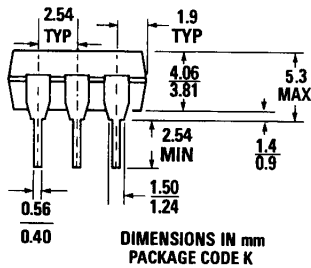
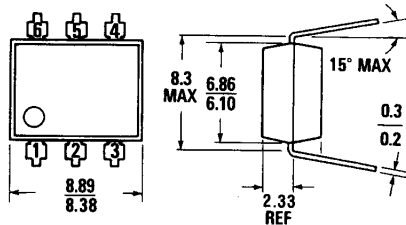
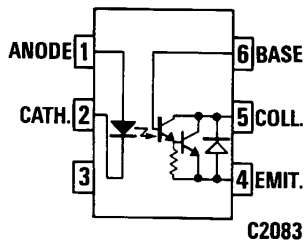


PACKAGE DIMENSIONS



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

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	BV_{CEO}	100			V	$I_C = 1.0 \text{ mA}; I_E = 0$
H11G1						
H11G2		80			V	
Collector to base	BV_{CBO}	100			V	$I_C = 100 \mu\text{A}$
H11G1						
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	I_{CEO}			100	nA	$V_{CE} = 80 \text{ V}, I_F = 0$
H11G1						
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

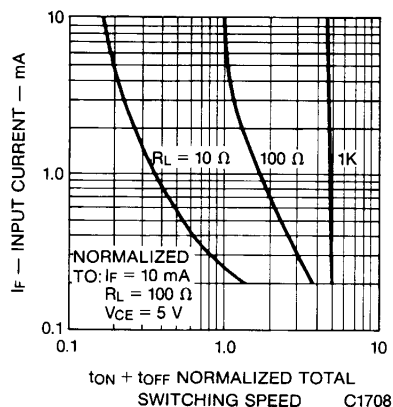
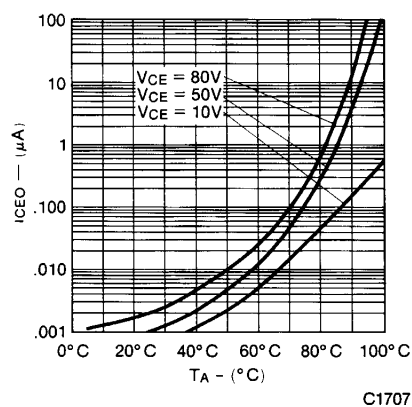
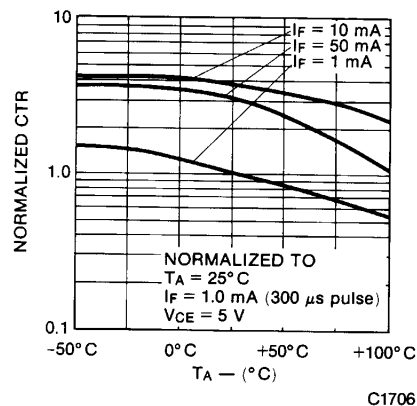
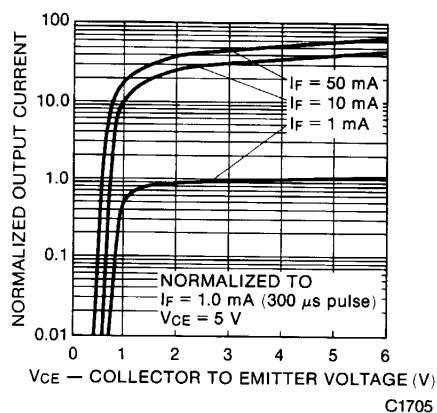
DC CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
Current Transfer Ratio, collector to emitter	CTR	1000			%	$I_F = 10 \text{ mA}; V_{CE} = 1 \text{ V}$
H11G1/2		500			%	$I_F = 1 \text{ mA}; V_{CE} = 5 \text{ V}$
Saturation voltage	$V_{CE(SAT)}$		0.85	1.0	V	$I_F = 16 \text{ mA}; I_C = 50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



TYPICAL ELECTRICAL CHARACTERISTIC CURVES

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

