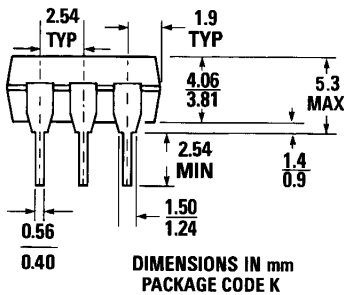
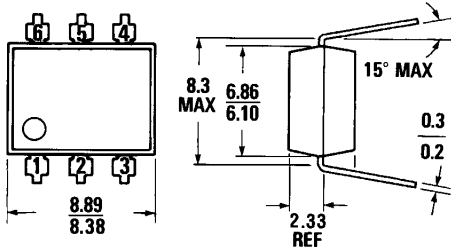
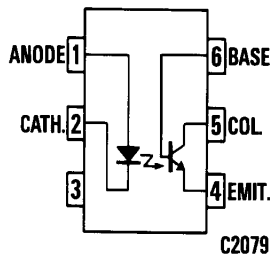


**H11A1 H11A2 H11A3
H11A4 H11A5**

PACKAGE DIMENSIONS



ST1603A



Equivalent Circuit

DESCRIPTION

The H11A series consists of a gallium arsenide infrared emitting diode, coupled with a silicon phototransistor in a dual in-line package.

FEATURES

- Power supply regulators
- Digital logic inputs
- Microprocessor inputs
- Appliance sensor systems
- Industrial controls
- Underwriters Laboratory (UL) recognized—File #E90700

ABSOLUTE MAXIMUM RATINGS

TOTAL PACKAGE

Storage temperature -55°C to 150°C
 Operating temperature -55°C to 100°C
 Lead solder temperature 260°C for 10 sec

INPUT DIODE

Power dissipation (25°C ambient) 100 mW
 Derate linearly (above 25°C ambient) . . . 1.33 mW/ $^{\circ}\text{C}$
 Continuous forward current 60 mA
 Peak forward current (1 μs pulse, 300pps) 3 A
 Reverse voltage 3 V

DETECTOR

Power dissipation (at 25°C ambient) 150 mW
 Derate linearly (above 25°C) 2.0 mW/ $^{\circ}\text{C}$
 V_{CEO} 30 V
 V_{CBO} 70 V
 V_{ECO} 7 V
 Continuous collector current 100 mA



PHOTOTRANSISTOR OPTOCOUPLEDERS

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless Otherwise Specified)

INDIVIDUAL COMPONENT CHARACTERISTICS

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward voltage	V_F		1.1	1.5	V	$I_F = 10\text{ mA}$
Reverse leakage current	I_R			10	μA	$V_R = 3\text{ V}$
Capacitance	C		50		pF	$V = 0\text{ V}, f = 1\text{ MHz}$
OUTPUT DETECTOR						
Breakdown voltage Collector to emitter	BV_{CEO}	30			V	$I_C = 10\text{ mA}, I_F = 0$
Breakdown voltage Collector to base	BV_{CBO}	70			V	$I_C = 100\text{ }\mu\text{A}, I_F = 0$
Breakdown voltage Emitter to Collector	BV_{ECO}	7			V	$I_E = 100\text{ }\mu\text{A}, I_F = 0$
Collector dark current	I_{CEO}		5	50	nA	$V_{CE} = 10\text{ V}, I_F = 0$
Capacitance	C		2		pF	$V_{CE} = 10\text{ V}, f = 1\text{ MHz}$

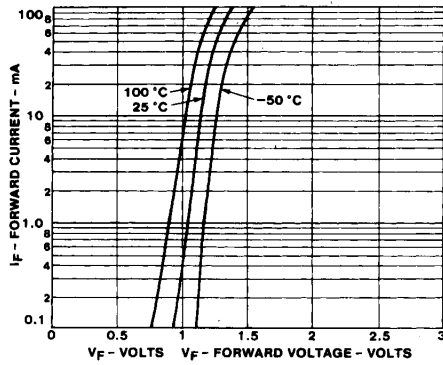
TRANSFER CHARACTERISTICS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
DC current transfer ratio	(H11A1)	I_C	5.0		mA	$I_F = 10\text{ mA}, V_{CE} = 10\text{ V}$
	(H11A2)	I_C	2.0		mA	$I_F = 10\text{ mA}, V_{CE} = 10\text{ V}$
	(H11A3)	I_C	2.0		mA	$I_F = 10\text{ mA}, V_{CE} = 10\text{ V}$
	(H11A4)	I_C	1.0		mA	$I_F = 10\text{ mA}, V_{CE} = 10\text{ V}$
	(H11A5)	I_C	3.0		mA	$I_F = 10\text{ mA}, V_{CE} = 10\text{ V}$
Saturation voltage	$V_{CE(SAT)}$		0.1	0.4	V	$I_F = 10\text{ mA}, I_C = 0.5\text{ mA}$
Rise/fall time	t_{rf}		2		μs	$I_{CE} = 2\text{ mA}, V_{CE} = 10\text{ V}, R_L = 100\Omega$
Rise/fall time	t_{rf}		300		ns	$I_{CB} = 50\text{ }\mu\text{A}, V_{CB} = 10\text{ V}, R_L = 100\Omega$

ISOLATION CHARACTERISTICS

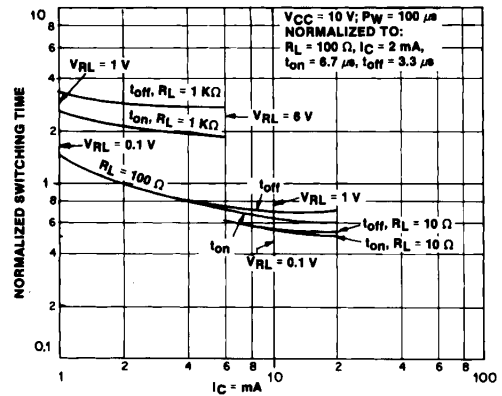
Surge isolation voltage	V_{ISO}	7500			V_{Peak}	1 Minute
Surge isolation voltage	V_{ISO}	5300			V_{RMS}	1 Minute
Isolation resistance	R_{ISO}	10^{11}			ohms	$V_{IO} = 500\text{ VDC}$
Isolation capacitance	C_{ISO}			2	pF	$V_{IO} = 0, f = 1\text{ MHz}$

TYPICAL CHARACTERISTICS



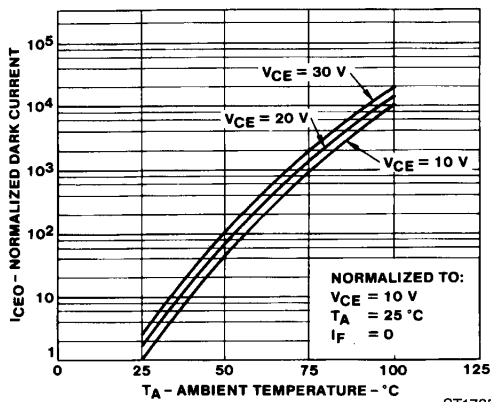
1. Input Characteristics

ST1723



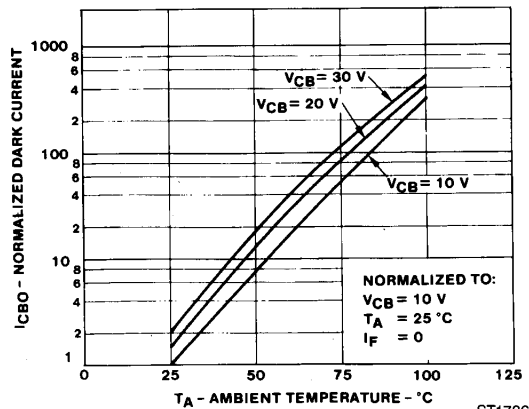
2. Switching Speed vs. Collector Current (Not Saturated)

ST1724



3. Dark I_{CEO} Current vs. Temperature

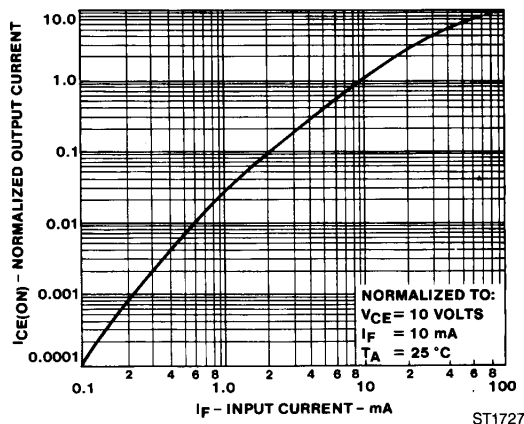
ST1725



4. I_{CBO} vs. Temperature

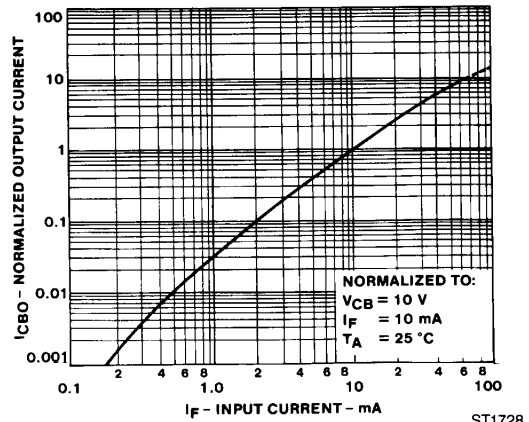
ST1726

TYPICAL CHARACTERISTICS



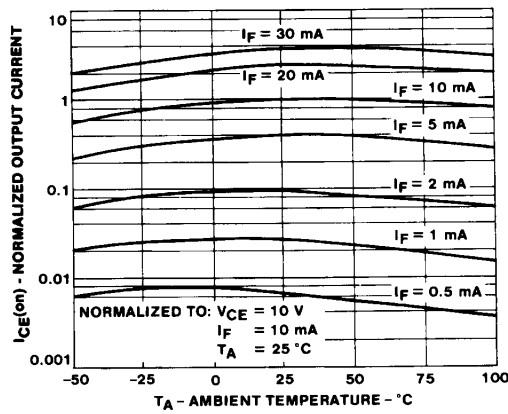
5. Output Current vs. Input Current

ST1727



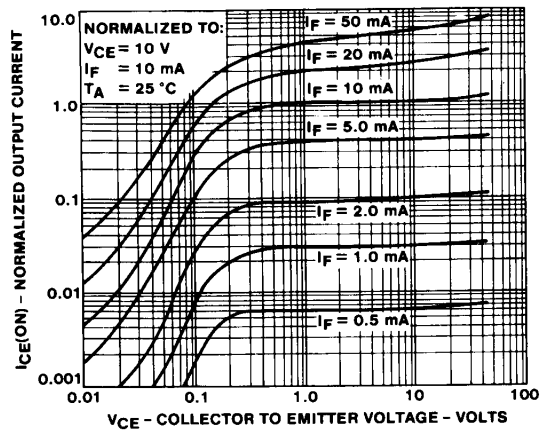
6. Output Current — Collector To Base vs. Input Current

ST1728



7. Output Current vs. Temperature

ST1729



8. Output Characteristics

ST1730