

T-41-61

Product Data

CLT6053
CLT2020
CLT2030
CLT2035

Silicon NPN Planar
Epitaxial 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

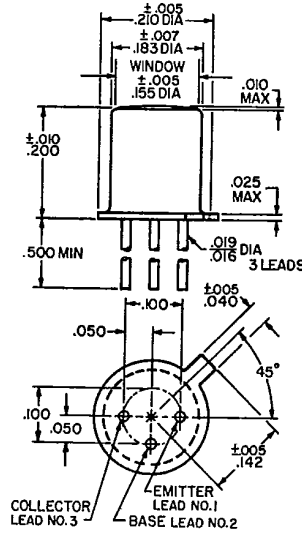
Maximum Temperatures
Storage Temperature - 65°C to +200°C
Operating Junction Temperature +150°C

Maximum Power Dissipation

Total Dissipation
at 25°C Ambient Temperature $P_T = 250\text{mW}$
derate $2\text{mW}/^\circ\text{C}$
at 100°C Ambient Temperature $P_T = 100\text{mW}$

Maximum Voltages	CLT6053	CLT2020	CLT2030	CLT2035
V_{CB0} Collector to Base Voltage	60 volts	60 volts	60 volts	60 volts
V_{CE0} Collector to Emitter Voltage	30 volts	30 volts	30 volts	30 volts
V_{EC0} Emitter to Collector Voltage	5 volts	5 volts	5 volts	5 volts

Maximum Current
 I_C Collector Current = 200ma Pulsed conditions :300 μ 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.

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

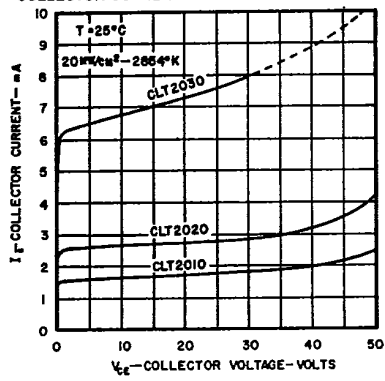
Symbol	Characteristics	Test Conditions	CLT6053		CLT2020		CLT2030		CLT2035		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
$I_L (I_{CE0})$	Light Current	$V_{CE} = 5\text{v}$, $H = 5\text{mW}/\text{cm}^2$, Note 1	0.2		0.4	1.2	1.0	3.0	2.5		ma
$I_D (I_{CE0})$	Dark Current	$V_{CE} = 10\text{ volts}$, $H = 0$		100		25		25		100	na
$I_D (I_{CE0})$	Dark Current	$V_{CE} = 10\text{ volts}$, $H = 0$, $T = +100^\circ\text{C}$	250		25		25	250			μa
BV_{CEO}	Collector to Emitter Breakdown Voltage	$I_C = .1\text{ma}$	30		30		30		30		volts
BV_{CBO}	Collector to Base Breakdown Voltage	$I_C = .1\text{ma}$	60		60		60		60		volts
BV_{ECO}	Emitter to Collector Breakdown Voltage	$I_{EC} = .1\text{ma}$	5		5		5		5		volts
t_r	Light Current Rise Time (unsaturated)	$R_L = 100\Omega$ $V_{CC} = +5.0\text{ volts}$ 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	$I_C = 10\text{ma}$, $I_B = 0.5\text{ma}$ $H = 0$		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 .

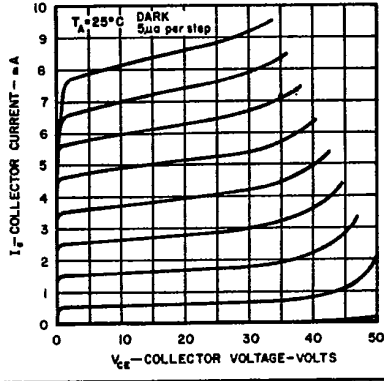
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Typical Electrical Characteristics

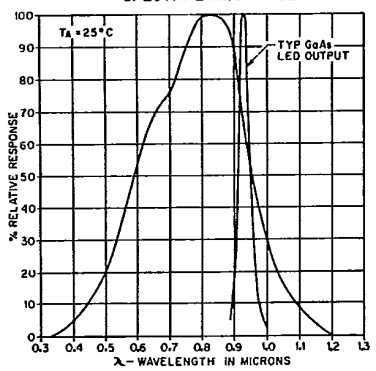
COLLECTOR CURRENT vs COLLECTOR VOLTAGE



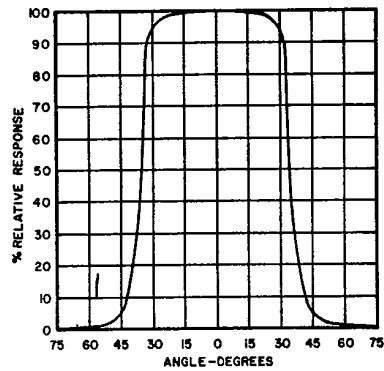
COLLECTOR CHARACTERISTICS CLT 2020



SPECTRAL RESPONSE



ANGULAR RESPONSE



LIGHT CURRENT vs IRRADIATION

