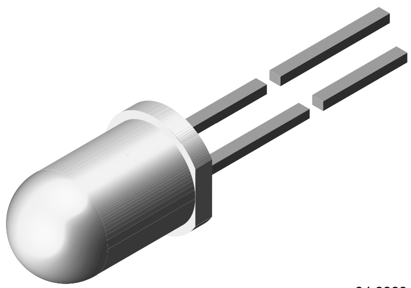
High Power Infrared Emitting Diode, 890 nm, GaAlAs / Double Hetero



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DESCRIPTION

TSPF6200 is an infrared, 890 nm emitting diode in GaAlAs / double hetero (DH) technology with high radiant power, high speed, and with typical receiving characteristics, TSPF6200 is molded in a blue gray tinted plastic package.

FEATURES

- Package type: leaded
- Package form: T-1¾
- Dimensions (in mm): Ø 5
- Peak wavelength: λ_p = 890 nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: φ = ± 22°
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

APPLICATIONS

- Metering systems

PRODUCT SUMMARY				
COMPONENT	I_e (mW/sr)	φ (°)	λ_p (nm)	t_r (ns)
TSPF6200	55	± 22	890	50

Note

- Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSPF6200	Bulk	MOQ: 3000 pcs, 3000 pcs/bulk	T-1¾

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	t_p/T = 0.5, t_p = 100 μs	I_{FM}	200	mA
Surge forward current	t_p = 100 μs	I_{FSM}	1.5	A
Power dissipation		P_V	170	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	-40 to +85	°C
Storage temperature range		T_{stg}	-40 to +100	°C
Soldering temperature	t ≤ 5 s, 2 mm from case	T_{sd}	260	°C
Thermal resistance junctionto ambient	J-STD-051, leads 7 mm soldered on PCB	R_{thJA}	230	K/W

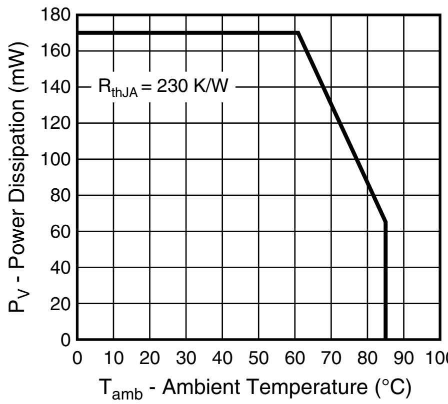


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

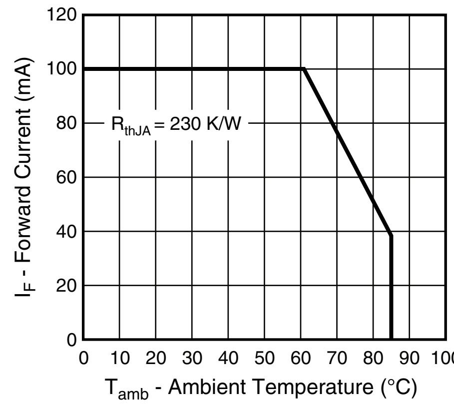


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 100 mA, t_p = 20 ms	V_F	-	1.42	1.7	V
	I_F = 1 A, t_p = 100 μs	V_F	-	3.0	-	V
Temperature coefficient of V_F	I_F = 100 mA	TK_{VF}	-	-1.7	-	mV/K
Reverse current	V_R = 5 V	I_R	-		100	nA
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j	-	160	-	pF
Radiant intensity	I_F = 100 mA, t_p = 20 ms	I_e	30	55	90	mW/sr
	I_F = 1 A, t_p = 100 μs	I_e	-	520	-	mW/sr
Short circuit current	E_e = 1 mW/cm², λ = 870 nm	I_k	-	10	-	μA
Open circuit voltage	E_e = 1 mW/cm², λ = 870 nm	V_0	-	1.0	-	V
Reverse light current	E_e = 1 mW/cm², λ = 870 nm, V_R = 5 V	I_{ra}	-	10	-	μA
Radiant power	I_F = 100 mA, t_p = 20 ms	ϕ_e	-	40	-	mW
Temperature coefficient of ϕ_e	I_F = 100 mA	$TK\phi_e$	-	-0.35	-	%/K
Angle of half intensity		φ	-	± 22	-	°
Peak wavelength	I_F = 100 mA	λ_p	870	890	910	nm
Spectral bandwidth	I_F = 100 mA	Δλ	-	40	-	nm
Temperature coefficient of λ_p	I_F = 100 mA	$TK\lambda_p$	-	0.25	-	nm/K
Rise time	I_F = 100 mA	t_r	-	50	-	ns
Fall time	I_F = 100 mA	t_f	-	50	-	ns

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

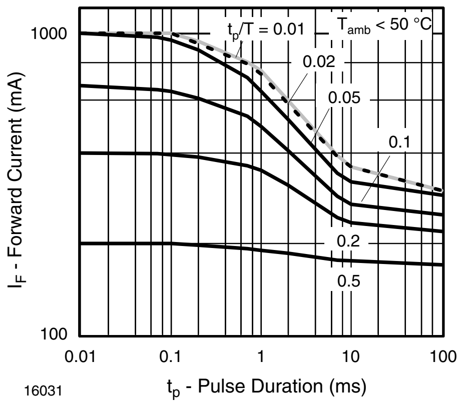


Fig. 3 - Pulse Forward Current vs. Pulse Duration

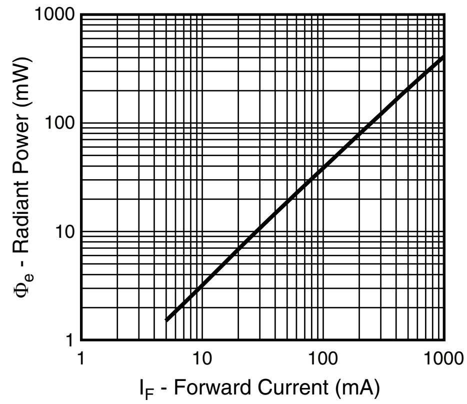


Fig. 6 - Radiant Power vs. Forward Current

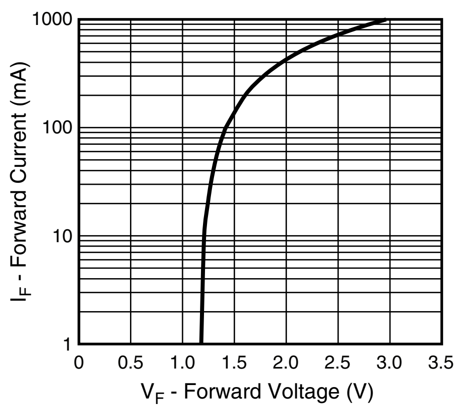


Fig. 4 - Forward Current vs. Forward Voltage

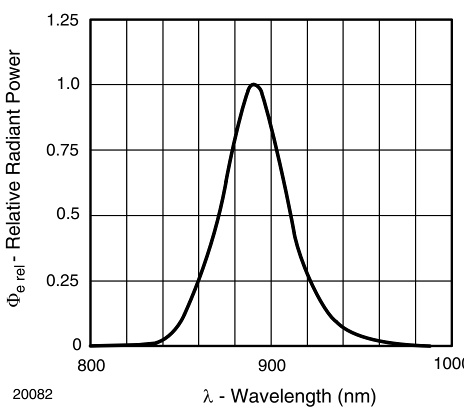


Fig. 7 - Relative Radiant Intensity / Power vs. Wavelength

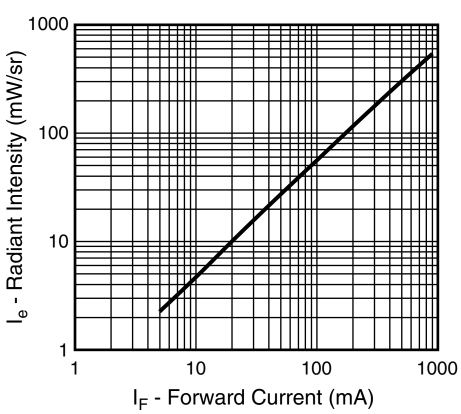


Fig. 5 - Radiant Intensity vs. Forward Current

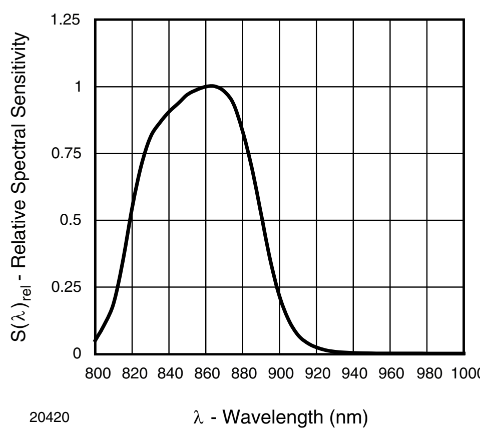


Fig. 8 - Relative Spectral Sensitivity vs. Wavelength

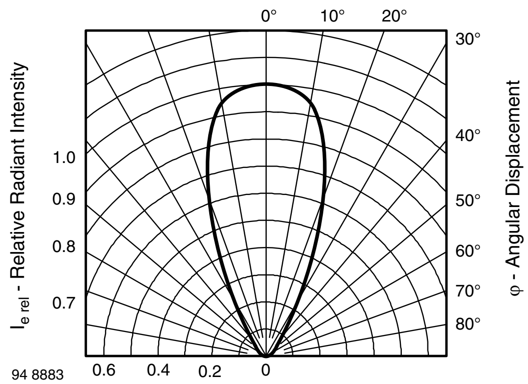
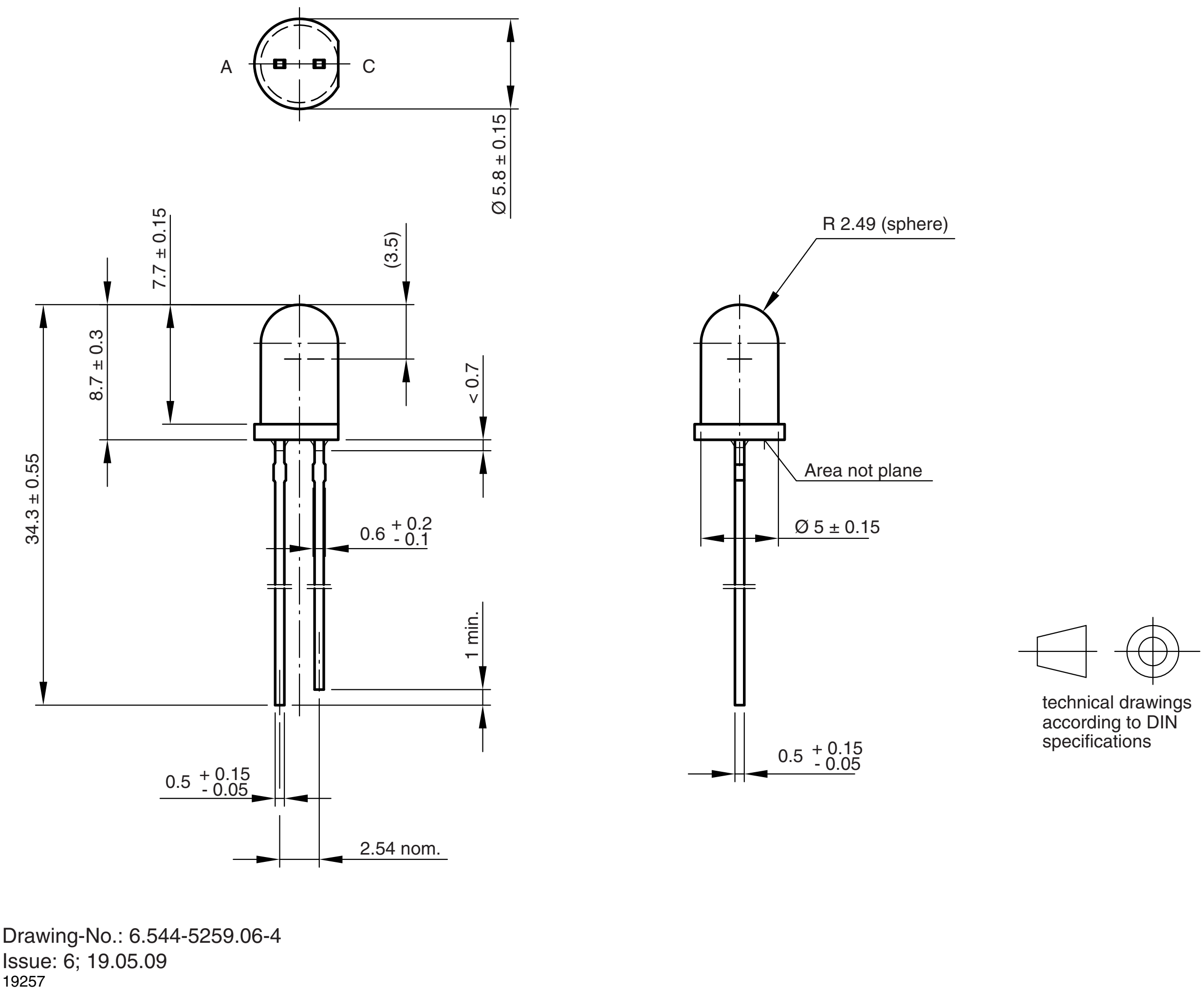


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



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