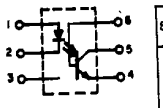
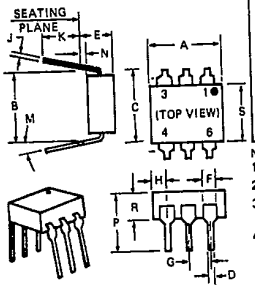
Photon Coupled Isolator GEPS2001

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.





SYMBOL	MILLIMETERS MIN.	MILLIMETERS MAX.	INCHES MIN.	INCHES MAX	NOTES
A	8.38	8.89	.330	.350	
B	7.62 REF.		.300 REF.		1
C	–	8.64	–	.340	2
D	.406	.508	.016	.020	
E	–	5.08	–	.200	3
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	
H	–	2.16	–	.085	4
J	.203	.305	.008	.012	
K	2.64	–	.100	–	
L	–	15°	–	15°	
M	.381	–	.015	–	
N	–	9.53	–	.375	
P	2.92	3.43	.115	.135	
R	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.

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_{CEO}	30	volts
V_{CBO}	70	volts
V_{ECO}	7	volts
Collector Current (Continuous)	100	milliamps

**Derate 2.0mW/°C above 25°C ambient.

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 $V_{(peak)}$ 1770 $V_{(RMS)}$

individual electrical characteristics (25°C)

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage (I_F = 20mA)	1.1	1.4	volts
Reverse Current (V_R = 4V)	–	20	microamps
Capacitance (V = 0, f = 1MHz)	50	–	picofarads

PHOTO-TRANSISTOR	MIN.	TYP.	MAX.	UNITS
Breakdown Voltage – $V_{(BR)CEO}$ (I_C = 10mA, I_F = 0)	30	–	–	volts
Breakdown Voltage – $V_{(BR)CBO}$ (I_C = 100μA, I_F = 0)	70	–	–	volts
Breakdown Voltage – $V_{(BR)ECO}$ (I_E = 100μA, I_F = 0)	7	–	–	volts
Collector Dark Current – I_{CEO} (V_{CE} = 10V, I_F = 0)	–	5	100	nanoamps
DC Current Gain h_{FE} (V_{CE}=5V, I_C=4mA)	–	400	–	

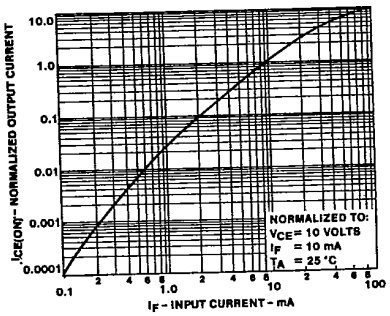
coupled electrical characteristics (25°C)

	MIN.	TYP.	MAX.	UNITS
DC Current Transfer Ratio (I_F = 20mA, V_{CE} = 5V)	30	–	–	%
Saturation Voltage – Collector to Emitter (I_F = 20mA, I_C = 2mA)	–	0.1	0.3	volts
Isolation Resistance (Input to Output Voltage = 1000V_{DC})	100	–	–	gigaohms
Input to Output Capacitance (Input to Output Voltage = 0, f = 1MHz)	–	0.8	2	picofarads
Switching Speeds: Rise/Fall Time (V_{CE} = 10V, I_{CE} = 2mA, R_L = 100Ω)	–	5	–	microseconds
Rise/Fall Time (V_{CB} = 10V, I_{CB} = 50μA, R_L = 100Ω)	–	300	–	nanoseconds

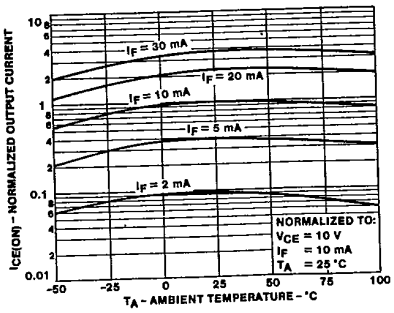
Covered under U.L. component recognition program, reference file #E51868

T-41-83

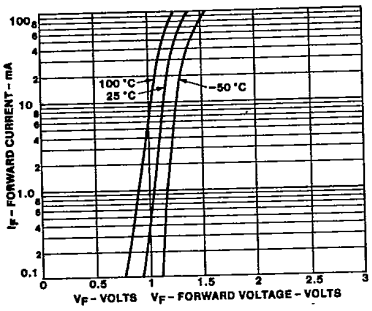
TYPICAL CHARACTERISTICS



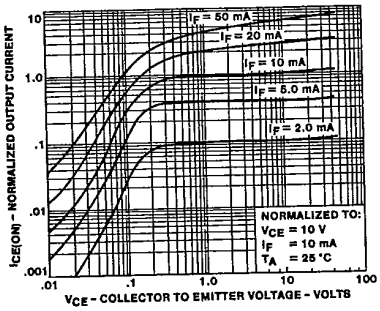
OUTPUT CURRENT VS. INPUT CURRENT



OUTPUT CURRENT VS. TEMPERATURE



INPUT CHARACTERISTICS



OUTPUT CHARACTERISTICS

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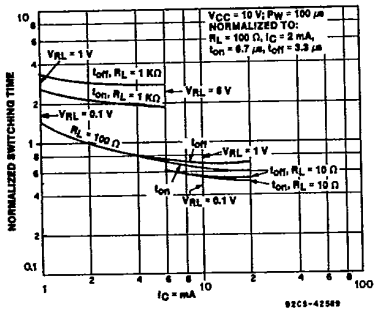
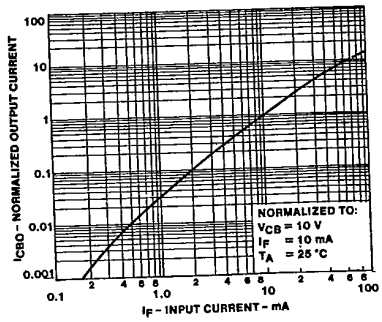


SWITCHING SPEED VS COLLECTOR CURRENT (NOT SATURATED)



OUTPUT CURRENT (I_{CBO}) VS INPUT CURRENT