

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

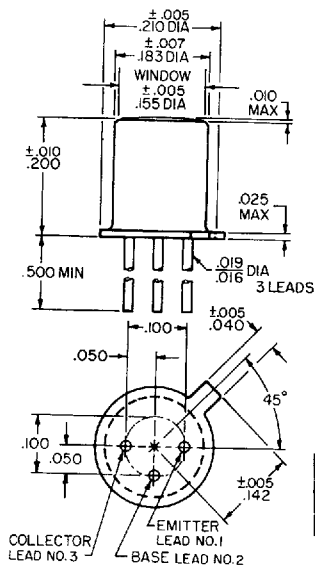
Maximum Power Dissipation

Total Dissipation

at 25°C Ambient Temperature $P_T = 250\text{mW}$

derate 2mW/°C

at 100°C Ambient Temperature $P_T = 100\text{mW}$



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.

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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.

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	$V_{CE} = 5\text{V}$, $H = 5\text{mW/cm}^2$, Note 1	0.2		0.4	1.2	1.0	3.0	2.5		ma
I_D (I_{CE0})	Dark Current	$V_{CE} = 10$ volts, $H = 0$		100		25		25		100	na
I_D (I_{CE0})	Dark Current	$V_{CE} = 10$ volts, $H = 0$, $T = +100^\circ\text{C}$	250			25		25		250	μa
BV_{CE0}	Collector to Emitter Breakdown Voltage	$I_C = .1\text{ma}$	30		30		30		30		volts
BV_{CB0}	Collector to Base Breakdown Voltage	$I_C = .1\text{ma}$	60		60		60		60		volts
BV_{EC0}	Emitter to Collector Breakdown Voltage	$I_{EC} = .1\text{ma}$	5		5		5		5		volts
t_r	Light Current Rise Time (unsaturated)	$R_L = 100\Omega$ $V_{CC} = +5.0$ volts	3 Typical		3 Typical		3 Typical		3 Typical		μsec
t_f	Light Current Fall Time (unsaturated)	Note 2	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

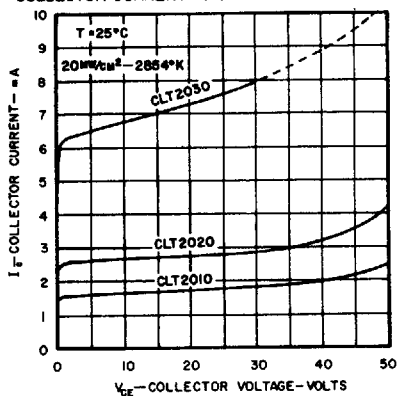
Note 1: The light source is a frosted tungsten incandescent lamp at 2854°K.

Note 2: The light source is a gallium arsenide LED pulsed with a rise and fall time of < 0.3 μsec .

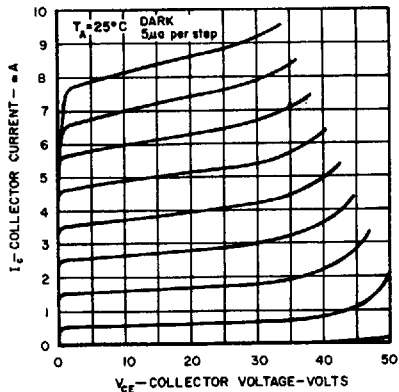
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Typical Electrical Characteristics

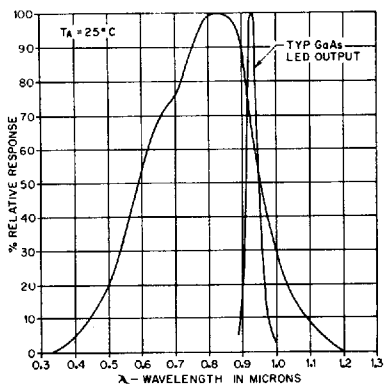
COLLECTOR CURRENT vs COLLECTOR VOLTAGE



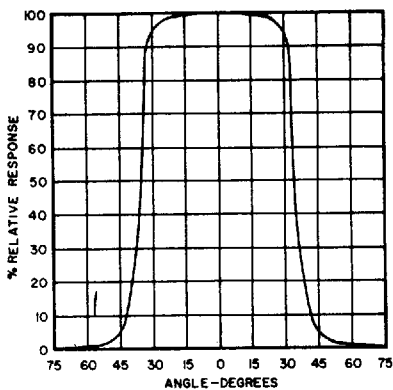
COLLECTOR CHARACTERISTICS CLT 2020



SPECTRAL RESPONSE



ANGULAR RESPONSE



LIGHT CURRENT vs IRRADIATION

