DIN IEC 68 part 1/09.80)		55/150/21	
Pollution degree (DIN VDE 0109 Dec. 83)		2	
Max. operating isolation voltage	V_{IORM}	630	V
Test voltage input/output, procedure b) [1] $V_{Pr} = 1.6 \times V_{IORM}$, sample test with $t_P = 1s$ Partial discharge < 5 pC	V_{Pr}	1000	V
Test voltage input/output, procedure a) [1] $V_{Pr} = 1.2 \times V_{IORM}$, type and sampling test with $t_P = 60$ s, partial discharge < 5 pC	V_{Pr}	720	V
Maximum permissible overvoltage [1] (transient overvoltage, $t_{Tr} = 10s$, procedure a)	V_{Tr}	6000	V
Safety maximum ratings (max. permissible ratings in case of a fault, also refer to diagram) Package temperature Current (Input current I_F, $P_{si} = 0$) Power (Output or total power dissipation)	 T_{si} I_{si} P_{si}	 175 400 700	 °C mA mW
Isolation resistance at T_{si} $V_{I/O}$ = 500 V	R_{IS}	≥ 10^9	Ω

All voltages referred to are peak values.

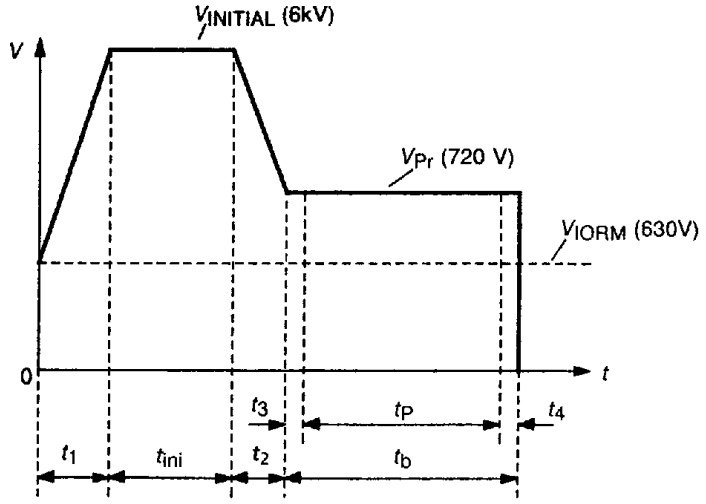
[1] see time - test voltage diagram

Time - test voltage diagram in acc. with VDE 0884

Procedure a)

(for type and sampling tests, destructive tests)

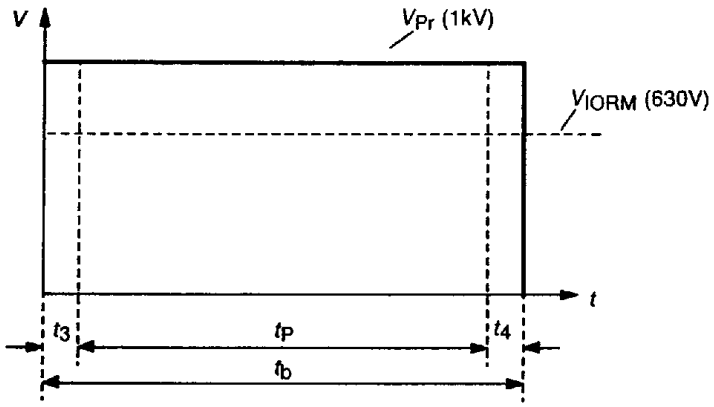
t_1 , t_2 = 1 to 10 s
t_3 , t_4 = 1 s
t_P (Measuring time for partial discharge) = 60 s
t_b = 62 s
t_{ini} = 10 s



Procedure b)

(for sample test, non-destructive test)

t_3 , t_4 = 0.1 s
t_P (Measuring time for partial discharge) = 1 s
t_b = 1.2 s



Dependence of safety maximum ratings on ambient temperature