

GENERAL PURPOSE
HIGH ISOLATION VOLTAGE
HIGH SENSITIVITY
PHOTOCOUPLER SERIES

Features

- 1.AC input.
- 2.High current transfer ratio.(CTR:Min 600%,at IF =±1mA ,VCE =2V)
- 3.High isolation voltage between input and output (Viso=5000 Vrms).
- 4.Compact dual-in-line package KB8141: 1-channel type.
- 5.Recognized by UL and CUL, file NO.E225308.
- 6.Approved by VDE 0884 Teil2(NO:40006364).
- 7.RoHS compliant.

DESCRIPTION

- 1.The KB8141 (1-channel) is optically coupled isolators containing two GaAs light emitting diode and a darlington silicon phototransistor.
- 2.The lead pitch is 2.54mm

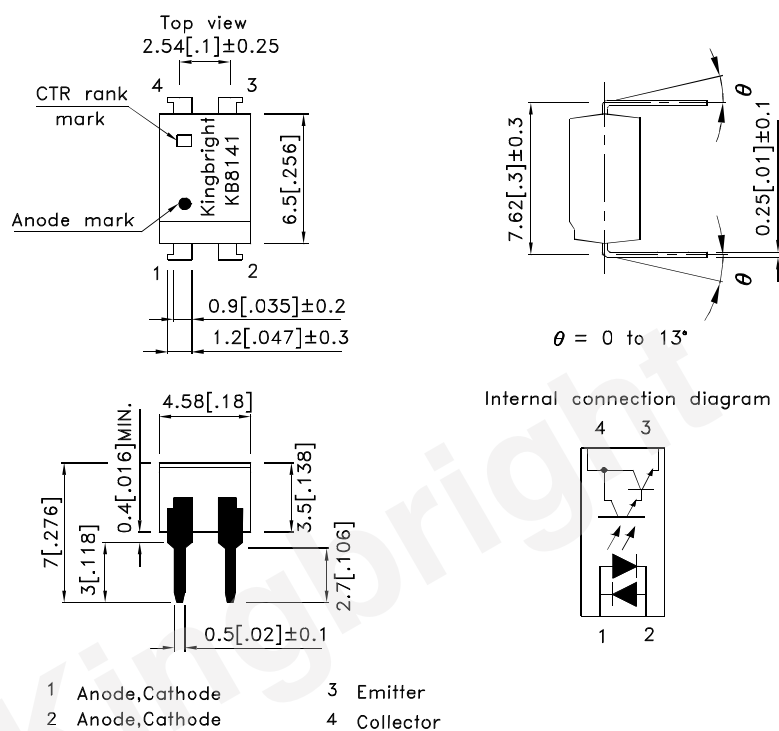
APPLICATIONS

- 1.Computer terminals
- 2.Registers, copiers, automatic vending machines
- 3.System appliances, measuring instruments
- 4.Programmable logic controller
- 5.Signal transmission between circuits of different potentials and impedances



* PACKAGE DIMENSIONS (UNIT: mm)

DIP Type



TOLERANCE : ±0.5[±0.02] UNLESS OTHERWISE NOTED.

* Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I _F	±50	mA
	Power dissipation	P	70	mW
Output	Collector-emitter voltage	V _{CEO}	35	V
	Emitter-collector voltage	V _{ECO}	6	V
	Collector current	I _C	80	mA
	Collector power dissipation	P _C	150	mW
Total power dissipation		P _{tot}	200	mW
*1 Isolation voltage		V _{iso}	5000	V _{rms}
Operating temperature		T _{opr}	-30~+100	°C
Storage temperature		T _{stg}	-55~+125	°C
*2 Soldering temperature		T _{sol}	260	°C

*1 40 to 60%RH, AC for 1 minute

*2 For 10 seconds

* Electro-optical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	V _F	I _F =±20mA	—	1.2	1.4	V
	Peak forward voltage	V _{FM}	I _{FM} =±0.5A	—	—	3.0	V
Output	Collector dark current	I _{CEO}	V _{CE} =10V, I _F =0mA	—	—	10 ⁻⁶	A
Transfer characteristics	*1 Current transfer ratio	CTR	I _F =±1mA, V _{CE} =2V	600	—	7500	%
	Collector-emitter saturation voltage	V _{CE(sat)}	I _F =±20mA, I _C =5mA	—	0.8	1	V
	Cut-off frequency	f _c	V _{CE} =5V, I _C =2mA R _L =100Ω, -3dB	—	6	—	kHz
	Response time	Rise time	V _{CE} =2V, I _C =10mA R _L =100Ω	—	60	300	μs
		Fall time		—	53	250	μs

$$*1 \text{ CTR} = \frac{I_C}{I_F} \times 100\%$$

*2 Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

Fig. 1 Current Transfer Ratio vs. Forward Current

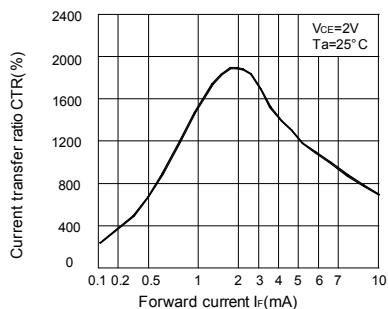


Fig. 2 Forward Current vs. Forward voltage

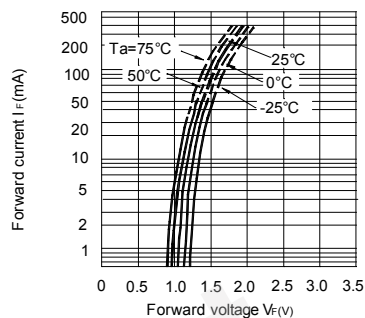


Fig. 3 Collector Current vs. Collector-emitter Voltage

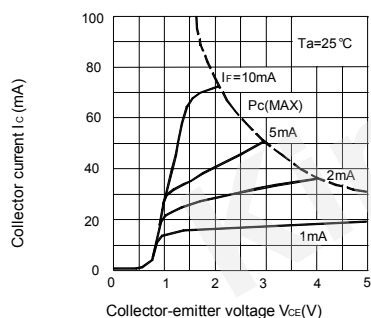


Fig. 4 Relative Current Transfer Ratio vs. Ambient Temperature

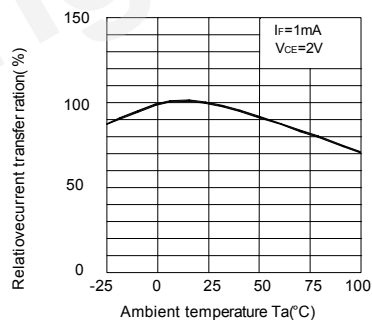


Fig. 5 Collector-emitter Saturation Voltage vs. Ambient Temperature

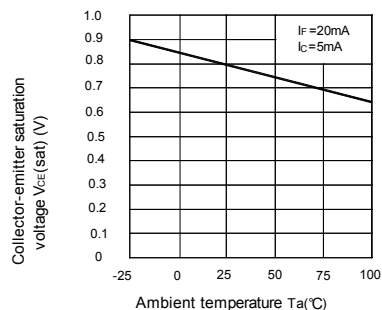


Fig. 6 Collector Dark Current vs. Ambient Temperature

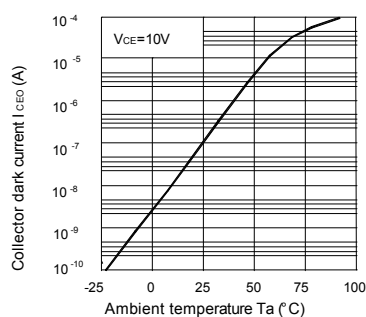


Fig. 7 Forward Current vs. Ambient Temperature

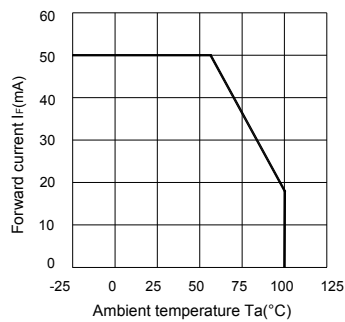


Fig. 8 Collector Power Dissipation vs. Ambient Temperature

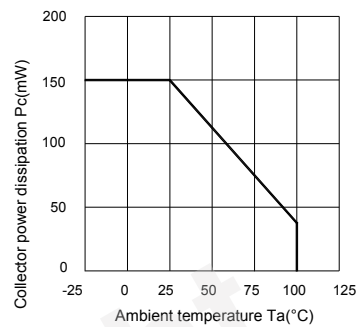
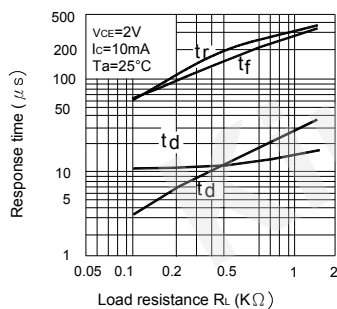


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

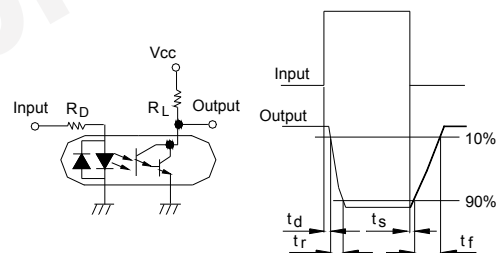
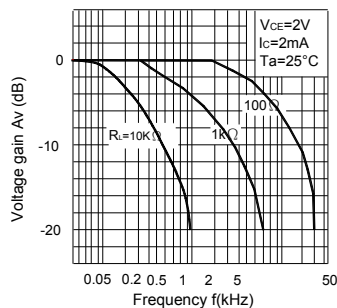


Fig. 10 Frequency Response



Test Circuit for Frequency Response

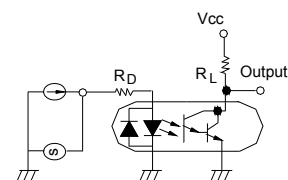
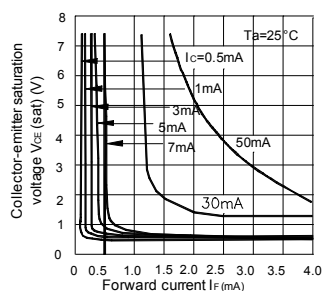


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current



* NOTES ON HANDLING

1.Recommended soldering conditions (Dip soldering)

(1) Dip soldering

Temperature	260° C or below (molten solder temperature)
Time	Less than 10 seconds.
Cycle	One cycle allowed to be dipped in solder including plastic mold portion.
Flux	Rosin flux containing small amount of chlorine (The flux with a maximum chlorine content of 0.2 Wt % is recommended.)

(2) Cautions

Fluxes

Avoid removing the residual flux with freon-based and chlorine-based cleaning solvent.

2.Cautions regarding noise

Be aware that power is suddenly into the component any surge current may cause damage happen, even if the voltage is within the absolute maximum ratings.

CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested.

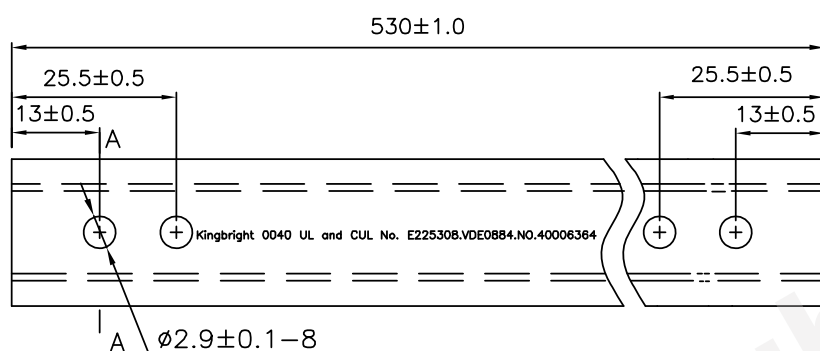
GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them.

RESTRICTIONS ON PRODUCT USE

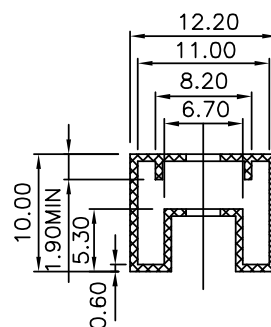
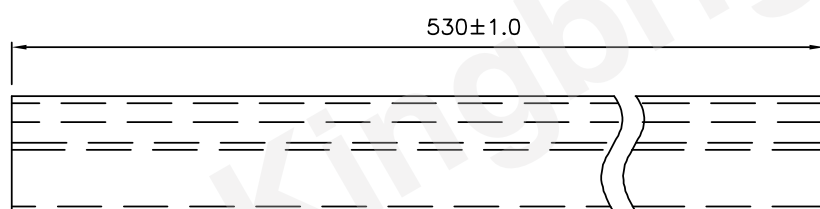
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Dimension of Tube

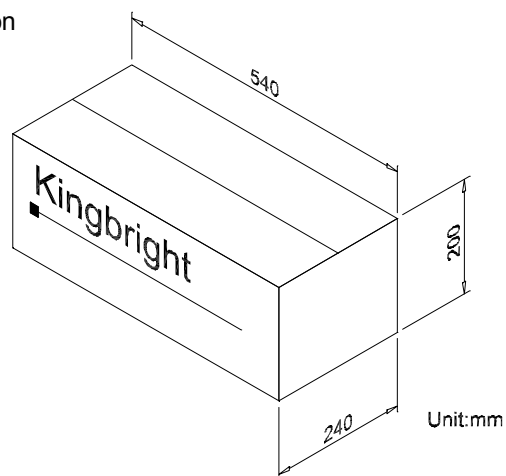
TOLERANCE : $\pm 0.4[\pm 0.012]$ UNLESS OTHERWISE NOTED.
Unit:mm



A-A Side view



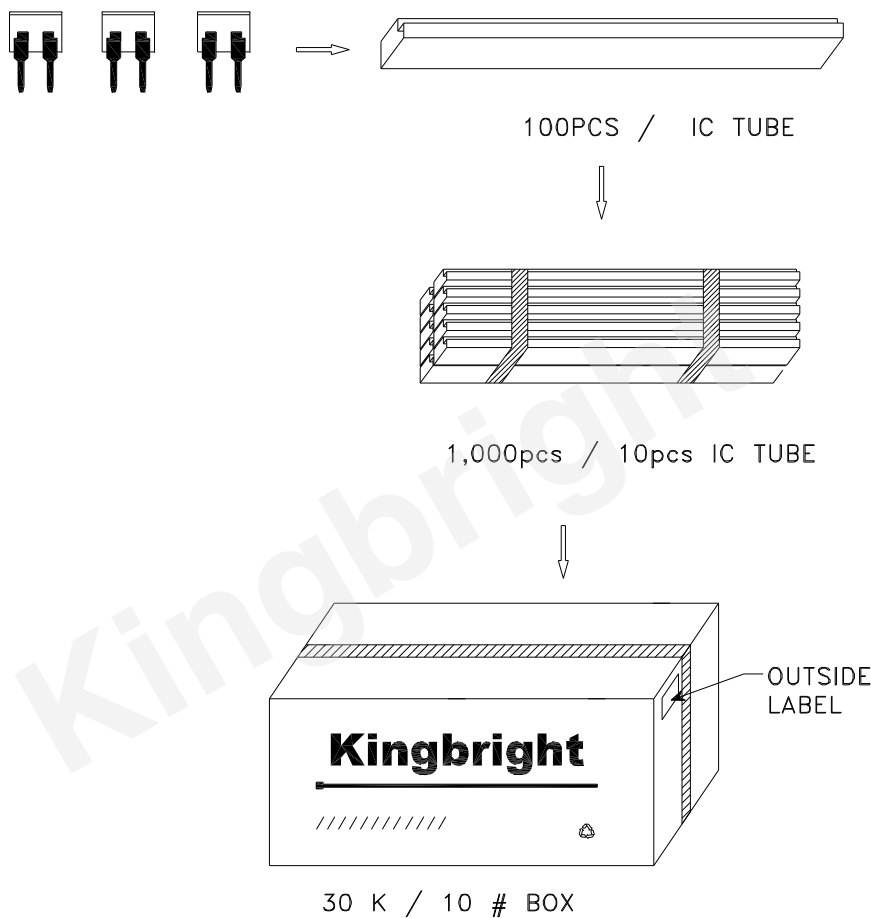
Dimension of Carton




Unit:mm

Part Number	Package	Package Style
KB8141	4-pin DIP	100pcs/each tube

PACKING & LABEL SPECIFICATIONS



Kingbright	
P/NO: KB814	
QTY: 1,000 pcs	Q.C. Q C XX XX XXX PASSED
S/N: XXXX	
CODE: XXX	
LOT NO:	
 XXXXXXXXXXXXXXXXXXXX	
RoHS Compliant	