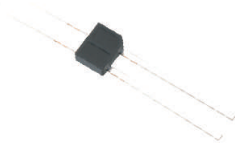


INFRARED PRODUCTS SPECIFICATION

HRS-CD

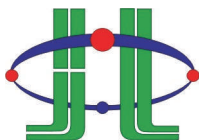


Drawn by	Checked by	Approved by



DATE:2008/12/10

REV:F



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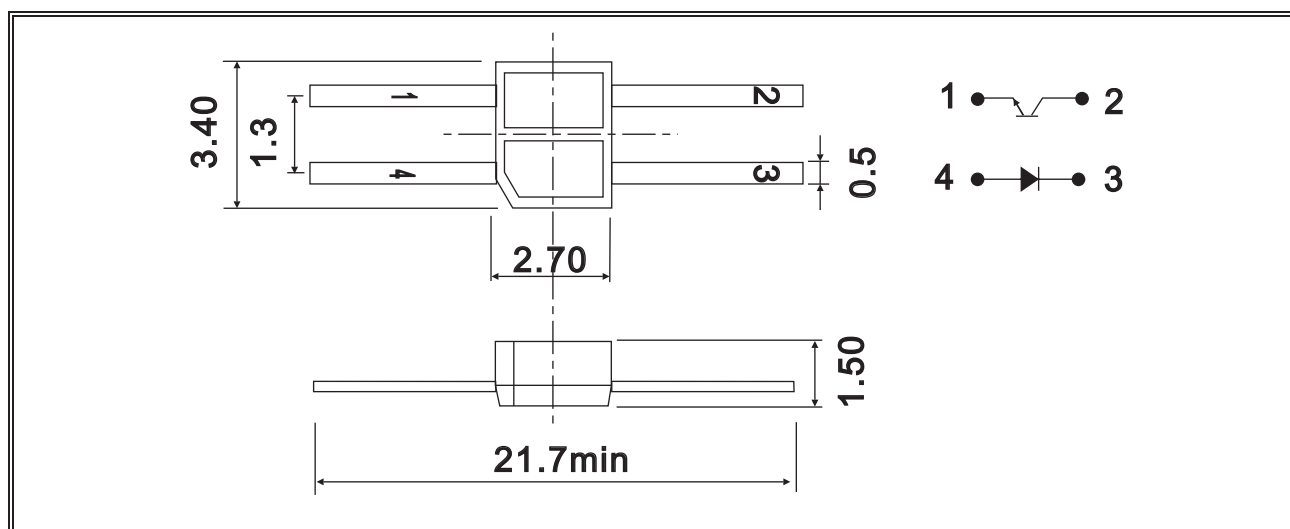
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DEVICES

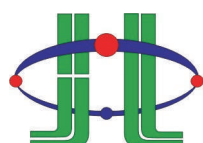
Part Number	Lens		Source	
	Color	Diffusion	Dice Source	Color
HRS-CD	---	---	---	Reflector

PACKAGE DIMENSIONS:



NOTE:

- 1.All dimensions are in millimeter.
- 2.Lead spacing is measured where the lead emerges from the package.
- 3.protruded resin under flange is 1.5mm max.
- 4.specifications are subject to change without notice.
- 5.Tolerance is 0.3mm unless otherwise noted.



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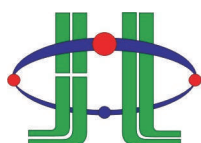
☐ **ABSOLUTE MAXIMUM RATINGS**

TA=25°C

PARAMETER		SYMBOL	MAX. RATING	UNIT
Input	Continuous Forward Current	I _F	50	mA
	Peak Forward Current *1	I _{FM}	1.0	A
	Reverse Voltage	V _R	5	V
	Power Dissipation	P _d	75	mW
Output	Collector-Emitter Voltage	V _{CEO}	30	V
	Emitter-Collector Voltage	V _{ECO}	5	V
	Collector Current	I _c	50	mA
	Collector Power Dissipation	P _c	750	mW
Operating Temperature		T _{opr}	-25 ~ +85	°C
Storage Temperature		T _{stg}	-40 ~ +85	°C
Dip Soldering Temperature (3mm from case Bottom 260 °C for 5 seconds)				

*1.Pulse width $\leq 10 \mu s$, Duty cycle= 1%.

*Iron soldering in 350°C within 5 seconds will not cause damage to the dice. But be aware of the high temperature will not only make the epoxy soften but also cause the lead moving and the gold wire broken and even open. So before returning to the normal temperature PLEASE AVOID any serious pressure on the top of epoxy and lead.



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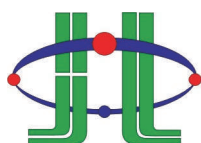
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ELECTRIC-OPTICAL CHARACTERISTICS

TA=25°C

PARAMETER		SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Input	Forward Voltage *2	V_F	$I_F=20\text{mA}$	---	1.2	1.6	V
	Reverse Current	I_R	$V_R=5\text{V}$	---	---	10	μA
	Peak Wavelength	λ_p	---	---	940	---	nm
	View Angle	$2\theta_{1/2}$	$I_F=20\text{mA}$		110		Deg
Output	Dark Current	I_{ceo}	$V_{ce}=10\text{V}$	---	---	100	nA
	C-E Saturation Voltage	$V_{CE(sat)}$	$I_c=2\text{mA}, I_B=0.1\text{mA}$	---	---	0.4	V
Light Current		I_c	$V_{ce}=5\text{V}, I_F=20\text{mA}, D=1\text{mm}$	0.1	---	---	mA
Leakage Current		I_{ceo}		---	---	1.0	μA
Rise Time		T_r	$V_{ce}=2\text{V}, I_c=100\mu\text{A}$ $R_L=1\text{K}\Omega$	---	20	---	μs
Fall Time		T_f		---	20		

*2.Tolerance:±15% HUEY-JANN measuring equipment : PD-01.



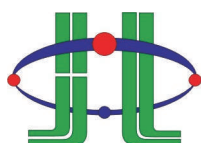
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☐ RELIABILITY TEST

Test Item	Test Conditions	Failure Judgement Criteria	<u>Samples(n)</u> Defective(c)
Operating Life Test	V _{CE} =5V I _F =20mA 1000hrs	$I_R \geq U \times 2$ $I_C \leq L \times 0.8$ $V_F \geq U \times 1.2$ L : Lower Specification limit U : Upper Specification limit	0/22
Temperature Cycle	1 Cycle -55°C +25°C +85°C (30min) (5min) (30min) 50 Cycle Test		0/22
High Temperature Test	Temp:+100°C 1000hrs		0/22
Low Temperature Test	Temp:-55°C 1000hrs		0/22
High Temperature High Humidity	Ta:85°C,RH:85% Vcc:6v 1000hrs		0/22
Thermal Shock	85°C ~ -55°C 5min(10sec)5min 50 Cycle Test		0/22
Solder Heat	Temp: 260±5°C 5sec 4mm from the bottom of the package.		0/22



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TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

Fig.1 Forward Current vs. Ambient Temperature

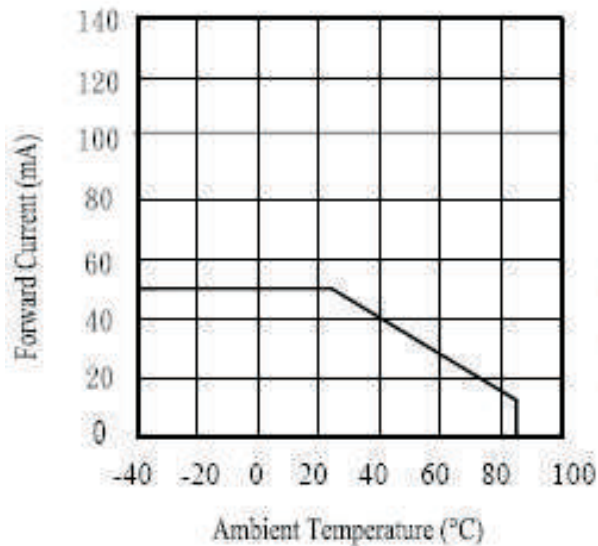


Fig.2 Spectral Distribution

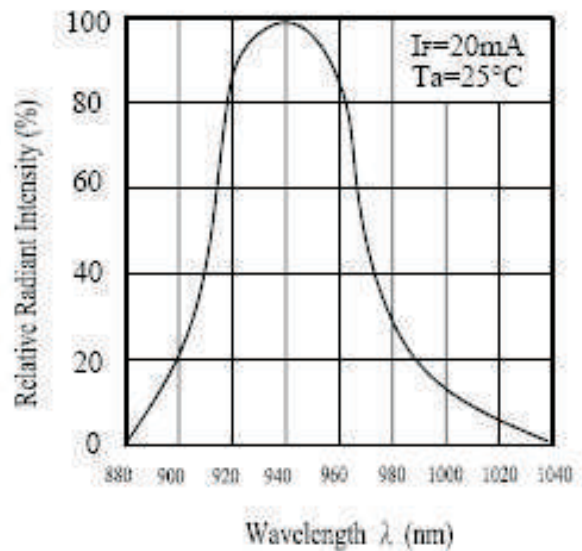


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

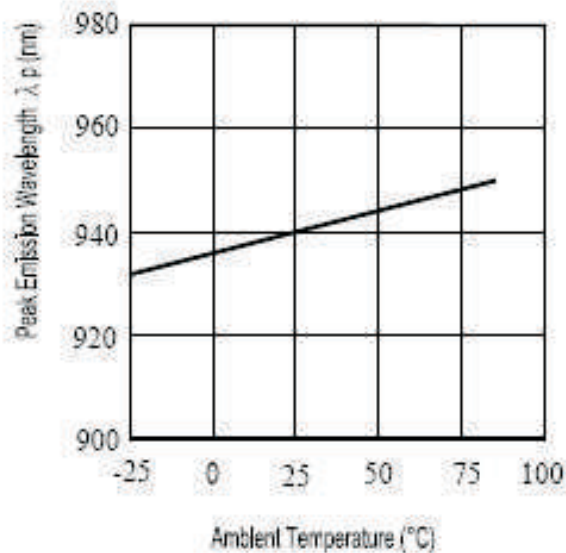
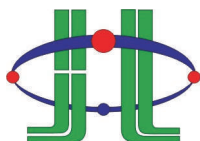
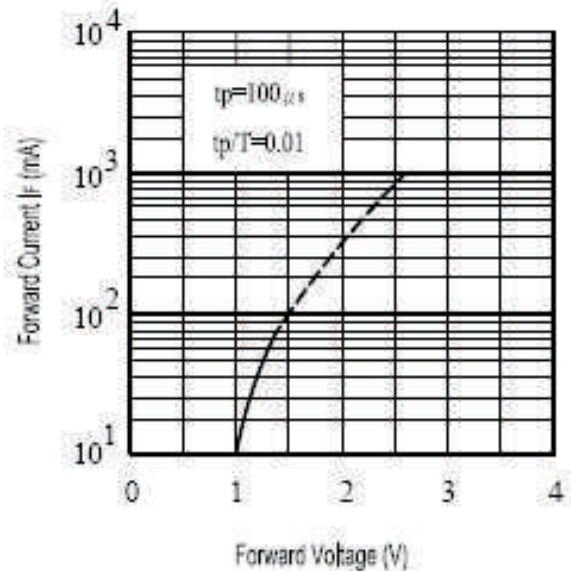


Fig.4 Forward Current vs. Forward Voltage



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TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

Fig.5 Relative Intensity vs.
Forward Current

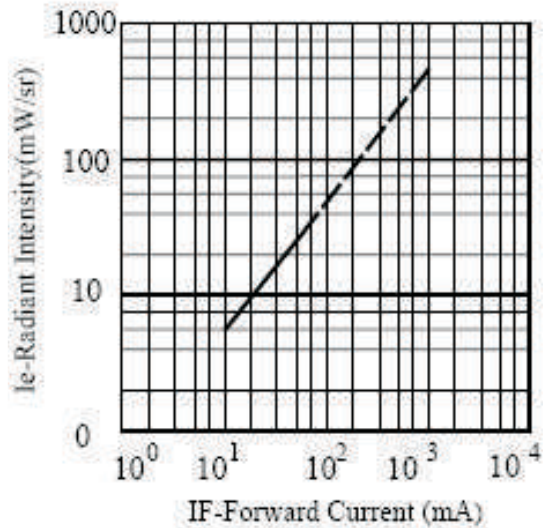


Fig.6 Relative Radiant Intensity w
Angular Displacement

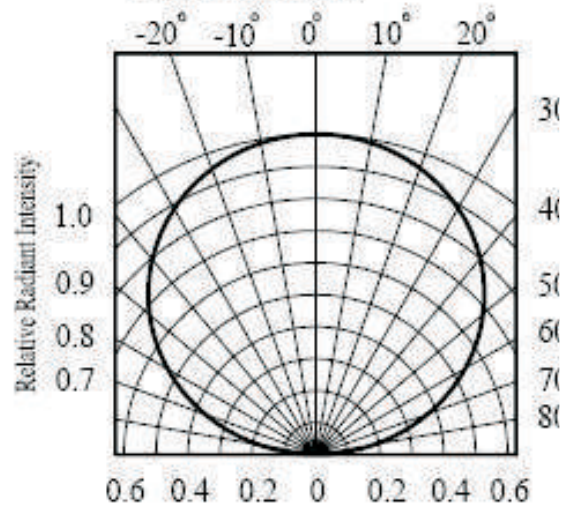


Fig.7 Relative Intensity vs.
Ambient Temperature(°C)

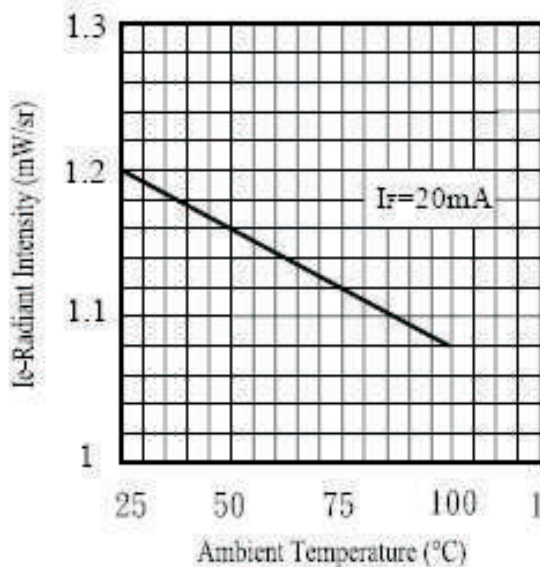
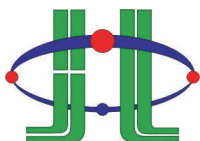
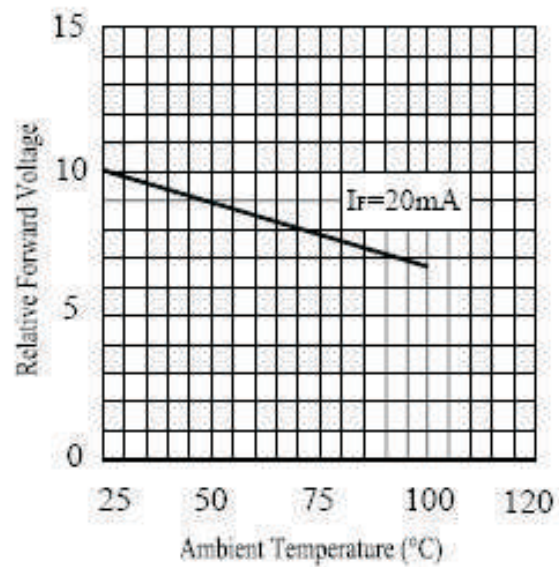


Fig.8 Forward Current vs.
Ambient Temperature(°C)



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TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

Fig.1 Collector Power Dissipation vs. Ambient Temperature

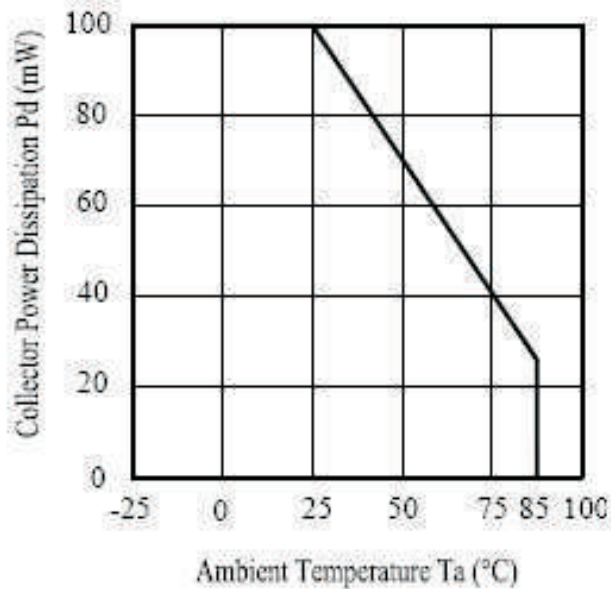


Fig.2 Collector Dark Current vs Ambient Temperature

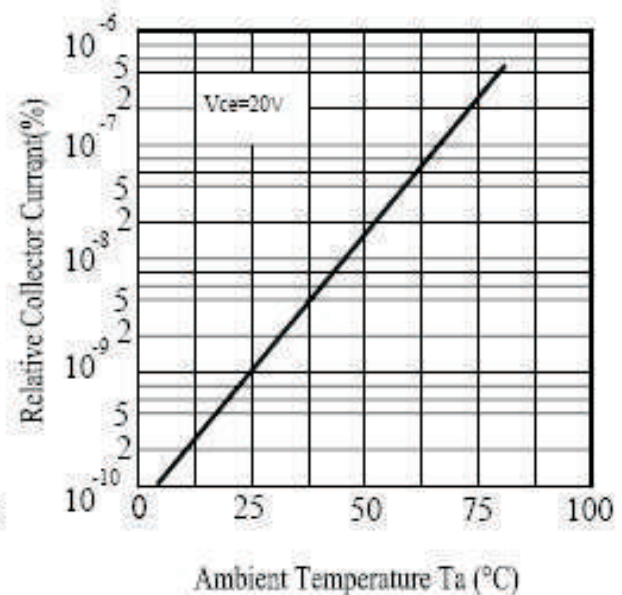


Fig.3 Relative Collector Current vs Ambient Temperature

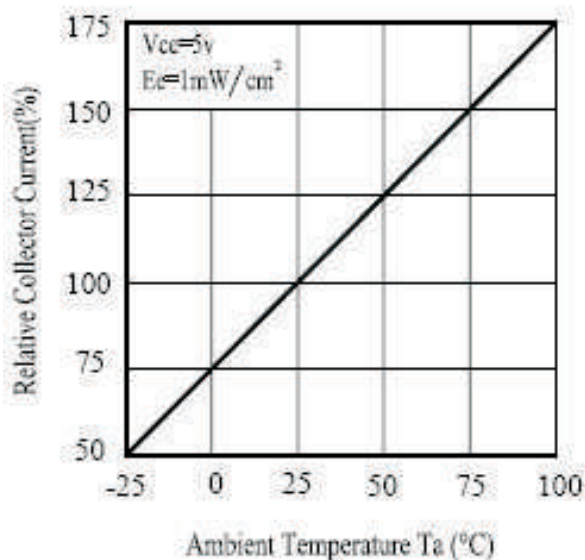
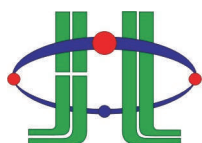
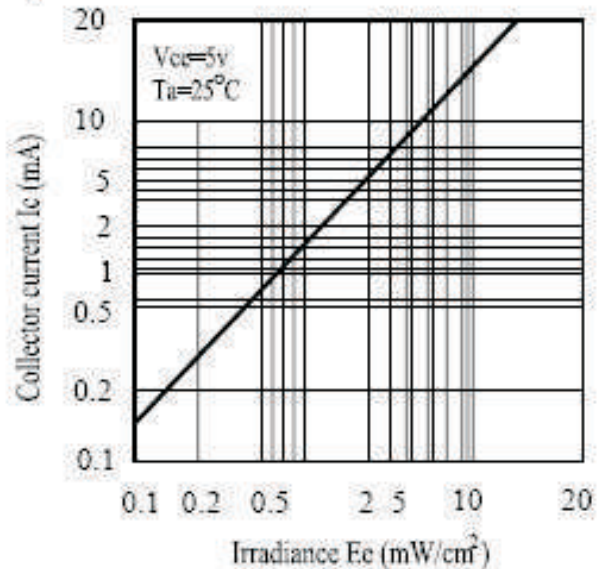


Fig.4 Collector Current vs.Irradiance



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TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

Fig 5 Spectral Sensitivity

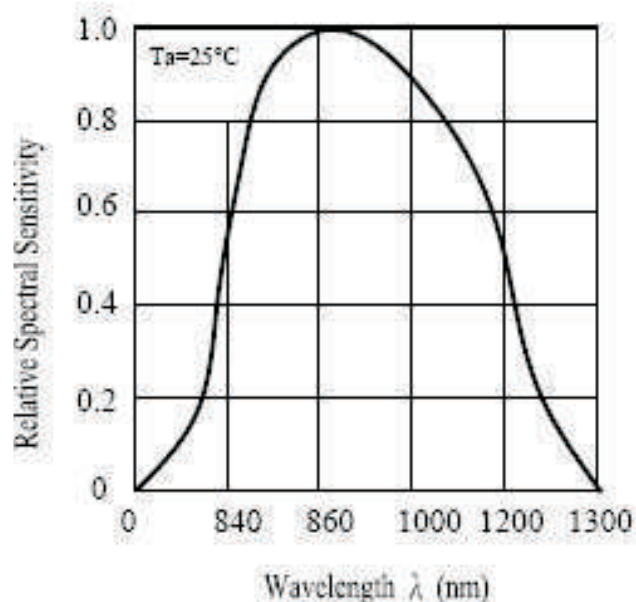
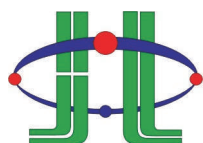
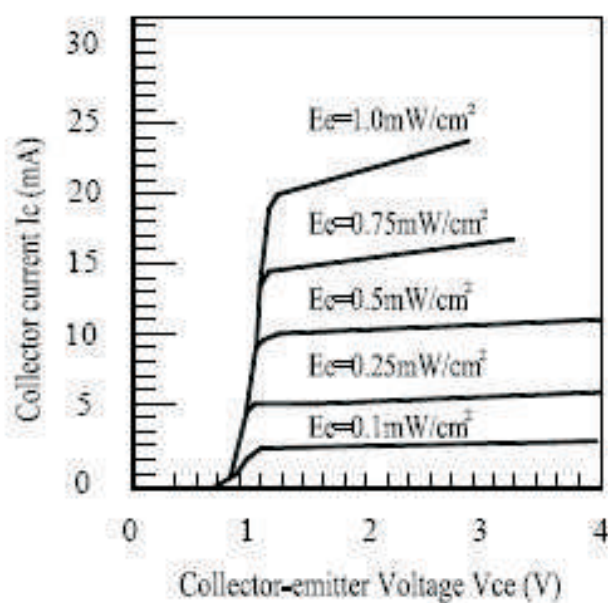


Fig 6 Collector Current vs
Collector Current I_c (mA)



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