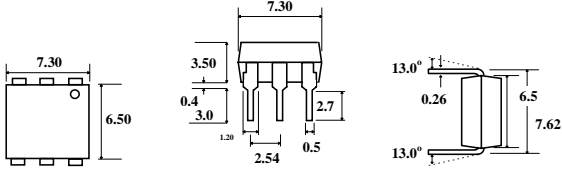



4N45

LOW INPUT CURRENT HIGH GAIN OPTOCOUPLEDERS

ISOCOM[®] LTD

PACKAGES	CIRCUIT
	

DESCRIPTION

The 4N45 is an optically coupled isolator. It consists of a Gallium Arsenide infrared emitting diode and a high gain photodetector IC. The inclusion of an integrated emitter-base bypass resistor provides excellent performance over temperature. External access to the second stage base improves noise rejection as compared with conventional photodarlington detectors.

Isocom Ltd supplies a multitude of plastic optocouplers for all applications varying from standard transistor optos through to Darlington and Schmitt Trigger devices. It's massive family of optos vary in speed allowing maximum opportunity to engineers worldwide.

All devices are performance guaranteed between -20°C and +80°C and have completed rigorous testing.

The Company's customers can be assured of our commitment to stringent quality, reliability and inspection standards, as demonstrated by our existing approvals. Other customer specific options can also be offered.

FEATURES

- High CTR - 1000%Typical
- 3000V Isolation
- Gain Bandwidth Adjustment
- Low Input Current Requirement - 0.5mA

Isocom Ltd reserves the right to change the details on this specification without notice. Please consult Isocom Ltd prior to use. Isocom Ltd cannot accept liability for any errors or omissions.

For sales enquiries, or further information, please contact our sales office at:

Isocom Ltd, Hutton Close, Crowther Industrial Estate, District 3, Washington, NE38 0AH

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Or go to the Isocom Website @: [Http://www.isocom.com](http://www.isocom.com)

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-55°C to +125°C
Operating Temperature	-40°C to +70°C
Lead Soldering Temperature	260°C 1.6mm from case for 10S
Input-to-Output Isolation Voltage	↑5000V

Input Diode

Forward DC Current	20mA	
Reverse DC Voltage	5V	
Peak forward Current	1.0A	≤1μS p.w. 300 pps
Power Dissipation	35mW	Derate linearly above 50°C at 0.7mW/°C.

Output Transistor

Current (pin 5)	60mA	I_O
Emitter-Base Reverse Voltage (pin 4-6)	0.5V	
Output Voltage (pin 5-4)	-0.5 to 7V	V_O
Power Dissipation	100mW	Derate linearly above 25°C at 1.5mW/°C

ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ U.O.S. (each channel where appropriate).

Input Diode Electrical Characteristics

Parameter	Symbol	Test Conditions	Device	Min	Typ	Max	Units
Forward Voltage	V_F	$I_F = 1\text{mA}$, $T_A = 25^\circ\text{C}$			1.4	1.7	V
Reverse Breakdown Voltage	V_R	$I_R = 10\mu\text{A}$, $T_A = 25^\circ\text{C}$		5.0			V

Coupled Electrical Characteristics

DC Current Transfer Ratio	CTR	$I_F = 1.0\text{mA}$, $V_O = 1\text{V}$		250	1200		%
		$I_F = 10\text{mA}$, $V_O = 1.2\text{V}$		200	500		%
Logic Low Output Voltage	V_{OL}	$I_F = 1.0\text{mA}$, $I_{OL} = 2.5\text{mA}$			0.9	1.0	V
		$I_F = 10\text{mA}$, $I_{OL} = 20\text{mA}$			0.95	1.2	V
Logic High Output Current	I_{OH}	$I_F = 0$, $V_O = 5\text{V}$			0.001	250	μA
Input-to-Output Isolation Resistance	R_{IO}	$V_{IO} = 500\text{V}$		10^{12}			Ω
Input Capacitance	C_{IN}	$f = 1\text{MHz}$, $V_F = 0$			60		pF
Input-Output Insulation Leakage Current	I_{IO}	45% relative Humidity $T_A = 25^\circ\text{C}$, $t = 5\text{S}$, $V_{IO} = 3\text{KVdc}$				1.0	μA
Propagation Delay Time to Logic Low at Output	t_{PHL}	$I_F = 1.0\text{mA}$, $R_L = 10\text{K}\Omega$			80		μS
		$I_F = 10\text{mA}$, $R_L = 220\Omega$			9	50	μS
Propagation Delay Time to Logic High at Output	t_{PLH}	$I_F = 1.0\text{mA}$, $R_L = 10\text{K}\Omega$			1500		μS
		$I_F = 10\text{mA}$, $R_L = 220\Omega$			180	500	μS
Input-to-Output Isolation Voltage				3000			V

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