

### ●Applications

- DSC(Digital steal camera)
- DVC(Digital video camera)

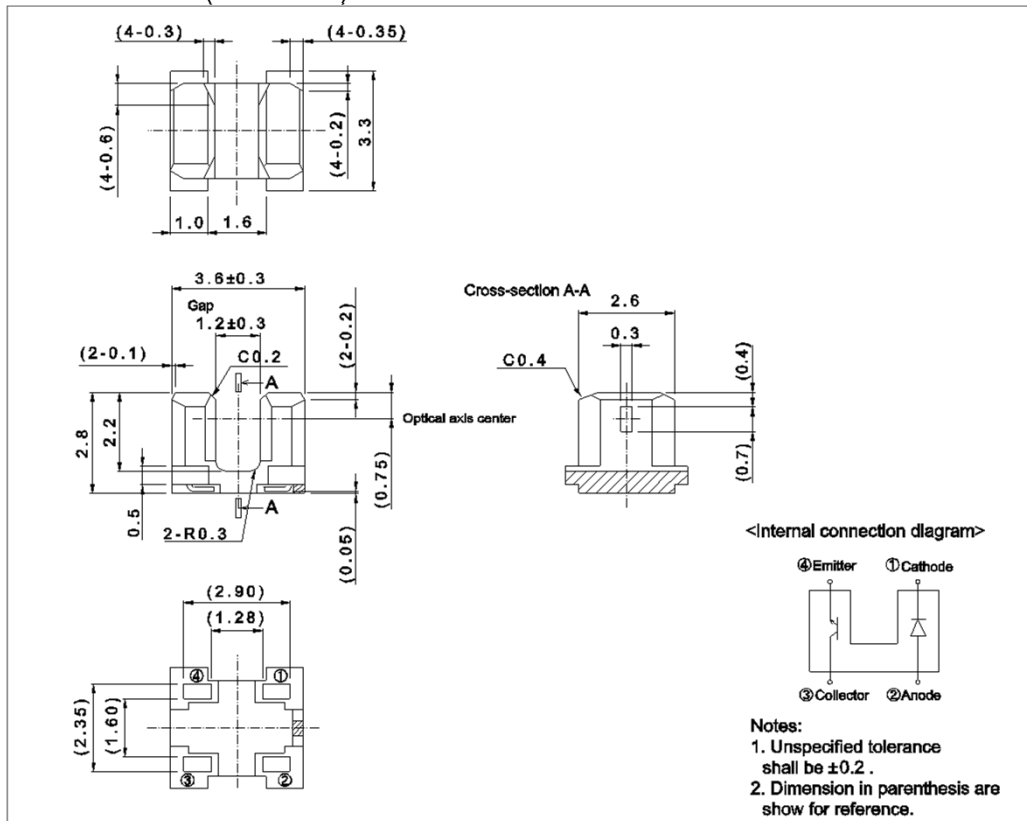
### ●Features

- 1) Ultra-small.
- 2) Gap 1.2mm.

### ●Outline



### ●Dimensions (Unit : mm)



### ●Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Value	Unit
Input (LED)	Forward current	$I_F$	50	mA
	Reverse voltage	$V_R$	5	V
	Power dissipation	$P_D$	80	mW
Output (photo-transistor)	Collector-emitter voltage	$V_{CEO}$	30	V
	Emitter-collector voltage	$V_{ECO}$	4.5	V
	Collector current	$I_C$	30	mA
	Collector power dissipation	$P_C$	80	mW
Operating temperature		$T_{opr}$	-25 to +85	$^\circ\text{C}$
Storage temperature		$T_{stg}$	-30 to +85	$^\circ\text{C}$

**●Electrical and optical characteristics** ( $T_a = 25^\circ\text{C}$ )

Parameter		Symbol	Conditions	Values			Unit	
				Min.	Typ.	Max.		
Input characteristics	Forward voltage	$V_F$	$I_F = 50\text{mA}$	-	1.3	1.6	V	
	Reverse current	$I_R$	$V_R = 5\text{V}$	-	-	10	$\mu\text{A}$	
Output characteristics	Dark current	$I_{CEO}$	$V_{CE} = 10\text{V}$	-	-	0.5	$\mu\text{A}$	
	Peak sensitivity wavelength	$\lambda_p$	-	-	800	-	nm	
Transfer characteristics	Collector current	$I_C$	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.45	-	4.95	mA	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = 20\text{mA}, I_C = 0.1\text{mA}$	-	-	0.4	V	
	Response time	Rise time	$t_r$	$V_{CC} = 5\text{V}, I_F = 20\text{mA}, R_L = 100\Omega$	-	10	-	$\mu\text{s}$
		Fall time	$t_f$		-	10	-	$\mu\text{s}$
Collector rank	A	$I_C$	$V_{CE} = 5\text{V}, I_F = 20\text{mA}$	0.45	-	2.33	mA	
	B			0.95	-	4.95		
Infrared light emitter diode	Cut-off frequency	$f_C$	$I_F = 50\text{mA}$	-	1	-	MHz	
	Peak light emitting wavelength	$\lambda_p$	* Non-coherent Infrared light emitting diode used.	-	950	-	nm	
Photo transistor	Response time	$t_r \cdot t_f$	$V_{CC} = 5\text{V}, I_C = 1\text{mA}, R_L = 100\Omega$ *This product is not designed to be protected against electromagnetic wave.	-	10	-	$\mu\text{s}$	
	Maximum sensitivity wavelength	$\lambda_p$	-	-	800	-	nm	

●Electrical and optical characteristics curves

Fig.1 Relative Output Current vs.Distance (I)

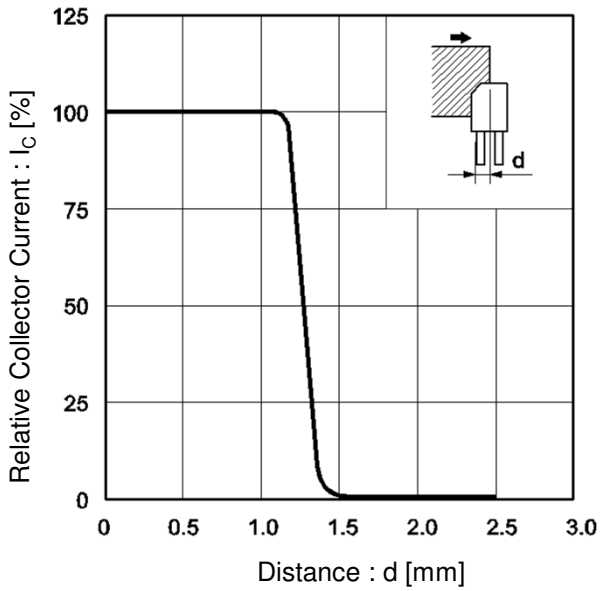


Fig.2 Relative Output Current vs.Distance (II)

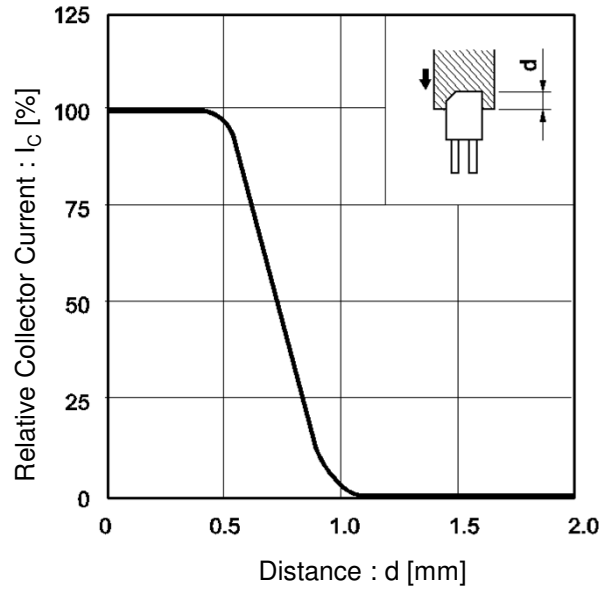


Fig.3 Forward Current Falloff

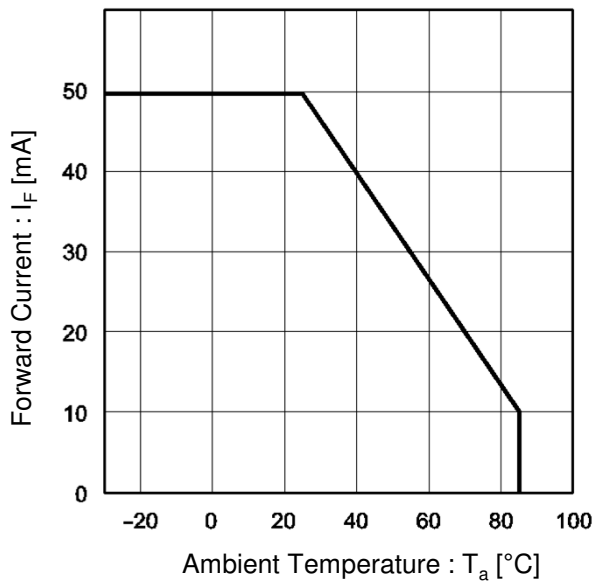
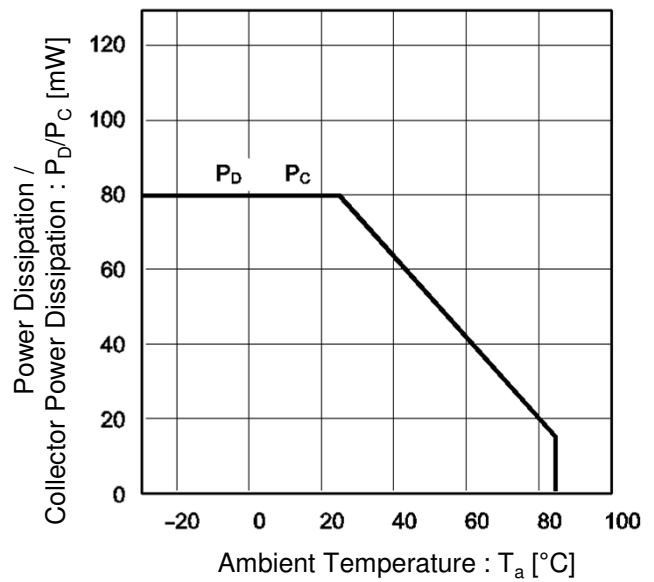


Fig.4 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature



●Electrical and optical characteristics curves

Fig.5 Forward Current vs. Forward Voltage

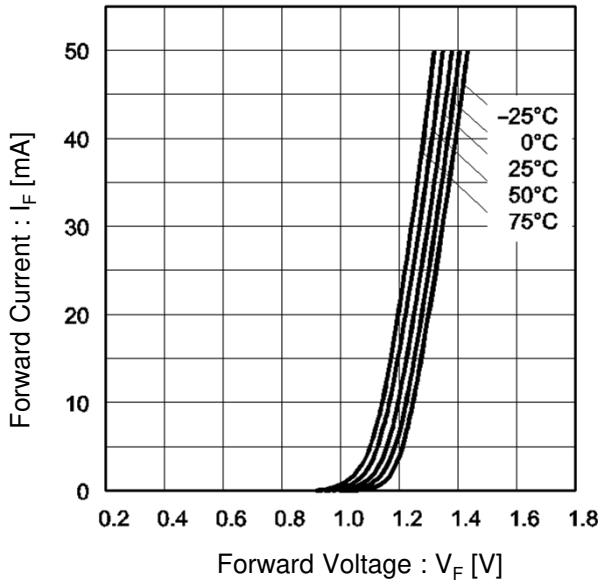


Fig.6 Collector Current vs. Forward Current

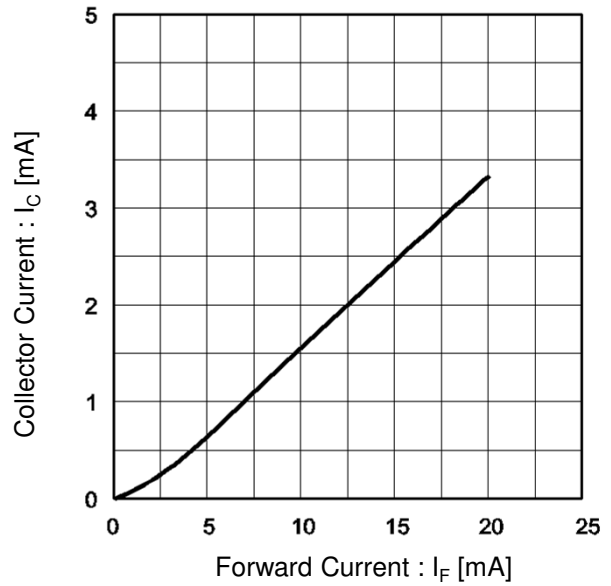


Fig.7 Relative Output vs. Ambient Temperature

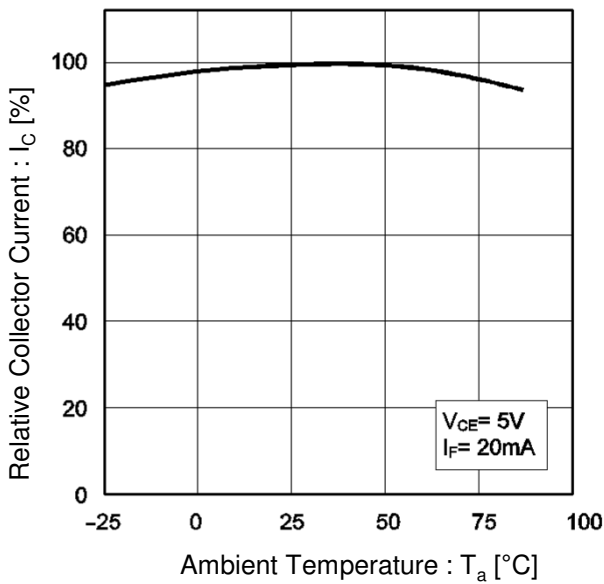
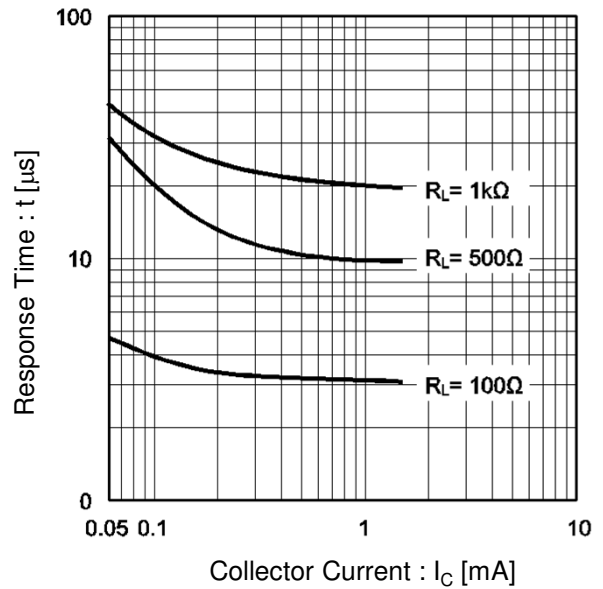


Fig.8 Response Time vs. Collector Current



●Electrical and optical characteristics curves

Fig.9 Dark Current vs. Ambient Temperature

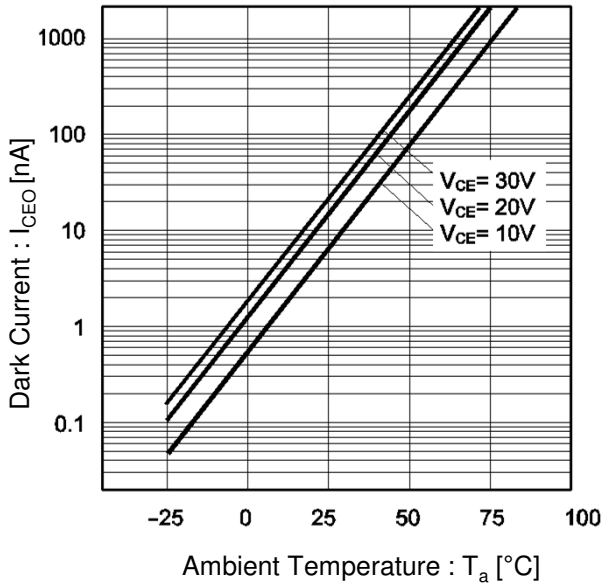


Fig.10 Output Characteristics

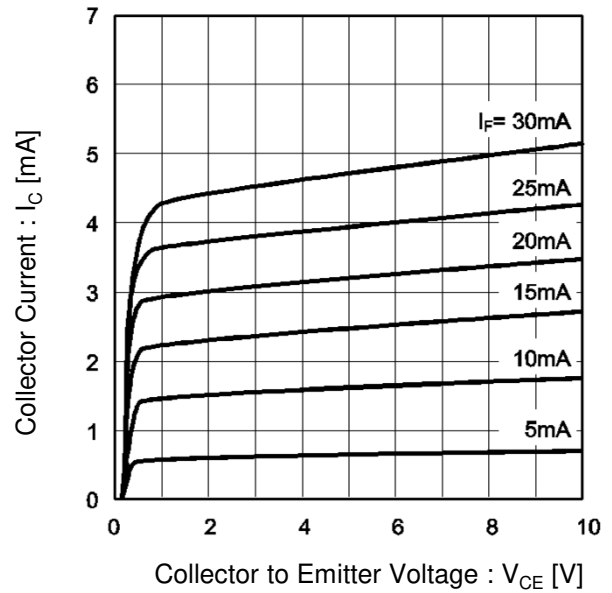


Fig.11 Response Time Measurement Circuit



$t_d$  : Delay time  
 $t_r$  : Rise time (time for output current to rise from 10% to 90% of peak current)  
 $t_f$  : Fall time (time for output current to fall from 90% to 10% of peak current)

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