

T-41-63

**CLR4180
CLR4185**

**Silicon NPN Planar Epitaxial
Darlington Phototransistor**

GENERAL DESCRIPTION — The CLR4180 and CLR4185 Darlington phototransistors are molded in a clear epoxy package. This package includes a molded lens over the transistor to provide controlled angular response for precise sensing. Guaranteed minimum light currents at low irradiance levels of .1mw/cm² and 1.0mw/cm² offer high sensitivities. The CLR4180 is spectrally compatible with the Clairex CLED400, I.R. Emitter.

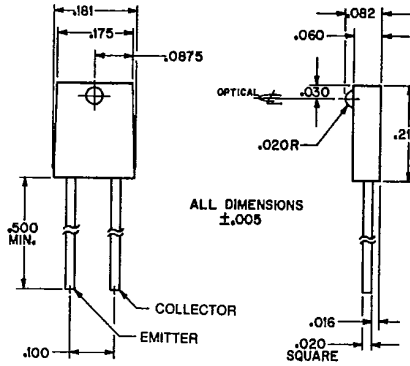
ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature - 40°C to + 100°C
Operating Junction Temperature + 150°C

Maximum Power Dissipation

Total Dissipation
at 25°C Ambient Temperature P_T = 75mW
derate 0.9mW/°C



Maximum Voltages	CLR4180	CLR4185
V _{CEO} Collector to Emitter Voltage	40 volts	40 volts
V _{ECO} Emitter to Collector Voltage	5 volts	5 volts

Maximum Current: Note 3

I_C Collector Current = 200ma max.

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

Symbol	Characteristics	Test Conditions	CLR4180		CLR4185		Unit
			Min.	Max.	Min.	Max.	
I _L (I _{CEO})	Light Current	V _{CE} =5v, H=.1mW/cm ² , Note 1	.1		.6		ma
I _L (I _{CEO})	Light Current	V _{CE} =5v, H=1.0mW/cm ² , Note 1	1.0		5.0		ma
I _D (I _{CEO})	Dark Current	V _{CE} =10 volts, H=0		200		200	na
BV _{CEO}	Collector to Emitter Breakdown Voltage	I _C =0.1ma	40		40		volts
t _r	Light Current Rise Time (unsaturated)	R _L =100 Ω I _C =0.5ma V _{CC} =5.0 volts Note 2	100 Typical		100 Typical		μsec
t _f	Light Current Fall Time (unsaturated)		150 Typical		150 Typical		μsec
V _{CE(SAT)}	Collector to Emitter Saturation Voltage	I _C =.25ma H=20mW/cm ²		1.2		1.2	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: 300 μsec., 2% duty cycle.

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Typical Electrical Characteristics

