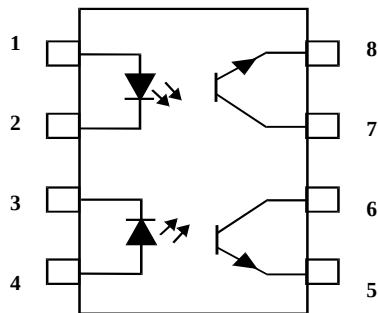
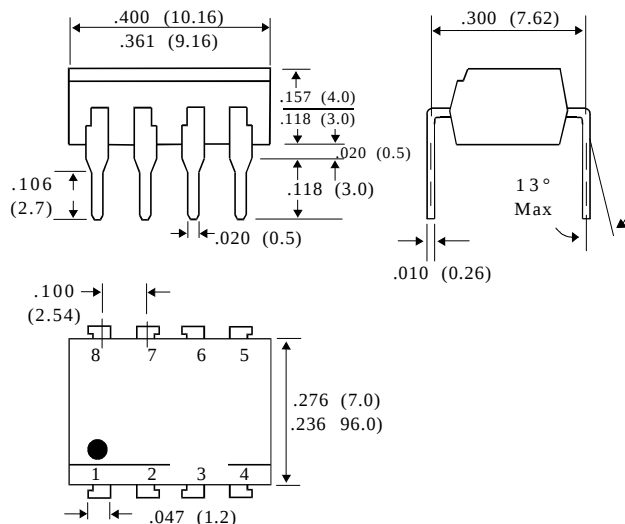


## OPTICALLY COUPLED ISOLATOR TRANSISTOR OUTPUT

### SCHEMATIC



### PACKAGE DIMENSIONS INCHES (MM)



### DESCRIPTION

The IS829 is an optically coupled isolator consisting of Gallium Arsenide infrared emitting diodes and NPN silicon phototransistors mounted in a standard 8-pin dual-in-line package with two channels per unit.

### FEATURES

- High Current Transfer Ratio 50% Min at  $I_F = 5\text{mA}$ ,  $V_{CE} = 5\text{V}$
- Also available in single, quad package
- High Isolation Voltage - 5000  $V_{RMS}$

### ABSOLUTE MAXIMUM RATINGS ( 25°C unless otherwise noted)

|                                                              |                 |
|--------------------------------------------------------------|-----------------|
| Storage Temperature                                          | -55°C to +125°C |
| Operating Temperature                                        | -55°C to +100°C |
| Lead Soldering Temperature<br>(2mm from case for 10 seconds) | 260°C           |
| Input-to-Output Isolation Voltage                            | 5000 $V_{RMS}$  |

### INPUT DIODE

|                                                                         |      |
|-------------------------------------------------------------------------|------|
| Forward D.C. Current                                                    | 50mA |
| Reverse D.C. Voltage                                                    | 6V   |
| Peak Forward Current<br>(p.w. $\leq 100\mu\text{s}$ , duty ratio 0.001) | 1A   |
| Power Dissipation<br>(derate linearly 0.93mW/°C above 25°C)             | 70mW |

### OUTPUT TRANSISTOR

|                                                             |       |
|-------------------------------------------------------------|-------|
| Collector-emitter Voltage $BV_{CEO}$                        | 35V   |
| Power Dissipation<br>(derate linearly 2.00mW/°C above 25°C) | 150mW |

### PACKAGE

|                                                                   |       |
|-------------------------------------------------------------------|-------|
| Total Power Dissipation<br>(derate linearly 2.27mW/°C above 25°C) | 170mW |
|-------------------------------------------------------------------|-------|

### ISOCOM COMPONENTS LTD

Unit 25B, Park View Road West,  
Park View Industrial Estate, Brenda Road  
Hartlepool, Cleveland, TS25 1YD  
Tel: (0429) 863609 Fax : (0429) 863581

### ISOCOM INC

720 E., Park Boulevard, Suite 102,  
Plano, TX 75074 USA  
Tel: (214) 423-5521  
Fax: (214) 422-4549

# **ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)**

| Parameter |                                                           | Min.               | Typ       | Max. | Units         | Test Condition                               |
|-----------|-----------------------------------------------------------|--------------------|-----------|------|---------------|----------------------------------------------|
| Input     | Forward Voltage ( $V_F$ )                                 |                    |           | 1.4  | Volt          | $I_F = 20 \text{ mA}$                        |
|           | Reverse Current ( $I_R$ )                                 |                    |           | 10   | $\mu\text{A}$ | $V_R = 4\text{V}$                            |
| Output    | Collector-emitter Voltage ( $BV_{CEO}$ )                  | 35                 |           |      | Volt          | $I_C = 1\text{mA}$                           |
|           | Emitter-collector Voltage ( $BV_{ECO}$ )                  | 6                  |           |      | Volt          | $I_E = 0.1 \text{ mA}$                       |
|           | Collector-emitter Dark Current ( $I_{CEO}$ )              |                    |           | 100  | nA            | $V_{CE} = 20 \text{ V}$                      |
|           |                                                           |                    |           |      |               |                                              |
| Coupled   | DC Current Transfer Ratio (CTR)                           | 50                 |           | 400  | %             | $I_F = 5\text{mA}$ , $V_{CE} = 5\text{V}$    |
|           | Collector-emitter Saturation Voltage $V_{CE}(\text{Sat})$ |                    | 0.1       | 0.2  | Volt          | $I_F = 20 \text{ mA}$ , $I_C = 1 \text{ mA}$ |
|           | Floating Capacitance ( $C_F$ )                            |                    | 0.6       | 1.0  | pf            | $V = 0$ , $f = 1 \text{ mhz}$                |
|           | Input-to-Output Isolation Resistance $R_{iso}$            | $5 \times 10^{10}$ | $10^{11}$ |      | ohm           | $V_{IO} = 500\text{V}$ (see note 1)          |
|           | Inout to Output Isolation Voltage                         | 5000               |           |      | $V_{RMS}$     | (note 1)( $t = 1 \text{ Min}$ )              |
|           | Output Turn - on Time ( $t_{on}$ )                        |                    | 3.0       |      | $\mu\text{S}$ | $I_C = 2\text{mA}$ , $V_{CC} = 10\text{V}$   |
|           | Output Turn - off Time ( $t_{off}$ )                      |                    | 2.5       |      | $\mu\text{S}$ | $R_L = 100\Omega$<br>Fig 1                   |

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

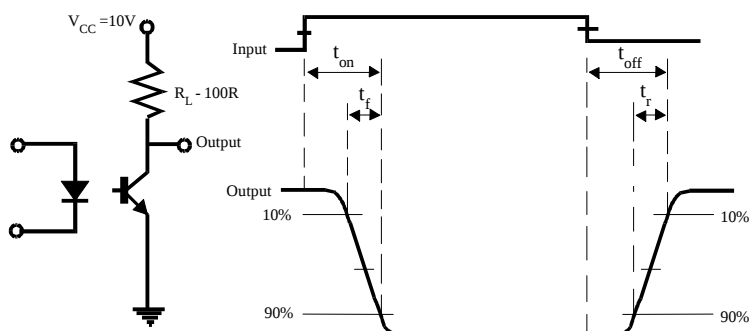


FIG 1