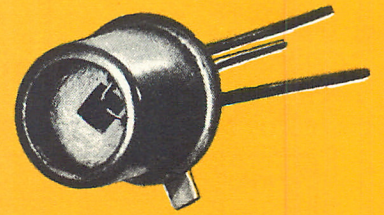


Product Data

CLT2010  
CLT2020  
CLT2030



Silicon NPN Planar Epitaxial Phototransistors

**GENERAL DESCRIPTION** — The Clairex CLT2010, 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**

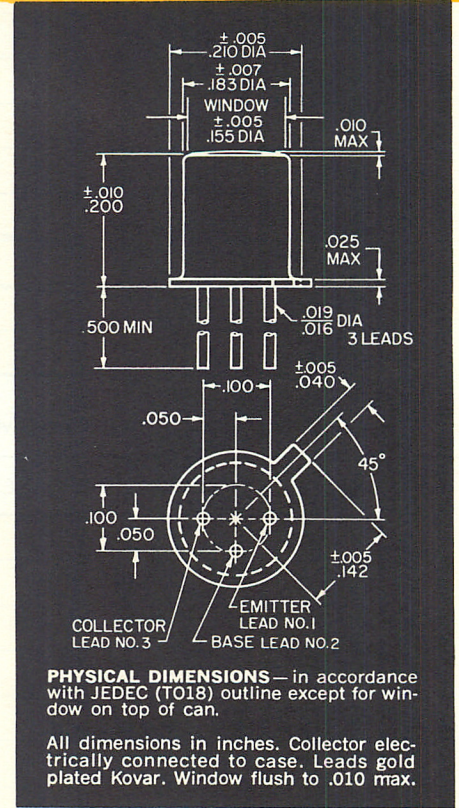
Maximum Temperatures  
Storage Temperature -65°C to +200°C  
Operating Junction Temperature +150°C

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

Maximum Voltages	CLT2010	CLT2020	CLT2030
$V_{CBO}$ Collector to Base Voltage	80 volts	60 volts	60 volts
$V_{CEO}$ Collector to Emitter Voltage	50 volts	30 volts	30 volts
$V_{ECO}$ Emitter to Collector Voltage	5 volts	5 volts	5 volts

Maximum Current  
 $I_C$  Collector Current 200ma

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



Symbol	Characteristics	Test Conditions	CLT2010		CLT2020		CLT2030		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
$I_L (I_{CEO})$	Light Current	$V_{CE}=5\text{v}$ , $H=5\text{mW}/\text{cm}^2$ , Note 1	0.2	0.6	0.4	1.2	1.0	3.0	ma
$I_D (I_{CEO})$	Dark Current	$V_{CE}=10\text{ volts}$ , $H=0$		25		25		25	na
$I_D (I_{CEO})$	Dark Current	$V_{CE}=10\text{ volts}$ , $H=0$ , $T=+100^\circ\text{C}$		25		25		25	$\mu\text{a}$
$BV_{CEO}$	Collector to Emitter Breakdown Voltage	$I_C=.1\text{ma}$	50		30		30		volts
$BV_{CBO}$	Collector to Base Breakdown Voltage	$I_C=.1\text{ma}$	80		60		60		volts
$BV_{ECO}$	Emitter to Collector Breakdown Voltage	$I_{EC}=.1\text{ma}$	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		$\mu\text{sec}$
$t_f$	Light Current Fall Time (unsaturated)		3 Typical		3 Typical		3 Typical		$\mu\text{sec}$
$V_{CE (SAT)}$	Collector to Emitter Saturation Voltage	$I_C=10\text{ma}$ , $I_B=0.5\text{ma}$ $H=0$		0.30		0.30		0.30	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  $\mu\text{sec}$ .

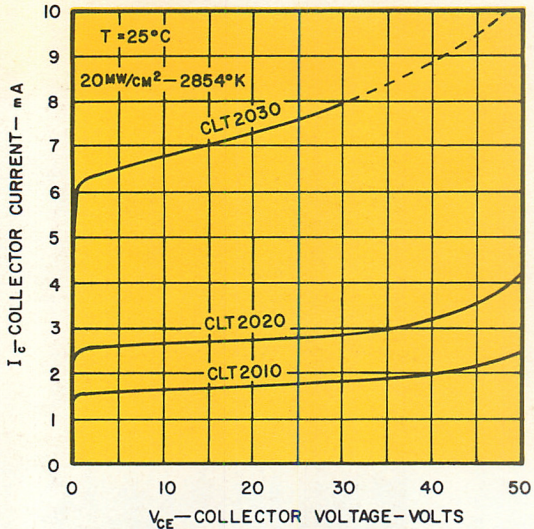


CLAIREX ELECTRONICS

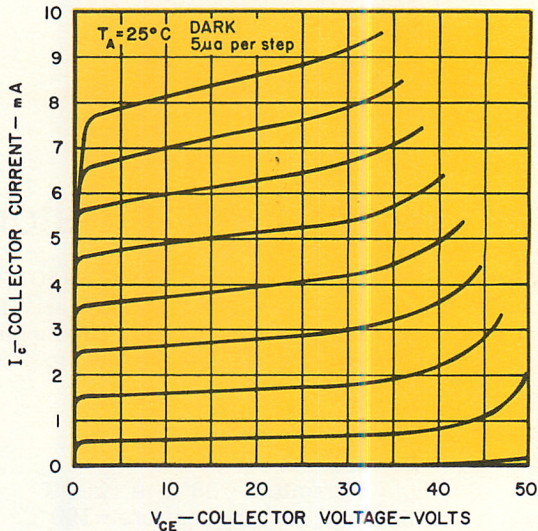
A DIVISION OF CLAIREX® CORPORATION  
560 South Third Avenue, Mount Vernon, N.Y. 10550 · (914) 664-6602

# Typical Electrical Characteristics

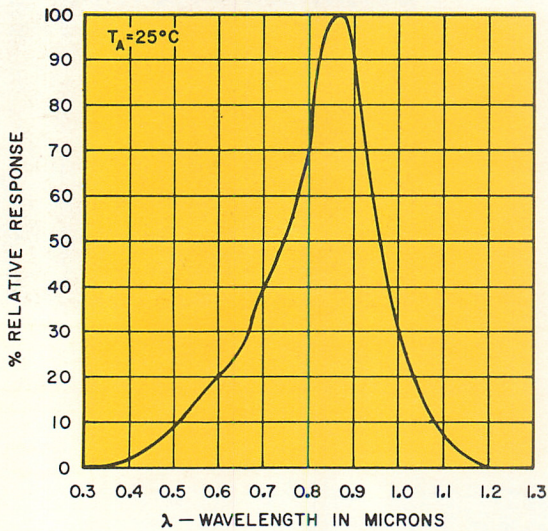
COLLECTOR CURRENT vs. COLLECTOR VOLTAGE



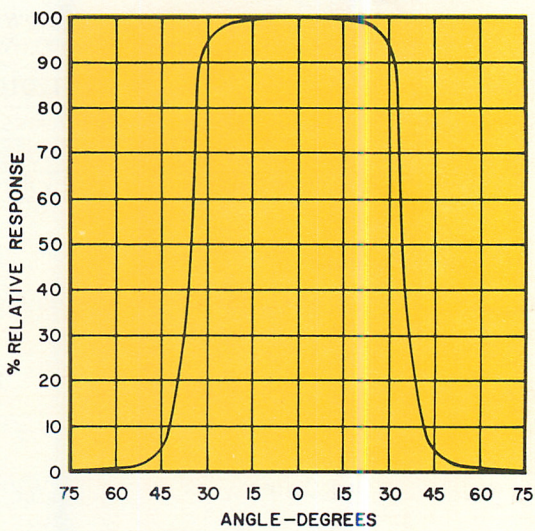
COLLECTOR CHARACTERISTICS CLT 2020



SPECTRAL RESPONSE



ANGULAR RESPONSE



LIGHT CURRENT vs. IRRADIATION

