Miniature Ceramic Silicon Phototransistors

FPT610 FPT630

Optoelectronic Products

General Description
The FPT610 and FPT630 are miniature phototransistors with exceptionally stable characteristics. They utilize a ceramic case with transparent resin encapsulation. The spectral response, extending from 400 to 1100 nm, is compatible with daylight, tungsten and gallium arsenide sources.

High Illumination Sensitivity
Exceptionally Stable Characteristics
Can Be Staked On .087-Inch Centers
Miniature—85 × 185 × 95 Mils High

Absolute Maximum Ratings

Maximum Temperature and Humidity

Storage Temperature	−40°C to +100°C
Operating Temperature	−40°C to +100°C
Pin Temperature (Soldering, 5 s)	260°C
Relative Humidity at 65°C	85%

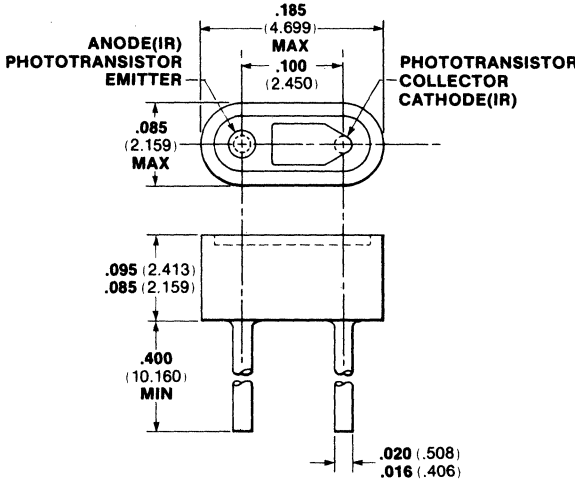
Maximum Power Dissipation

Total Dissipation at T_A = 25°C	100 mW
Derate Linearly from 25°C	1.33 mW/°C

Maximum Voltages and Currents

$V_{CE(sus)}$	Collector-to-Emitter Sustaining Voltage	
	FPT610	30 V
	FPT630	20 V
I_C	Collector Current	50 mA

Package Outline



Notes
All dimensions in inches **bold** and millimeters (parentheses)
Tolerance unless specified = ±.015 (±.381)

Typical Electrical Characteristics

FPT610
FPT630

Electrical Characteristics $T_A = 25°C$

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
$V_{CEO(sus)}$	Collector-to-Emitter Sustaining Voltage (Note 1)					I_C = 1.0 mA
	FPT610	30	60		V	
	FPT630	20	40		V	
V_{ECO}	Emitter-to-Collector Voltage (Note 1)		10		V	I_E = 100 μA
$V_{CE(sat)}$	Collector-to-Emitter Saturation Voltage (Note 2)		0.16	0.33	V	I_C = 500 μA H = 20 mW/cm²
I_{CEO}	Collector Dark Current (Note 1)		10	100	nA	V_{CE} = 5.0 V
$I_{CE(lt)}$	Photo Current (Tungsten) (Note 2)					
	FPT610	0.2	1.0		mA	V_{CE} = 5.0 V
	FPT630	2.0	5.0			H = 5.0 mW/cm²
$I_{CE(lt)}$	Photo Current (GaAs) (Note 3)					
	FPT610	0.4	3.0		mA	V_{CE} = 5.0 V
	FPT630	4.0	15			H = 5.0 mW/cm²
t_r	Rise Time (Note 4)					
	FPT610		3.0		μs	I_C = 2.0 mA,
	FPT630		18			R_L = 100 Ω
t_f	Fall Time (Note 4)					
	FPT610		3.0		μs	I_C = 2.0 mA,
	FPT630		18			R_L = 100 Ω

Notes

1. Measured with radiation flux intensity of less than 0.1 μW/cm² over the spectrum from 100-1500 nm.
2. Measured at noted irradiance as emitted from a Tungsten filament lamp at a color temperature of 2854°K.
3. These are values obtained at noted irradiance as emitted from a GaAs source at 900 nm.
4. Rise time is defined as the time required for I_{CE} to rise from 10% to 90% of peak value. Fall time is defined as the time required for I_{CE} to decrease from 90% or 10% of peak value. Test conditions are: I_{CE} = 4.0 mA, V_{CE} = 5.0 V, R_L = 100 Ω, GaAs source.