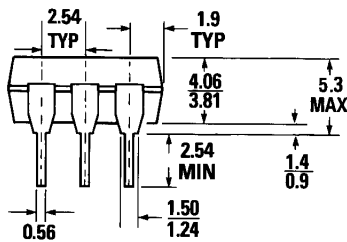
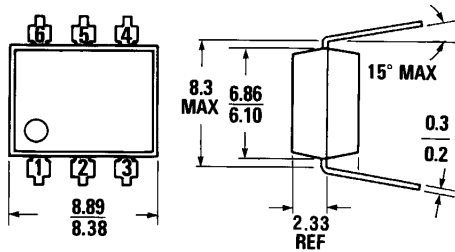


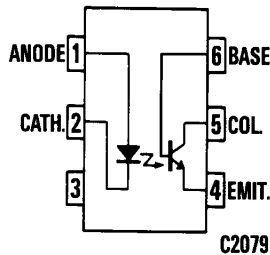
**CNY17-1 CNY17-3
CNY17-2 CNY17-4**

PACKAGE DIMENSIONS



0.40 DIMENSIONS IN mm
PACKAGE CODE K

ST1603A



Equivalent Circuit

DESCRIPTION

The CNY17 series consists of a Gallium Arsenide IRED coupled with an NPN phototransistor.

FEATURES

- High isolation voltage
5300 VAC RMS—1 minute
7500 VAC PEAK—1 minute
- High BV_{CEO} minimum 70 volts
- Current transfer ratio in selected groups:
CNY17-1: 40%- 80%
CNY17-2: 63%-125%
CNY17-3: 100%-200%
CNY17-4: 160%-320%
- Maximum switching time in saturation specified
- Underwriters Laboratory (UL) recognized File #E90700

APPLICATIONS

- Power supply regulators
- Digital logic inputs
- Microprocessor inputs
- Appliance sensor systems
- Industrial controls

ABSOLUTE MAXIMUM RATINGS

TOTAL PACKAGE

Storage temperature	-55°C to 150°C
Operating temperature	-55°C to 100°C
Lead temperature (soldering, 10 sec)	260°C
Total package power dissipation @ 25°C (LED plus detector)	260 mW
Derate linearly from 25°C	3.5 mW/°C

INPUT DIODE

Forward DC current	90 mA
Reverse voltage	6 V
Peak forward current (1 μ s pulse, 300 pps)	3.0 A
Power dissipation 25°C ambient	135 mW
Derate linearly from 25°C	1.8 mW/°C

OUTPUT TRANSISTOR

Power dissipation @ 25°C	200 mW
Derate linearly from 25°C	2.67 mW/°C

ELECTRO-OPTICAL CHARACTERISTICS (25°C Temperature Unless Otherwise Specified)

INDIVIDUAL COMPONENT CHARACTERISTICS						
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward voltage	V_f		1.3	1.50	V	$I_f=60 \text{ mA}$
Forward voltage temp. coefficient	$\frac{\Delta V_f}{\Delta T_A}$		-1.8		mV/°C	
Reverse voltage	V_R	6.0	15		V	$I_R=10 \mu\text{A}$
Junction capacitance	C_j		50		pF	$V_f=0 \text{ V}, f=1 \text{ MHz}$
			65		pF	$V_f=1 \text{ V}, f=1 \text{ MHz}$
Reverse leakage current	I_R		.35	10	μA	$V_R=3.0 \text{ V}$
OUTPUT TRANSISTOR						
DC forward current gain	h_{FE}	100	500			$V_{CE}=5 \text{ V}, I_C=100 \mu\text{A}$
Breakdown voltage Collector to emitter	BV_{CE}	70			V	$I_C=10 \text{ mA}, I_E=0$

ELECTRO-OPTICAL CHARACTERISTICS
(25°C Temperature Unless Otherwise Specified) (Cont'd)

TRANSFER CHARACTERISTICS (Cont'd)

AC CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
SATURATED SWITCHING TIMES						
Turn-on time	t_{on}					
CNY17-1			3.0	5.5	μ S	$I_F=20$ mA, $V_{CE}=0.4$ V
CNY17-2, CNY17-3, CNY17-4			4.2	8.0	μ S	$I_F=10$ mA, $V_{CE}=0.4$ V
Rise-time	t_r					
CNY17-1			2.0	4.0	μ S	$I_F=20$ mA, $V_{CE}=0.4$ V
CNY17-2, CNY17-3, CNY17-4			3.0	6.0	μ S	$I_F=10$ mA, $V_{CE}=0.4$ V
Turn-off time	t_{off}					
CNY17-1			18	34	μ S	$I_F=20$ mA, $V_{CE}=0.4$ V
CNY17-2, CNY17-3, CNY17-4			23	39	μ S	$I_F=10$ mA, $V_{CE}=0.4$ V
Fall-time	t_f					
CNY17-1			11	20	μ S	$I_F=20$ mA, $V_{CE}=0.4$ V
CNY17-2, CNY17-3, CNY17-4			14	24	μ S	$I_F=10$ mA, $V_{CE}=0.4$ V

ISOLATION CHARACTERISTICS

CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Isolation Voltage	V_{iso}	5300			V_{AC} RMS	$I_{i,o} \leq 1$ μ A, 1 minute
	V_{iso}	7500			V_{AC} PEAK	$I_{i,o} \leq 1$ μ A, 1 minute
Isolation resistance	R_{iso}	10^{11}			ohms	$V_{i,o}=500$ VDC
Isolation capacitance	C_{iso}		0.5		pF	$f=1$ MHz

ELECTRICAL CHARACTERISTIC CURVES
(25°C Free Air Temperature Unless Otherwise Specified)

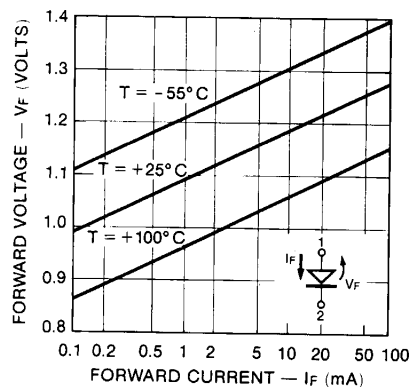


Fig. 1. Forward Voltage vs. Current

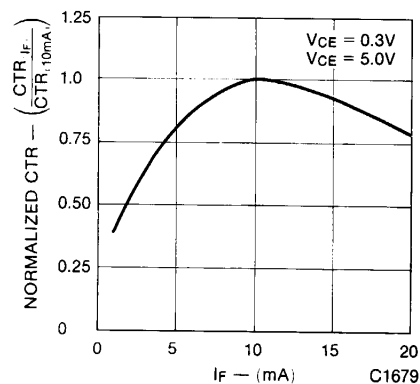
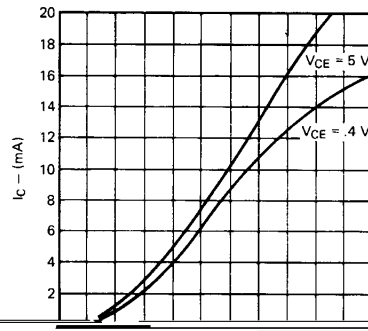
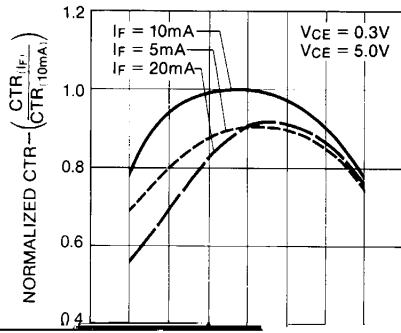


Fig. 2. Normalized CTR vs. Forward Current

ELECTRICAL CHARACTERISTIC CURVES

(25°C Free Air Temperature Unless Otherwise Specified) (Cont'd)



ELECTRICAL CHARACTERISTIC CURVES
(25°C Free Air Temperature Unless Otherwise Specified) (Cont'd)

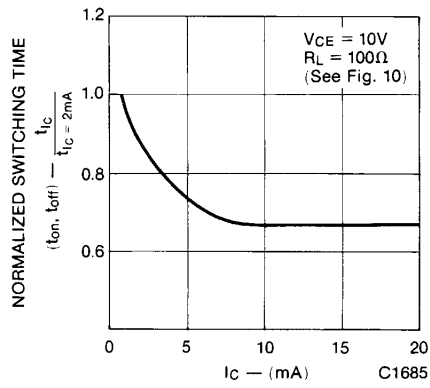


Fig. 9. Switching Time vs. IC

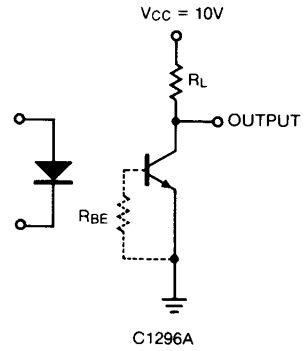


Fig. 10. Switching Time Test Circuit

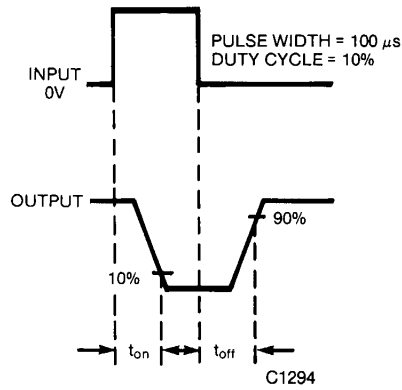


Fig. 11. Switching Time Waveforms



PHOTOTRANSISTOR OPTOCOUPLEDERS

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.