

ST188

● Features

• Combines high output GaAs IRED with high sensitive phototransistor.

• Wide detecting range: 4~13mm.

• Non-contact detecting manner

● Applications

• IC card electric power meter.

• AMR system.

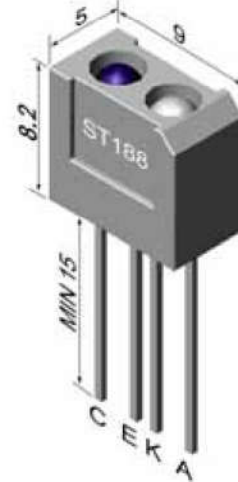
• OA equipment: facsimile, printer, copier etc.

• Combined with direction detector IC(ST288A),

it can be used as detecting moving object direction, rotating speed and moving distance etc.

● Dimensions Unit:mm

Unless otherwise specified, the tolerances at $\pm 0.2\text{mm}$



● Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	mV
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	75	mW
Output	Collector-Emitter Voltage	V_{CEO}	25	V
	Emitter-Collector Voltage	V_{ECO}	6	V
	Collector Power Dissipation	P_C	50	mW
*Operating Temperature		T_{opr}	$-20 \sim 65$	$^\circ\text{C}$
Storage Temperature		T_{stg}	$-30 \sim 75$	$^\circ\text{C}$
** Soldering Temperature		T_{sol}	260	$^\circ\text{C}$

*The special requirement could be met according to customer's request.

**Soldering time: 5s max. Soldering position: at least 1.5mm from the base of the package.

● Electro-Optical Characteristics($T_a=25^\circ\text{C}$)

Parameter		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	$I_F=20\text{mA}$	-	1.25	1.5	V
	Reverse Current	I_R	$V_R=3\text{V}$	-	-	10	μA
Output	Collector Dark Current	I_{CEO}	$V_{CE}=20\text{V}$	-	-	1	μA
	Collector Light Current	I_L	$V_{CE}=5\text{V}$ $I_F=8\text{mA}$	L3	0.3	-	mA
				L4	0.4	-	
				L5	0.5	-	
	Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_F=8\text{mA}$ $I_C=0.15\text{mA}$	-	-	0.4	V
Transfer Character-istics	Response Time	Rise Time	$I_F=20\text{mA}$ $V_{CE}=5\text{V}$ $R_C=100\Omega$	-	5	-	μS
		Fall Time		-	5	-	

Notes: Collector light current I_L , Collector-emitter saturation voltage $V_{CE(SAT)}$, Relative current, Response time are measured within 2~5mm between photointerrupter's top and reflecting surface. The value is affected by the smooth of light reflecting surface.

Internal Circuit

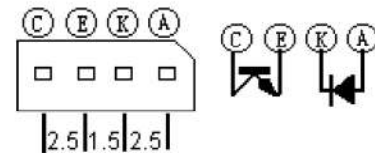


Fig.1 Forward current vs. Forward voltage

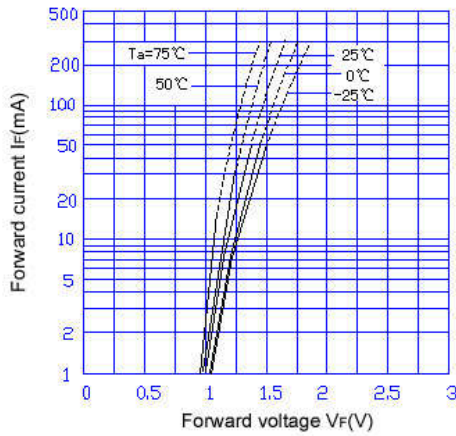
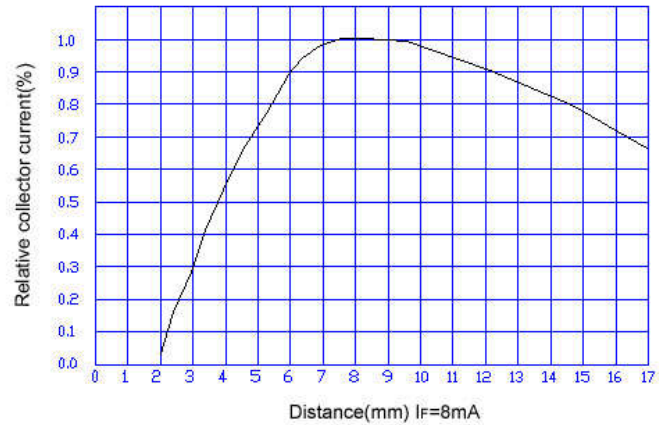


Fig. 2 Relative collector current vs. distance



- Distance in Fig.2 is from photointerrupter's top to the reflecting surface.
- The reflecting surface is a sub-reflection aluminium plate. its surface is parallel to the top of photointerrupter.
- When relative collector current rises to 1.0, the conversion efficiency is the highest under this distance.
- The curves above are for you reference.