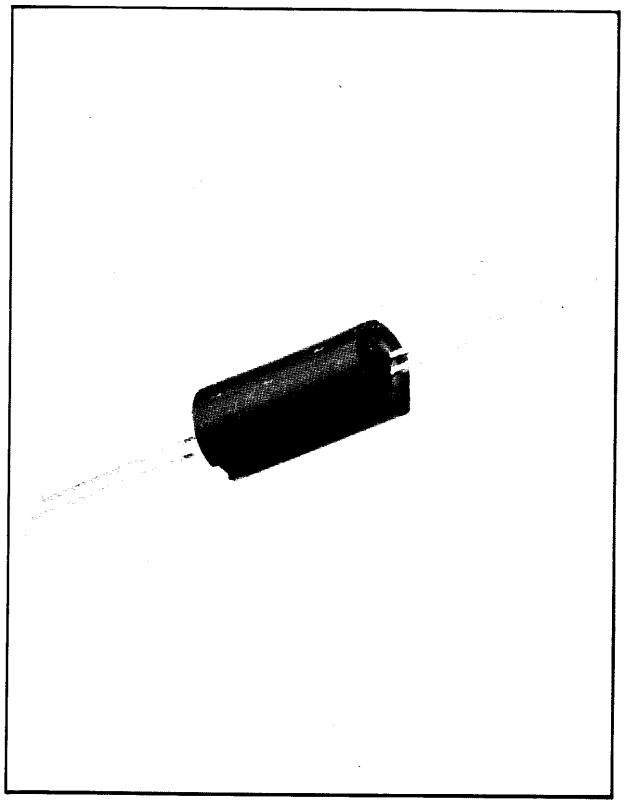
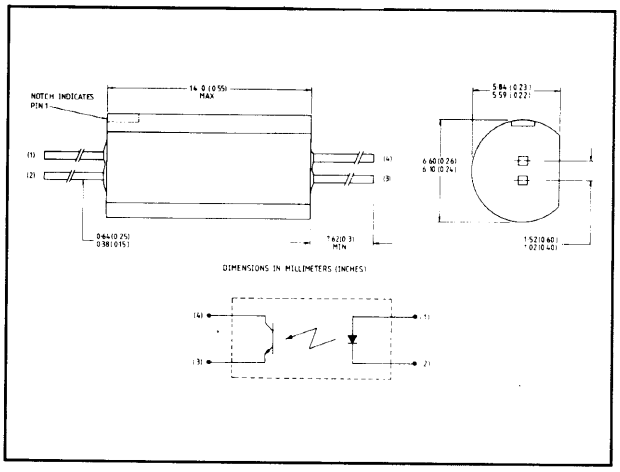
179-223

SSI-8900 Series Optically coupled isolators





Description

The SSI-8901, 2 and 3 are a family of optically coupled isolators, each consisting of a gallium arsenide, near infrared light emitting diode, coupled to an NPN silicon phototransistor sealed in an injection moulded plastic housing. This series is designed for applications requiring high voltage isolation between input and output.

All electrical parameters are 100% tested by manufacturing. Specifications are guaranteed to a .65% AQL.

Features

- ▶ 10 kV electrical rating
- ▶ High current transfer ratio
- ▶ Low cost plastic module

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Certificate Number
BAS Ex89C2096U EEx
has now been issued approving this device for use in hazardous environments

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SSI-8900 Optically coupled isolator

Absolute maximum ratings (25°C unless otherwise noted)

Input-to-output isolation voltage	± 10 kVDC[1]
Operating temperature range	− 40°C to + 85°C
Storage temperature range	− 40°C to + 80°C
Lead soldering temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron)[2]	240°C

Input diode

Forward DC current	50 mA[3]
Reverse DC voltage	2 V
Power dissipation	100 mW[4]

Output phototransistor

Collector-emitter voltage	30 V
Emitter-collector voltage	5 V
Power dissipation	100 mW[5]

Notes:
[1] Measured with input diode leads shorted together and output leads shorted together
[2] RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering
[3] Derate linearly 0.73 mA/°C above 25°C
[4] Derate linearly 1.67 mW/°C above 25°C
[5] Derate linearly 1.67 mW/°C above 25°C

Electrical characteristics (25°C unless otherwise noted)

Symbol	Parameter	Min	Typ	Max	Units	Test conditions
Input Diode						
V_F	Forward voltage			1.5	V	I_F = 20 mA
I_R	Reverse current			100	µA	V_R = 2 V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	30			V	I_C = 1 mA If = 0
$V_{(BR)ECO}$	Emitter-collector breakdown voltage	5			V	I_E = 100 µA
I_{CEO}	Collector-emitter dark current			100	nA	V_{CE} = 10 V
Coupled						
I_C/I_F	DC current transfer ratio					
	SSI 8901	25			%	I_F = 10 mA, V_{CE} = 5 V
	SSI 8902	50			%	I_F = 10 mA, V_{CE} = 5 V
	SSI 8903	100			%	I_F = 10 mA, V_{CE} = 5 V
V_{ISO}	Isolation voltage	10			kV	See Note 1
$V_{CE(SAT)}$	Collector-emitter saturation voltage			0.4	V	I_F = 10 mA, I_C = 1.6 mA
C_{IO}	Input-output capacitance		0.06		pF	
t_{on}	Turn-on time		3		µs	I_C = 10 mA, V_{CC} = 10 V, R_L = 100 Ω
t_{off}	Turn-off time		3		µs	I_C = 10 mA, V_{CC} = 10 V, R_L = 100 Ω

Note:
[1] Measured with input diode leads shorted together and output leads shorted together