PHOTO INTERRUPTER

GT1411-ITR-B

DATA SHEET

REV. : 1.0

DATE : 20-JUN.-2007

■ FEATURE:

- ■ Fast Response Time.
- ■ High Analytic.
- ■ Cut-Off Visible Wavelength λp=940nm
- ■ High sensitivity.
- ■ Lead Free product, in compliance with RoHS.

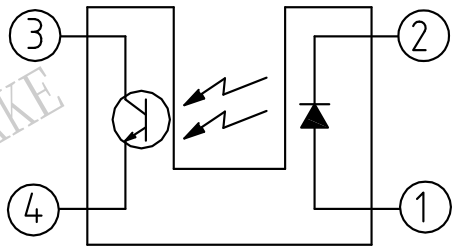
■ DESCRIPTIONS:

■ GT1411-ITR-B consist of an infrared emitting diode and a phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing the phototransistor receives radiation from the IRED only. This is the normal situation. But when an object is in between, the phototransistor could not receive the radiation.

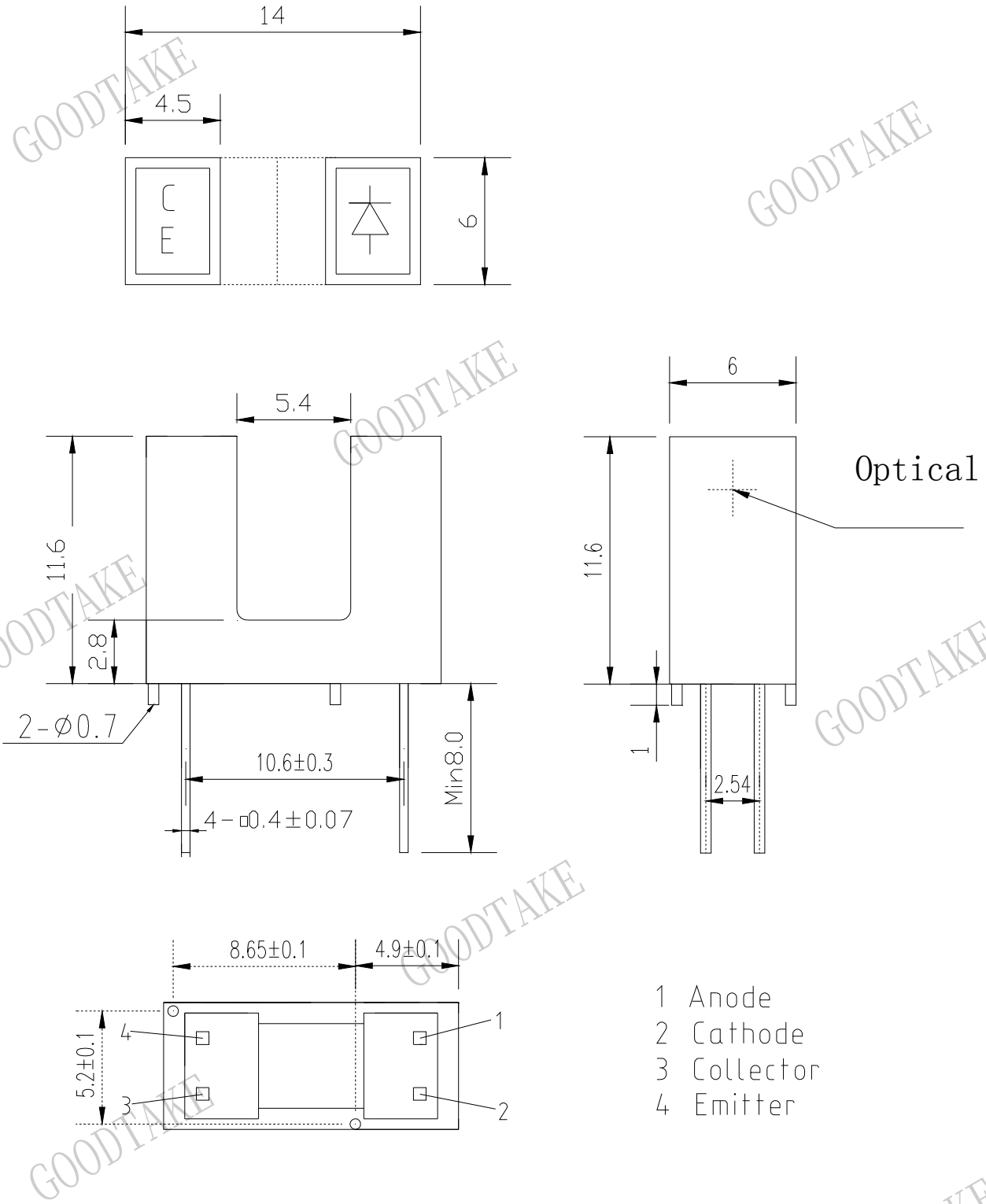
■ APPLICATIONS:

- ■ Mouse copier.
- ■ Switch scanner.
- ■ Floppy disk driver.
- ■ Non contact switching.

■ INTERNAL CIRCUIT:



■ DIMENSIONS



NOTE：1. All dimensions are in millimeter.

2. Tolerance is ±0.2 unless otherwise noted.

■ ABSOLUTE MAXIMUM RATINGS AT Ta=25℃

Parameter		Symbol	Ratings	Unit
Input	Power Dissipation	P_D	75	mW
	Reverse Voltage	V_R	5	V
	Forward Current	I_F	50	mA
	Peak Forward Current	I_{FP}	1	A
Output	Collector Power Dissipation	P_C	75	mW
	Collector Current	I_C	20	mA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	30	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	5	V
Operating Temperature		Topr	-25～+85	℃
Storage Temperature		Tstg	-40～+85	℃
Soldering Temperature		Tsol	270℃ for 6 sec Max (2mm from Body)	

NOTES: I_{FP} CONDITIONS--PULSE WIDTH≦100μS AND DUTY≦1%.

■ TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS（Ta=25℃）

Parameter		Symbol	Min.	Type	Max.	Unit	Test Condition
Input	Forward Voltage	V_F		1.25	1.5	V	I_F=50 mA
	Reverse Current	I_R			10	μA	V_F=5V
	Peak Wavelength	λ_P		940		nm	
	View Angle	$2\theta_{1/2}$		60		Deg	
Output	**Collector Dark Current**	I_{CEO}			100	nA	V_{CE}=10V
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.4	V	Ic=2mA I_B=100μA
Trnsfer Characteristics	**On State Collector Current**	$I_{C(on)}$		1.2		mA	5V Ee=1mW/cm^2 λp=940nm
	Rise Time	**Tr**		15		μS	V_{CE}=5V Ic=1mA R_L=1000Ω
	Fall Time	T_f		15		μS	

■ RELIABILITY TEST ITEMS AND CONDITIONS：

NO	Item	Test Conditions	Test Hours/Cycle	Sample Quantity	Test Result
1	Solder Heat	TEMP：270℃±3℃	10 SEC	11 pcs	0 DEFECT
2	Temperature Cycle	H:+85℃ 180min ↕ 10min L:-25℃ 180min	16 cycles	22 pcs	0 DEFECT
3	Thermal Shock	H:+85℃ 30min ↕ 30sec L:-25℃ 30min	10 cycles	11 pcs	0 DEFECT
4	High Temperature Storage	TEMP：+25℃	1000 HRS	22 pcs	0 DEFECT
5	Low Temperature Storage	TEMP：-25℃	1000 HRS	22 pcs	0 DEFECT
6	High Temperature High Humidity Storage	85℃/93% RH	1000HRS	22 pcs	0 DEFECT

■ TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES FOR IR:

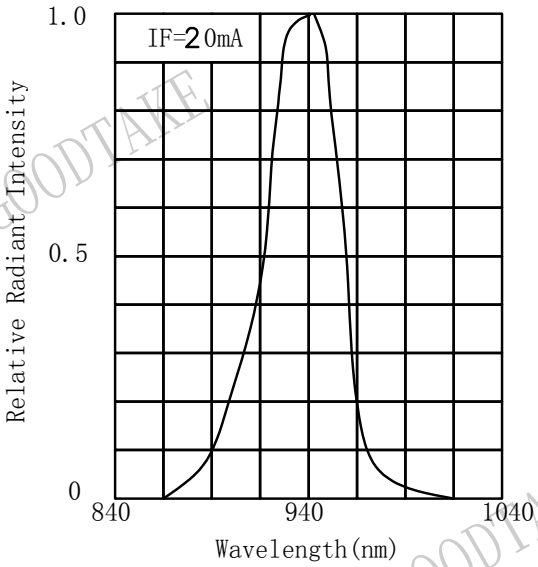


Fig.1 Spectral Distribution

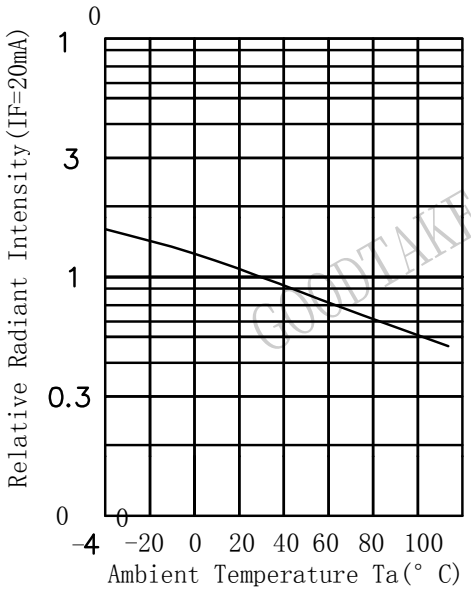


Fig.2 Relative Radiant Intensity Vs Ambient Temperature

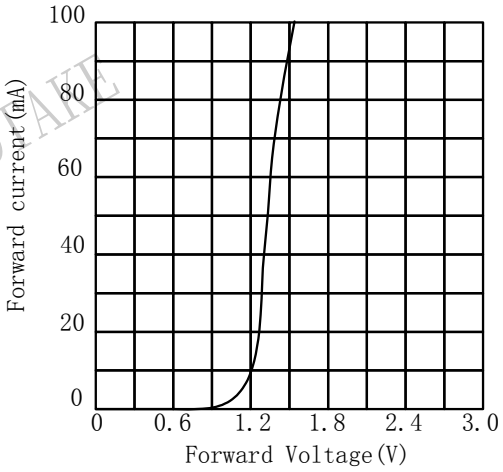


Fig.3 Forward Current Vs Forward Voltage

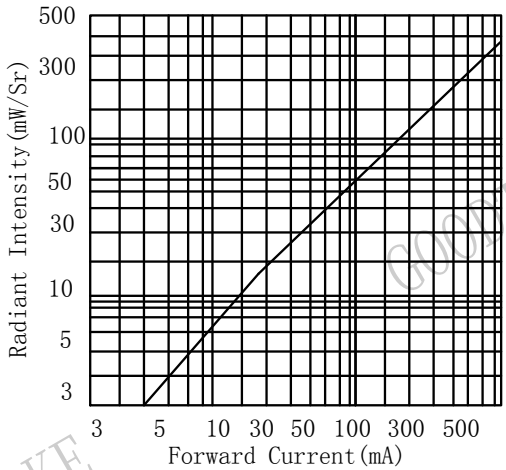


Fig.4 Forward Current Vs Radiant Intensity

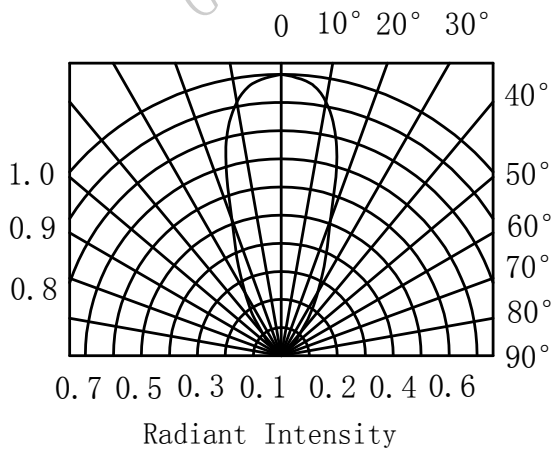


Fig.5 Angle Vs Radiant Intensity

■ TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES FOR PT

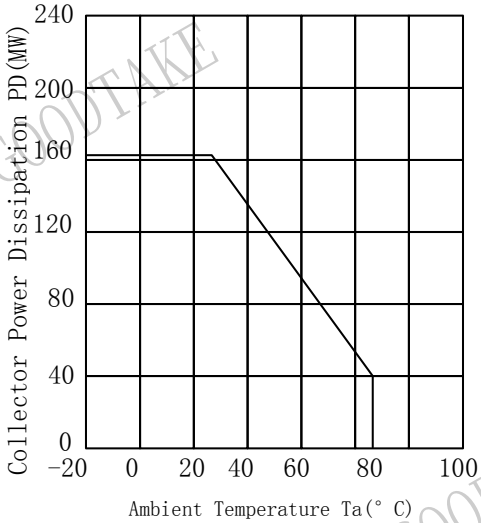


FIG.1 Collector PD VS Ta

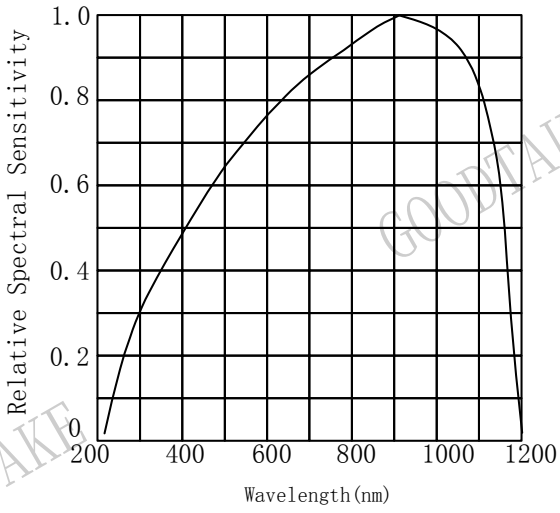


FIG.2 Spectral Sensitivity

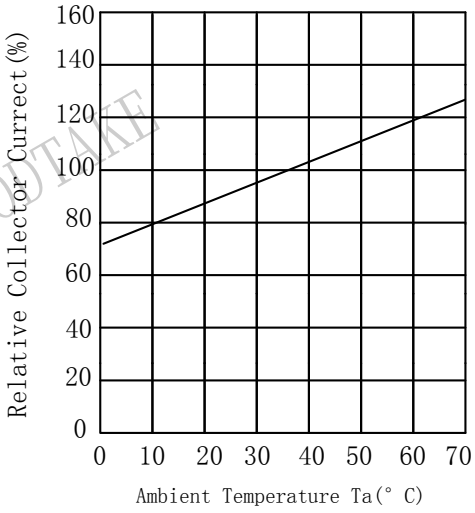


FIG.3 Relative Ic VS.Ta

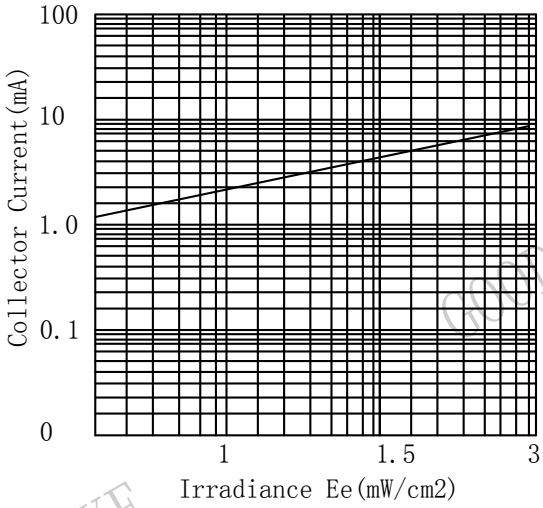


FIG.4 Ic VS Iv

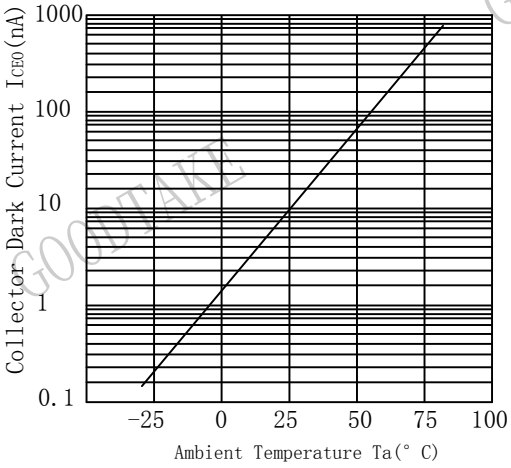


FIG.5 ID VS Ta

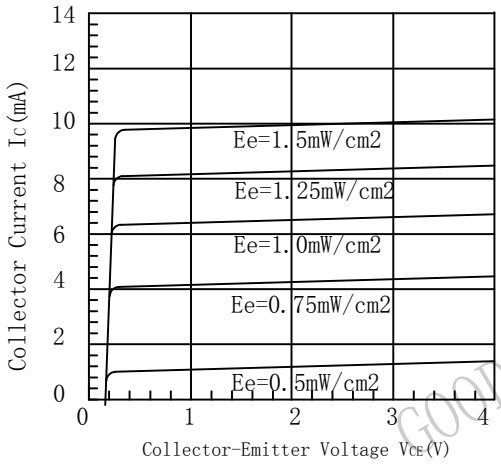


FIG.6 Collector Current VS Collector-Emitter Voltage