ST138

● Features

• Combines high output GaAs IRED with high sensitive phototransistor.

• Wide detecting range, the minimum range is 1mm.

• Non-contact detecting manner.

• Reduce the effect of enviremental light.

● Applications

• IC card electric power meter.

• AMR system.

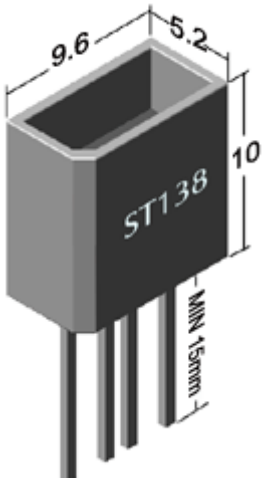
• Water meter.

• OA equipment: facsimile, printer, copier etc.

• Combined with our direction detector IC(ST288A), it can be used as detecting moving object direction, speed of clockwise/ counterclockwise rotation and moving distance etc.

● Dimensions Unit:mm

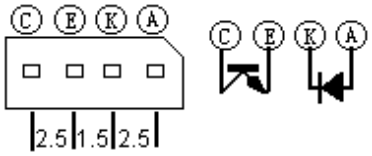
Unless othewise specified, the tolerances are ±0.2mm



● Absolute Maximum Ratings(Ta=25℃)

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}	-20～65	℃
Storage Temperature		T_{stg}	-30～75	℃
** Soldering Temperature		T_{sol}	260	℃

Internal Circuit



*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(Ta=25℃)

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

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

Fig.1 Forward current vs. forward voltage

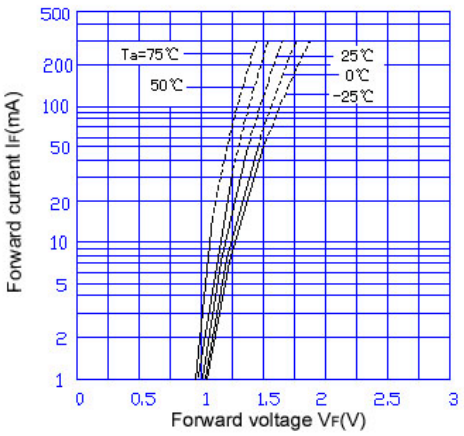


Fig.2 Relative collector current vs. distance

• 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 convertion efficiency is the highest under this distance.

• The curves above are for you reference.