SILICON NPN PHOTO TRANSISTOR

1、DESCRIPTIONS:

●GTR1-PT02AB-TT/TR is a high speed and high sensitive silicon NPN phototransistor with exceptionally stable characteristics and high illumination sensitivity.

●Molded in black epoxy , untinted PCB based SMD package.

2、FEATURE:

●Fast Response Time.

●High Photo Sensitivity.

●Lead Free product, in compliance with RoHS.

●Floor life: 168 hours, MSL 3, acc. J-STD-020

3、APPLICATIONS:

●Infrared Applied System.

●Floppy Disk Drive.

●Opto-Electronic Switch.

4、ABSOLUTE MAXIMUM RATINGS AT Ta=25℃

Parameter	Symbol	Ratings	Unit
Power Dissipation	PD	75	mW
Collector-Emitter Breakdown Voltage	V_{CEO}	30	V
Collector Current	I_C	20	mA
Emitter-Collector Breakdown Voltage	V_{ECO}	5	V
Operating Temperature	Topr	-25～+85	℃
Storage Temperature	Tstg	-30～+105	℃
Soldering Temperature	Tsol	260℃ (for 5 sec)	

5、TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS（ta=25℃）

Parameter	Symbol	Min.	Type	Max.	Unit	Test Condition
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30			V	Ic=100μA Ee=0mW/cm^2
Emitter-Collector Breakdown Voltage	$V_{(BR)ECO}$	5			V	I_E=100μA Ee=0mW/cm^2
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.2	V	Ic=2mA I_B=100μA
Rise Time	Tr		15		μS	V_{CE}=5V Ic=1mA R_L=1000Ω
Fall Time	T_f		15		μS	
Collector Dark Current	I_{CEO}			100	nA	V_{CE}=10V Ee=0mW/cm^2
On State Collector Current	$I_{C(on)}$	1.0	3.0	6.0	mA	5V Ee=1mW/cm^2 λp=940nm
Peak Wavelength of Sensitive	λp		940		nm	

6、RELIABILITY TEST ITEMS AND CONDITIONS:

NO	Item	Test Conditions	Test Hours/Cycle	Sample Quantity	Test Result
1	Solder Heat	TEMP：260℃±3℃	5 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℃/85% RH	1000HRS	22 pcs	0 DEFECT

7、TYPICAL ELECTRO-OPTICAL CHARACTERISTICS CURVES:

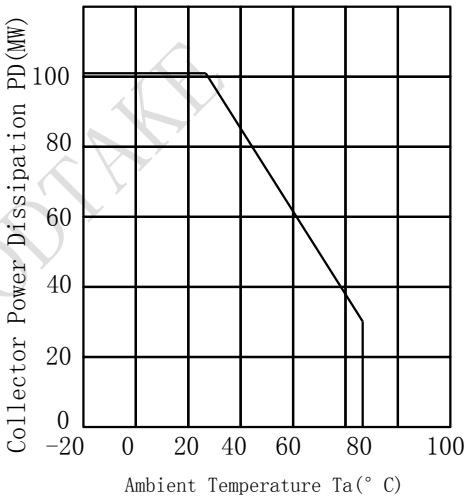


FIG.1 Collector P_D VS Ta

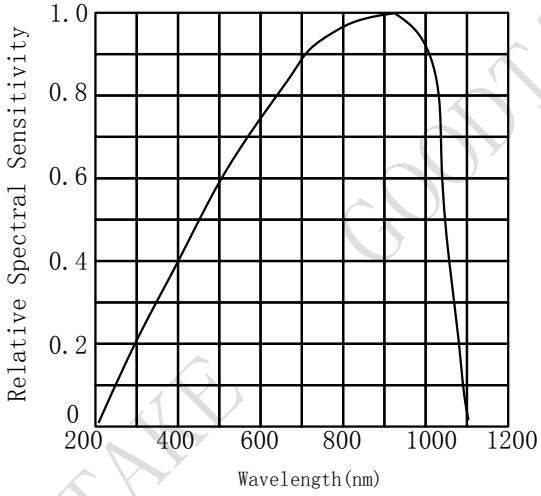


FIG.2 Spectral Sensitivity

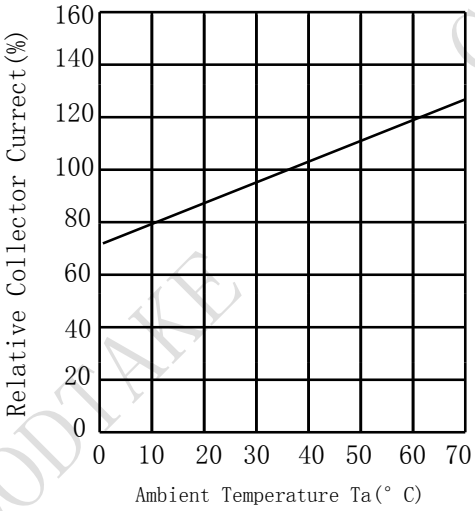


FIG.3 Relative Ic VS.Ta

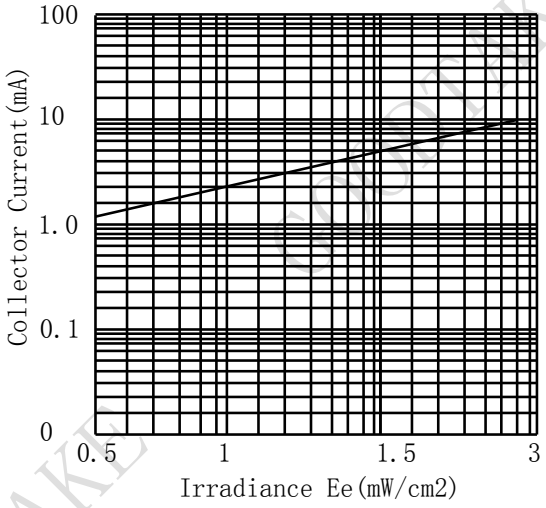


FIG.4 Ic VS Iv

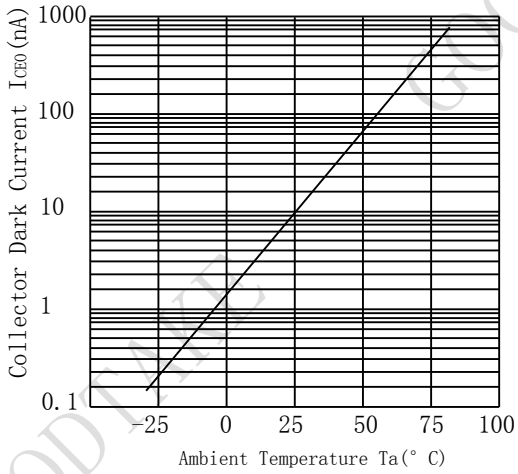
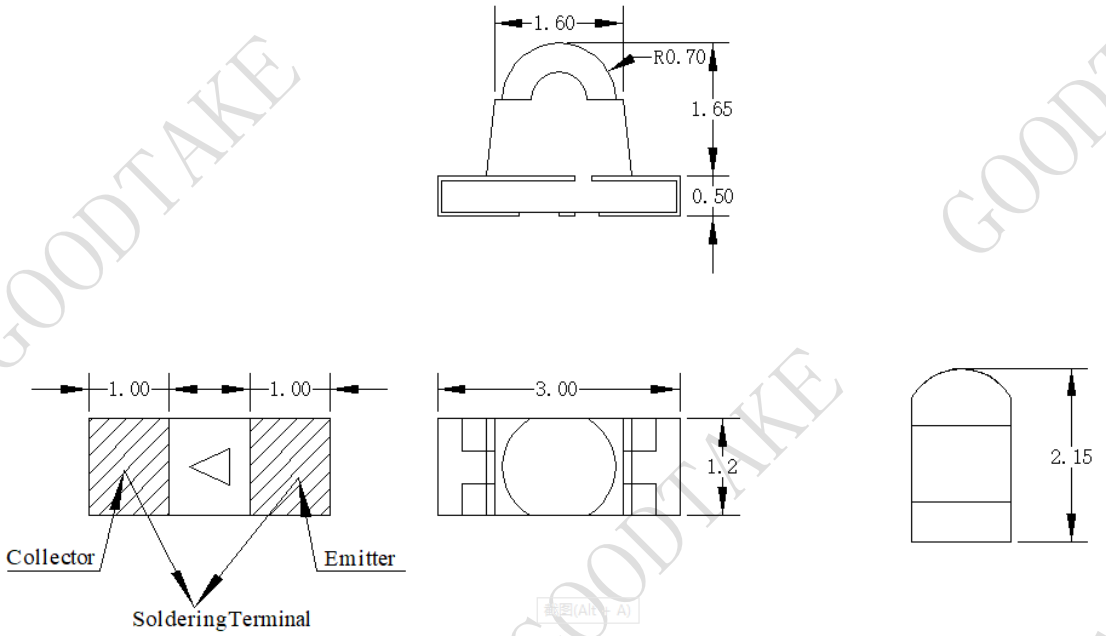
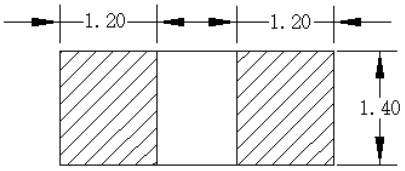


FIG.5 I_D VS Ta

8、PACKAGE DIMENSIONS:

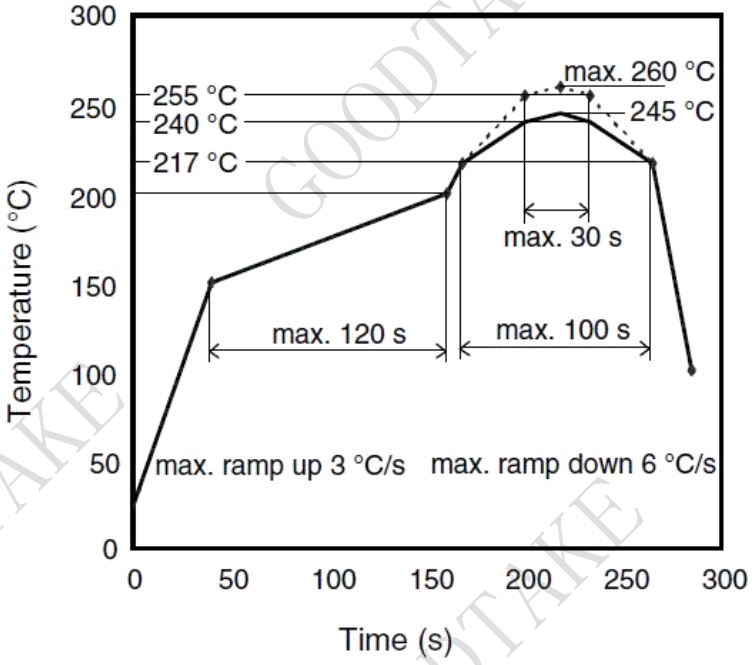


Recommended Solder Pad



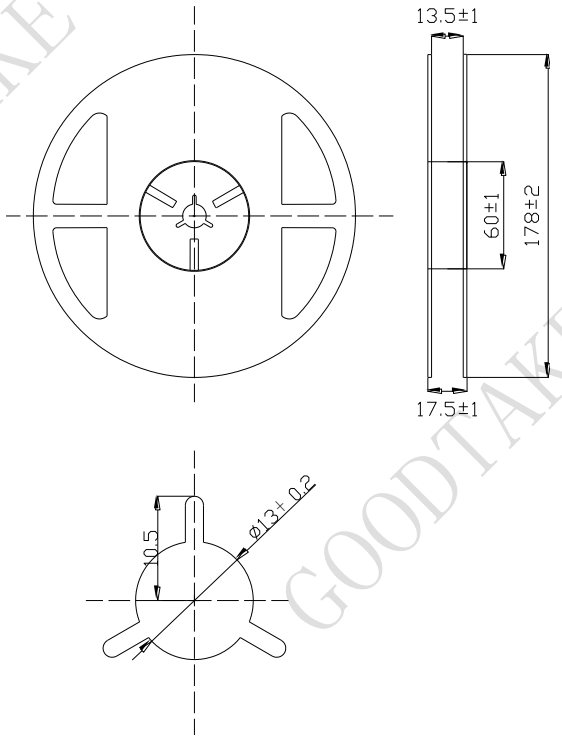
1. All dimensions are in millimeters
2. Tolerance is ±0.15 unless otherwise noted

9、REFLOW SOLDER PROFIEL:

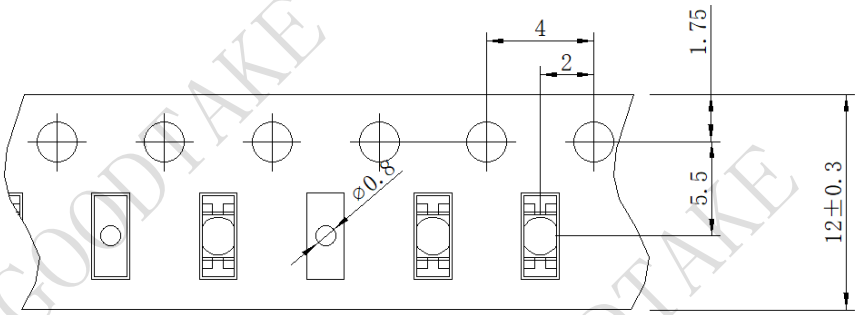


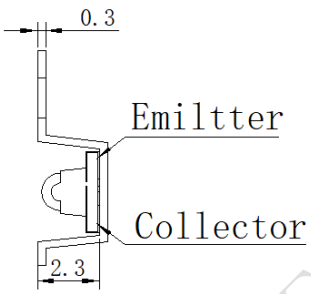
10. TAPPING AND PACKING SPECIFICATIONS:

（1）Shape and dimensions of reels: unit in mm

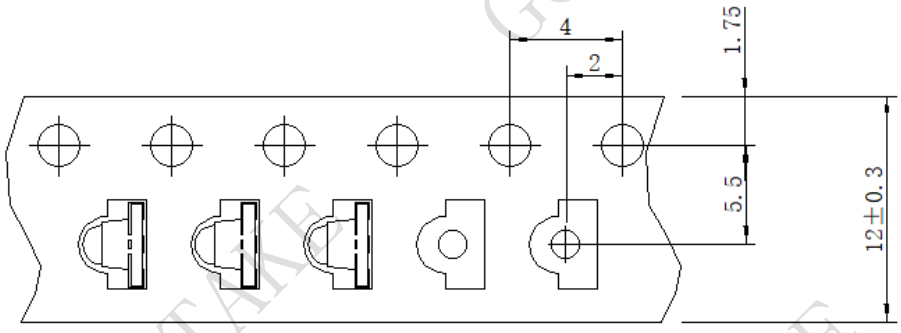


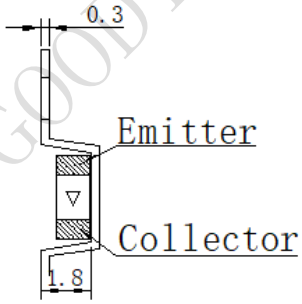
（2）Dimensions of TT tape:



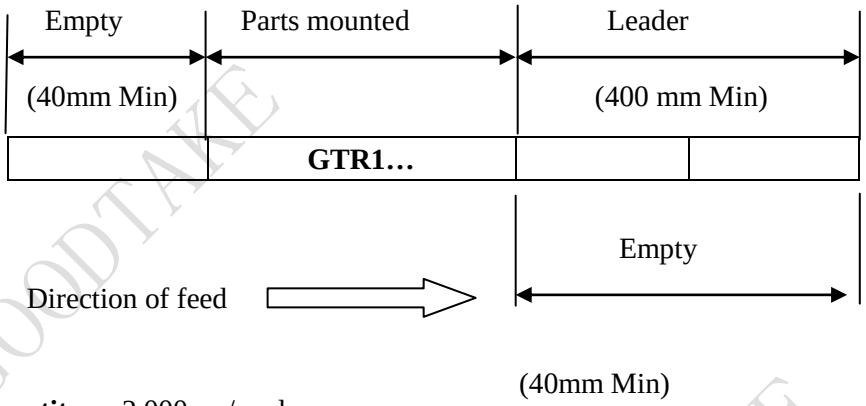


（3）Dimensions of TR tape:



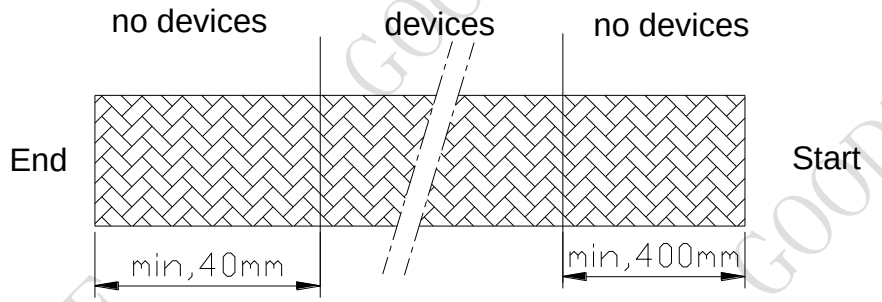


（4）Configuration of tape



(5) Quantity: 2,000pcs/ reel

Leader And Trailer Dimensions



Antistatic dry packing

Opto devices in SMD package may be sensitive to moisture. Devices are taped & reeled, sealed in antistatic bag with silica gel desiccants.

Do not open the sealed moisture-proof bag before ready to use. If sealing is void, baking treatment may be required.

Storage

Shelf life – Devices should be stored in its original packing, in a controlled environment of temperature less than 40 ℃ and relative humidity below 90%.

Suggested shelf life is12 months in its original packing.

Floor life – MSL3.After opening of the sealed package, the reeled devices should be consumed within168 hours, in a controlled environment condition of Tamb < 30 ℃, RH = < 60%.

Remaining unused parts should be stored in Dry Box chamber.

Drying (Baking Process)

If original packing is voided (such as faded silica gel or exceeded storage time), baking treatment should be performed with the following conditions:- T storage= 40 + 5 ℃, RH <5%, time =192hours.