

Photon Coupled Isolator CNY47, CNY47A

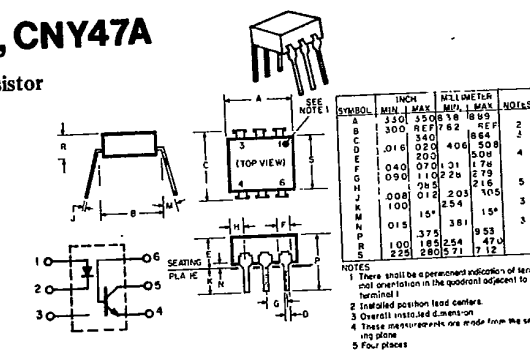
Ga As Infrared Emitting Diode & NPN Silicon Photo-Transistor

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

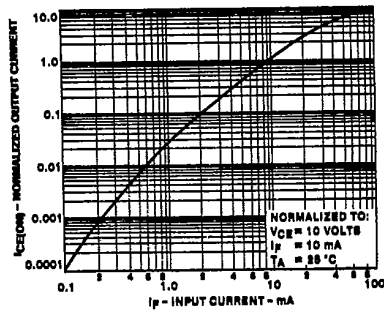
coupled electrical characteristics (25°C)

	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	—	—	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

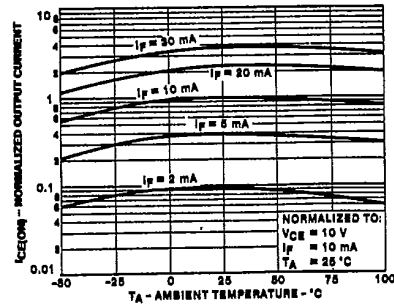
VDE Approved to 0883/6.80 0110b Certificate # 35025

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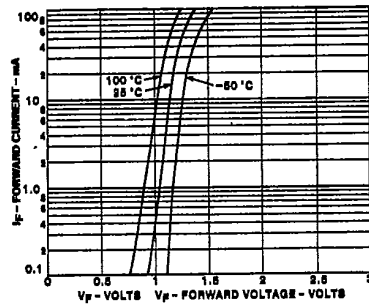
TYPICAL CHARACTERISTICS



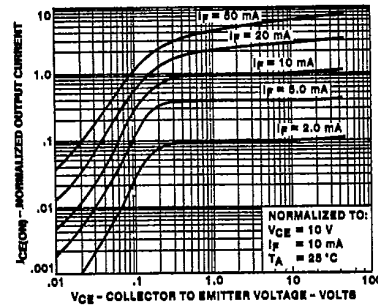
1. OUTPUT CURRENT VS INPUT CURRENT



2. OUTPUT CURRENT VS TEMPERATURE

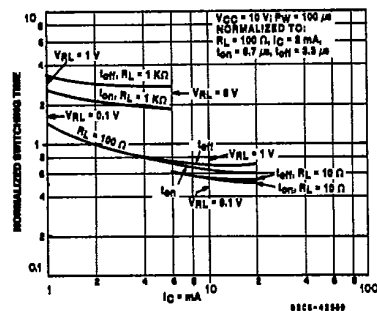
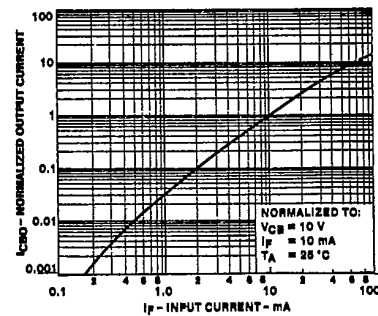


3. INPUT CHARACTERISTICS



4. OUTPUT CHARACTERISTICS

10

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