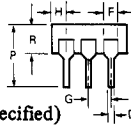
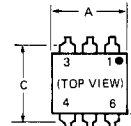
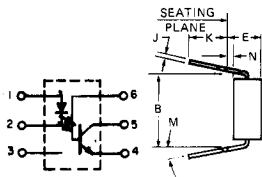


Photon Coupled Isolator 4N25-4N25A-4N26-4N27-4N28

Ga As Infrared Emitting Diode & NPN Silicon Photo-Transistor

The GE Solid State 4N25-4N26-4N27-4N28 devices consist of a gallium arsenide infrared emitting diode coupled with a silicon phototransistor in a dual in-line package. These devices are also available in surface-mount packaging.



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	8.38	8.89	.330	.350	1
B	7.62 REF.		.300 REF.		
C	-	8.64	-	.340	2
D	4.06	.508	.016	.020	
E	-	5.08	-	.200	3
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	4
H	-	2.16	-	.085	
J	2.03	.305	.008	.012	4
K	2.54	-	.100	-	
M	-	15°	-	15°	4
N	3.81	-	.15	-	
P	-	9.53	-	.375	4
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.

FEATURES:

- Fast switching speeds
- High DC current transfer ratio
- High isolation resistance
- 2500 volts isolation voltage
- I/O compatible with integrated circuits

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

†Parameters are JEDEC registered values.

absolute maximum ratings: (25°C) (unless otherwise specified)

†Storage Temperature -55 to 150°C. Operating Temperature -55 to 100°C. Lead Soldering Time (at 260°C) 10 seconds.

INFRARED EMITTING DIODE		PHOTO-TRANSISTOR	
† Power Dissipation	*150 milliwatts	†Power Dissipation	**150 milliwatts
†Forward Current (Continuous)	80 milliamps	†V _{CEO}	30 volts
†Forward Current (Peak) (Pulse width 300 μsec 2% duty cycle)	3 ampere	†V _{CBO}	70 volts
†Reverse Voltage	3 volts	†V _{ECO}	7 volts
		Collector Current (Continuous)	100 milliamps
	*Derate 2.0mW/°C above 25°C ambient.		**Derate 2.0mW/°C above 25°C ambient.

†Total device dissipation @ 24-25°C. P_D 250mW.

†Derate 3.3 mW/°C above 25°C ambient.

individual electrical characteristics (25°C)

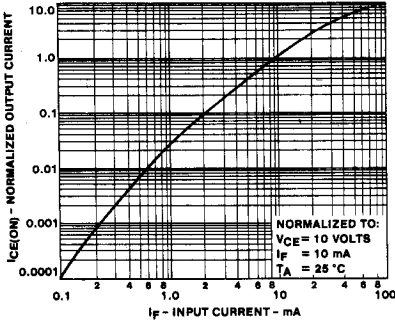
INFRARED EMITTING DIODE	TYP.	MAX.	UNITS	PHOTO-TRANSISTOR				
				MIN.	TYP.	MAX.	UNITS	
†Forward Voltage (I _F = 10 mA)	1.1	1.5	volts	†Breakdown Voltage - V _{(BR)CEO} (I _C = 1mA, I _F = 0)	30	-	-	volts
†Reverse Current (V _R = 3V)	-	100	microamps	†Breakdown Voltage - V _{(BR)CBO} (I _C = 100μA, I _F = 0)	70	-	-	volts
Capacitance V = 0, f = 1 MHz	50	-	picofarads	†Breakdown Voltage - V _{(BR)ECO} (I _E = 100μA, I _F = 0)	7	-	-	volts
				†Collector Dark Current I _{CEO} 4N25-27	-	5	50	nanoamps
				4N28	-	-	100	nanoamps
				†Collector Dark Current - I _{CBO} (V _{CB} = 10V, I _F = 0)	-	2	20	nanoamps

coupled electrical characteristics (25°C)

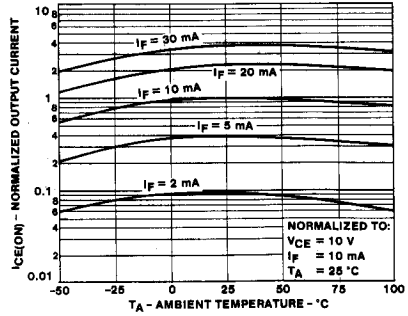
	MIN.	TYP.	MAX.	UNITS
†DC Current Transfer Ratio (I _F = 10mA, V _{CE} = 10V) 4N25, 4N25A, 4N26 4N27, 4N28	20	-	-	%
	10	-	-	%
†Saturation Voltage - Collector - Emitter (I _F = 50mA, I _C = 2 mA)	-	0.1	0.5	volts
Resistance - IRED to Photo-Transistor (@ 500 volts)	-	100	-	gigaohms
Capacitance - IRED to Photo-Transistor (@ 0 volts, f = 1 MHz)	-	1	-	picofarad
†Isolation Voltage - voltage @ 60 Hz with the input terminals (diode) shorted together and the output terminals (transistor) shorted together.	4N25	2500	-	volts (peak)
	4N26, 4N27	1500	-	volts (peak)
	4N28	500	-	volts (peak)
	4N25A	1775	-	volts (RMS) (1 sec.)
Rise/Fall Time (V _{CE} = 10V, I _{CE} = 2mA, R _L = 100Ω)	-	2	-	microseconds
Rise/Fall Time (V _{CB} = 10V, I _{CB} = 50μA, R _L = 100Ω)	-	300	-	nanoseconds

⚠ VDE Approved to 0883/6.80 0110b Certificate # 35025, except type 4N28

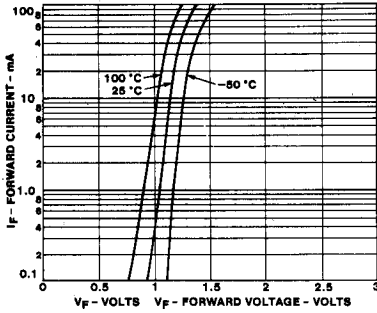
TYPICAL CHARACTERISTICS



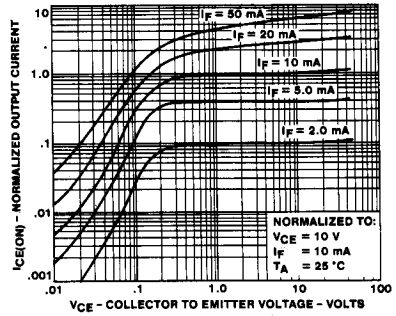
OUTPUT CURRENT VS INPUT CURRENT



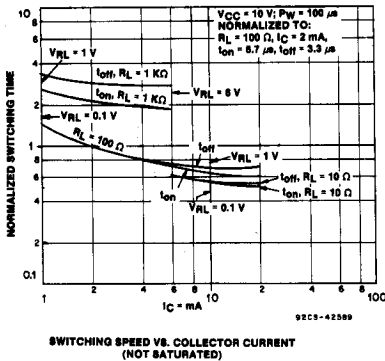
OUTPUT CURRENT VS TEMPERATURE



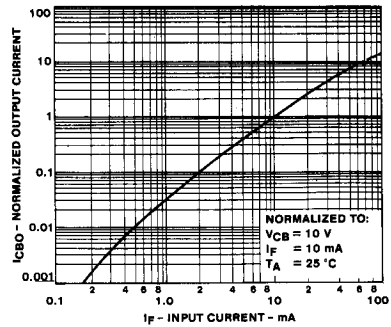
INPUT CHARACTERISTICS



OUTPUT CHARACTERISTICS



SWITCHING TIMES VS OUTPUT CURRENT (NOT SATURATED)



OUTPUT CURRENT (I_{CBO}) VS INPUT CURRENT