



HIGH VOLTAGE DARLINGTON OUTPUT OPTICALLY COUPLED ISOLATOR



APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

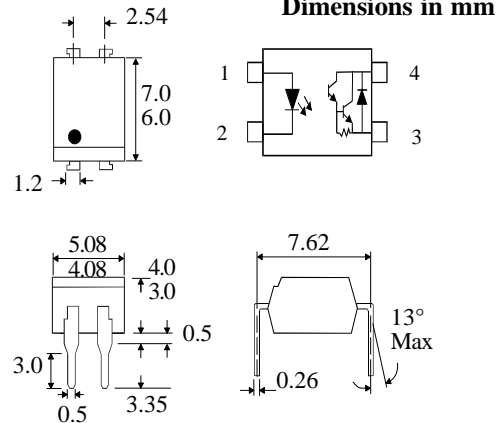
The ISP627 is an optically coupled isolator consisting of infrared light emitting diode and a high voltage NPN silicon photo darlington which has an integral base-emitter resistor to optimise switching speed and elevated temperature characteristics in a standard 4 pin dual in line plastic package.

FEATURES

- Options :-
10mm lead spread - add G after part no.
Surface mount - add SM after part no.
Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- High Current Transfer Ratio (1000% min.)
- High BV_{CEO} (300V min.)
- Low input current 1mA I_F

APPLICATIONS

- Modems
- Copiers, facsimiles
- Numerical control machines
- Signal transmission between systems of different potentials and impedances



ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise specified)

Storage Temperature	-55°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

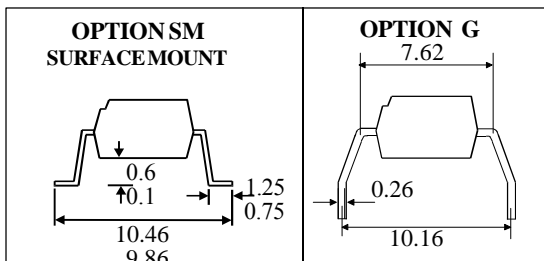
Forward Current	50mA
Reverse Voltage	6V
Power Dissipation	70mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV _{CEO}	300V
Collector Current I _C	150mA
Power Dissipation	150mW

POWER DISSIPATION

Total Power Dissipation	200mW
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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

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

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	1.0	1.15	1.3	V	$I_F = 10\text{mA}$ $I_R = 10\mu\text{A}$ $V_R = 5\text{V}$
	Reverse Voltage (V_R)	5			V	
	Reverse Current (I_R)			10	μA	
Output	Collector-emitter Breakdown (BV_{CEO})	300			V	$I_C = 0.1\text{mA}$ $I_E = 0.1\text{mA}$ $V_{CE} = 200\text{V}$
	Emitter-collector Breakdown (BV_{ECO})	0.3			V	
	Collector-emitter Dark Current (I_{CEO})		10	200	nA	
Coupled	Current Transfer Ratio (CTR)	1000	4000		%	$1\text{mA } I_F, 1\text{V } V_{CE}$ $10\text{mA } I_F, 1\text{V } V_{CE}$ $10\text{mA } I_F, 100\text{mA } I_C$ $1\text{mA } I_F, 10\text{mA } I_C$
	Saturated CTR (CTR_{SAT})	500			%	
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.2	V	
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.0	V	
	Input to Output Isolation Voltage V_{ISO}	5300			V_{RMS}	See note 1
		7500			V_{PK}	
	Input-output Isolation Resistance R_{ISO}	5×10^{10}			Ω	See note 1
	Input-output Capacitance C_f			1	pF	$V_{IO} = 500\text{V}$ (note 1) $V = 0, f = 1\text{MHz}$
	Output Rise Time	tr		40	μs	$V_{CC} = 10\text{V}, I_C = 10\text{mA},$ $R_L = 100\Omega$
	Output Fall Time	tf		15	μs	

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.

FIGURE 1

