IS2702-1 Datasheet

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DiGi Electronics Part Number	IS2702-1-DG
Manufacturer	Isocom Components 2004 LTD
Manufacturer Product Number	IS2702-1
Description	4PIN DARLINGTON OUTPUT, SMD OPTO
Detailed Description	Optoisolator Darlington Output 3750Vrms 1 Channel 4-SMD

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Manufacturer Product Number:	Manufacturer:
IS2702-1	Isocom Components 2004 LTD
Series:	Product Status:
IS2702-1	Active
Number of Channels:	Voltage - Isolation:
1	3750Vrms
Current Transfer Ratio (Min):	Current Transfer Ratio (Max):
600% @ 1mA	7500% @ 1mA
Turn On / Turn Off Time (Typ):	Rise / Fall Time (Typ):
-	60µs, 53µs
Input Type:	Output Type:
DC	Darlington
Voltage - Output (Max):	Current - Output / Channel:
35V	80mA
Voltage - Forward (Vf) (Typ):	Current - DC Forward (If) (Max):
1.2V	50 mA
Vce Saturation (Max):	Operating Temperature:
1V	-55°C ~ 100°C
Mounting Type:	Package / Case:
Surface Mount	4-SMD, Gull Wing
Supplier Device Package:	
4-SMD	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.49.8000	

IS2702-1

HIGH DENSITY MOUNTING PHOTODARLINGTON OPTICALLY COUPLED ISOLATORS

ROHS COMPLIANT

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

The IS2702-1 is an optically coupled isolator consisting of an infrared light emitting diode and NPN silicon photodarlington in a space efficient dual in line plastic package.

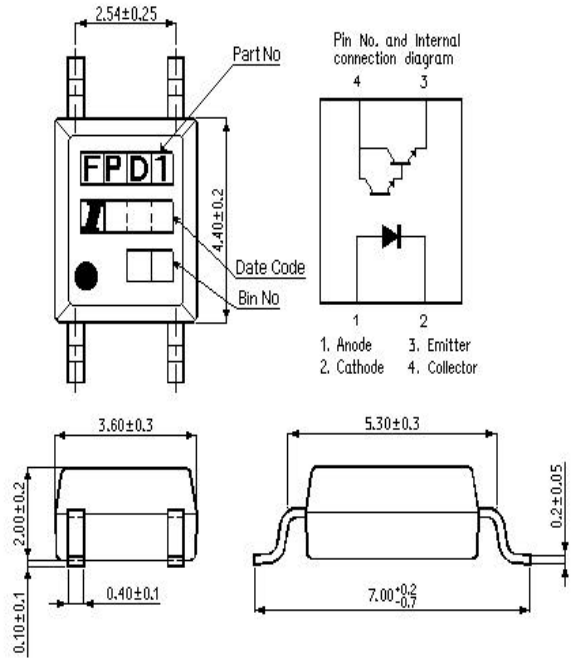
FEATURES

- Marked as FPD1.
- Current Transfer Ratio MIN. 600%
- Isolation Voltage ($3.75kV_{RMS}$,$5.3kV_{PK}$)
- All electrical parameters 100% tested
- Drop in replacement for NEC PS2702-1

APPLICATIONS

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

Dimensions in mm



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

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	80mA
Power Dissipation	150mW

POWER DISSIPATION

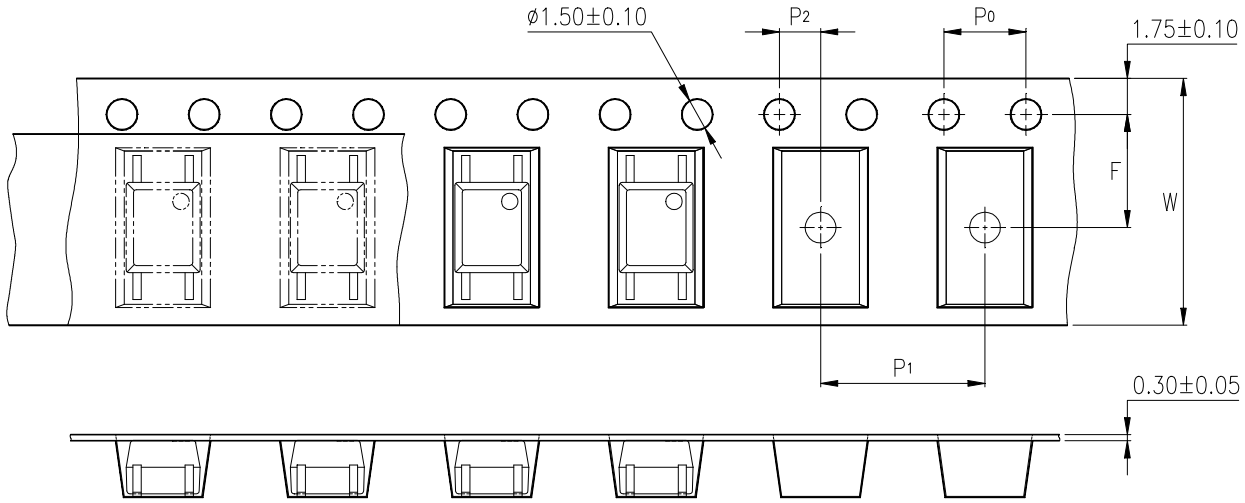
Total Power Dissipation	170mW
(derate linearly 2.26mW/°C above 25°C)	

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	I_F = 20mA
	Reverse Current (I_R)			10	µA	V_R = 4V
Output	Collector-emitter Breakdown (BV_{CEO})	35			V	I_C = 0.1mA
	Emitter-collector Breakdown (BV_{ECO})	6			V	I_E = 10uA
	Collector-emitter Dark Current (I_{CEO})			1	uA	V_{CE} = 10V
Coupled	Current Transfer Ratio (CTR)	600		7500	%	1mA I_F, 2V V_{CE}
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1	V	20mA I_F, 5mA 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}	$5x10^{10}$			Ω	V_{IO} = 500V (note 1)
	Output Rise Time tr Output Fall Time tf		60 53	300 250	µs µs	V_{CE} = 2V, I_C = 10mA, R_L = 100Ω

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

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 P_2	5.5 ± 0.1 (.217) 2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	8 ± 0.1 (.315)

CHARACTERISTIC CURVES

Fig.1 Forward Current vs. Ambient Temperature

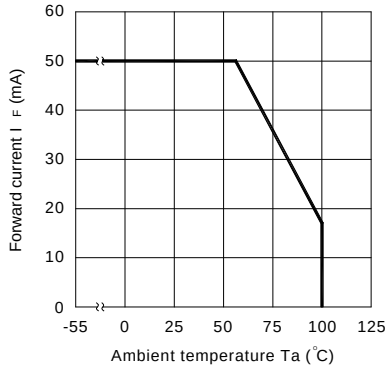


Fig.2 Collector Power Dissipation vs. Ambient Temperature

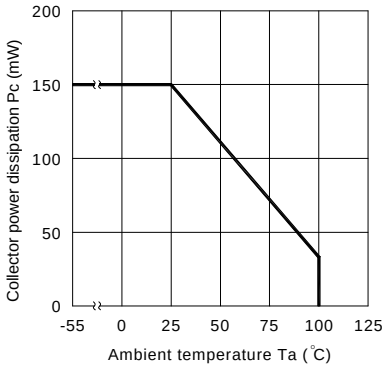


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

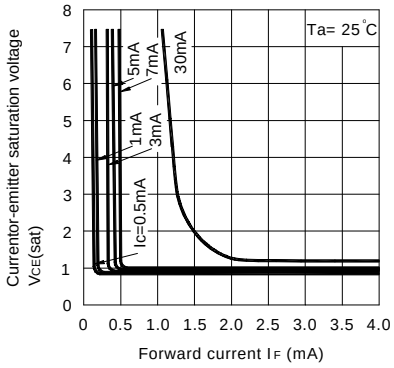


Fig.4 Forward Current vs. Forward Voltage

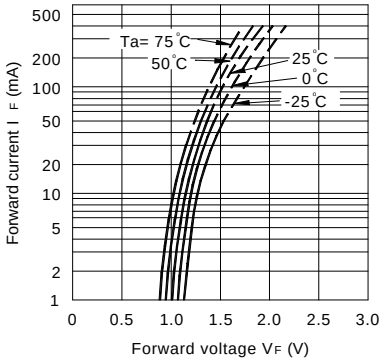


Fig.5 Current Transfer Ratio vs. Forward Current

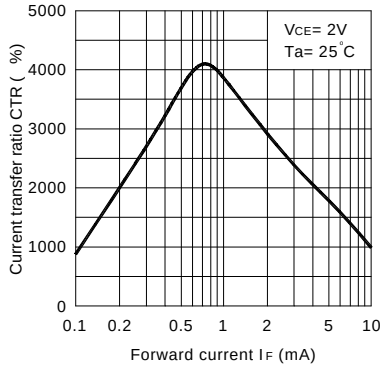
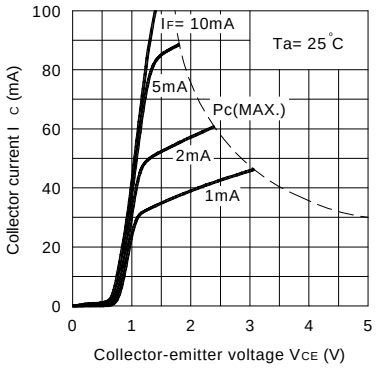


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTIC CURVES

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

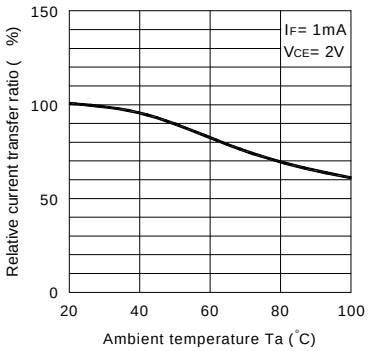


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

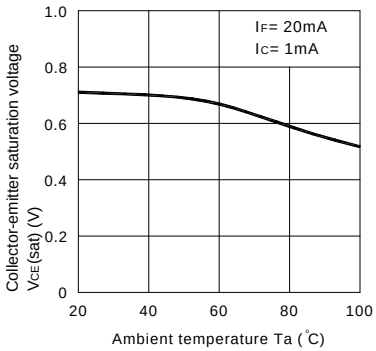


Fig.9 Collector Dark Current vs. Ambient Temperature

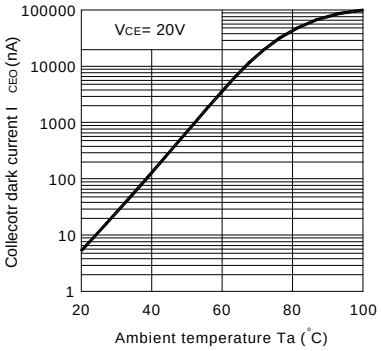


Fig.10 Response Time vs. Load Resistance

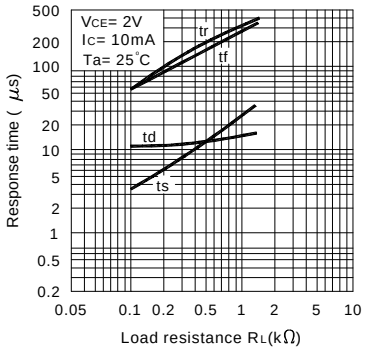
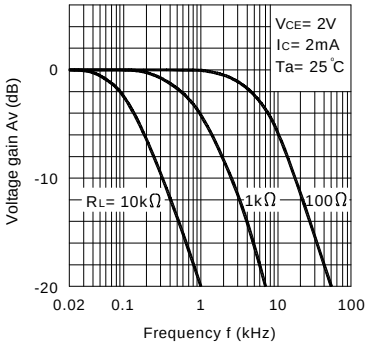
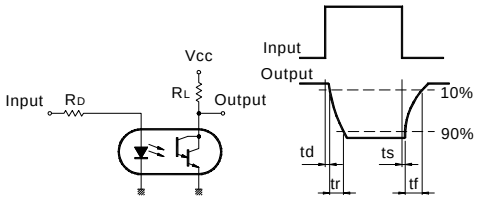


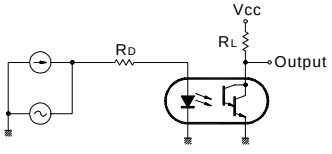
Fig.11 Frequency Response



Test Circuit for Response Time

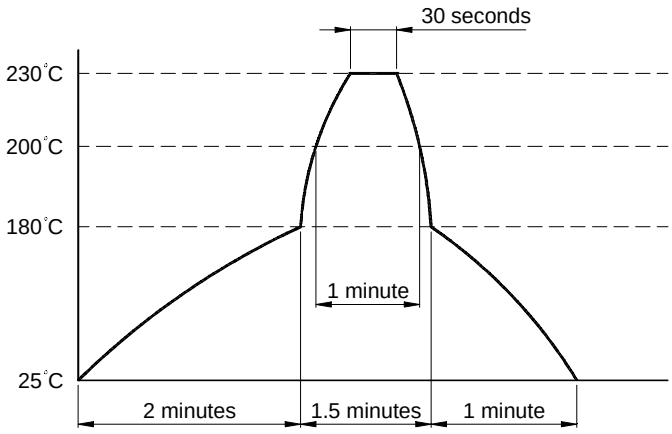


Test Circuit for Frequency Response



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 infrated 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).

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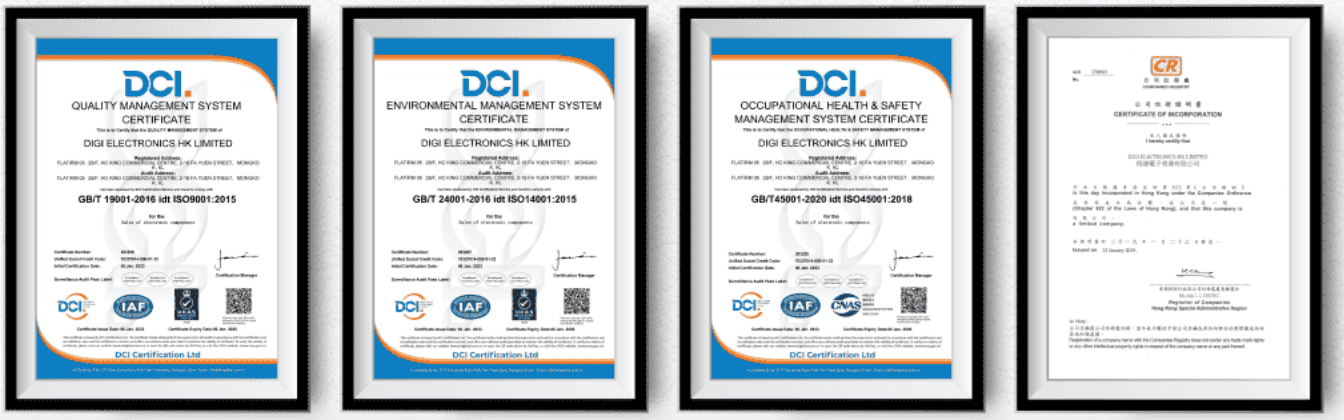

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