



HIGH DENSITY MOUNTING PHOTOTRANSISTOR OPTICALLY COUPLED ISOLATORS

DESCRIPTION

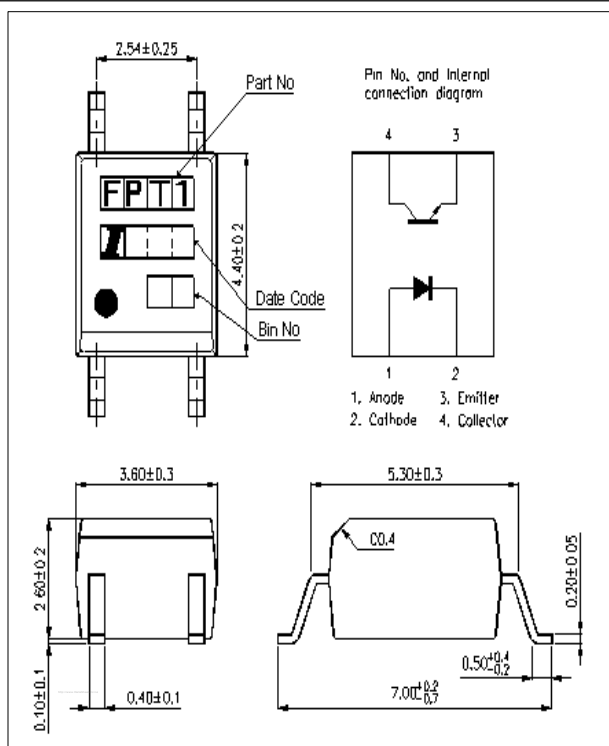
The IS357A is an optically coupled isolator consisting of an infrared light emitting diode and NPN silicon photo transistor in a space efficient dual in line plastic package.

FEATURES

- Current Transfer Ratio 80 - 160 %
- Isolation Voltage (3.75kV_{RMS}, 5.3kV_{PK})
- All electrical parameters 100% tested
- Custom electrical selections available
- Drop in replacement for Sharp PC357A

APPLICATIONS

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



ISOCOM COMPONENTS LTD
Unit 25B, Park View Road West,
Park View Industrial Estate, Brenda Road
Hartlepool, Cleveland, TS25 1YD
Tel: (01429) 863609 Fax : (01429) 863581

ISOCOM INC
1024 S. Greenville Ave, Suite 240,
Allen, TX 75002 USA
Tel: (214) 495-0755 Fax: (214) 495-0901
e-mail info@isocom.com
<http://www.isocom.com>

ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)

Storage Temperature	_____	-40°C to + 125°C
Operating Temperature	_____	-30°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
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 Voltage (V_R)	5			V	$I_R = 10\mu\text{A}$
	Reverse Current (I_R)	_____		10	μA	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO})	35			V	$I_C = 0.5\text{mA}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 0.1\text{mA}$
	Collector-emitter Dark Current (I_{CEO})			100	nA	$V_{CE} = 20\text{V}$
Coupled	Current Transfer Ratio (CTR)	80		160	%	$5\text{mA } I_F, 5\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.2	V	$20\text{mA } I_F, 1.0\text{mA } I_C$
	Input to Output Isolation Voltage V_{ISO}	3750 5300			V_{RMS} V_{PK}	See note 1 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.

Note 2 Special Selections are available on request. Please consult the factory.

CHARACTERISTIC CURVES

Fig.1 Forward Current
vs. Ambient Temperature

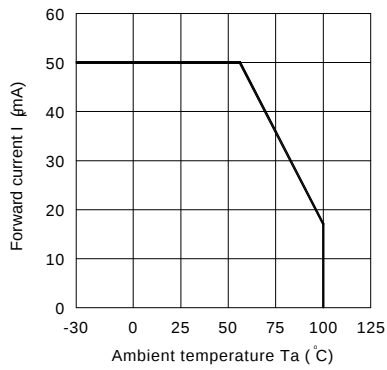


Fig.2 Collector Power Dissipation
vs. Ambient Temperature

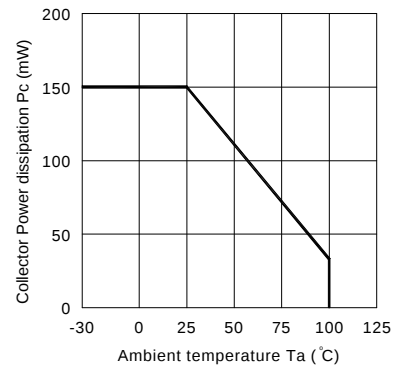


Fig.3 Collector-emitter Saturation
Voltage vs. Forward Current

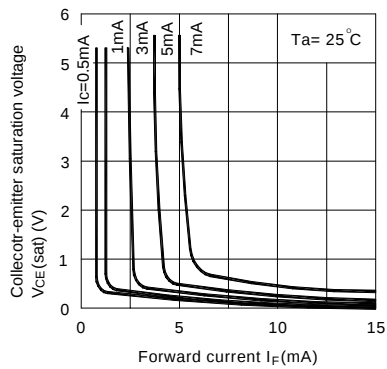


Fig.4 Forward Current vs. Forward
Voltage

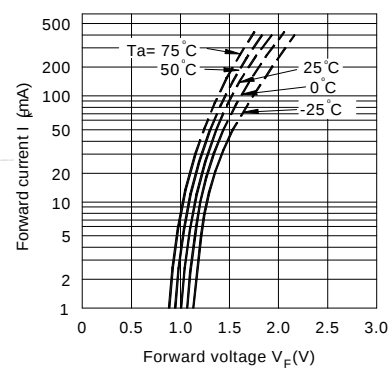


Fig.5 Current Transfer Ratio vs.
Forward Current

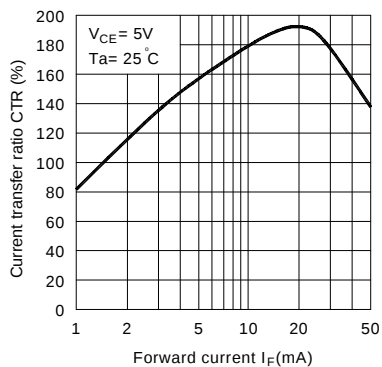
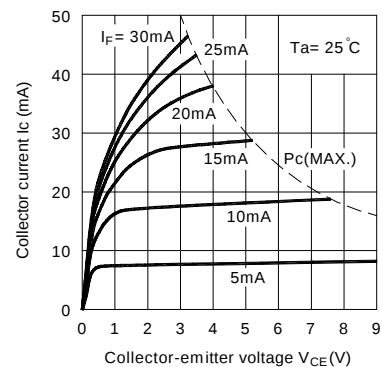


Fig.6 Collector Current vs.
Collector-emitter Voltage



CHARACTERISTIC CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

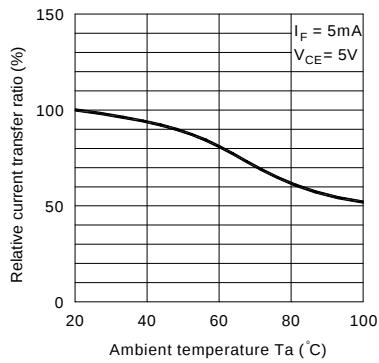


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

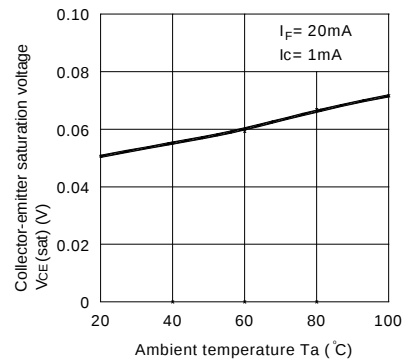


Fig.9 Collector Dark Current vs. Ambient Temperature

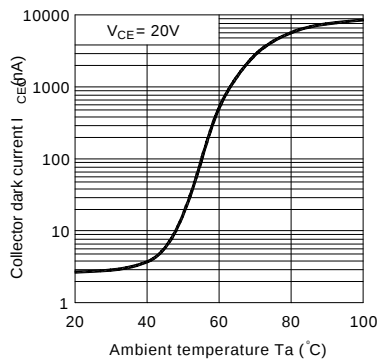


Fig.10 Response Time vs. Load Resistance

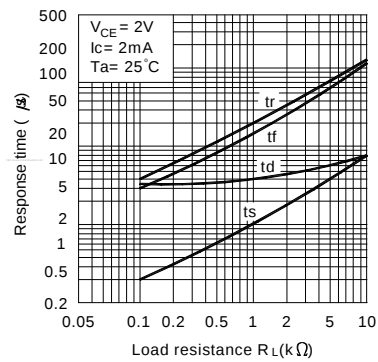
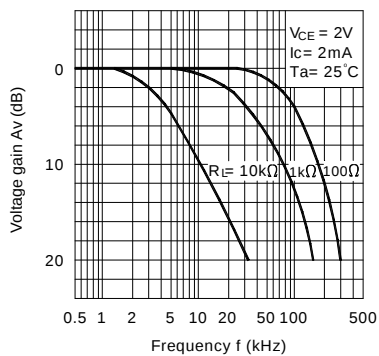
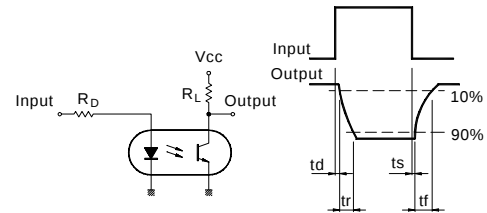


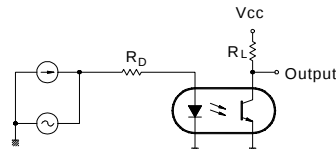
Fig.11 Frequency Response



Test Circuit for Response Time

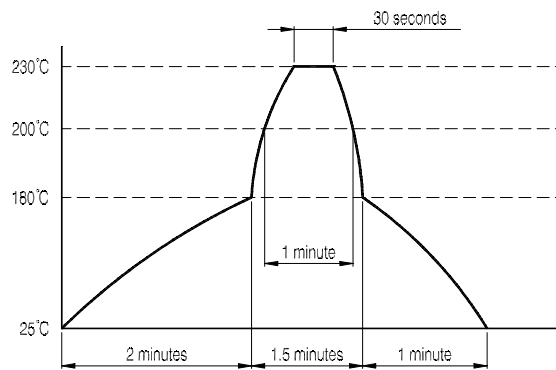


Test Circuit for Frequency Response



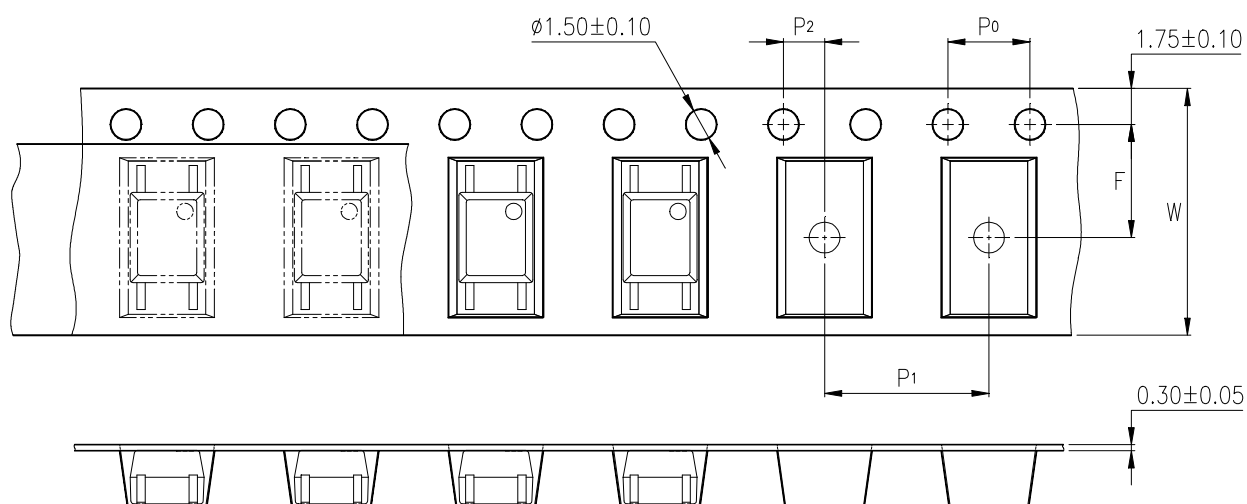
TEMPERATURE PROFILE OF SOLDERING REFLOW

- (1) One time soldering reflow is recommended within the condition of temperature and time profile shown below.



- (2) When using another soldering method such as infrared ray lamp, the temperature may rise partially in the mold of the device.
Keep the temperature on the package of the device within the condition of above (1).

TAPING DIMENSIONS



Description	Symbol	Dimensions in mm (inches)
Tape wide	W	12 ± 0.3 (.47)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F	5.5 ± 0.1 (.217)
Distance of compartment to compartment	P_2	2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	8 ± 0.1 (.315)