

# Photon Coupled Isolator GEPS2001

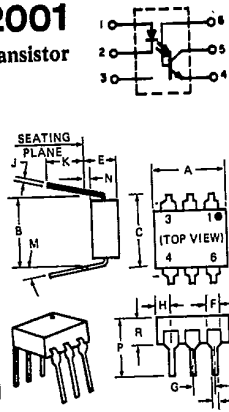
Ga As Infrared Emitting Diode & NPN Silicon Photo-Transistor

The GE Solid State GEPS2001 is a gallium arsenide, infrared emitting diode coupled with a silicon phototransistor in a dual-in-line package. This device is also available in Surface-Mount packaging.

absolute maximum ratings: (25°C)

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	60	milliamps
Forward Current (Peak) (Pulse width 1μsec 300 P Ps)	3	ampere
Reverse Voltage	5	volts
*Derate 1.33mW/°C above 25°C ambient.		

PHOTO-TRANSISTOR		
Power Dissipation	**150	milliwatts
V <sub>CEO</sub>	30	volts
V <sub>CBO</sub>	70	volts
V <sub>ECO</sub>	7	volts
Collector Current (Continuous)	100	milliamps
**Derate 2.0mW/°C above 25°C ambient.		



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	8.38	8.89	.330	.350	1
B	7.62 REF.		.300 REF.		
C		8.84		.340	2
D		5.08		.200	
E	.408		.016		3
F	1.01	1.78	.040	.070	
G		2.80	.090	.110	4
H		2.16		.085	
J	.203	.305	.008	.012	
K	2.64		.100		
M		15		15	
N	.381		.015		
P		9.53		.375	
R	2.92	3.43	.115	.135	
S	6.10	6.86	.240	.270	

- NOTES:  
 1. INSTALLED POSITION LEAD CENTERS  
 2. OVERALL INSTALLED DIMENSION.  
 3. THESE MEASUREMENTS ARE MADE FROM THE SEATING PLANE.  
 4. FOUR PLACES.

TOTAL DEVICE	
Storage Temperature	-55 to 150°C
Operating Temperature	-55 to 100°C
Lead Soldering Time (at 260°C)	10 seconds
Surge Isolation Voltage (Input to Output)	2500 V <sub>(peak)</sub> 1770 V <sub>(RMS)</sub>

## individual electrical characteristics (25°C)

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage (I <sub>F</sub> = 20mA)	1.1	1.4	volts
Reverse Current (V <sub>R</sub> = 4V)	-	20	microamps
Capacitance (V = 0, f = 1MHz)	50	-	picofarads

PHOTO-TRANSISTOR	MIN.	TYP.	MAX.	UNITS
Breakdown Voltage - V <sub>(BR)CEO</sub> (I <sub>C</sub> = 10mA, I <sub>F</sub> = 0)	30	-	-	volts
Breakdown Voltage - V <sub>(BR)CBO</sub> (I <sub>C</sub> = 100μA, I <sub>F</sub> = 0)	70	-	-	volts
Breakdown Voltage - V <sub>(BR)ECO</sub> (I <sub>E</sub> = 100μA, I <sub>F</sub> = 0)	7	-	-	volts
Collector Dark Current - I <sub>CEO</sub> (V <sub>CE</sub> = 10V, I <sub>F</sub> = 0)	-	5	100	nanoamps
DC Current Gain h <sub>FE</sub> (V <sub>CE</sub> = 5V, I <sub>C</sub> = 4mA)	-	400	-	

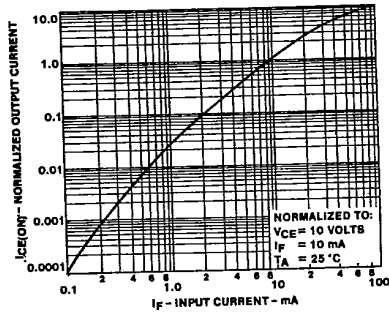
## coupled electrical characteristics (25°C)

	MIN.	TYP.	MAX.	UNITS
DC Current Transfer Ratio (I <sub>F</sub> = 20mA, V <sub>CE</sub> = 5V)	30	-	-	%
Saturation Voltage - Collector to Emitter (I <sub>F</sub> = 20mA, I <sub>C</sub> = 2mA)	-	0.1	0.3	volts
Isolation Resistance (Input to Output Voltage = 1000V <sub>DC</sub> )	100	-	-	gigaohms
Input to Output Capacitance (Input to Output Voltage = 0, f = 1MHz)	-	0.8	2	picofarads
Switching Speeds: Rise/Fall Time (V <sub>CE</sub> = 10V, I <sub>CE</sub> = 2mA, R <sub>L</sub> = 100Ω)	-	5	-	microseconds
Rise/Fall Time (V <sub>CB</sub> = 10V, I <sub>CB</sub> = 50μA, R <sub>L</sub> = 100Ω)	-	300	-	nanoseconds

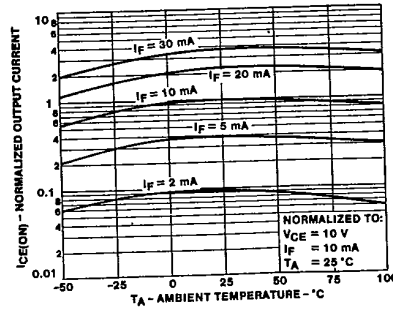
Covered under U.L. component recognition program, reference file #E51868

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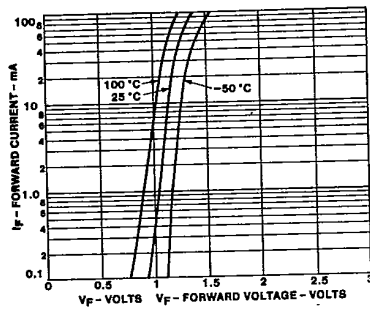
TYPICAL CHARACTERISTICS



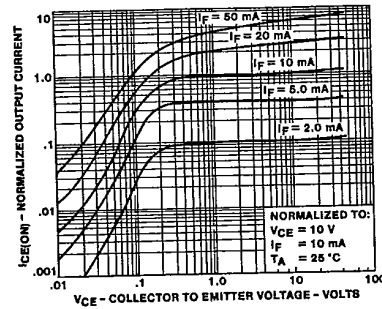
OUTPUT CURRENT VS. INPUT CURRENT



OUTPUT CURRENT VS. TEMPERATURE

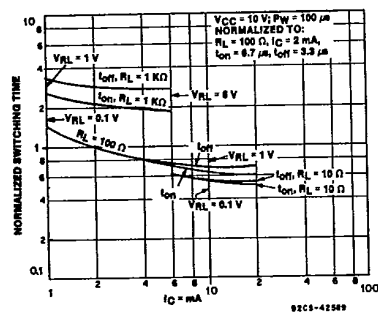


INPUT CHARACTERISTICS

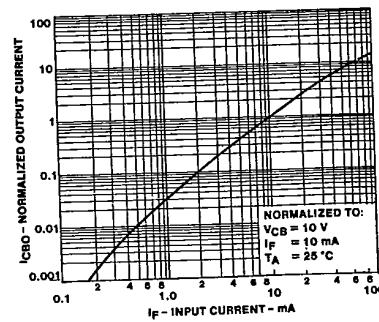


OUTPUT CHARACTERISTICS

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SWITCHING SPEED VS COLLECTOR CURRENT  
(NOT SATURATED)



OUTPUT CURRENT (IcBO) VS INPUT CURRENT

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Datasheets for electronic components.