CQX14, CQX15, CQX16, CQX17

Infrared Emitter
GaAs Infrared Emitting Diode

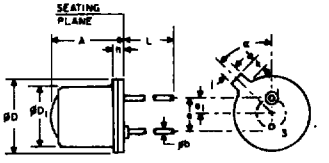
The CQX14, CQX15, CQX16, CQX17 series are gallium arsenide, light emitting diodes which emit non-coherent, infrared energy with a peak wave length of 940 nanometers. They are ideally suited for use with silicon detectors and are mounted in a TO-18 style hermetically sealed package. The CQX14 and CQX16 have a lens which provides a narrow beam angle. The CQX15 and CQX17 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 μs, 200 Hz)	I_F	10	A
Dissipations:			
Power Dissipation (T_A = 25°C)*	P_T	170	mW
Power Dissipation (T_C = 25°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	

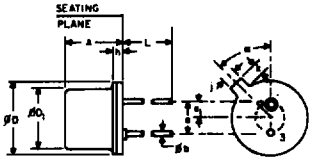
*Derate 1.36 mW/°C above 25°C ambient.
**Derate 10.4 mW/°C above 25°C case.

CQX14, CQX16



SYMBOL	INCHES MIN.	INCHES MAX	MILLIMETERS MIN.	MILLIMETERS MAX.	NOTES
A		255		6.47	
øb	016	021	.407	.533	
øD	209	230	5.31	5.84	
øD1	.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		
α	45°		45°		3

CQX15, CQX17



electrical characteristics: (25°C unless otherwise specified)

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

optical characteristics: (25°C unless otherwise specified)

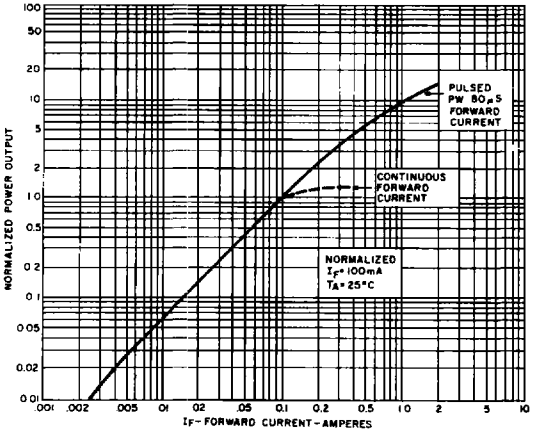
Total Power Output (note 1) (I_F = 100mA)				
CQX14-CQX15	P_O	5.4		mW
CQX16-CQX17		1.5		mW
Peak Emission Wavelength (I_F = 100mA)			940	nm
Spectral Shift with Temperature			.28	nm/°C
Spectral Bandwidth 50%			60	nm
Rise Time 0-90% of Output			1.0	μs
Fall Time 100-10% of Output			1.0	μs

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

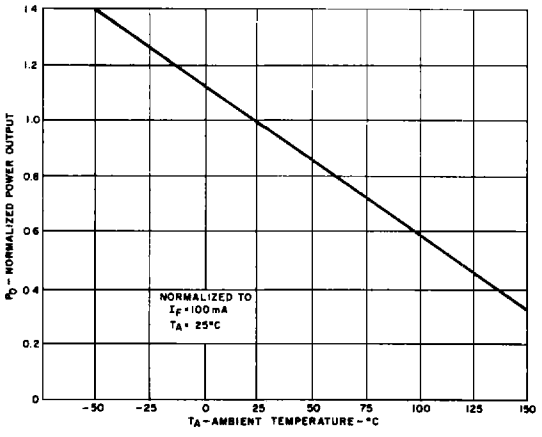
SYMBOL	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX	NOTES
A		155		3.93	
øb	016	021	.407	.533	
øD	209	230	5.31	5.84	
øD1	.180	187	4.57	4.77	
e	.100 NOM.		2.54 NOM.		2
e1	.050 NOM		1.27 NOM		2
h		.030		.76	
j	031	044	.79	1.11	
k	036	046	.92	1.16	1
L	1.00		25.4		
α	45°		45°		3

1. Measured from maximum diameter of device.
2. 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.
3. From centerline tab.

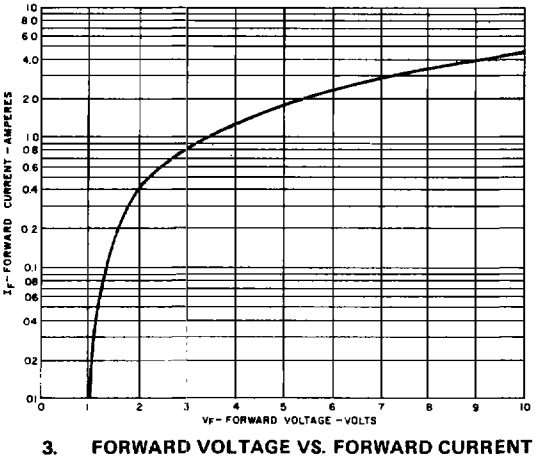
TYPICAL CHARACTERISTICS



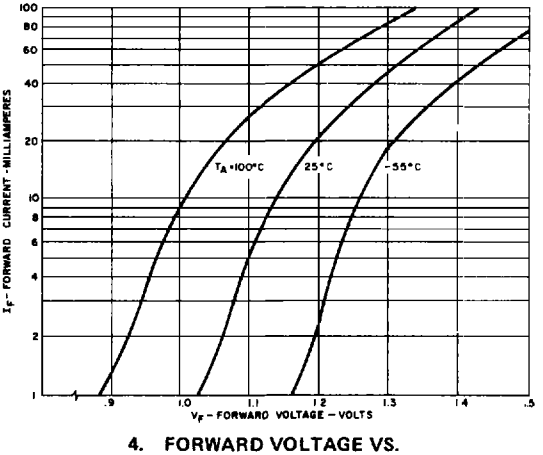
1. POWER OUTPUT VS. INPUT CURRENT



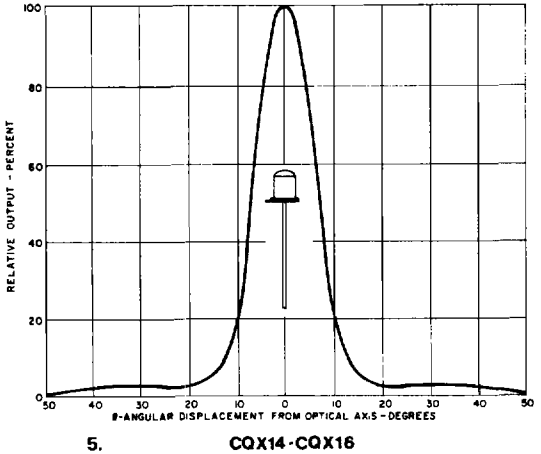
2. POWER OUTPUT VS. TEMPERATURE



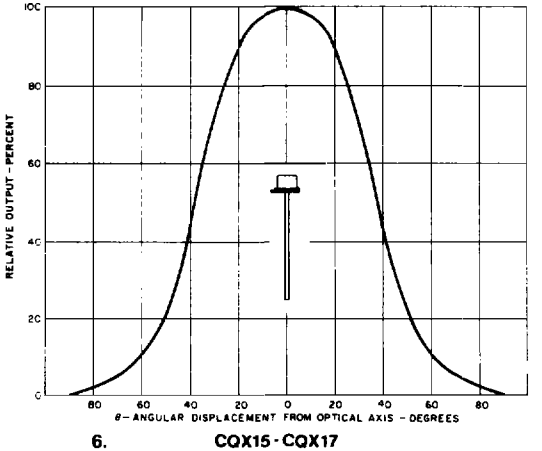
3. FORWARD VOLTAGE VS. FORWARD CURRENT



4. FORWARD VOLTAGE VS. FORWARD CURRENT



5. CQX14-CQX16
TYPICAL RADIATION PATTERN



6. CQX15-CQX17
TYPICAL RADIATION PATTERN

14