

Photon Coupled Isolator CNY47, CNY47A

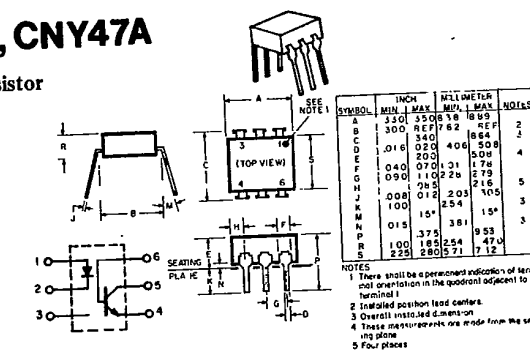
Ga As Infrared Emitting Diode & NPN Silicon Photo-Transistor

The GE Solid State CNY47 and CNY47A are gallium arsenide infrared emitting diodes coupled with a silicon photo-transistor in a dual-in-line package. These devices are also available in Surface-Mount packaging.

absolute maximum ratings: (25°C)

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	30	milliamps
Forward Current (Peak) (Pulse width 1 μ s 300 pps)	3	ampere
Reverse Voltage	3	volts
*Derate 1.33mW/°C above 25°C ambient		

PHOTO-TRANSISTOR		
Power Dissipation	**150	milliwatts
V _{CEO}	30	volts
V _{CBO}	50	volts
V _{EBO}	4	volts
Collector Current (Continuous)	30	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).
 2828V_(peak) 2000V_(RMS)
 Steady-State Isolation Voltage (Input to Output).
 1695V_(peak) 1200V_(RMS)

individual electrical characteristics (25°C)

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage (I _F = 10 mA)	1.1	1.5	volts
Reverse Current (V _R = 3 V)	—	100	microamps
Capacitance (V = 0, f = 1 MHz)	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 = 100 μ A, I _F = 0)	50	—	—	volts
Breakdown Voltage—V _{(BR)EBO} (I _E = 100 μ A, I _F = 0)	4	—	—	volts
Collector Dark Current—I _{CEO} (V _{CE} = 10V, I _F = 0)	—	5	100	nanoamps
Collector Dark Current—I _{CBO} (V _{CB} = 10V, I _F = 0)	—	—	20	nanoamps
Capacitance (V _{CE} = 10V, F = 1 MHz)	—	2	—	picoFarads

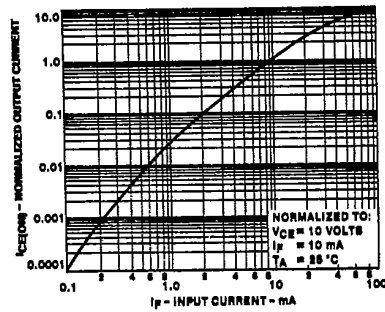
coupled electrical characteristics (25°C)

	MIN.	TYP.	MAX.	UNITS
DC Current Transfer Ratio (I _F = 10mA, V _{CE} = .4V)	20	—	60	%
Saturation Voltage — Collector to Emitter (I _F = 10mA, I _C = 2mA)	40	—	—	%
(I _F = 10mA, I _C = 4mA)	—	0.1	0.4	volts
Isolation Resistance (V _{IO} = 500V _{DC})	100	—	0.4	volts
Input to Output Capacitance (V _{IO} = 0, f = 1 MHz)	—	—	2	gigaohms
Switching Speeds:	—	—	—	picoFarads
Rise/Fall Time (V _{CE} = 10V, I _{CE} = 2mA, R _L = 100 Ω)	—	2	—	microseconds
Rise/Fall Time (V _{CB} = 10V, I _{CB} = 50 μ A, R _L = 100 Ω)	—	300	—	nanoseconds

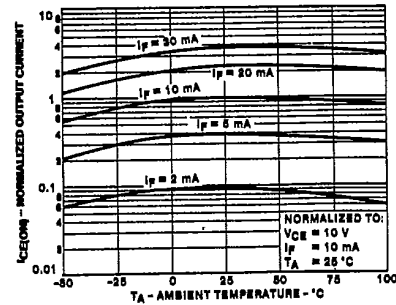
VDE Approved to 0883/6.80 0110b Certificate # 35025

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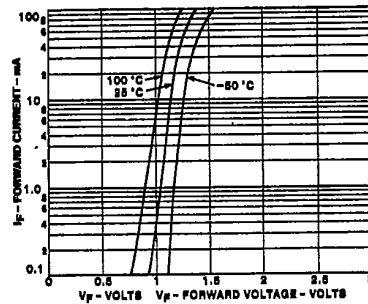
TYPICAL CHARACTERISTICS



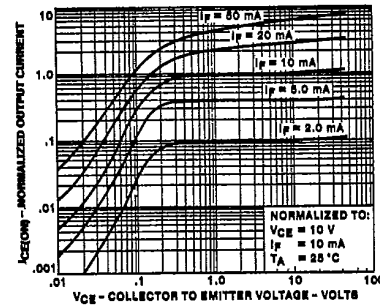
1. OUTPUT CURRENT VS INPUT CURRENT



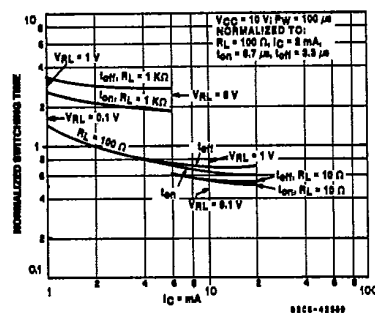
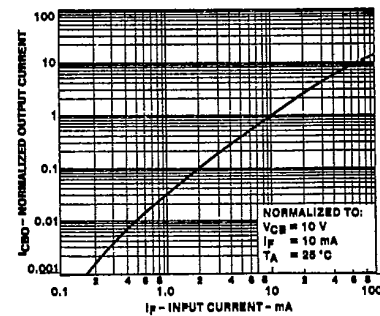
2. OUTPUT CURRENT VS TEMPERATURE



3. INPUT CHARACTERISTICS



4. OUTPUT CHARACTERISTICS

5. SWITCHING SPEED VS COLLECTOR CURRENT
(NOT SATURATED)6. OUTPUT CURRENT (I_{CBO}) VS INPUT CURRENT

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