

327 335/347

Infrared Emitter

LED55B, LED55C, LED56, LED55BF, LED55CF, LED56F

Gallium Arsenide Infrared-Emitting Diode

The GE Solid State LED55B-LED55C-LED56 Series are gallium arsenide, light emitting diodes which emit non-coherent, infrared energy with a peak wave length of 940 nanometers. They are ideally suited for use with silicon detectors. The LED55B, LED55C and LED56 devices have a lens which provides a narrow beam angle while the "F" versions have a flat window for a wide beam angle which is useful with external lensing.

absolute maximum ratings: (25°C unless otherwise specified)

Voltage:

Reverse Voltage V_R 3 volts

Currents:

Forward Current Continuous I_F 100 mA

Forward Current (pw 1 μ sec 200 Hz) I_F 10 A

Dissipations:

Power Dissipation ($T_A = 25^\circ\text{C}$)* P_T 170 mW

Power Dissipation ($T_C = 25^\circ\text{C}$)** P_T 1.3 W

Temperatures:

Junction Temperature T_J -65°C to +150°C

Storage Temperature T_{STG} -65°C to +150°C

Lead Soldering Time 10 seconds at 260°C

*Derate 1.36 mW/°C above 25°C ambient.

**Derate 10.4 mW/°C above 25°C case.

electrical characteristics: (25°C unless otherwise specified)

	MIN.	TYP.	MAX.	UNITS
Reverse Leakage Current ($V_R = 3\text{V}$)	I_R		10	μA
Forward Voltage ($I_F = 100\text{mA}$)	V_F	1.4	1.7	V

optical characteristics: (25°C unless otherwise specified)

Total Power Output (note 1)
($I_F = 100\text{mA}$)

LED55B-LED55BF	P_O 3.5	mW
LED55C-LED55CF	5.4	mW
LED56 -LED56F	1.5	mW

Peak Emission Wavelength

($I_F = 100\text{mA}$) 940 nm

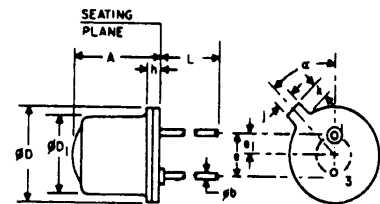
Spectral Shift with Temperature .28 nm/°C

Spectral Bandwidth 50% 60 nm

Rise Time 0-90% of Output 1.0 μsec

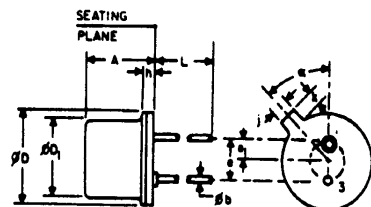
Fall Time 100-10% of Output 1.0 μsec

Note 1: Total power output, P_O , is the total power radiated by the device into a solid angle of 2π steradians.



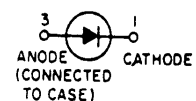
LED55B, LED55C, LED56

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.016	.021	.407	.533	
B	.209	.230	5.31	5.84	
C	.180	.187	4.57	4.77	
D	.100 NOM.		2.54 NOM.		2
E	.050 NOM.		1.27 NOM.		2
F	.030	.030	.76		
G	.031	.044	.79	1.11	
H	.036	.046	.92	1.16	1
I	1.00		25.4		3
J	45°		45°		



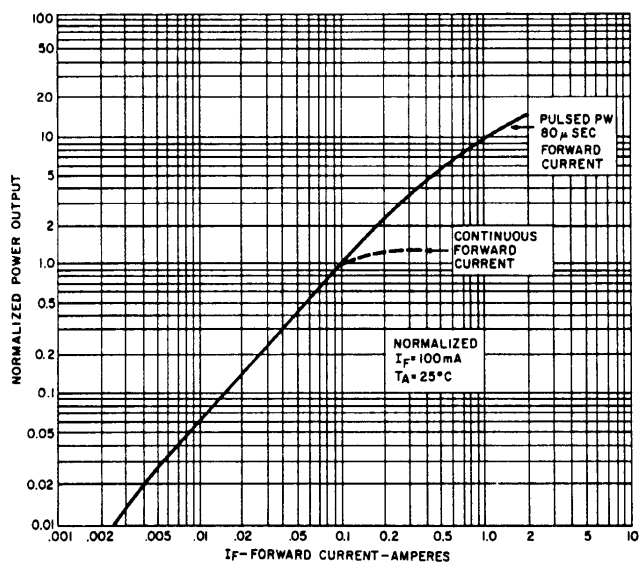
LED55BF, LED55CF, LED56F

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	.016	.021	.407	.533	
B	.209	.230	5.31	5.84	
C	.180	.187	4.57	4.77	
D	.100 NOM.		2.54 NOM.		2
E	.050 NOM.		1.27 NOM.		2
F	.030	.030	.76		
G	.031	.044	.79	1.11	
H	.036	.046	.92	1.16	1
I	1.00		25.4		3
J	45°		45°		

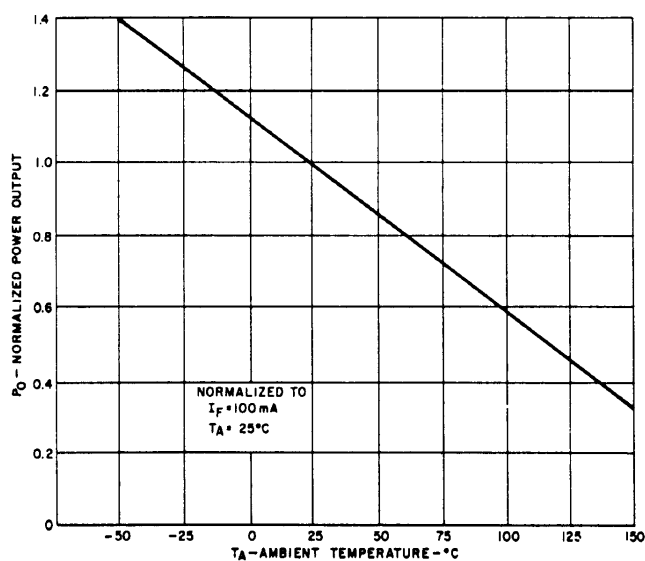


- Measured from maximum diameter of device.
- Leads having max. diameter .021" (.533mm) measured in gaging plane .054" + .001" - .000 (137 + 025 - 000mm) below the reference plane of the device shall be within .007" (.778mm) their true position relative to a maximum width tab.
- From centerline tab.

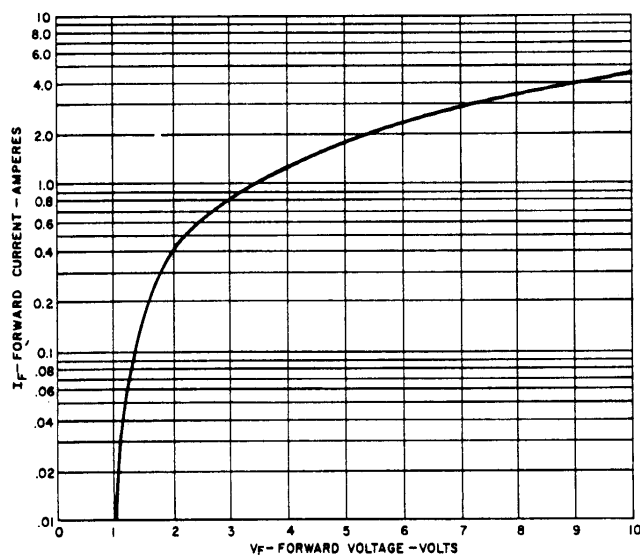
TYPICAL CHARACTERISTICS



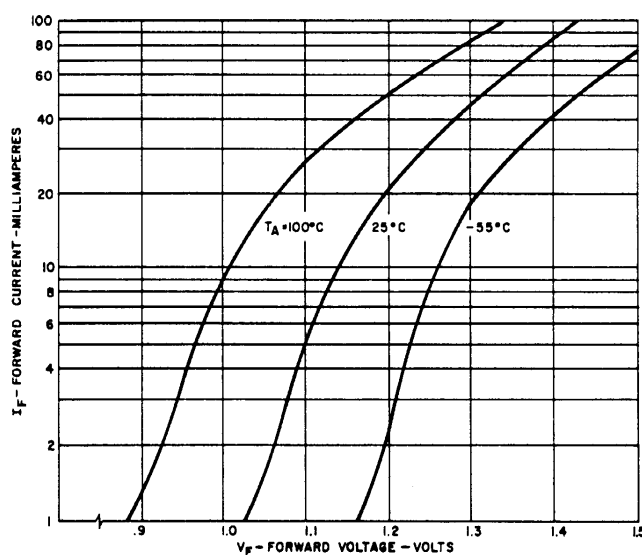
1. POWER OUTPUT VS. INPUT CURRENT



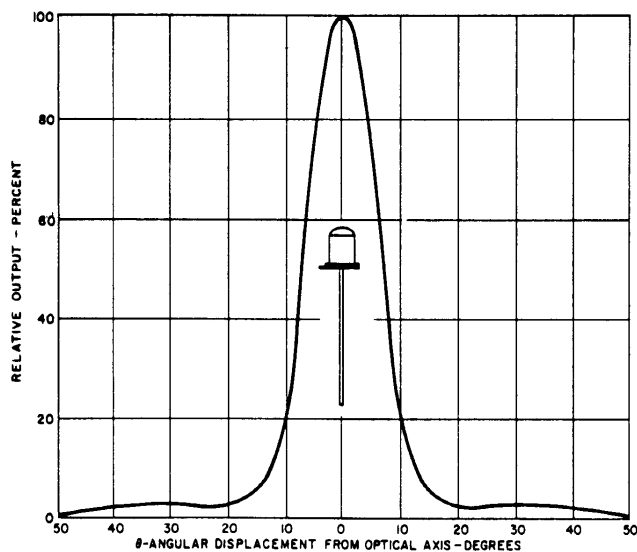
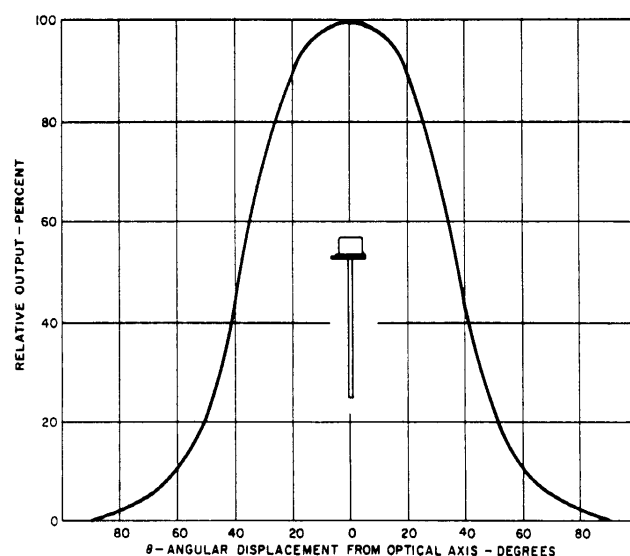
2. POWER OUTPUT VS. TEMPERATURE



3. LED 55B, 55C, 56, 55BF, 55CF, 56F FORWARD VOLTAGE VS. FORWARD CURRENT



4. FORWARD VOLTAGE VS. FORWARD CURRENT

5. LED 55B, 55C, 56
TYPICAL RADIATION PATTERN6. LED 55BF, 55CF, 56F
TYPICAL RADIATION PATTERN

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