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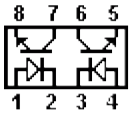
ISD202: OPTICALLY COUPLED ISOLATORS

Circuit



Features

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

Description

The ISD202 is an optically coupled isolator. Each channel consists of a Gallium Arsenide infrared emitting diode and an NPN silicon phototransistor mounted in a standard 6-pin dual-in-line package. Surface Mount Option Available.
The ISD202 offers two 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: ±5000Vdc (note 1)

Input Diode

Forward DC Current: 60mA
Reverse DC Voltage: 3V
Peak Forward Current: 1A (PW.=100μs, 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: 400mW
Derate Linearly: 5.33mW/°C above 25°C

Electro-optical Characteristics (Ta=25°C)

INPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V_F	Forward Voltage	I_F=20mA		1.2	1.5	V
		I_F=1mA		1	1.2	
I_R	Reverse Current	V_R=3V			10	μA
OUTPUT						
H_{FE}		I_C=100μA, V_{CE}=5V	100	200		
BV_{CEO}	Collector-Emitter Voltage	I_C=1mA	30			V
BV_{ECO}	Emitter-Collector Voltage	I_E=0.1mA	7			V
I_{CEO}	Collector-Emitter Dark Current	V_{CE}=10V			50	nA
COUPLED	**PARAMETER**	**CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNIT**
CTR	DC Current Transfer Ratio	I_F=10mA, V_{CE}=10V	125		250	%
		I_F=1mA, V_{CE}=10V	30	50		%
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	I_F=10mA, I_C=2.0mA		0.2	0.4	V
C_F	Floating Capacitance	V=0 , f=1MHz		0.6	1	pF
	Input-Output Isolation Resistance	V_{IO}=500V (note 1)	5E11			ohm

Notes

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

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