

IS181



ISOCOM

COMPONENTS

HIGH DENSITY MOUNTING PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS



DESCRIPTION

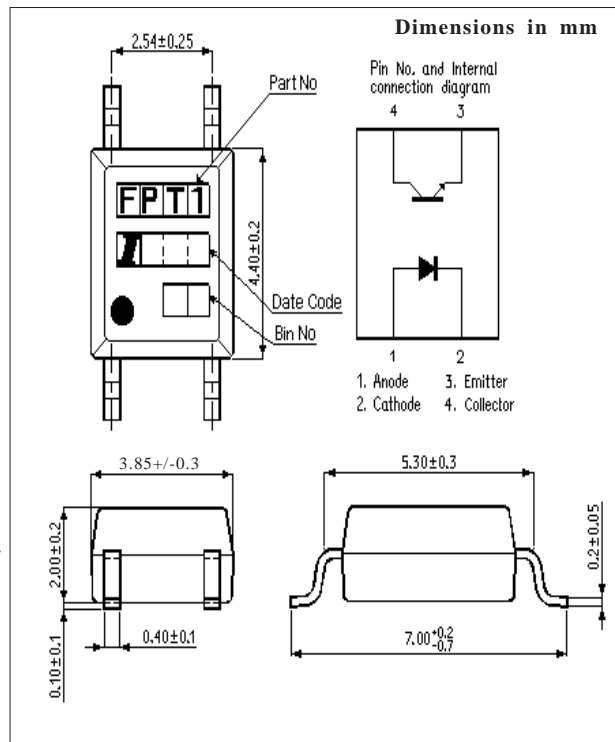
The IS181 is an optically coupled isolator consisting of an infrared light emitting diode and NPN silicon photo transistor in a space efficient dual in line plastic package.

FEATURES

- Marked as FPT1.
- Current Transfer Ratio MIN. 50%
- Isolation Voltage ($3.75kV_{RMS}$, $5.3kV_{PK}$)
- All electrical parameters 100% tested
- Drop in replacement for Toshiba TLP181

APPLICATIONS

- Computer terminals
- Industrial systems controllers
- Measuring instruments
- Signal transmission between systems of different potentials and impedances



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ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature _____ -55°C to +150°C
 Operating Temperature _____ -55°C to +100°C
 Lead Soldering Temperature
 (1/16 inch (1.6mm) from case for 10 secs) 260°C

INPUT DIODE

Forward Current _____ 50mA
 Reverse Voltage _____ 6V
 Power Dissipation _____ 70mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO} _____ 35V
 Emitter-collector Voltage BV_{ECO} _____ 6V
 Collector Current _____ 50mA
 Power Dissipation _____ 150mW

POWER DISSIPATION

Total Power Dissipation _____ 170mW
 (derate linearly 2.26mW/°C above 25°C)

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	$I_F = 20\text{mA}$
	Reverse Current (I_R)			10	μA	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO})	35			V	$I_C = 0.1\text{mA}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 10\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			100	nA	$V_{CE} = 20\text{V}$
Coupled	Current Transfer Ratio (CTR)	50		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	Optional CTR Grades: IS181A	80		160	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	IS181B	130		260	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	IS181C	200		400	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	IS181D	300		600	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	IS181BL	200			%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.2	V	$20\text{mA } I_F, 1\text{mA } I_C$
Input to Output Isolation Voltage V_{ISO}		3750			V_{RMS}	See note 1
		5300			V_{PK}	See note 1
Input-output Isolation Resistance R_{ISO}	5×10^{10}				Ω	$V_{IO} = 500\text{V}$ (note 1)
Output Rise Time t_r		4	18		μs	$V_{CE} = 2\text{V}$,
Output Fall Time t_f		3	18		μs	$I_C = 2\text{mA}, R_L = 100\Omega$

Note 1 Measured with input leads shorted together and output leads shorted together.