

# Ultraminiature SMD type

RPI-0128

Datasheet

● Applications

- DSC (Digital steal camera)
- Game console
- Motor Unit

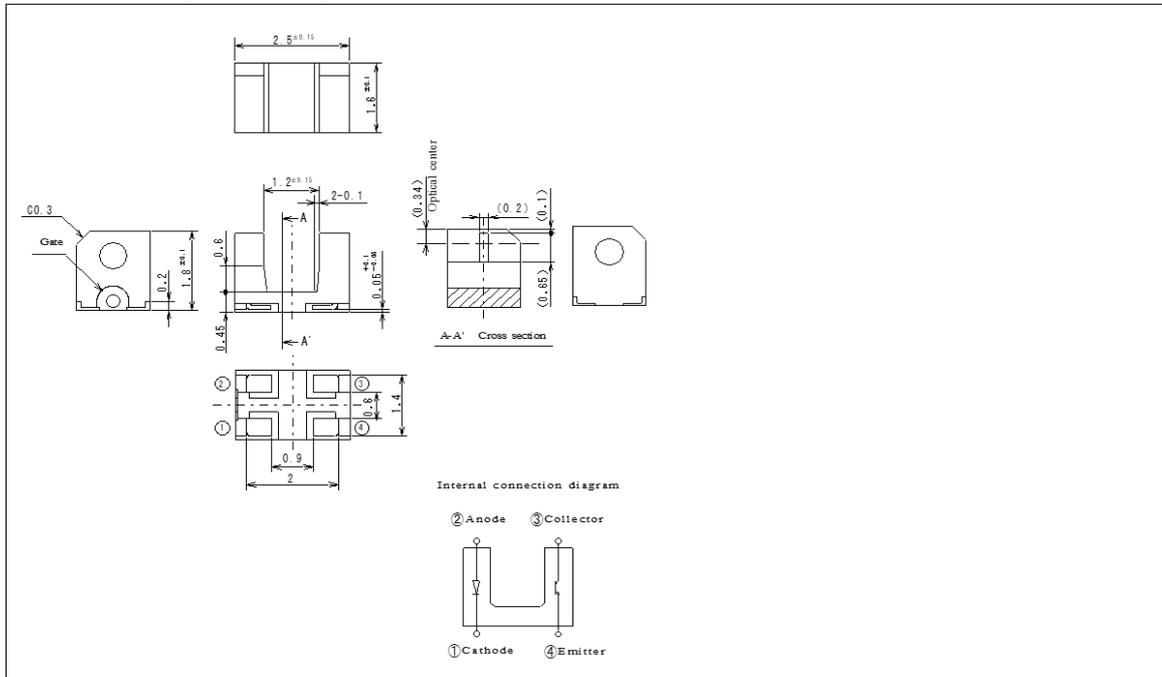
● Features

- 1) Ultraminiature SMD type
- 2) Gap 1.2mm

● Package



● Dimensions(Unit : mm)



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

Parameter		Symbol	Value	Unit
Input (Infrared light emitting diode)	Forward current	$I_F$	30	mA
	Reverse voltage	$V_R$	5	V
	Power dissipation	$P_D$	80	mW
Output (Phototransistor)	Collector-emitter voltage	$V_{CEO}$	30	V
	Emitter-collector voltage	$V_{ECO}$	4.5	V
	Collector current	$I_C$	30	mA
	Collector dissipation	$P_C$	80	mW
Operating temperature		$T_{opr}$	-25 ~ +85	$^\circ\text{C}$
Storage temperature		$T_{sg}$	-30 ~ +85	$^\circ\text{C}$

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

1) Input characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	$V_F$	$I_F = 5\text{mA}$	1.2	1.35	1.5	V
Reverse current	$I_R$	$V_R = 5\text{V}$	-	-	10	$\mu\text{A}$
Peak light emitting wavelength	$\lambda_p$	$I_F = 10\text{mA}$	-	850	-	nm

\* Non-coherent Infrared light emitting diode used.

2) Output characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Dark current	$I_{CEO}$	$V_{CE} = 10\text{V}$	-	-	0.1	$\mu\text{A}$
Peak sensitivity wavelength	$\lambda_p$		-	800	-	nm

3) Transfer characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector current	$I_{C1}$	$V_{CE} = 5\text{V}$ $I_F = 20\text{mA}$	5.0	-	25.0	mA
	$I_{C2}$	$V_{CE} = 5\text{V}$ $I_F = 5\text{mA}$	1.0	-	5.0	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	$t_r$	-	10	-	$\mu\text{s}$
	Fall time	$t_f$		10		

\* This product is not designed to be protected against electromagnetic wave.

●Electrical and optical characteristics curves

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

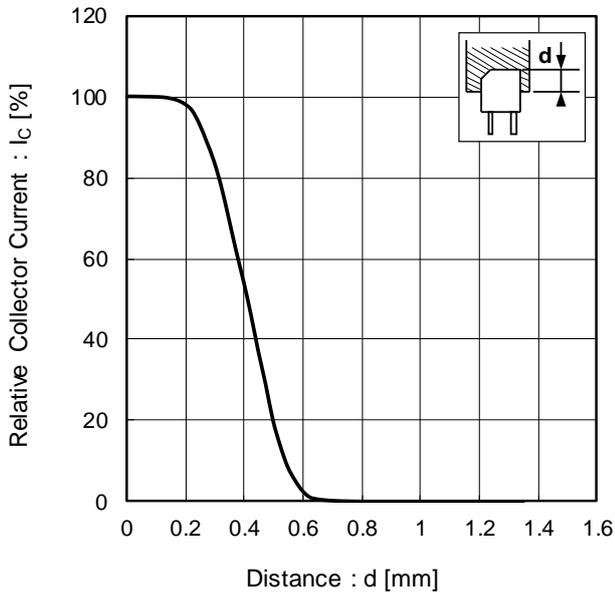


Fig.2 Relative Output Current vs.Distance (II)

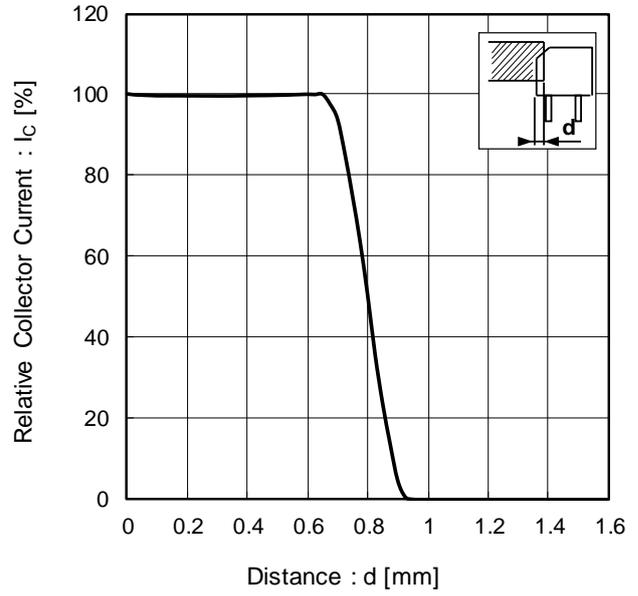


Fig.3 Forward Current Falloff

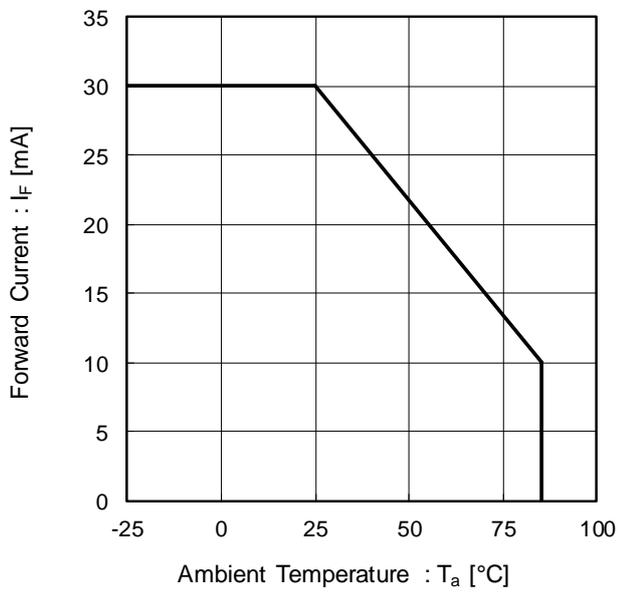
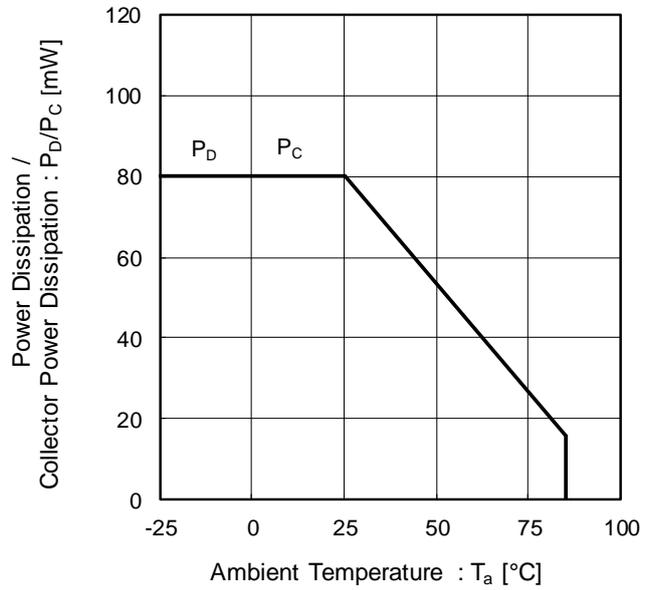


Fig.4 Power Dissipation / Collector Power Dissipation vs. Ambient Temperature



●Electrical and optical characteristics curves

Fig.5 Forward Current vs. Forward Voltage

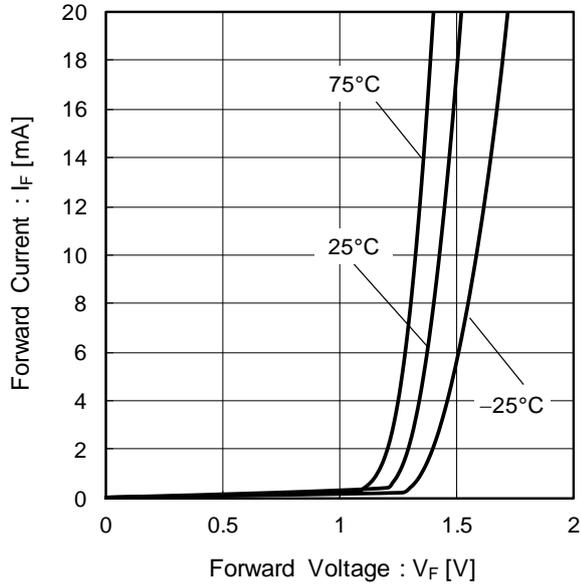


Fig.6 Collector Current vs. Forward Current

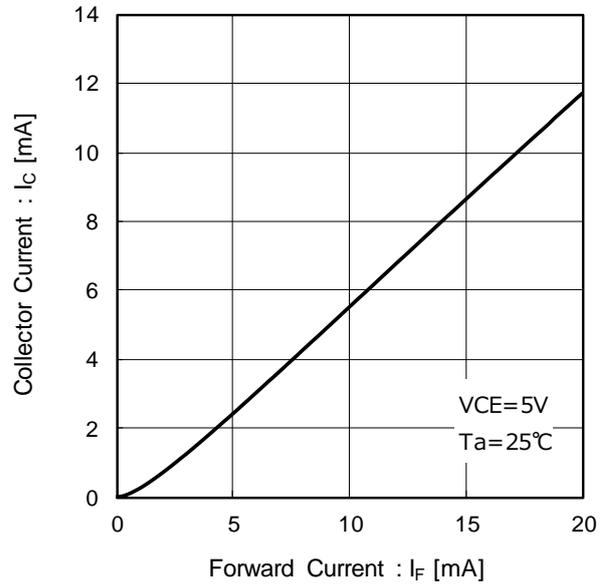


Fig.7 Relative Output vs. Ambient Temperature

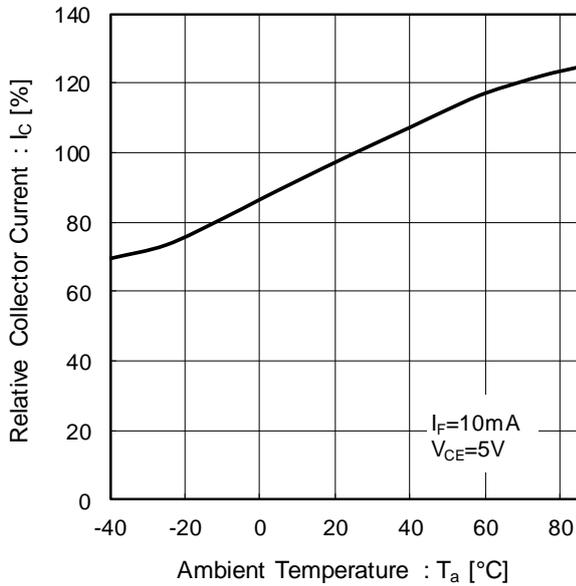
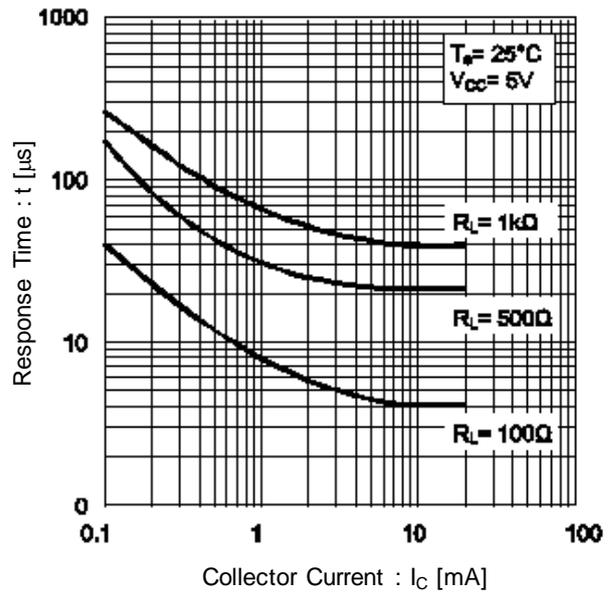


Fig.8 Response Time vs. Collector Current



●Electrical and optical characteristics curves

Fig.9 Dark Current vs. Ambient Temperature

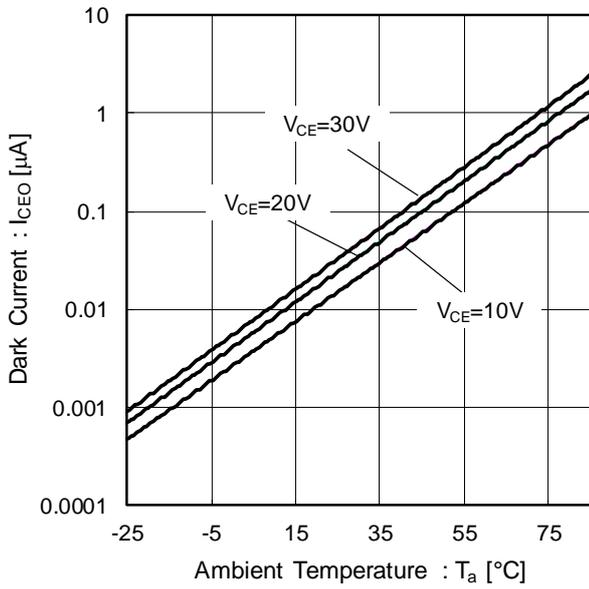
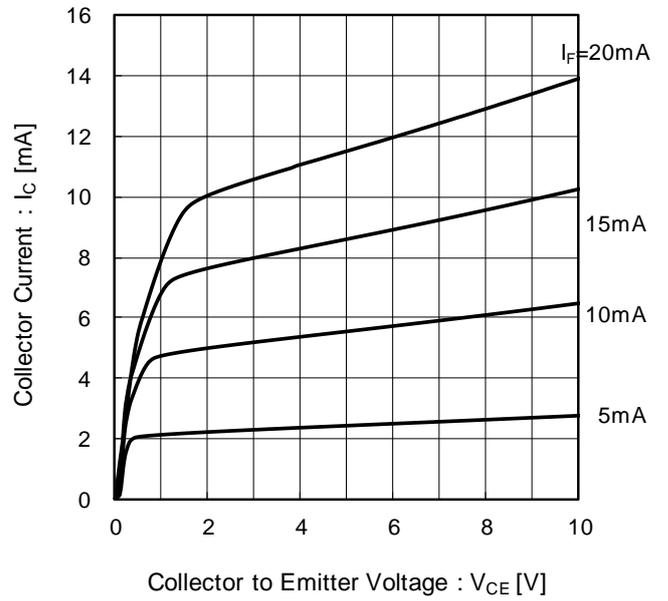


Fig.10 Output Characteristics



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