Photocoupler

K101 • K102 • K104

These Photocouplers consist of a Gallium Arsenide Infrared Emitting Diode and a Silicon NPN Phototransistor per a channel.

The K101 has one channel in a 4-pin mini-flat SMD package.
The K102 has two channels in a 8-pin mini-flat SMD package.
The K104 has four channels in a 16-pin mini-flat SMD package.

FEATURES

- Mini-Flat Package
- Collector-Emitter Voltage : Min.50V
- Current Transfer Ratio : Min.50% (at I_F=5mA, V_{CE}=5V)
- Electrical Isolation Voltage : AC3750V_{rms}

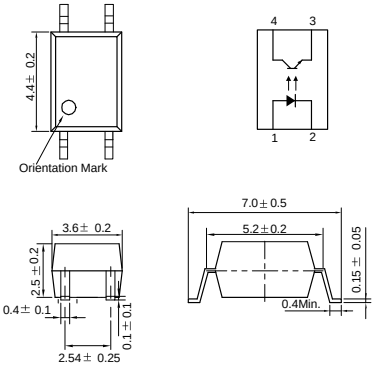
APPLICATIONS

- Interface between two circuits of different potential
- Cordless Phone
- Programmable Logic Control
- Microcomputer

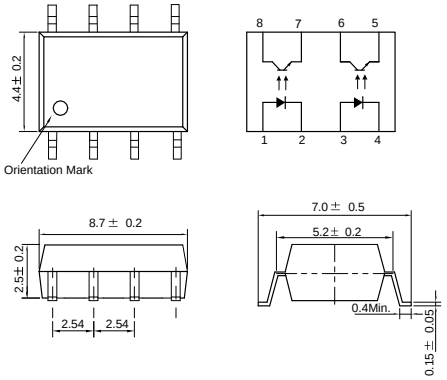
DIMENSION

(Unit : mm)

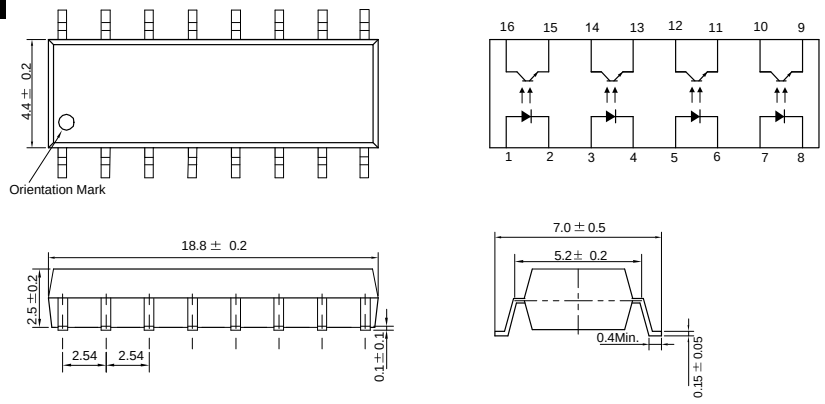
K101



K102



K104



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MAXIMUM RATINGS

(Ta=25¡É)

Parameter		Symbol	Rating	Unit
Input	Forward Current	IF	50	mA
	Reverse Voltage	VR	5	V
	Peak Forward Current*1	IFP	1	A
	Power Dissipation	PD	70	mW
Output	Collector-Emitter Breakdown Voltage	BVCEO	50	V
	Emitter-Collector Breakdown Voltage	BVECO	6	V
	Collector Current	IC	50	mA
	Collector Power Dissipation	PC	150	mW
Input to Output Isolation Voltage*2		Viso	AC3750	Vrms
Storage Temperature		Tstg	-55~+125	¡É
Operating Temperature		Topr	-30~+100	¡É
Lead Soldering Temperature*3		Tsol	260	¡É
Total Power Dissipation		Ptot	200	mW

*1. Input current with 100μs pulse width, 1% duty cycle

*2. Measured at RH=40~60% for 1min

*3. 1/16 inch form case for 10sec

ELECTRO-OPTICAL CHARACTERISTICS

(Ta=25¡É , unless otherwise noted)

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit.
Input	Forward Voltage	VF	IF=10mA	-	1.15	1.30	V
	Reverse Current	IR	VR=5V	-	-	10	§Ë
	Capacitance	CT	V=0, f=1MHz	-	30	-	pF
Output	Collector-Emitter Breakdown Voltage	BVCEO	IC=0.5mA	50	-	-	V
	Emitter-Collector Breakdown Voltage	BVECO	IE=0.1mA	6	-	-	V
	Collector Dark Current	ICEO	IF=0, VCE=24V	-	-	100	nA
	Capacitance	CCE	VCE=0, f=1MHz	-	10	-	pF
Coupled	Current Transfer Ratio*4	CTR	IF=5mA, VCE=5V	50	-	600	%
	Collector-Emitter Saturation Voltage	VCE(SAT)	IF=5mA, IC=1mA	-	0.15	0.4	V
	Input-Output Capacitance	CIO	V=0, f=1MHz	-	1	-	pF
	Input-Output Isolation Resistance	RIO	RH=40~60%, V=500V	-	10^{11}	-	§Ù
	Rise Time	tr	VCE=5V, RL=100	-	3	-	§Á
	Fall Time	tf	IC=2mA	-	3	-	§Á

*4. CTR=(IC/IF) X 100 (%)

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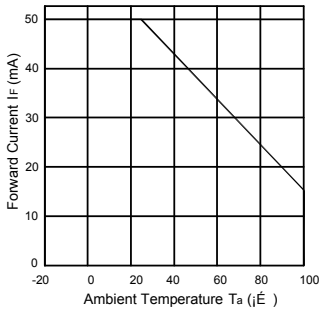
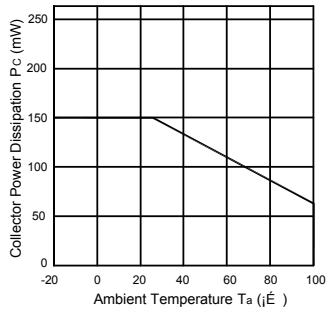
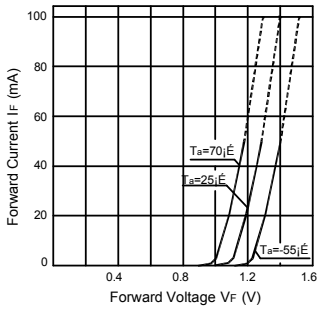
Forward Current vs. Ambient Temperature



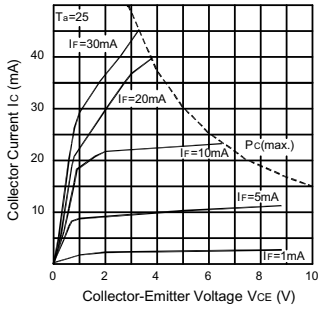
Collector Power Dissipation vs. Ambient Temperature



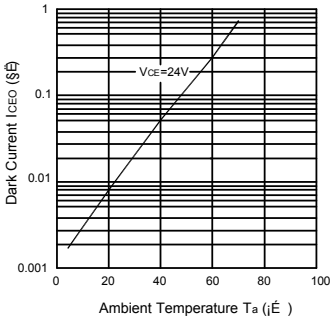
Forward Current vs. Forward Voltage



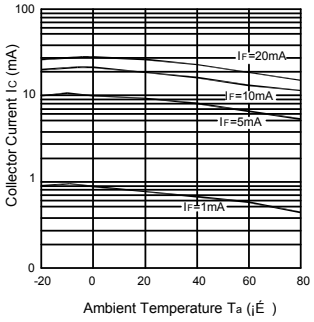
Collector Current vs. Collector-Emitter Voltage



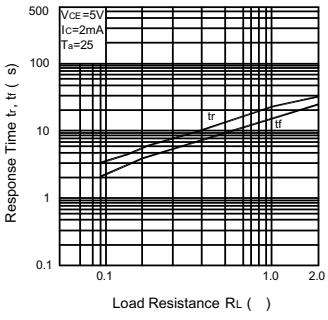
Dark Current vs. Ambient Temperature



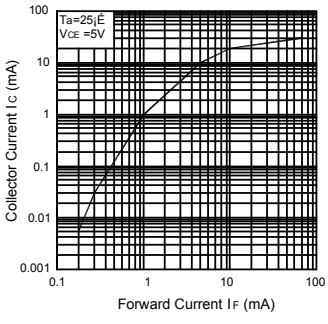
Collector Current vs. Ambient Temperature



Response Time vs. Load Resistance



Collector Current vs. Forward Current



Switching Time Test Circuit