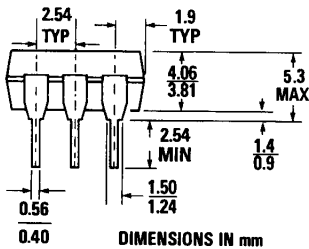
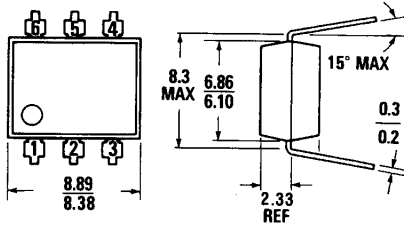
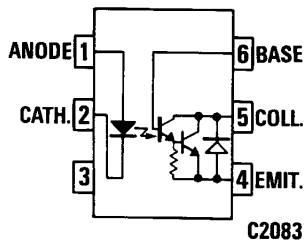


PACKAGE DIMENSIONS



DIMENSIONS IN mm
PACKAGE CODE K

ST1603A



Equivalent Circuit

DESCRIPTION

The H11G1 and H11G2 are the photodarlington-type optically coupled optoisolators. Both devices have a gallium arsenide infrared emitting diode coupled with a silicon darlington connected phototransistor which has an integral base-emitter resistor to optimize elevated temperature characteristics.

FEATURES

- High BV_{CEO}
Minimum 100V for H11G1
Minimum 80V for H11G2
- High sensitivity to low input current—Minimum 500 percent CTR at $I_F=1$ mA
- Low leakage current at elevated temperature (maximum 100 μ A at 80°C).
- Underwriters Laboratory (UL) recognized File #E90700

APPLICATIONS

- CMOS logic interface
- Telephone ring detector
- Low input TTL interface
- Power supply isolation
- Replace pulse transformer

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 at 25°C (LED plus detector)	260 mW
Derate linearly from 25°C	3.5 mW/°C
Isolation voltage	7500 VAC PEAK

INPUT DIODE

Forward DC current	60 mA
Reverse voltage	6 V
Peak forward current (1 μ s pulse, 300 pps)	3.0 A
Power dissipation 25°C ambient	100 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
Collector to emitter voltage	
H11G1	100 V
H11G2	80 V



HIGH VOLTAGE PHOTODARLINGTON OPTOCOUPERS

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	$I_f = 10 \text{ mA}$
Forward voltage temp. coefficient	$\frac{\Delta V_f}{\Delta T_A}$	-1.8			mV/°C	
Reverse breakdown voltage	BV_R	3.0	25		V	$I_R = 10 \mu\text{A}$
Junction capacitance	C_j		50 65		pF pF	$V_f = 0 \text{ V}, f = 1 \text{ MHz}$ $V_f = 1 \text{ V}, f = 1 \text{ MHz}$
Reverse leakage current	I_R		0.35	10	μA	$V_R = 3.0 \text{ V}$
OUTPUT DARLINGTON						
Breakdown voltage						
Collector to emitter H11G1	BV_{CEO}	100			V	$I_C = 1.0 \text{ mA}; I_f = 0$
H11G2		80			V	
Collector to base H11G1	BV_{CBO}	100			V	$I_C = 100 \mu\text{A}$
H11G2		80			V	
Emitter to base	BV_{EBO}	7	10		V	$I_E = 100 \mu\text{A}, I_f = 0$
Leakage current						
Collector to emitter H11G1	I_{CEO}			100	nA	$V_{CE} = 80 \text{ V}, I_f = 0$
H11G2				100	nA	$V_{CE} = 60 \text{ V}, I_f = 0$
H11G1				100	μA	$V_{CE} = 80 \text{ V}, I_f = 0,$ $T_A = 80^\circ\text{C}$
H11G2				100	μA	$V_{CE} = 60 \text{ V}, I_f = 0,$ $T_A = 80^\circ\text{C}$

TRANSFER CHARACTERISTICS						
DC CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Current Transfer Ratio, collector to emitter						
H11G1/2	CTR	1000			%	$I_f = 10 \text{ mA}; V_{CE} = 1 \text{ V}$
H11G1/2		500			%	$I_f = 1 \text{ mA}; V_{CE} = 5 \text{ V}$
Saturation voltage						
	$V_{CE(SAT)}$		0.85	1.0	V	$I_f = 16 \text{ mA}; I_C = 50 \text{ mA}$
			0.75	1.0	V	$I_f = 1 \text{ mA}; I_C = 1 \text{ mA}$

TRANSFER CHARACTERISTICS						
CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
SWITCHING TIMES						
Turn-on time	t_{on}		5		μs	$R_L = 100\Omega; I_f = 10 \text{ mA}$
Turn-off time	t_{off}		100		μs	$V_{CE} = 5 \text{ V}$ Pulse width $\leq 300 \mu\text{sec},$ $f \leq 30 \text{ Hz}$

TYPICAL ELECTRICAL CHARACTERISTIC CURVES

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

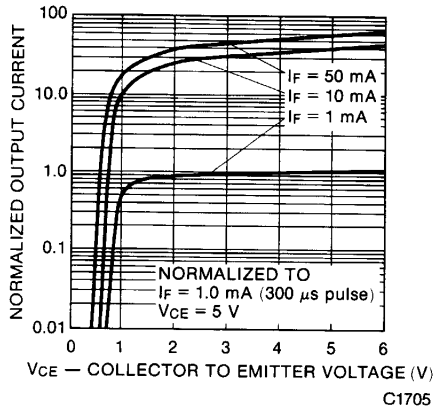


Fig. 3. Output Characteristics

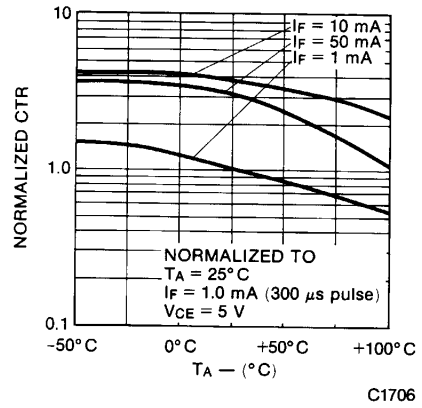


Fig. 4. Normalized CTR vs. Temperature

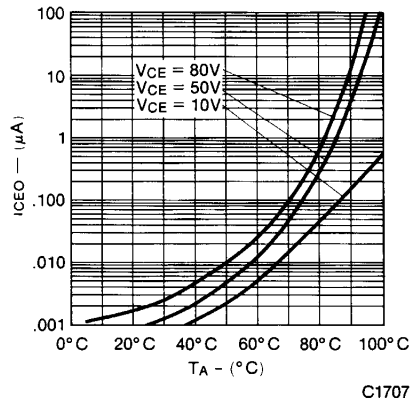


Fig. 5. Dark Current vs. Temperature

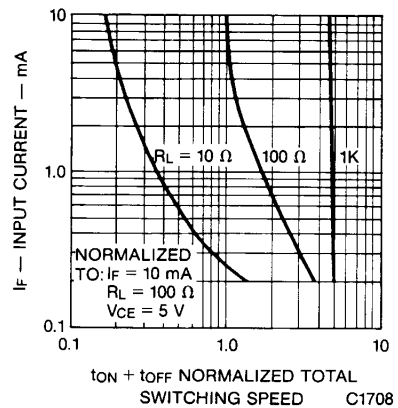


Fig. 6. Switching Speed

TYPICAL ELECTRICAL CHARACTERISTIC CURVES

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

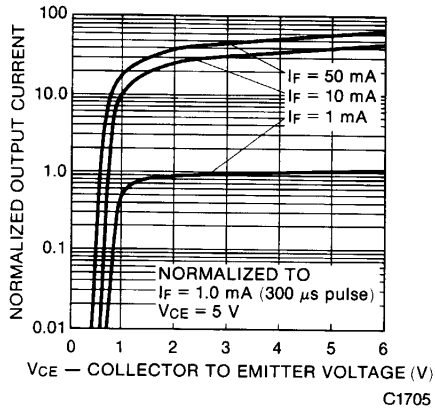


Fig. 3. Output Characteristics

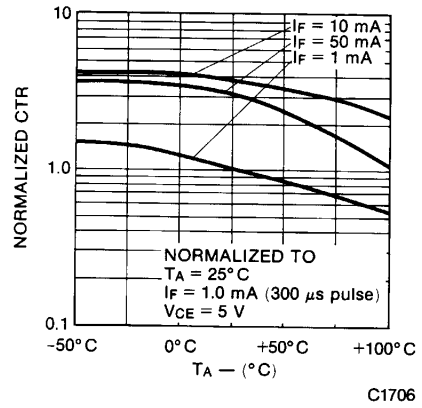


Fig. 4. Normalized CTR vs. Temperature

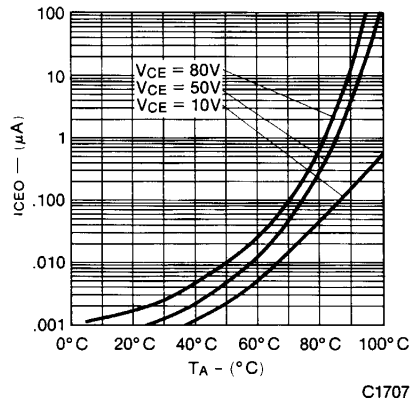


Fig. 5. Dark Current vs. Temperature

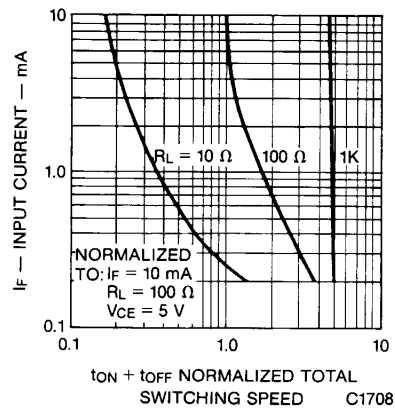


Fig. 6. Switching Speed