FAIRCHILD
A Schlumberger Company

FPT120/A/B/C
FPT130/A/B

T-41-61

High Sensitivity Silicon Phototransistors

General Description
The FPT120/A/B/C and FPT130/A/B are silicon nitride protected NPN Planar phototransistors with exceptionally stable characteristics and high illumination-sensitivity. The case is made of a special plastic compound with transparent resin encapsulation. The controlled sensitivities offered in the A, B and C versions give the circuit designer increased flexibility.

PACKAGE	
FPT120	OPTO-26
FPT120A	OPTO-26
FPT120B	OPTO-26
FPT120C	OPTO-26
FPT130	OPTO-28
FPT130A	OPTO-28
FPT130B	OPTO-28

High Illumination Sensitivity
Availability of Base Pins for Flexible Circuit Design

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ABSOLUTE MAXIMUM RATINGS

Temperatures & Humidity

Storage Temperature	−55° C to 150° C
Operating Temperature	−55° C to 85° C
Pin Temperature (Soldering, 5 s)	260° C
Relative Humidity at 65° C	85%

Power Dissipation (Note 1)

Total Device Dissipation at T_C = 25° C	200 mW
Total Dissipation at T_A = 25° C	100 mW

Voltages & Currents

$V_{CE(sus)}$ Collector-to-Emitter Sustaining Voltage (Note 4)	20 V
I_C Collector Current	25 mA

ELECTRICAL CHARACTERISTICS (25° C Ambient Temperature unless otherwise noted) (Note 9)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	TEST CONDITIONS
BV_{ECO}	Emitter-to-Collector Breakdown Voltage (Note 5)		5.0		V	I_{EC} = 100 μA
I_{CEO}	Collector Dark Current (Note 5)		10	100	nA	V_{CE} = 5.0 V

NOTES:
1. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
2. These ratings give a maximum junction temperature of 85° C and junction-to-case thermal resistance of 300° C/W (derating factor of 33.3 mW/° C).
4. Measured at noted irradiance as emitted from a tungsten filament lamp at a color temperature of 2854° K. The effective photosensitive area is typically 1.25 mm² (FPT120A/B) and 0.78 mm² (FPT130A/B).
4. These are values obtained at noted irradiance as emitted from a GaAs source at 900 nm.
5. Measured with radiation flux intensity of less than 0.1 μW/cm² over the spectrum from 100-1500 nm.
6. 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% to 10% of peak value. Test conditions are: V_O = 5.0 V, I_{CC} = 4.0 mA, R_L = 100 Ω, GaAs source.
7. Same electrical characteristics as FPT120 except for $I_{CE(on)}$.
8. Same electrical characteristics as FPT130 except for $I_{CE(on)}$.
9. For product family characteristic curves, refer to Curve Set FPT120.

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