

Hi Power IR Emitting Diode

Description

EIR305 is a high efficiency infrared emitting diode in AlGaAs/GaAs technology, molded in Ø5 mm LED epoxy package. In comparison with the infrared emitting diode in tradition technology, EIR305 achieves more than 100% radiant power improvement at a similar wavelength.

Features

- Extra high radiant power and radiant intensity
- High reliability
- Peak wavelength $\lambda_p = 940\text{nm}$
- Good spectral matching to Si photo detectors

Applications

- Infrared remote control units with long operating range 35M
- IR transmitter for TV, AV and home appliances
- IR source for optical sensing & smoke detectors

Absolute Maximum Ratings

$T_{amb}=25^{\circ}\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	5	V
Forward Current		I_F	100	mA
Surge Forward Current	$t_p=100\mu\text{s}$	I_{FSM}	1.5	A
Power Dissipation		P_D	210	mW
Operating Temperature Range		T_{amb}	-25...+85	$^{\circ}\text{C}$
Storage Temperature Range		T_{stg}	-40...+100	$^{\circ}\text{C}$
Soldering Temperature	$t \leq 5\text{sec}$, 2mm from case	T_{sd}	260	$^{\circ}\text{C}$

Basic Characteristics

$T_{amb}=25^{\circ}\text{C}$

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	$I_F=100\text{mA}$, $t_p=20\text{ms}$	V_F		1.35	1.65	V
Reverse Current	$V_R=5\text{V}$	I_R			10	μA
Junction Capacitance	$V_R=0$, $f=1\text{MHz}$, $E=0$	C_j		25		pF
Radiant Intensity	$I_F=100\text{mA}$, $t_p=20\text{ms}$	I_e	45	65		mW/sr
Radiant Power	$I_F=100\text{mA}$, $t_p=20\text{ms}$	Φ_e		35		mW
Angle of Half Intensity		ϕ		± 17		deg
Peak Wavelength	$I_F=50\text{mA}$	λ_p		940		nm
Spectral Bandwidth	$I_F=50\text{mA}$	$\Delta\lambda$		50		nm

Typical Characteristics ($T_{amb}=25^{\circ}\text{C}$ unless otherwise specified)

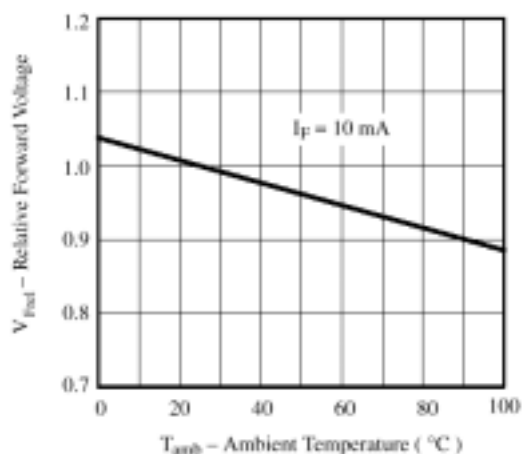


Figure 1. Relative Forward Voltage vs. Ambient Temperature

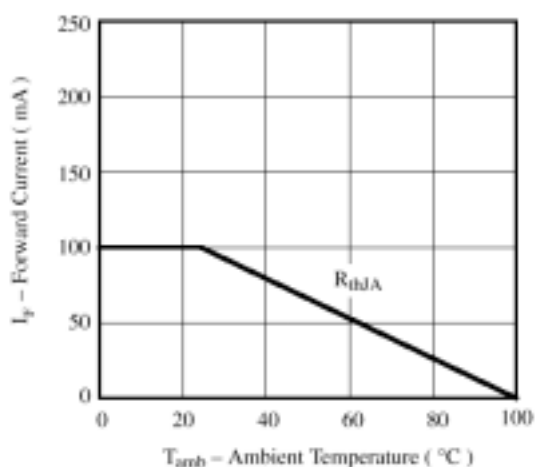


Figure 2. Forward Current vs. Ambient Temperature

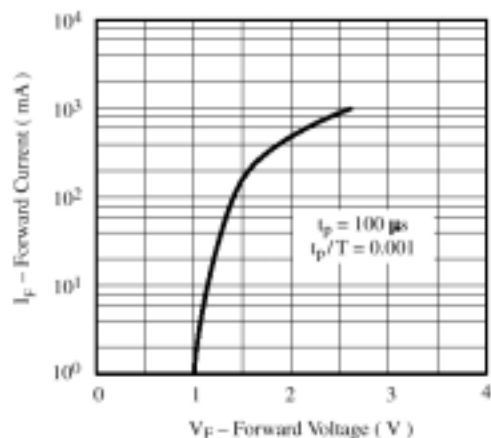


Figure 3. Forward Current vs. Forward Voltage

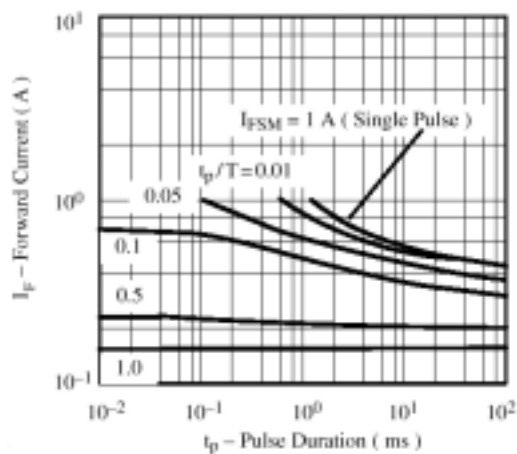


Figure 4. Pulse Forward Current vs. Pulse Duration

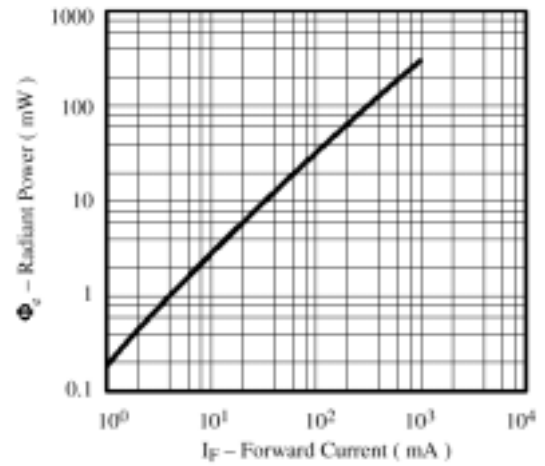


Figure 6. Radiant Power vs. Forward Current

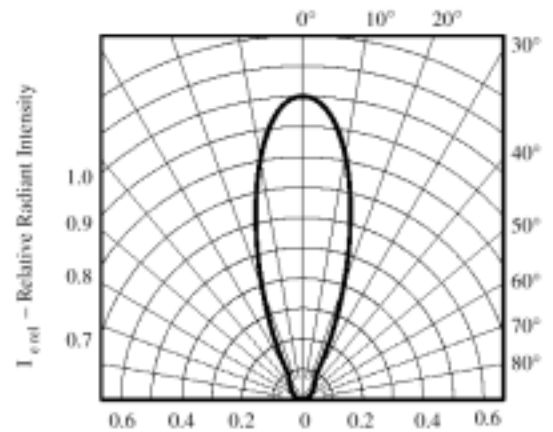


Figure 8. Relative Radiant Intensity vs. Angular Displacement

Mold in clear epoxy package

