

# Photon Coupled Isolator CNY32

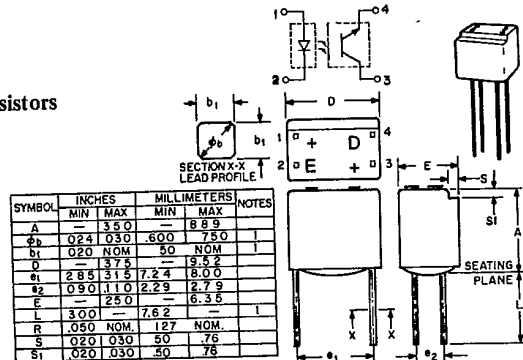
Ga As Infrared Emitting Diodes & NPN Silicon Photo-Transistors

The GE Solid State CNY32 is a gallium arsenide, infrared emitting diode coupled with a silicon photo-transistor in a low-cost plastic package with lead spacing, compatible to dual-in-line package.

absolute maximum ratings: (25°C)

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	60	Milliamps
Forward Current (Peak) (Pulse width 1 μsec 300 pps)	3	ampere
Reverse Voltage	3	volts
*Derate 1.67 mW/°C above 25°C ambient.		

PHOTO-TRANSISTOR		
Power Dissipation	**150	milliwatts
V <sub>CEO</sub>	30	volts
V <sub>ECO</sub>	5	volts
Collector Current (Continuous)	100	milliamps
**Derate 2.5 mW/°C above 25°C ambient.		



NOTE  
1. FOUR LEADS. LEAD DIMENSIONS CONTROLLED BETWEEN .050 (11.27MM) FROM THE SEATING PLANE AND THE END OF THE LEADS

TOTAL DEVICE	
Storage Temperature	-55 to 85°C
Operating Temperature	-55 to 85°C
Lead Soldering Time (at 260°C)	10 seconds
Surge Isolation Voltage (Input to Output)	5650V <sub>(peak)</sub> 4000V <sub>(RMS)</sub>
Steady-State Isolation Voltage (Input to Output)	5300V <sub>(peak)</sub> 3750V <sub>(RMS)</sub>

individual electrical characteristics (25°C)

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage (I <sub>F</sub> = 10mA)	1.1	1.7	volts
Reverse Current (V <sub>R</sub> = 3V)	—	10	micoramps
Capacitance (V = 0, f = 1 MHz)	50	—	picofarads

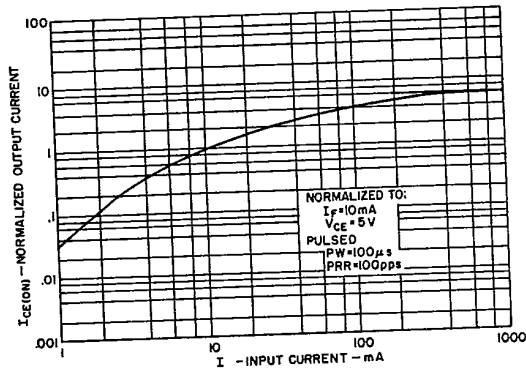
PHOTO-TRANSISTOR	MIN.	TYP.	MAX.	UNITS
Breakdown Voltage - V <sub>(BR)CEO</sub> (I <sub>C</sub> = 10mA, I <sub>F</sub> = 0)	30	—	—	volts
Breakdown Voltage - V <sub>(BR)ECO</sub> (I <sub>E</sub> = 100μA, I <sub>F</sub> = 0)	5	—	—	volts
Collector Dark Current - I <sub>CEO</sub> (V <sub>CE</sub> = 10V, I <sub>F</sub> = 0)	—	5	100	nanoamps
Capacitance (V <sub>CE</sub> = 10V, f = 1 MHz)	—	3.5	—	picofarads

coupled electrical characteristics (25°C)

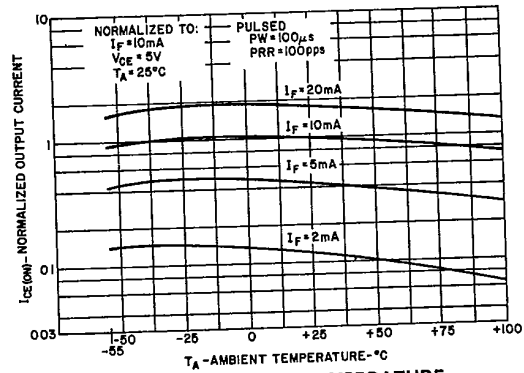
	MIN.	TYP.	MAX.	UNITS
DC Current Transfer Ratio (I <sub>F</sub> = 10mA, V <sub>CE</sub> = 10V)	20	—	—	%
Saturation Voltage - Collector to Emitter (I <sub>F</sub> = 10mA, I <sub>C</sub> = 0.5mA)	—	0.2	0.4	volts
Isolation Resistance (Input to Output Voltage = 500V <sub>DC</sub> )	100	—	—	gigaohms
Input to Output Capacitance (Input to Output Voltage = 0, f = 1 MHz)	—	—	2	picofarads
Switching Speeds: Turn-On Time - (V <sub>CE</sub> = 10V, I <sub>CE</sub> = 2mA, R <sub>L</sub> = 100Ω)	—	3	—	microseconds
Turn-Off Time - (V <sub>CE</sub> = 10V, I <sub>CE</sub> = 2mA, R <sub>L</sub> = 100Ω)	—	3	—	microseconds

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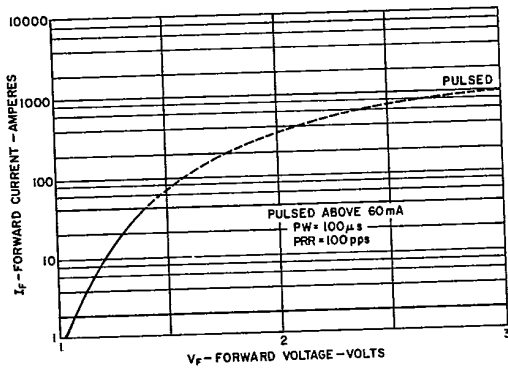
TYPICAL CHARACTERISTICS



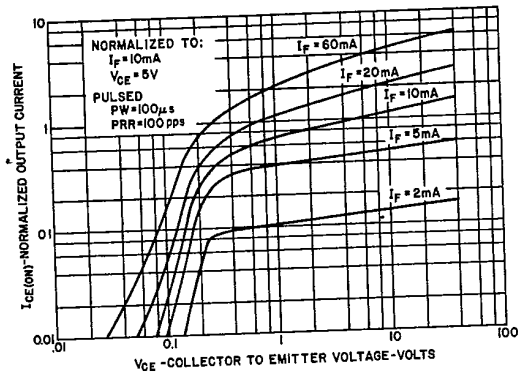
1. OUTPUT CURRENT VS. INPUT CURRENT



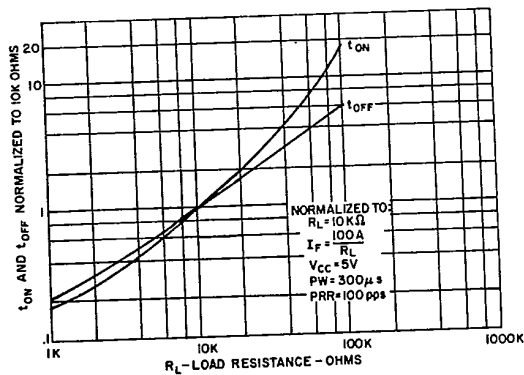
2. OUTPUT CURRENT VS. TEMPERATURE



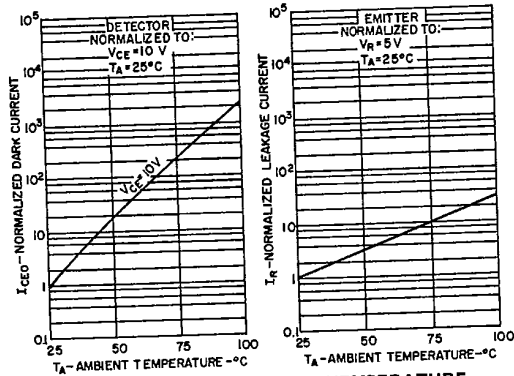
3. INPUT CHARACTERISTICS



4. OUTPUT CHARACTERISTICS



5. SWITCHING SPEED VS.  $R_L$



6. LEAKAGE CURRENTS VS. TEMPERATURE

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