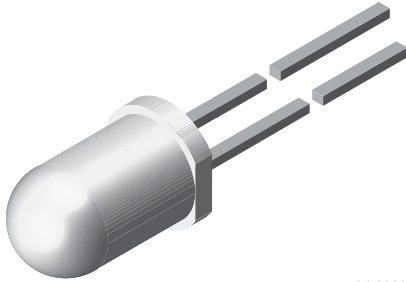


High Power Infrared Emitting Diode, 890 nm, GaAlAs / Double Hetero



94 8389

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-1 $\frac{3}{4}$
- Dimensions (in mm): \varnothing 5
- Peak wavelength: $\lambda_p = 890$ nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\varphi = \pm 22^\circ$
- 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



APPLICATIONS

- Metering systems

PRODUCT SUMMARY

COMPONENT	I_e (mW/sr)	φ (deg)	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-1 $\frac{3}{4}$

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25$ °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	$t_p/T = 0.5, t_p = 100$ μ s	I_{FM}	200	mA
Surge forward current	$t_p = 100$ μ s	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	$t \leq 5$ s, 2 mm from case	T_{sd}	260	°C
Thermal resistance junction / ambient	J-STD-051, leads 7 mm soldered on PCB	R_{thJA}	230	K/W

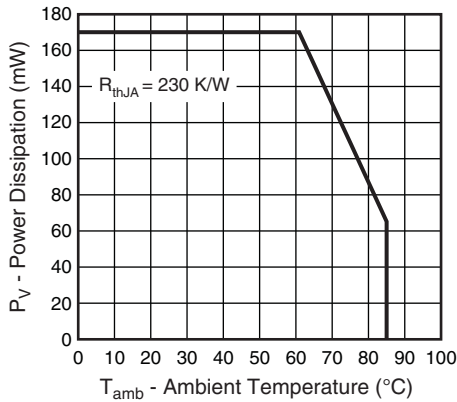


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

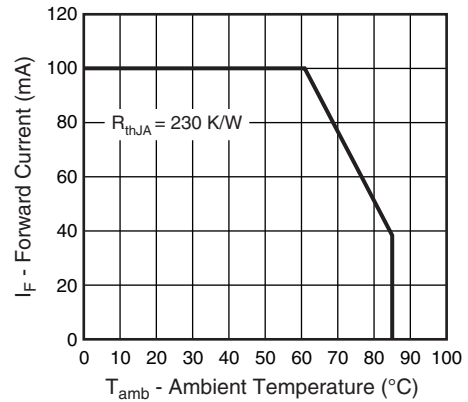


Fig. 2 - Forward Current Limit vs. Ambient Temperature

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 _{V_F}	-	-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/cm ² , λ = 870 nm	I _k	-	10	-	μA
Open circuit voltage	E _e = 1 mW/cm ² , λ = 870 nm	V ₀	-	1.0	-	V
Reverse light current	E _e = 1 mW/cm ² , 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	TKφ _e	-	-0.35	-	%/K
Angle of half intensity		φ	-	± 22	-	deg
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	TKλ _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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

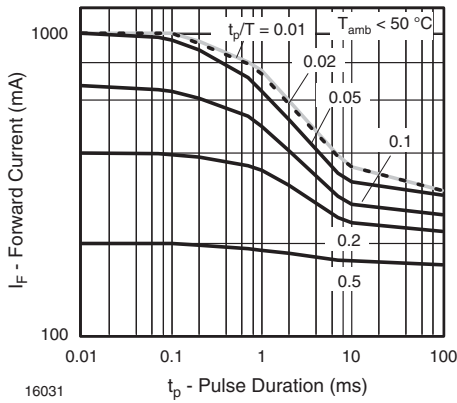


Fig. 3 - Pulse Forward Current vs. Pulse Duration

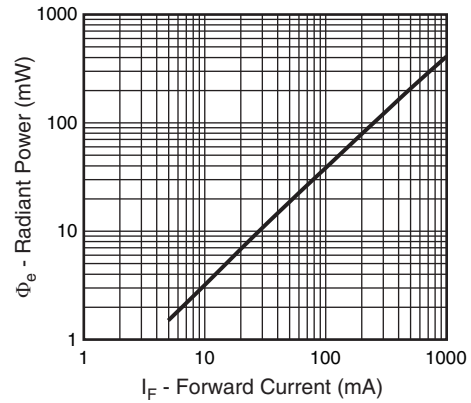


Fig. 6 - Radiant Power vs. Forward Current

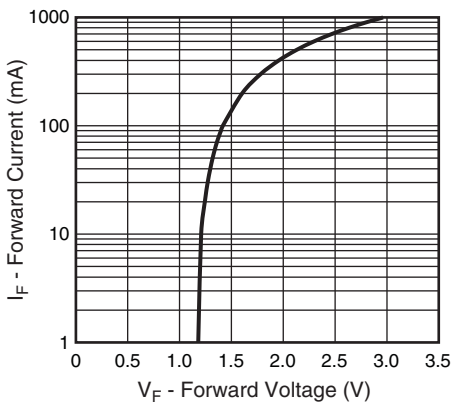


Fig. 4 - Forward Current vs. Forward Voltage

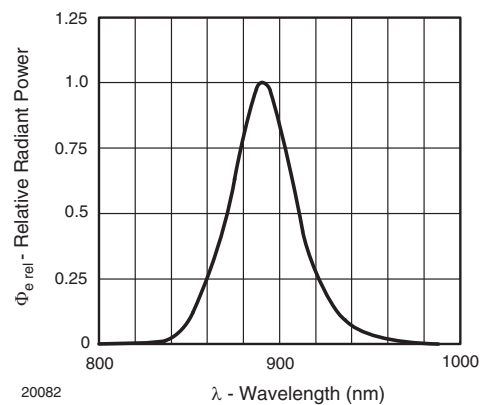


Fig. 7 - Relative Radiant Intensity / Power vs. Wavelength

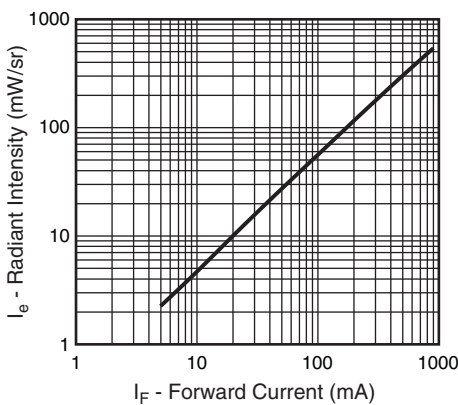


Fig. 5 - Radiant Intensity vs. Forward Current

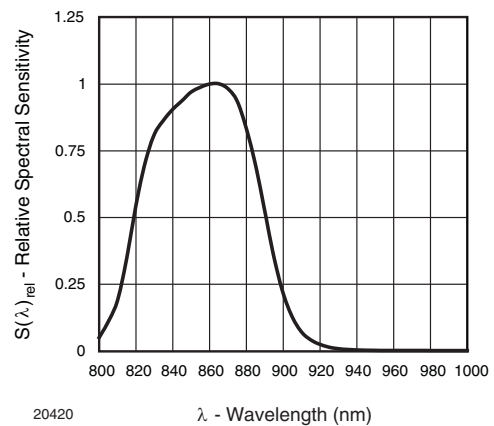


Fig. 8 - Relative Spectral Sensitivity vs. Wavelength

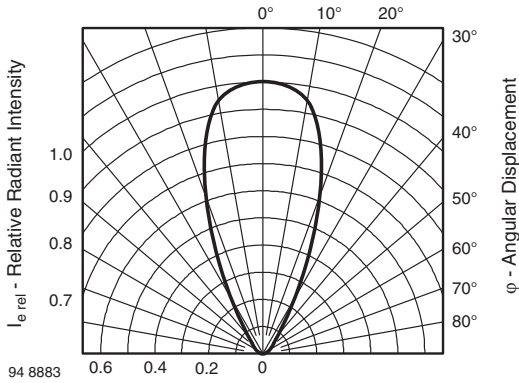
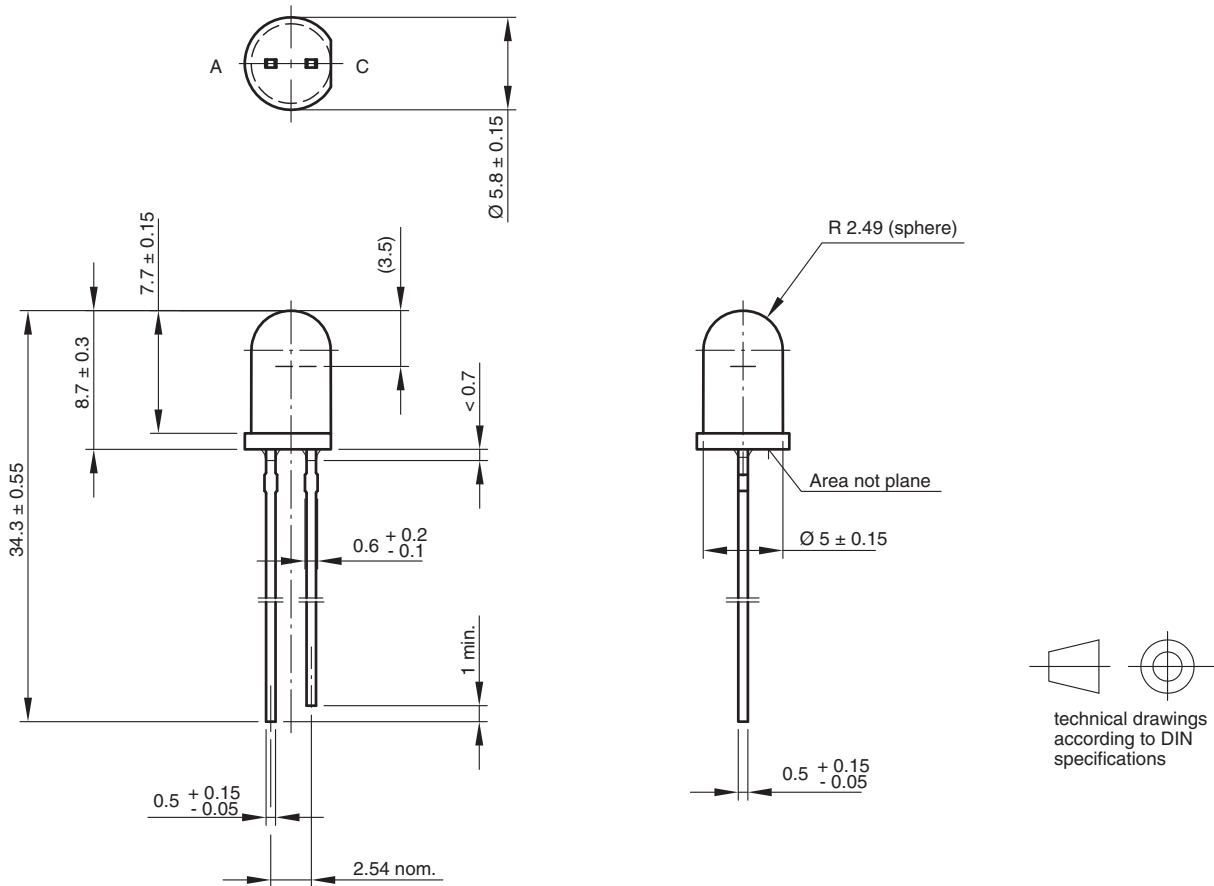


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



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