



SOLID STATE



ELECTRONICS

## Infrared Emitter

# LED55B, LED55C, LED56, LED55BF, LED55CF, LED56F

### Gallium Arsenide Infrared-Emitting Diode

The General Electric 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 "F" versions of these devices have flat lens caps.

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  $\mu$ 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 ( $V_R = 3V$ )			10	$\mu A$
Forward Voltage ( $I_F = 100mA$ )		1.4	1.7	V

optical characteristics: (25°C unless otherwise specified)

Total Power Output (note 1)

( $I_F = 100mA$ )

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

Peak Emission Wavelength

( $I_F = 100mA$ )

940 nm

Spectral Shift with Temperature

.28 nm/°C

Spectral Bandwidth 50%

60 nm

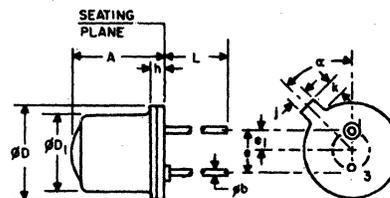
Rise Time 0-90% of Output

1.0  $\mu$ sec

Fall Time 100-10% of Output

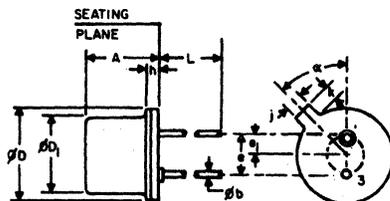
1.0  $\mu$ sec

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



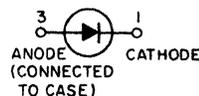
LED55B, LED55C, LED56

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A		.255		6.47	
$\phi b$	.016	.021	.407	.533	
$\phi D$	.209	.230	5.31	5.84	
$\phi D_1$	.180	.187	4.57	4.77	
e	.100 NOM.		2.54 NOM.		2
e1	.050 NOM.		1.27 NOM.		2
h		.030		.76	
j	.031	.044	.79	1.11	
k	.036	.046	.92	1.16	1
L	1.00		25.4		
$\alpha$	45°		45°		3



LED55BF LED55CF LED56F

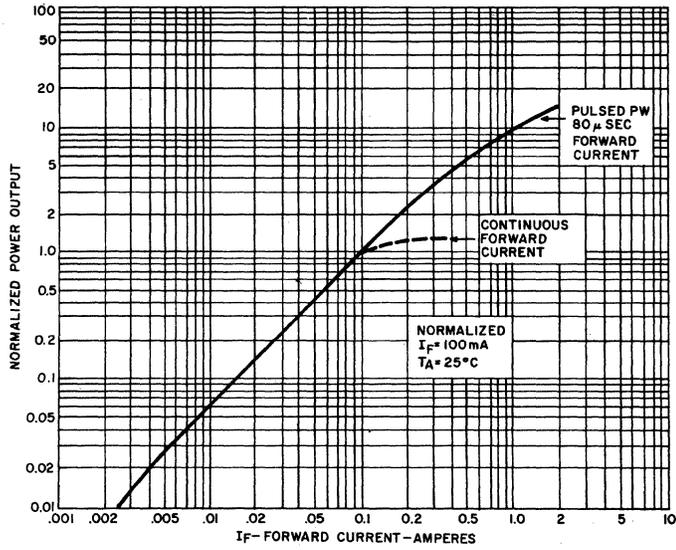
SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A		.155		3.93	
$\phi b$	.016	.021	.407	.533	
$\phi D$	.209	.230	5.31	5.84	
$\phi D_1$	.180	.187	4.57	4.77	
e	.100 NOM.		2.54 NOM.		2
e1	.050 NOM.		1.27 NOM.		2
h		.030		.76	
j	.031	.044	.79	1.11	
k	.036	.046	.92	1.16	1
L	1.00		25.4		
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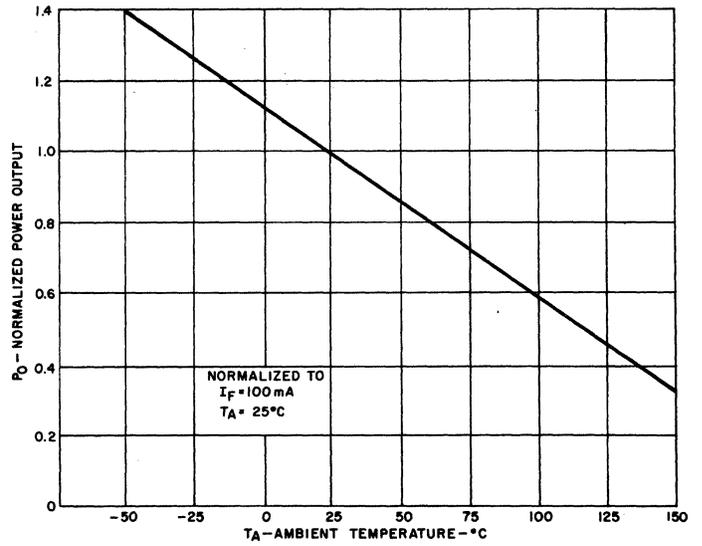
1. Measured from maximum diameter of device.
2. Leads having max. diameter .021" (.533mm) measured in gaging plane .054" + .001" - .000 (1.37 + .025 - .000mm) below the reference plane of the device shall be within .007" (.778mm) their true position relative to a maximum width tab.
3. From centerline tab.

# TYPICAL CHARACTERISTICS

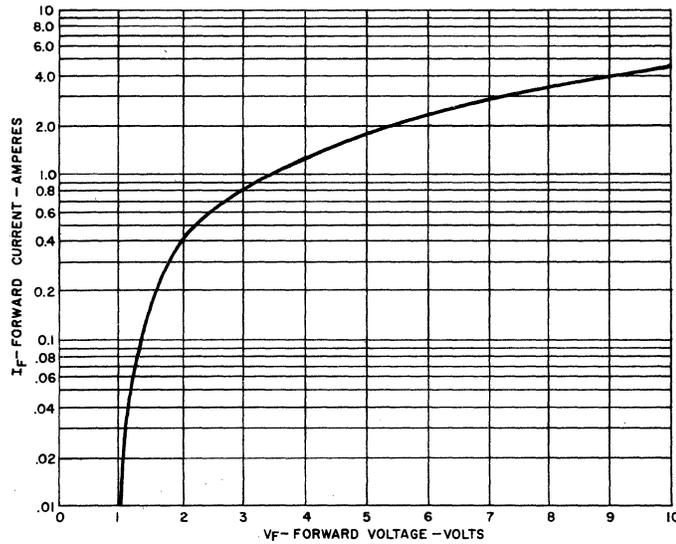
## LED55B,C, LED56, LED55BF, LED55CF, LED56F



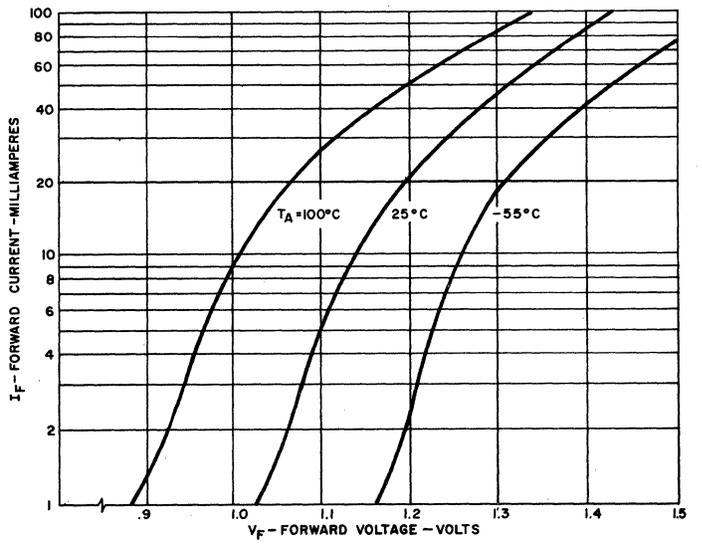
1. POWER OUTPUT VS. INPUT CURRENT



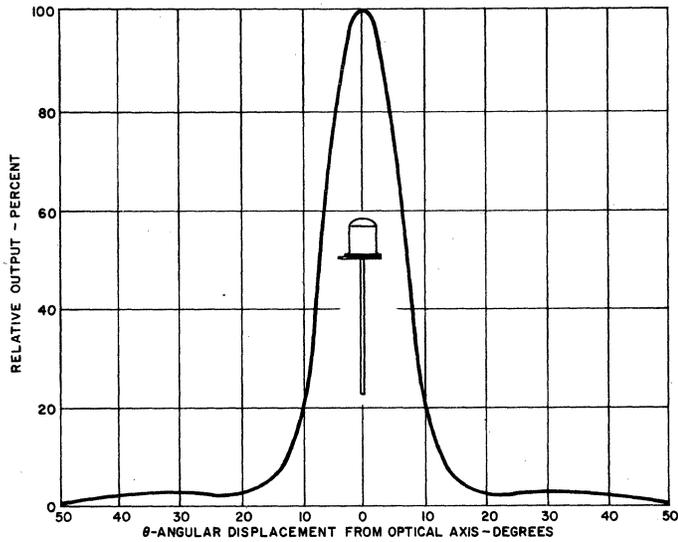
2. POWER OUTPUT VS. TEMPERATURE



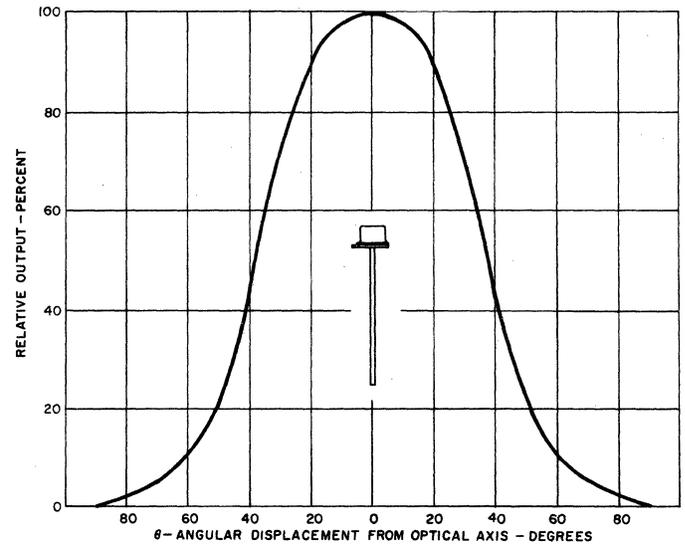
3. LED 55B, 55C, 56, 55BF, 55CF, 56F FORWARD VOLTAGE VS. FORWARD CURRENT



4. FORWARD VOLTAGE VS. FORWARD CURRENT



5. LED 55B, 55C, 56 TYPICAL RADIATION PATTERN



6. LED 55BF, 55CF, 56F TYPICAL RADIATION PATTERN