

# INFRARED PRODUCTS SPECIFICATION

## HIRB5-43D-C



勝特力材料 886-3-5753170  
勝特力电子(上海) 86-21-34970699  
勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

Drawn by	Checked by	Approved by

RoHS  
Conformity

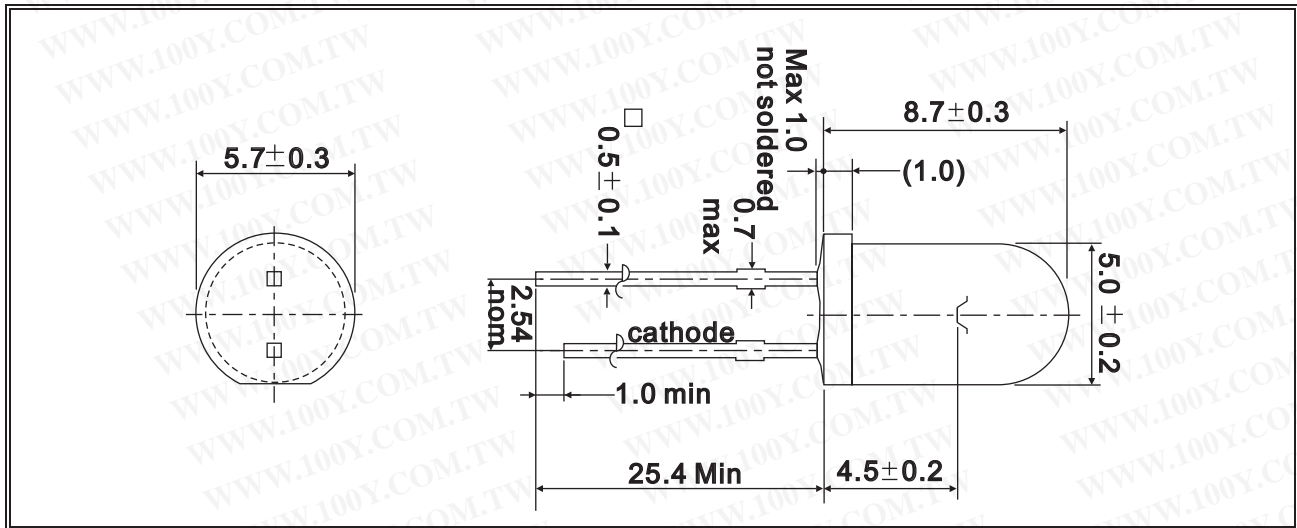
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DEVICE NO:HIRB5-43D-C

DEVICES

Part Number	Lens		Source	
	Color	Diffusion	Dice Source	Color
HIRB5-43D-C	Water Clear	Non-Diffused	GaAlAs/GaAs	Infrared

PACKAGE DIMENSIONS:



NOTE:

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

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## ☰ ABSOLUTE MAXIMUM RATINGS

TA=25°C

PARAMETER	SYMBOL	MAX. RATING	UNIT
Power Dissipation	Pd	150	mW
Continuous Forward Current	IF	150	mA
Peak Forward Current *1	IFM	2.0	A
Reverse Voltage	VR	5	V
LED Junction Temperature	Tj	100	°C
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Dip Soldering Temperature (3mm from case Bottom 260 °C for 5 seconds)			

\*1.Duty Ratio=0.1%,Pulse Width=10us.

\*2.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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## ELECTRIC-OPTICAL CHARACTERISTICS

TA=25°C

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT	
View Angle of Half Power	2θ1/2	IF=50mA		35		deg	
Forward Voltage	VF			1.25	1.45	V	
Reverse Current	IR	VR=5V			10	μA	
Luminous Intensity *2	IV	IF=50mA	30	50		mw/sr	
Peak Emission Wavelength	λp				940		nm
Spectrum Width Of Half Valve	Δλ				50		nm
Rise/Fall Time	Tr/Tf				40		ns

\*2.Tolerance:±15% HUEY-JANN measuring equipment : EXELTRON 2001. 2.S370 made by U.D.T.

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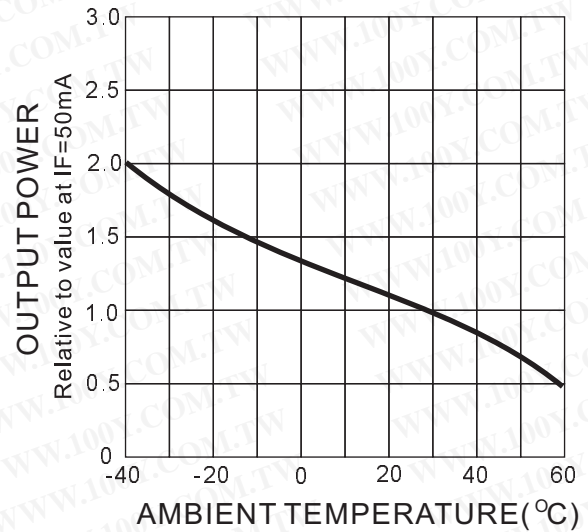
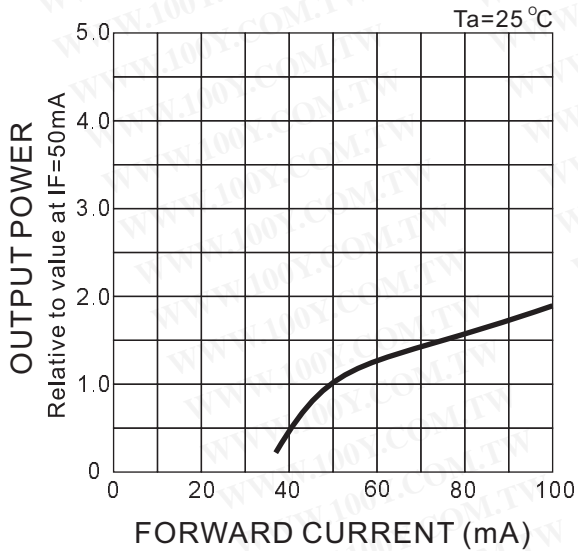
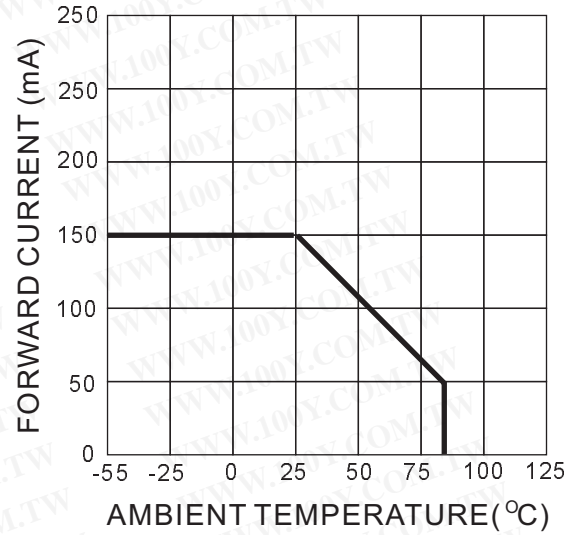
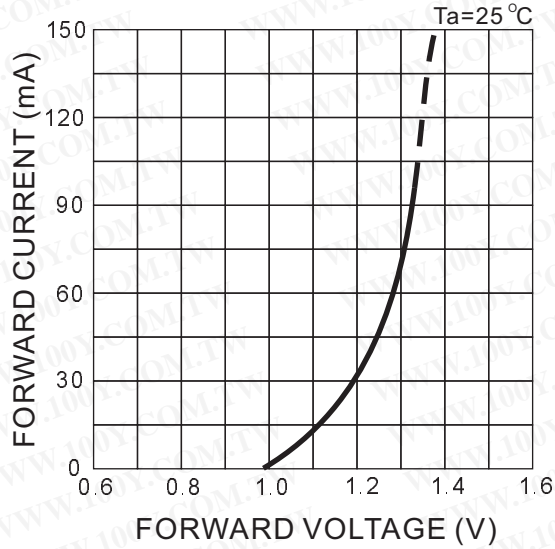
## RELIABILITY TEST

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	Connect with a power if=50mA Ta=Under room temperature Test Time=1,000hrs	0/22
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	Ta=+85°C±5°C RH=90% ~ 95% Test Time=1000hrs	0/22
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High Ta=+100°C±5°C Test Time=1,000hrs	0/22
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-40°C±5°C Test Time=1,000hrs	0/22
	Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	-40°C ~ +25°C ~ +85°C ~ +25°C 60min 20min 60min 20min Test Time=200cycle
Thermal Shock		MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010	-40°C±5°C ~ +85°C±5°C 20min 20min Test Time=200cycle	0/22

\*Failure Criteria:

1. VF arise  $\geq 10\%$
2. IV decline  $\geq 30\%$
3. A failure is an LED that is open or shorted

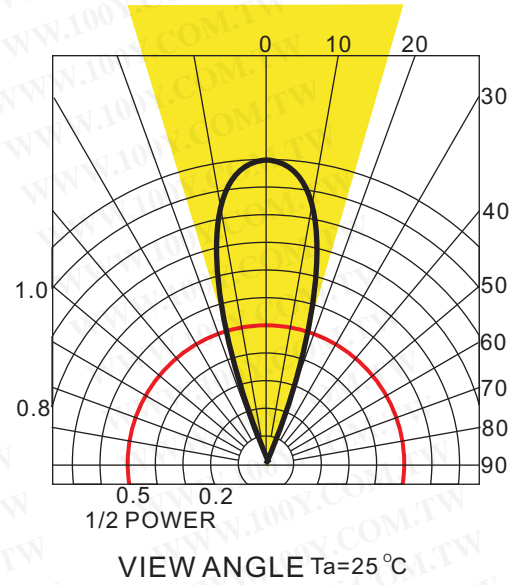
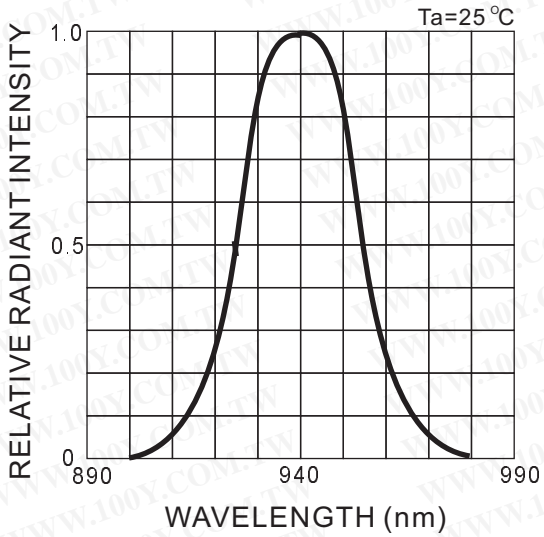
TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES



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### Brightness Bin Selection

$I_f=50\text{mA}$

BIN CODE	Radiant Output Power (mw/sr)	
	Minimum	Maximum
2	30	40
3	40	50
4	50	60
5	60	70

Tolerance for each bin limit is  $\pm 15\%$

# Infrared Emitters

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Ta=25 °C

Device No	Wavelength $\lambda_p$ (nm)	Lens Color	Forward Voltage		Radiant Output Power (mw/sr)			View Angle 2 $\theta$ W	Drawing Figure	
			Typ (V)	IF(mA)	Minimum	Typical	IF(mA)			
$\phi 3$ HIRB3b-44C	940	water clear	1.28	50	15.0	30.0	50	30	1-6	
	HIRB3b-44D	940	water clear	1.25	50	15.0	28.0	50		30
	HIRB3b-44E	880	water clear	1.47	50	13.0	22.0	50		30
	HIRB3b-44G	850	water clear	1.50	50	20.0	40.0	50		30
oval HIRB4Q-43D	940	water clear	1.25	50	30.0	60.0	50	40/20	1-7	
	HIRB4Q-43G	850	water clear	1.50	50	20.0	75.0	50		40/20
HIRB5RH-43D	940	water clear	1.25	50	30.0	50.0	50	70/25	1-8	
	HIRB5RH-43G	850	water clear	1.50	50	40.0	70.0	50		70/25
$\phi 5$ HIRB5-43C-A	940	water clear	1.28	50	35.0	70.0	50	15	1-9	
	HIRB5-23C-B	940	colored clear	1.28	50	25.0	60.0	50		20
	HIRB5-43C-B	940	water clear	1.28	50	25.0	60.0	50		20
	HIRB5-23C-C	940	colored clear	1.28	50	25.0	40.0	50		40
	HIRB5-43C-C	940	water clear	1.28	50	25.0	40.0	50		40
	HIRB5-43D-A	940	water clear	1.25	50	45.0	80.0	50		15
	HIRB5-43D-B	940	water clear	1.25	50	40.0	70.0	50		20
	HIRB5-43D-C	940	water clear	1.25	50	30.0	50.0	50		40
	HIRB5-43E-A	880	water clear	1.47	50	35.0	65.0	50		15
	HIRB5-43E-B	880	water clear	1.47	50	25.0	50.0	50		20
	HIRB5-43E-C	880	water clear	1.47	50	20.0	35.0	50		40
	HIRB5-43G-A	850	water clear	1.50	50	65.0	140	50		12
	HIRB5-43G-B	850	water clear	1.50	50	60.0	100	50		18
	HIRB5-43G-C	850	water clear	1.50	50	50.0	80	50		35

Dimension:

Unit : mm.

