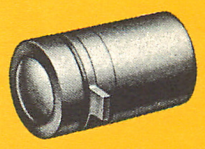
January, 1972

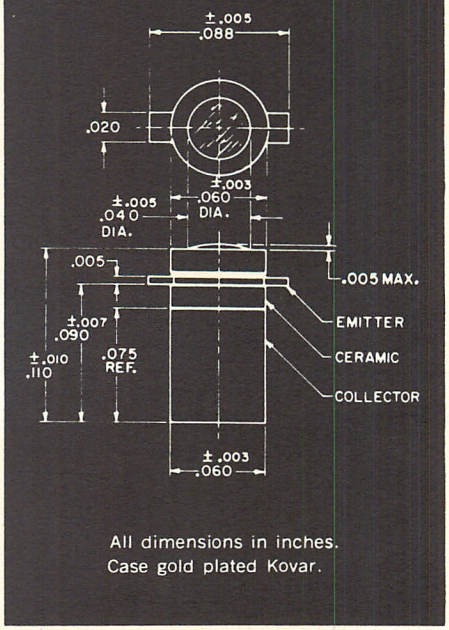
Product Data

CLT3020
CLT3030



Silicon NPN Planar Epitaxial Phototransistors

GENERAL DESCRIPTION—The Clairex CLT 3020 and CLT 3030 are silicon, planar epitaxial phototransistors in a flat-window, miniature, hermetic package. The 0.060" outside diameter enables high device density with modest mounting tolerances. The package design is ideally suited for mounting in printed circuit boards. The series is characterized by a wide acceptance angle, fast switching and narrow tolerance ranges of sensitivity. The flat window minimizes the need for critical sensor positioning in many applications.



All dimensions in inches.
Case gold plated Kovar.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures
- Storage Temperature −65°C to +180°C
- Operating Junction Temperature +150°C

Maximum Power Dissipation

Total Dissipation
- at 25°C Ambient Temperature P_T = 50mW derate 0.5mW/°C
- at 100°C Ambient Temperature P_T = 12.5mW

Maximum Voltages	CLT 3020	CLT 3030
V_{CEO} Collector to Emitter Voltage	50 volts	40 volts
V_{ECO} Emitter to Collector Voltage	5 volts	5 volts

Maximum Current: Note 3
- I_C Collector Current 200ma

ELECTRICAL CHARACTERISTICS (25°C Free Air unless otherwise designated.)

Symbol	Characteristics	Test Conditions	CLT 3020 Min.	CLT 3020 Max.	CLT 3030 Min.	CLT 3030 Max.	Unit
I_L (I_{CEO})	Light Current	V_{CE}=5v, H=5mW/cm², Note 1	0.10		0.25		ma
I_L (I_{CEO})	Light Current	V_{CE}=5v, H=20mW/cm², Note 1	0.40	1.2	1.0	3.0	ma
I_D (I_{CEO})	Dark Current	V_{CE}=10 volts, H=0		10		10	na
BV_{CEO}	Collector to Emitter Breakdown Voltage	I_C=0.1ma	50		40		volts
BV_{ECO}	Emitter to Collector Breakdown Voltage	I_{EC}=0.1ma	5.0		5.0		volts
t_r	Light Current Rise Time (unsaturated)	R_L=1000Ω, I_C=0.5ma, V_{CC}=5.0 volts, Note 2	1.5 Typical		1.5 Typical		μsec
t_f	Light Current Fall Time (unsaturated)		1.5 Typical		1.5 Typical		μsec
$V_{CE\ (SAT)}$	Collector to Emitter Saturation Voltage	I_C=0.4ma. H=20mW/cm²	0.3 Typical		0.3 Typical		volts

Note 1: The light source is a frosted tungsten incandescent lamp at 2854°K.
Note 2: The light source is a gallium arsenide LED pulsed with a rise and fall time of < 0.3 μsec.
Note 3: Pulsed conditions: 300μ sec., 2% duty cycle.

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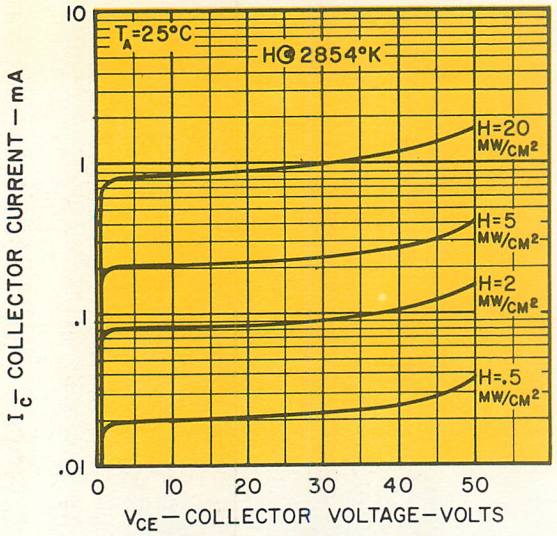
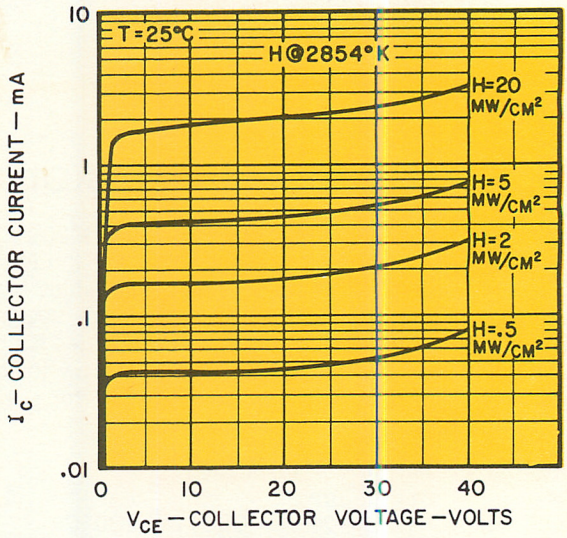
Typical Electrical Characteristics

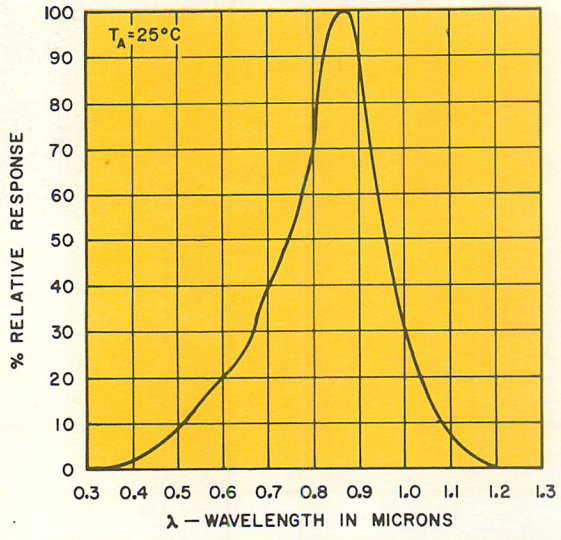
COLLECTOR CHARACTERISTICS CLT 3020



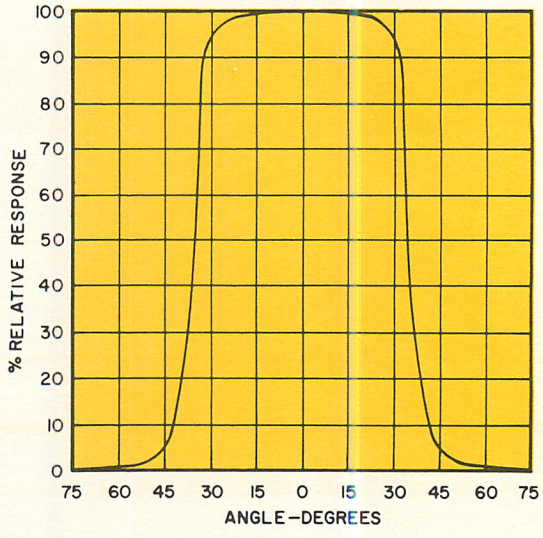
COLLECTOR CHARACTERISTICS CLT 3030



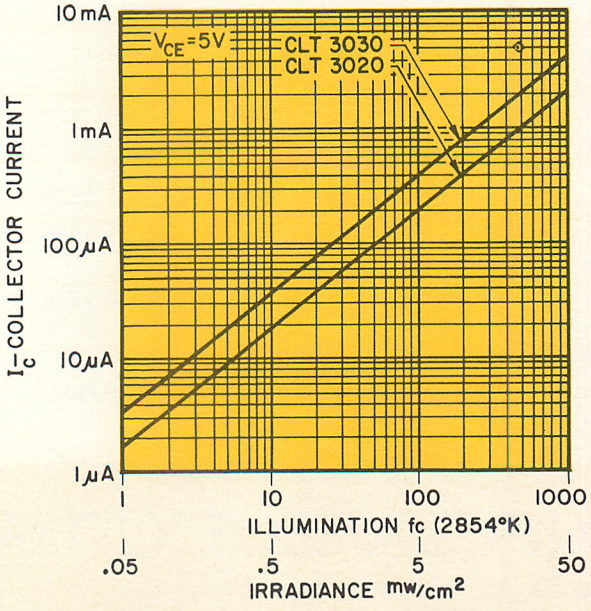
SPECTRAL RESPONSE



ANGULAR RESPONSE



LIGHT CURRENT vs. IRRADIATION



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