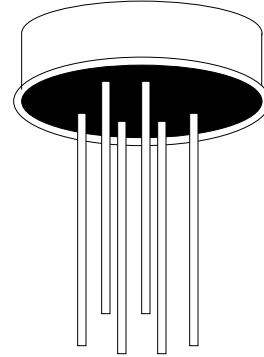


CS 102

Gallium Arsenide Optocoupler in a TO-78 Package



Isocom Ltd supplies high reliability devices for applications requiring an operating temperature range of -55°C to +125°C (e.g. military applications).

Devices supplied are approved to BS9400, and have completed rigorous testing. Various high reliability test options are offered.

As a manufacturer of high reliability optocouplers, the Isocom Ltd manufacturing plant in the North East of England has site approval to BS9000 (registration number 1294/M) and CECC20000 (registration number M/1084/CECC/UK) issued by the British Standards Institution.

Together with CECC, BS9000 is a preferred standard for use in European military projects. Consequently, Isocom Ltd's approved devices are listed in the CECC "MUAHAG" preferred products list.

The BS9000 approval is also recognised as meeting the equivalent criteria to those required by BS5750/ISO9000/EN29000.

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	Applications	
TO-78 package	High density surface mount	
Gallium Arsenide LED	Military high reliability systems	
Silicon phototransistor	Switch mode power supplies	
Suitable for hybrid sub assembly mounting	Medical instruments	
High radiation immunity	System test equipment	
Low input current	Signal transmission between circuit of different potential and impedance	

Description

The CS102 is a single channel device in a TO-78 package. The device incorporates a Gallium Arsenide infrared source optically coupled to a high gain N-P-N Silicon phototransistor.

Absolute Maximum Ratings

Input-to-Output Voltage	1 kV
Collector-Emitter Voltage	35 V
Collector-Base Voltage	35 V
Emitter-Base Voltage	4 V
Input Diode Reverse Voltage	2 V
Input Diode Continuous Forward Current at $T_A=65^\circ\text{C}$	40 mA
Continuous Collector Current	50 mA
Continuous Transistor Power Dissipation at $T_A=25^\circ\text{C}$	300 mW
Storage Temperature Range	-55°C to 125°C
Lead Temperature 1.6mm (1/16 in) from case for 10 secs	240°C

Electrical Characteristics ($T_A = -55$ to 125°C U.O.S) *All typical values at $T_A = 25^\circ\text{C}$

parameter	symbol	Test Conditions	min	*typ	max	Units
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\ \mu\text{A}, I_E=0, I_F=0$	35			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0, I_F=0$	35			V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\ \mu\text{A}, I_C=0, I_F=0$	4			V
Input Diode Static Reverse Current	I_R	$V_R=2\text{V}$			100	μA
On-State Collector Current, Photo Transistor Op	$I_{C(ON)}$	$V_{CE}=5\text{V}, I_B=0, I_F=10\text{mA}$	2.5	6		mA
Off-State Collector Current, Photo Transistor Op	$I_{C(OFF)}$	$V_{CE}=20\text{V}, I_B=0, I_F=0$		6	100	nA
		$V_{CE}=20\text{V}, I_B=0, I_F=0, T_A=100^\circ\text{C}$		4		μA
Transistor Static Forward Current Transfer Ratio	h_{FE}	$V_{CE}=5\text{V}, I_C=10\text{mA}, I_F=0$		300		
Input Diode Static Forward Voltage	V_F	$I_F=10\text{mA}$			1.3	V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=2.5\ \text{mA}, I_B=0, I_F=20\text{mA}$			0.3	V
		$I_C=10\ \text{mA}, I_B=0, I_F=20\text{mA}$				V
Input-to-Output Internal	R_{IO}	$V_{IN-OUT}=1\ \text{KV}, \text{note 3}$	10^{11}	10^{12}		ohm
Input-to-Output Capacitance	C_{IO}	$V_{IN-OUT}=0, f=1\text{MHz}, \text{note 3}$		2.5		pF
Note 3, These parameters are measured between both input diode leads shorted together and all the phototransistor leads shorted together.						
Switching Characteristics at 25°C						
Rise Time Phototransistor Operation	t_R	$V_{CC}=20\text{V}, I_B=0, I_{C(ON)}=5\text{mA}, R_L=100\text{ohm}$		3		μs
Fall Time Phototransistor Operation	t_F	$V_{CC}=20\text{V}, I_B=0, I_{C(ON)}=5\text{mA}, R_L=100\text{ohm}$		3		
Rise Time Photodiode Operation	t_R	$V_{CC}=20\text{V}, I_E=0, I_{C(ON)}=50\ \mu\text{A}, R_L=100\text{ohm}$		150		μs
Fall Time Photodiode Operation	t_F	$V_{CC}=20\text{V}, I_E=0, I_{C(ON)}=50\ \mu\text{A}, R_L=100\text{ohm}$		150		

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.

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