



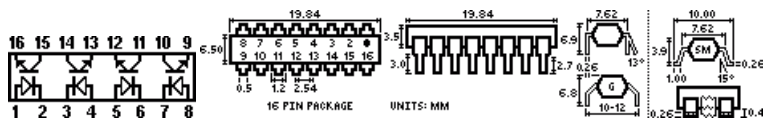
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[Circuit](#)  
[Features](#)  
[Description](#)  
[Absolute Maximum Ratings](#)  
[Electrical Characteristics](#)

[Similar Optocouplers](#)  
[Home Page](#)

## ISQ202: OPTICALLY COUPLED ISOLATORS

### Circuit



### Features

5000 V Isolation.  
 High Current Transfer Ratio (125% to 250%).  
 Low Cost Dual-In-Line Package.  
 Quad Configuration.

### Description

The ISQ202 is an optically coupled isolator. Each channel consists of a Gallium Arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard 16-pin dual-in-line package. Surface Mount Option Available.

The ISQ202 offers four channels per unit.

All electrical parameters are 100% tested by manufacturing. Specifications are guaranteed to a cumulative 0.65% AQL.

### Absolute Maximum Ratings (Ta=25°C)

Storage Temperature: -55°C to +150°C  
 Operating Temperature: -55°C to +100°C  
 Lead Soldering: 260°C for 10s, 1.6mm from case  
 Input-to-Output Isolation Voltage:  $\pm 5000$ Vdc ([note 1](#))

### Input Diode

Forward DC Current: 60mA  
 Reverse DC Voltage: 3V  
 Peak Forward Current: 1A (PW.=100 $\mu$ s, duty ratio 0.001)  
 Power Dissipation: 100mW  
 Derate Linearly: 1.33mW/°C above 25°C

**Output Transistor**

Collector-Emitter Voltage:	30V
Emitter-Collector Voltage:	7V
Power Dissipation:	150mW
Derate Linearly:	2.00mW/°C above 25°C

**Package**

Total Power Dissipation:	500mW
Derate Linearly:	6.67mW/°C above 25°C

**Electro-optical Characteristics (Ta=25°C)**

INPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =20mA		1.2	1.5	V
		I <sub>F</sub> =1mA		1	1.2	V
I <sub>R</sub>	Reverse Current	V <sub>R</sub> =3V			10	μA
<b>OUTPUT</b>						
H <sub>FE</sub>		I <sub>C</sub> =100μA, V <sub>CE</sub> =5V	100	200		
BV <sub>CEO</sub>	Collector-Emitter Voltage	I <sub>C</sub> =1mA	30			V
BV <sub>ECO</sub>	Emitter-Collector Voltage	I <sub>E</sub> =0.1mA	7			V
I <sub>CEO</sub>	Collector-Emitter Dark Current	V <sub>CE</sub> =10V			50	nA
<b>COUPLED</b>						
CTR	DC Current Transfer Ratio	I <sub>F</sub> =10mA, V <sub>CE</sub> =10V	125		250	%
		I <sub>F</sub> =1mA, I <sub>C</sub> =10V	30	50		%
V <sub>CE(SAT)</sub>	Collector-Emitter Saturation Voltage	I <sub>F</sub> =10mA, I <sub>C</sub> =2mA		0.2	0.4	V
C <sub>F</sub>	Floating Capacitance	V=0, f=1MHz		0.6	1	pf
	Input-Output Isolation Resistance	V <sub>IO</sub> =500V (Note 1)	5x10			ohm

**Notes**

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

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[Contents](#)