

Part Number: KB824

GENERAL PURPOSE
HIGH ISOLATION VOLTAGE
SINGLE TRANSISTOR TYPE
PHOTOCOUPLER SERIES

Features

- 1.AC input.
- 2.High isolation voltage between input and output ($V_{iso}=5000\text{ Vrms}$).
- 3.Compact dual-in-line package KB824:2-channel type.
- 4.Recognized by UL and CUL, file NO.E225308.
- 5.Approved by VDE 0884 Teil2(NO:40006364) (Creepage distance between input and output:7mm or more).
- 6.RoHS compliant.

DESCRIPTION

- 1.The KB824(2-channel) is optically coupled isolators containing two GaAs light emitting diode and an NPN silicon phototransistor.
- 2.The lead pitch is 2.54mm.

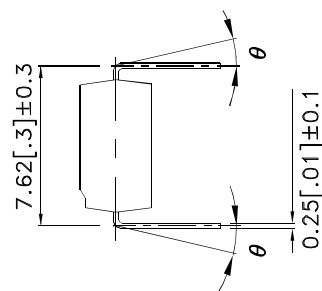
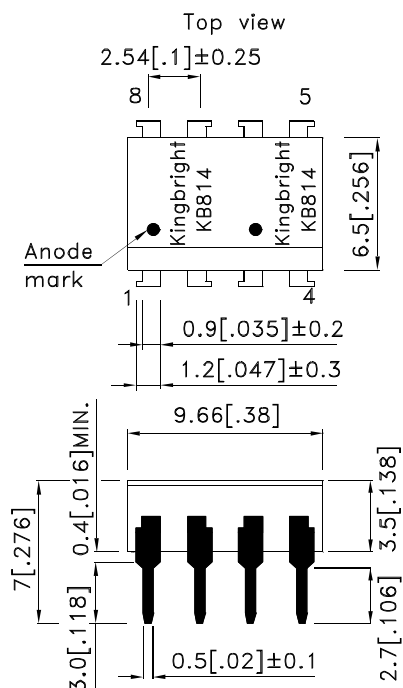
APPLICATIONS

- 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.

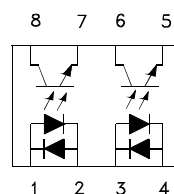


Part Number: KB824

***PACKAGE DIMENSIONS (UNIT:mm)**
DIP Type



Internal connection diagram



1 3 Anode Cathode 5 7 Emitter
2 4 Anode Cathode 6 8 Collector

TOLERANCE : $\pm 0.5[\pm 0.02]$ UNLESS OTHERWISE NOTED.

*** Absolute Maximum Ratings (Ta=25°C)**

Parameter		Symbol	Rating	Unit
Input	Forward current	IF	± 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	50	mA
	Collector power dissipation	PC	150	mW
Total power dissipation		P _{tot}	200	mW
*1 Isolation voltage		Viso	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

Part Number: KB824

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

Parameter		Symbol	Conditions	Min.	Typ.	Max.	Unit
Input	Forward voltage	V_F	$I_F = \pm 20\text{mA}$	—	1.2	1.4	V
	Peak forward voltage	V_{FM}	$I_{FM} = \pm 0.5\text{A}$	—	—	3.0	V
Output	Collector dark current	I_{CEO}	$V_{CE} = 20\text{V}, I_F = 0\text{mA}$	—	—	10^{-7}	A
Transfer characteristics	*1 Current transfer ratio	CTR	$I_F = \pm 1\text{mA}, V_{CE} = 5\text{V}$	20	—	300	%
	Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_F = \pm 20\text{mA}, I_C = 1\text{mA}$	—	0.1	0.2	V
	Response time	Rise time	$V_{CE} = 2\text{V}, I_C = 2\text{mA}$ $R_L = 100\Omega$	—	4	18	μS
		Fall time		—	3	18	μS

*1 Classification table of current transfer ratio is shown below.

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

Model NO.	Rank mark	CTR(%)
KB824L	L	20~60
KB824A	A	50~150
KB824B	B	120~300
KB824LA	L or A	20~150
KB824AB	A or B	50~300
KB824	L, A, B or No mark	20~300

Part Number: KB824

Fig. 1 Current Transfer Ratio vs. Forward Current

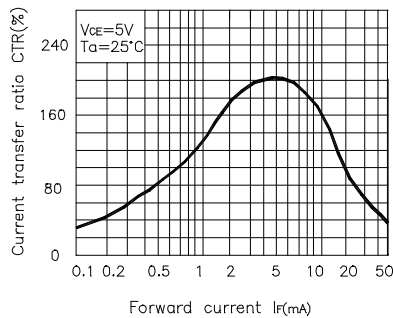


Fig. 2 Forward Current vs. Forward voltage

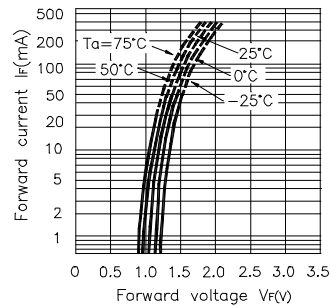


Fig. 3 Collector Current vs. Collector-emitter Voltage

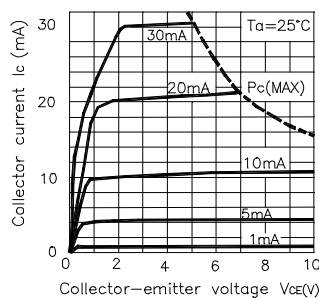


Fig. 4 Relative Current Transfer Ratio vs. Ambient Temperature

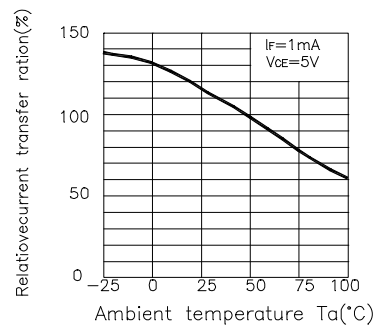


Fig. 5 Collector-emitter Saturation Voltage vs. Ambient Temperature

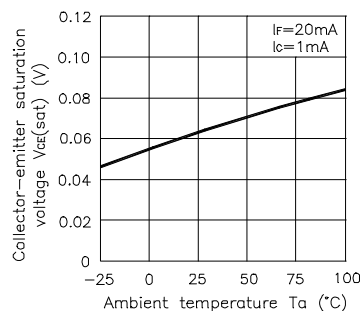
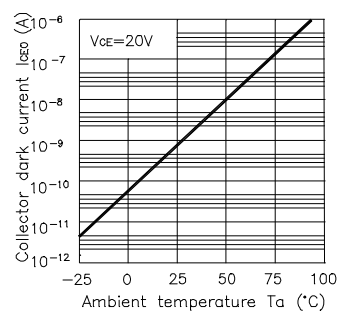


Fig. 6 Collector Dark Current vs. Ambient Temperature



Part Number: KB824

Fig. 7 Forward Current vs. Ambient Temperature

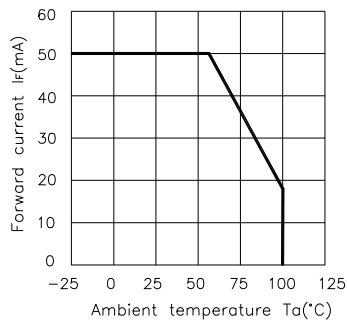


Fig. 8 Collector Power Dissipation vs. Ambient Temperature

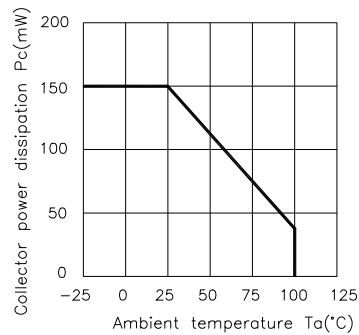
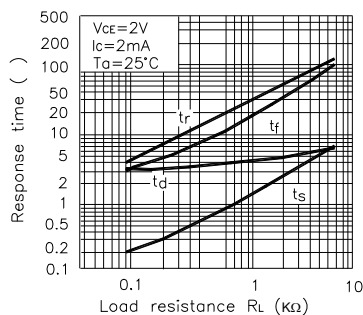


Fig. 9 Response Time vs. Load Resistance



Test Circuit for Response Time

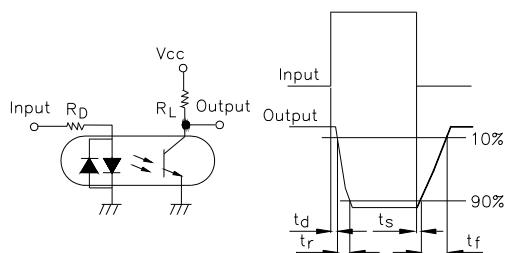
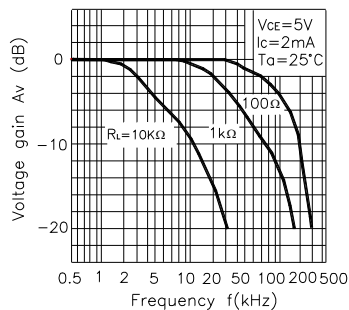


Fig. 10 Frequency Response



Test Circuit for Frequency Response

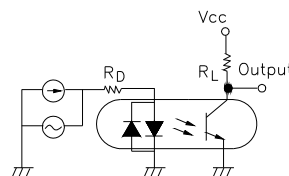
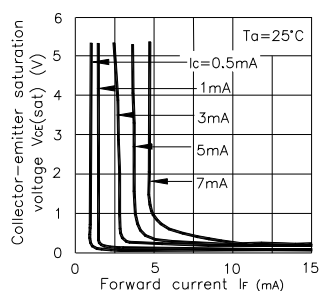


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current



* 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 nold 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.

Part Number: KB824

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

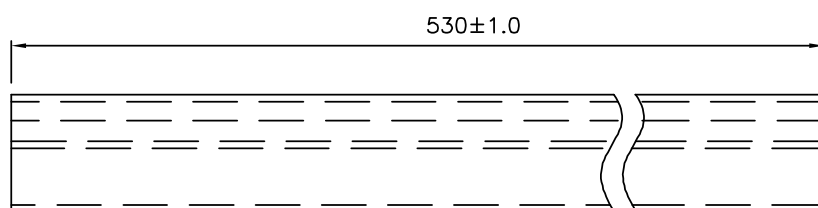
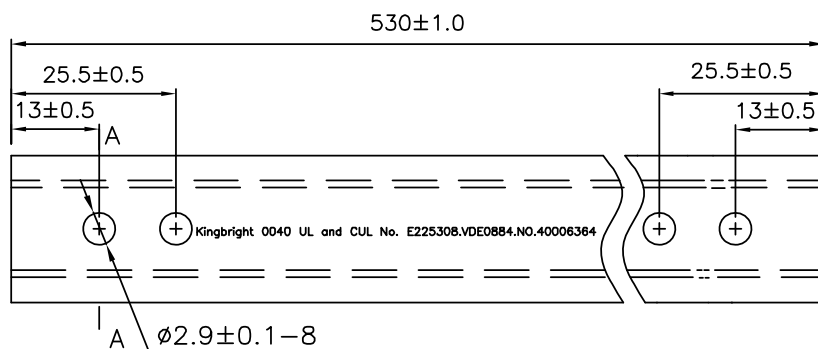
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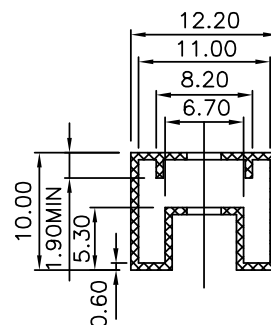
Dimension of Tube

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

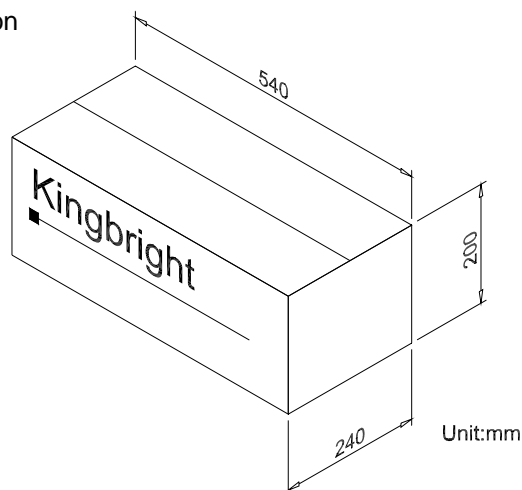
Unit:mm



A-A Side view



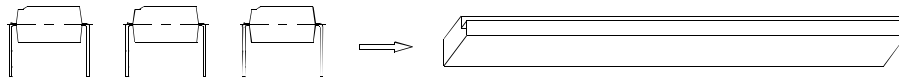
Dimension of Carton



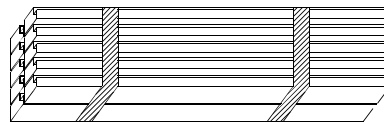
Part Number	Package	Packing Style
KB824	8-pin DIP	50pcs / each tube

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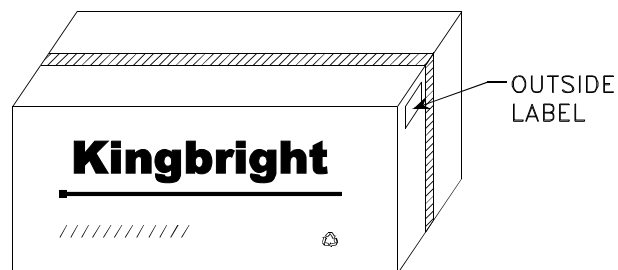
PACKING & LABEL SPECIFICATIONS



50PCS / IC TUBE



500PCS / 10PCS IC TUBE



15 K / BOX

Kingbright	
P/NO: KB824xxx	
QTY: 500 pcs	Q.C. <div>Q C xx xx xxxx PASSED</div>
S/N: XXXX	
CODE: XXX	
LOT NO:	
RoHS Compliant	