

HOA1878

HONEYWELL INC/ MICRO

Transmissive Sensor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER						
Forward Voltage	V_F			1.6	V	$I_F=20\text{ mA}$
Reverse Leakage Current	I_R			10	μA	$V_R=3\text{ V}$
DETECTOR						
Collector-Emitter Breakdown Voltage HOA1878-011, -012 HOA1878-013	$V_{(BR)CEO}$	30 15			V	$I_C=100\text{ }\mu\text{A}$
Emitter-Collector Breakdown Voltage Collector Dark Current HOA1878-011, -012 HOA1878-013	$V_{(BR)ECO}$ I_{CEO}	5.0		100 250	V nA	$I_E=100\text{ }\mu\text{A}$ $V_{CE}=10\text{ V}$ $I_F=0$
COUPLED CHARACTERISTICS						
On-State Collector Current HOA1878-011 HOA1878-012 HOA1878-013	$I_{C(ON)}$	0.2 1.8 4.0			mA	$V_{CE}=5\text{ V}$ $I_F=20\text{ mA}$
Collector-Emitter Saturation Voltage HOA1878-011 HOA1878-012 HOA1878-013	$V_{CE(SAT)}$			0.4 0.4 1.1	V	$I_F=20\text{ mA}$ $I_C=30\text{ }\mu\text{A}$ $I_C=230\text{ }\mu\text{A}$ $I_C=500\text{ }\mu\text{A}$
Rise And Fall Time HOA1878-011, -012 HOA1878-013	t_r, t_f		15 75		μs	$V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$ $R_L=100\text{ }\Omega$

ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

Operating Temperature Range -40°C to 85°C
Storage Temperature Range -40°C to 85°C
Soldering Temperature (5 sec) 240°C

IR EMITTER

Power Dissipation 100 mW⁽¹⁾
Reverse Voltage 3 V
Continuous Forward Current 50 mA

DETECTOR

Collector-Emitter Voltage 30 V
Emitter-Collector Voltage 5 V
Power Dissipation 100 mW⁽²⁾
Collector DC Current 30 mA

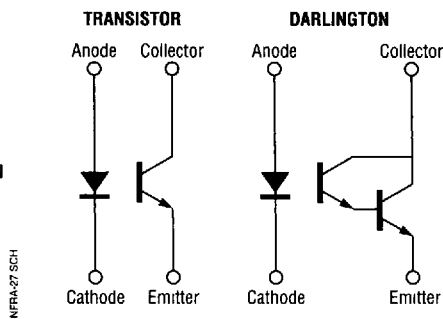
Notes

- Derate linearly at 0.75 mW/°C above 25°C
- Derate linearly at 1.25 mW/°C above 25°C

DARLINGTON

15 V
5 V
100 mW⁽²⁾
30 mA

SCHEMATIC

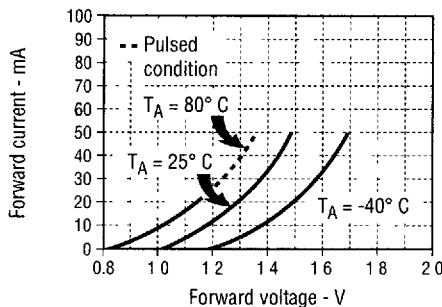


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Fig. 1 IRED Forward Bias Characteristics



INFRA 92 GRA

INFRA 96 GRA

Fig. 2 Non-Saturated Switching Time vs Load Resistance

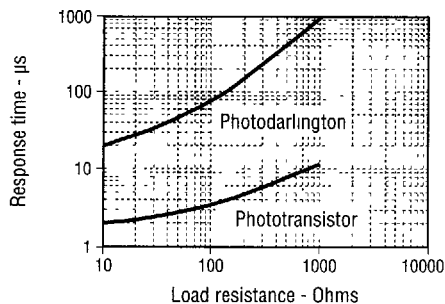
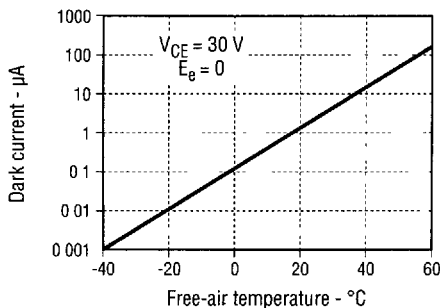


Fig. 3 Detector Dark Current vs Temperature



INFRA 94 GRA

INFRA 95 GRA

Fig. 4 Collector Current vs Ambient Temperature

