Product Data

CLT6053 CLT2020 CLT2030 CLT2035

Silicon NPN Planar Expitaxial Phototransistors

GENERAL DESCRIPTION — The Clairex CLT6053, CLT2035, CLT2020 and CLT2030 are three terminal silicon NPN planar epitaxial phototransistors in a hermetic package. The units exhibit high illumination sensitivity and stable characteristics. The base lead is available to provide more flexible circuit design.

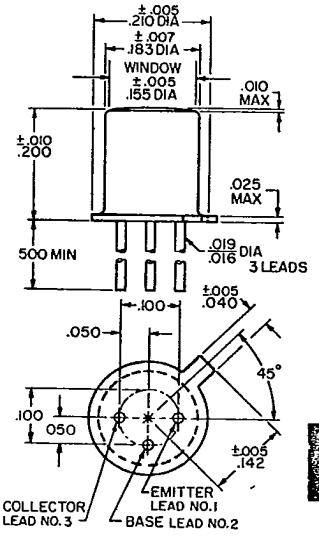
ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures
Storage Temperature – 65°C to + 200°C
Operating Junction Temperature + 150°C

Maximum Power Dissipation
Total Dissipation
at 25°C Ambient Temperature P_T = 250mW
derate 2mW/°C
at 100°C Ambient Temperature P_T = 100mW

Maximum Voltages	CLT6053	CLT2020	CLT2030	CLT2035
V_{CBO} Collector to Base Voltage	60 volts	60 volts	60 volts	60 volts
V_{CEO} Collector to Emitter Voltage	30 volts	30 volts	30 volts	30 volts
V_{ECO} Emitter to Collector Voltage	5 volts	5 volts	5 volts	5 volts

Maximum Current
I_C Collector Current = 200ma Pulsed conditions :300μ sec., 2% duty cycle.



PHYSICAL DIMENSIONS — in accordance with JEDEC (T018) outline except for window on top of can.

All dimensions in inches. Collector electrically connected to case. Leads gold plated Kovar. Window flush to .010 max.

5

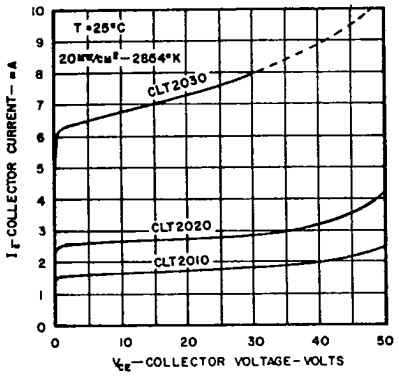
ELECTRICAL CHARACTERISTICS (25°C Free Air unless otherwise designated.)

Symbol	Characteristics	Test Conditions	CLT6053 Min.	CLT6053 Max.	CLT2020 Min.	CLT2020 Max.	CLT2030 Min.	CLT2030 Max.	CLT2035 Min.	CLT2035 Max.	Unit
I_L (I_{CEO})	Light Current	V_{CE} = 5v, H = 5mW/cm², Note 1	0.2		0.4	1.2	1.0	3.0	2.5		ma
I_D (I_{CEO})	Dark Current	V_{CE} = 10 volts, H = 0		100		25		25		100	na
I_D (I_{CEO})	Dark Current	V_{CE} = 10 volts, H = 0, T = + 100°C	250			25		25	250		μa
BV_{CEO}	Collector to Emitter Breakdown Voltage	I_C = 1ma	30		30		30		30		volts
BV_{CBO}	Collector to Base Breakdown Voltage	I_C = .1ma	60		60		60		60		volts
BV_{ECO}	Emitter to Collector Breakdown Voltage	I_{EC} = 1ma	5		5		5		5		volts
t_r	Light Current Rise Time (unsaturated)	R_L = 100Ω, V_{CC} = +5.0 volts, Note 2	3 Typical		3 Typical		3 Typical		3 Typical		μsec
t_f	Light Current Fall Time (unsaturated)		3 Typical		3 Typical		3 Typical		3 Typical		μsec
$V_{CE\ (SAT)}$	Collector to Emitter Saturation Voltage	I_C = 10ma I_B = 0.5ma H = 0		0.30		0.30		0.30		0.30	volts

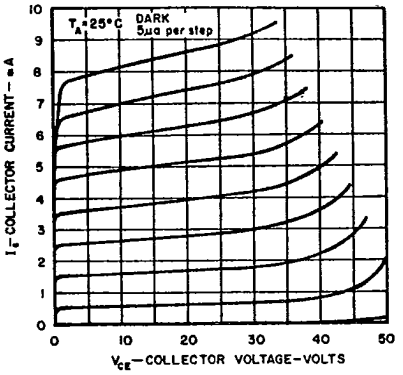
Note 1: The light source is a frosted tungsten incandescent lamp at 2854°K
Note 2: The light source is a gallium arsenide LED pulsed with a rise and fall time of < 0.3 μsec.

Typical Electrical Characteristics

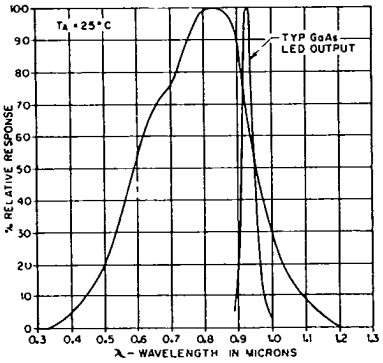
COLLECTOR CURRENT vs COLLECTOR VOLTAGE



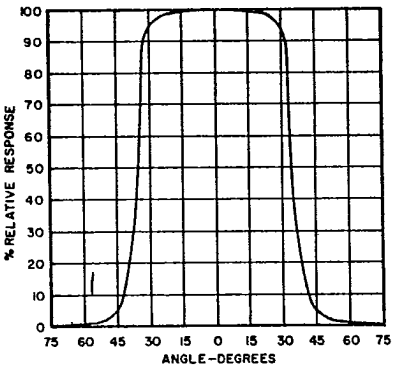
COLLECTOR CHARACTERISTICS CLT 2020



SPECTRAL RESPONSE



ANGULAR RESPONSE



LIGHT CURRENT vs IRRADIATION