

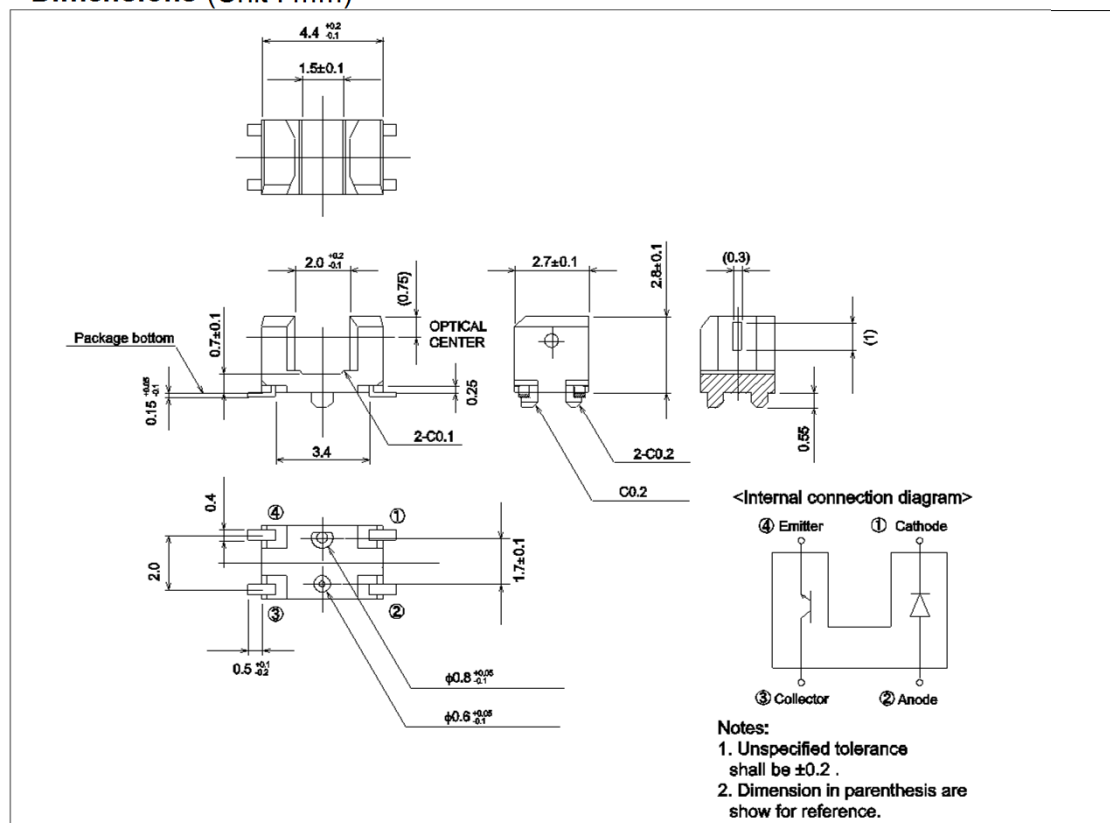
### ●Applications

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

### ●Features

- 1) Ultraminiature middle size SMD type.
- 2) Gap 2.0mm.

### ●Dimensions (Unit : mm)



### ●Outline



### ●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		$T_{opr}$	-30 to +85	$^\circ\text{C}$
Storage temperature		$T_{stg}$	-40 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	$V_F$	$I_F = 50\text{mA}$	-	1.8	2.3	V
	Reverse current	$I_R$	$V_R = 5\text{V}$	-	-	10	$\mu\text{A}$
Output characteristics	Dark current	$I_{CEO}$	$V_{CE} = 10\text{V}$	-	-	0.1	$\mu\text{A}$
	Peak sensitivity wavelength	$\lambda_p$	-	-	800	-	nm
Transfer characteristics	Collector current	$I_C$	$V_{CE} = 5\text{V}, I_F = 5\text{mA}$	0.1	-	-	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	$V_{CC} = 5\text{V}, I_F = 0.1\text{mA}, R_L = 1000\Omega$	-	50	150	$\mu\text{s}$
		Fall time		-	50	150	$\mu\text{s}$
Infrared light emitter diode	Peak light emitting wavelength	$\lambda_p$	$I_F = 50\text{mA}$ * Non-coherent Infrared light emitting diode used.	-	850	-	nm
Photo transistor	Response time	$tr \cdot tf$	$V_{CC} = 5\text{V}, I_C = 1\text{mA}, R_L = 1000\Omega$ *This product is not designed to be protected against electromagnetic wave.	-	50	-	$\mu\text{s}$
	Maximum sensitivity wavelength	$\lambda_p$	-	-	800	-	nm

●Electrical and optical characteristics curves

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

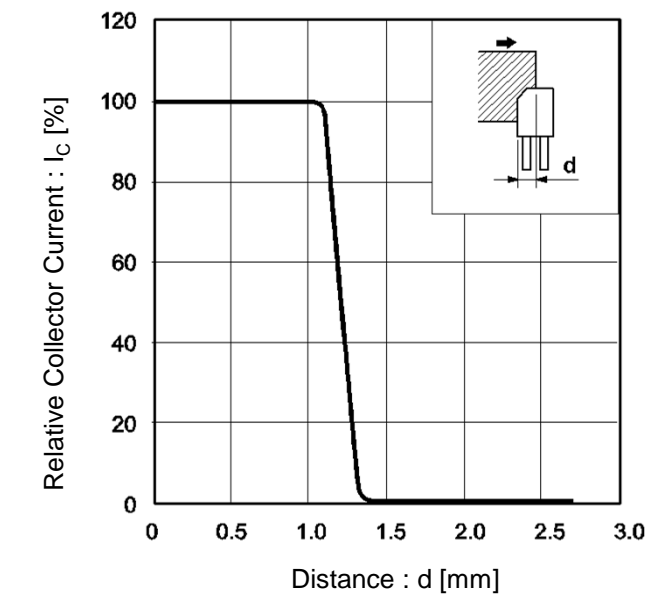


Fig.2 Relative Output Current vs.Distance (II)

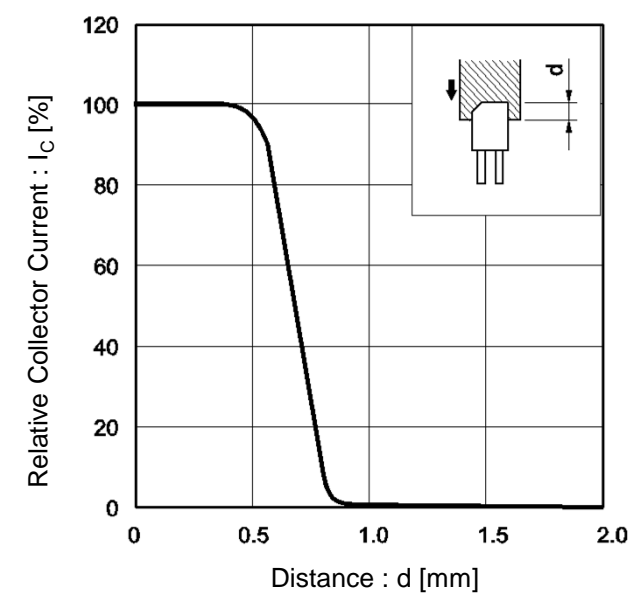


Fig.3 Forward Current Falloff

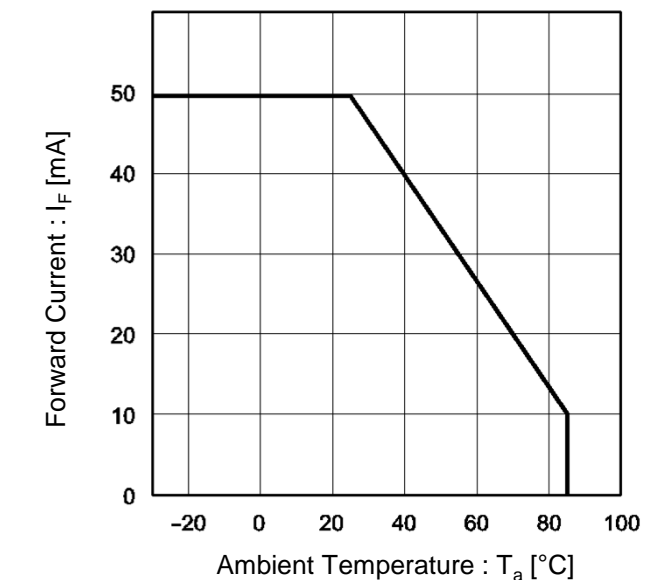
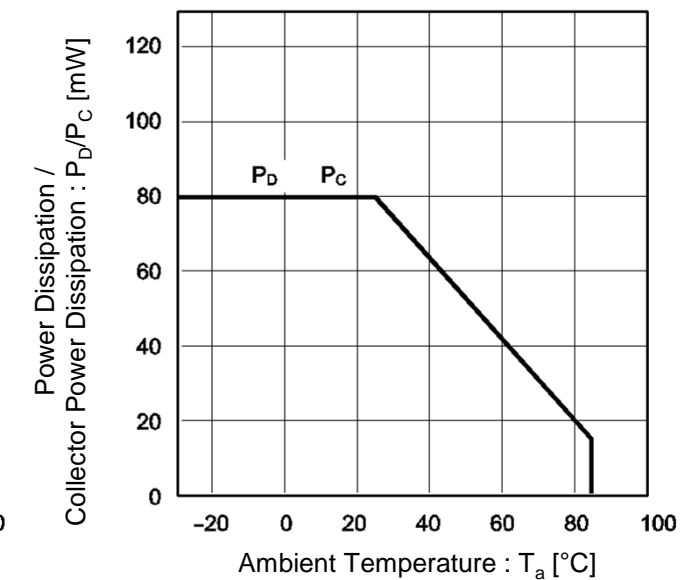


Fig.4 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature



●Electrical and optical characteristics curves

Fig.5 Forward Current vs. Forward Voltage

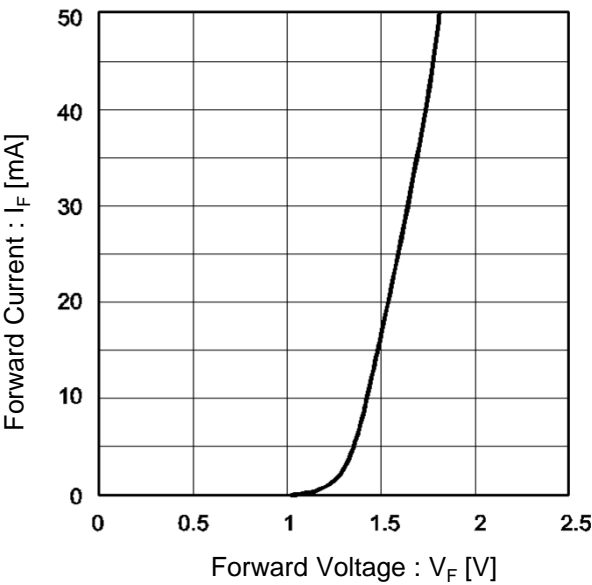


Fig.6 Collector Current vs. Forward Current

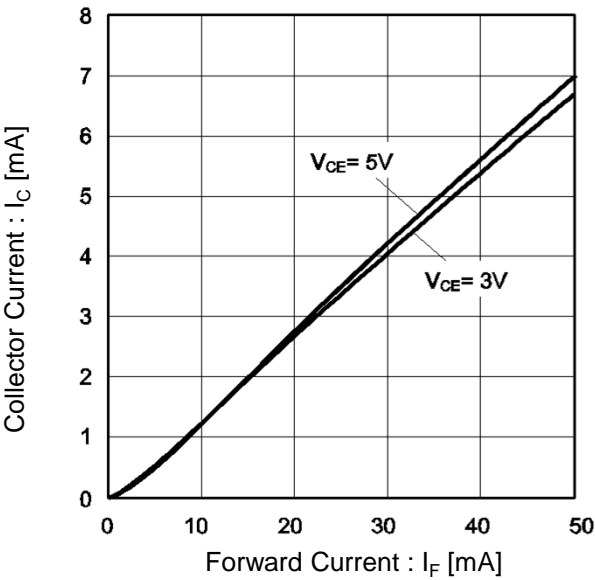


Fig.7 Relative Output vs. Ambient Temperature

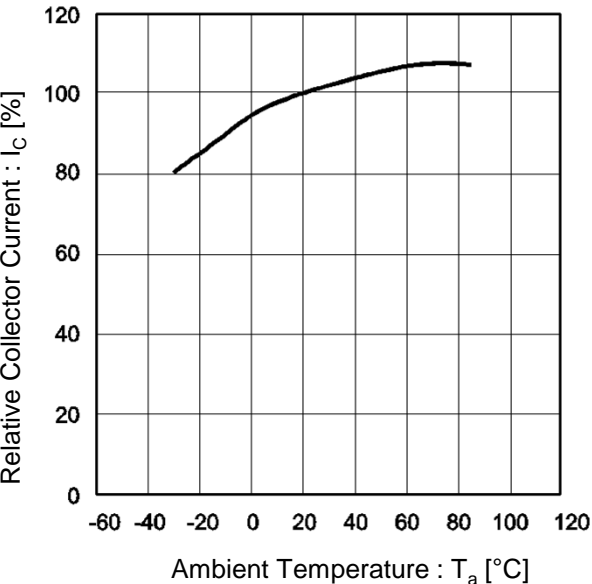
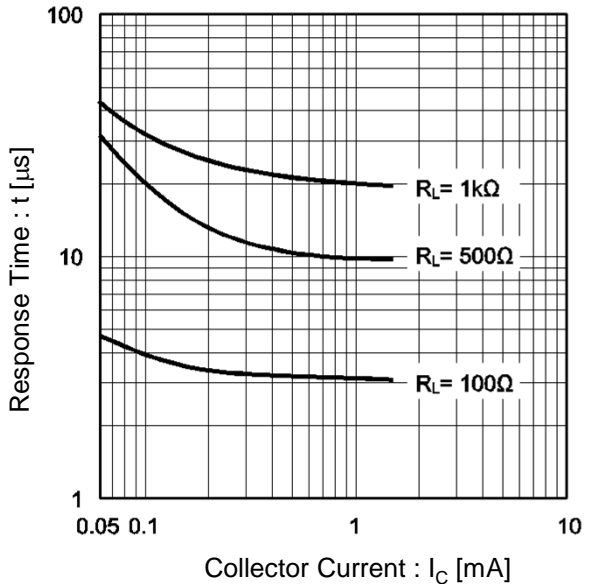


Fig.8 Response Time vs. Collector Current



## ●Electrical and optical characteristics curves

Fig.9 Dark Current vs. Ambient Temperature

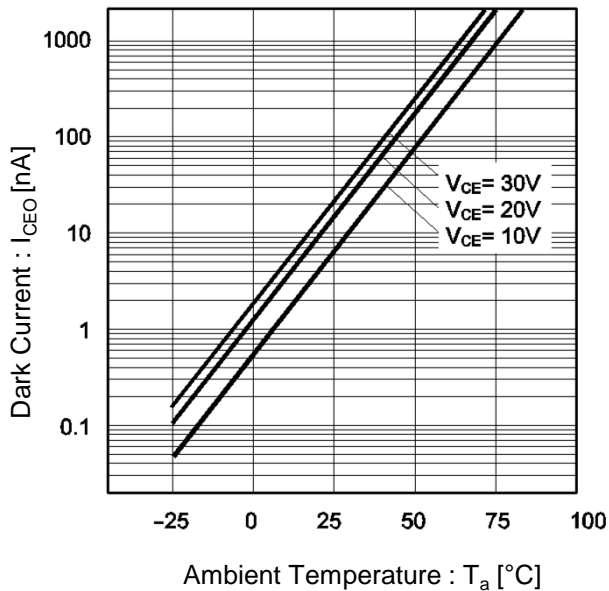


Fig.10 Output Characteristics

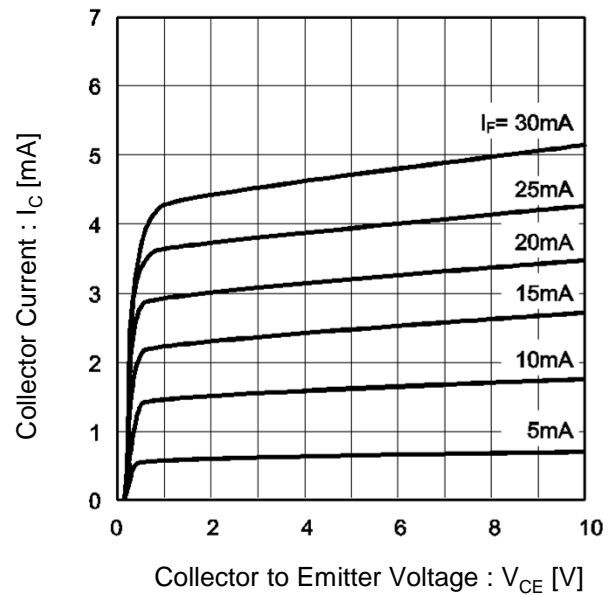
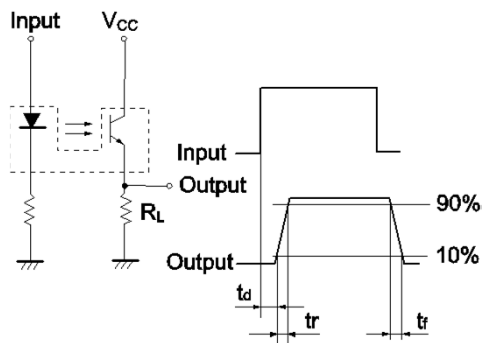


Fig.11 Response Time Measurement Circuit



$t_d$  : 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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