

GENERAL DESCRIPTION

The OC701 is a photocoupler formed by combining a GaAs infrared light emitting diode as the input element, and a silicon photo Darlington transistor as an output element. Encased in a 6-pin plastic package, the OC701 has high conversion characteristics, and is suitable for such applications as interface circuits in low-current drives.

FEATURES

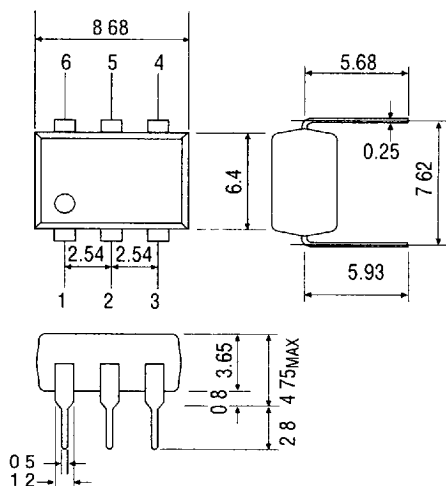
- High current transfer ratio: 1000% (Min.)
- High isolation voltage: 2,500 V (Min.)
- Collector-emitter voltage: 320 V (Min.)
- 6-pin plastic DIP
- UL recognized — File number E86831

APPLICATIONS

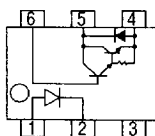
- Power separating circuit and SSR

PIN CONFIGURATION

(Unit: mm)



• Pin Connection Diagram



- | | |
|--------------|--------------------|
| 1: Anode | (LED) |
| 2: Cathode | (LED) |
| 3: NC | |
| 4: Emitter | (Photo transistor) |
| 5: Collector | (Photo transistor) |
| 6: Base | (Photo transistor) |

ABSOLUTE MAXIMUM RATINGS

(Ambient Temperature $T_a=25^{\circ}\text{C}$)

	Parameter	Symbol	Rating	Unit
Input Diode (LED)	Forward Current	I_F	60	mA
	Pulse Forward Current *	I_{FM}	0.5	A
	Reverse Voltage	V_R	3.0	V
	Power Dissipation	P_D	100	mW
Output Transistor (Photo-Tr)	Collector-Emitter Voltage	V_{CEO}	320	V
	Collector-Base Voltage	V_{CBO}	320	V
	Emitter-Base Voltage	V_{EBO}	8	V
	Collector Current	I_C	150	mA
	Power Dissipation	P_C	300	mW
Total Dissipation		P_{TOT}	350	mW
Isolation Voltage		V_{in-out}	2500	V
Operating Temperature		T_{opr}	-20 to +100	$^{\circ}\text{C}$
Storage Temperature		T_{stg}	-55 to +100	$^{\circ}\text{C}$

* At pulse width 100 μs , duty 1%

- Wavelength at Peak Emission**

Light source : 940 nm

Photodetector: 800 nm

ELECTRICAL CHARACTERISTICS

(Ambient Temperature $T_a=25^{\circ}\text{C}$)

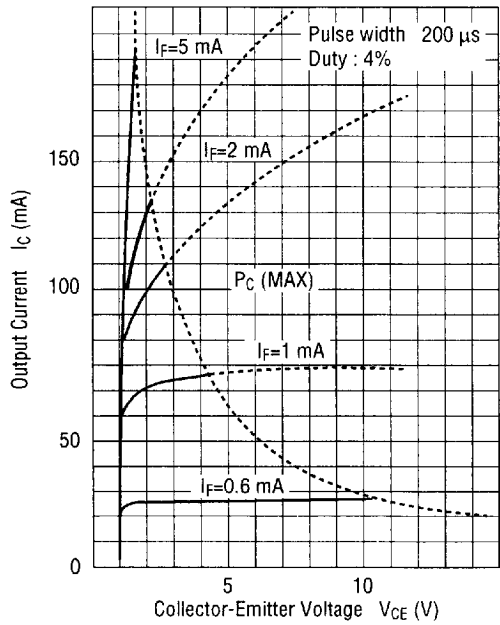
	Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Characteristics	Forward Voltage	V_F	$I_F=40\text{ mA}$	—	—	1.4	V
	Reverse Current	I_R	$V_R=3.0\text{ V}$	—	—	10	μA
Output Characteristics	Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1\text{ mA}$	320	—	—	V
	Collector-Base Breakdown Voltage	BV_{CBO}	$I_C=0.1\text{ mA}$	320	—	—	V
	Emitter-Base Breakdown Voltage	BV_{EBO}	$I_C=10\text{ }\mu\text{A}$	8	—	—	V
	Dark Current	I_{CEO}	$V_{CE}=200\text{ V}$	—	—	1.0	μA
Transfer Characteristics	Output Current	I_C	$I_F=1\text{ mA}, V_{CE}=2\text{ V}$	10	—	—	mA
	Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_F=16\text{ mA}, I_C=100\text{ mA}$	—	—	1.2	V
	Isolation Resistance	R_{in-out}	$V_{in-out}=500\text{ V}$	10^{11}	—	—	Ω
	Rise Time	t_r	$V_{CE}=2\text{ V}, I_C=20\text{ mA}$	—	100	—	μs
	Fall Time	t_f	$R_L=100\text{ }\Omega$	—	35	—	μs
	Current Transfer Rate	CTR	$I_F=1\text{ mA}, V_{CE}=2\text{ V}$	1000*	—	—	%

* OC701-1 available for 4,000%

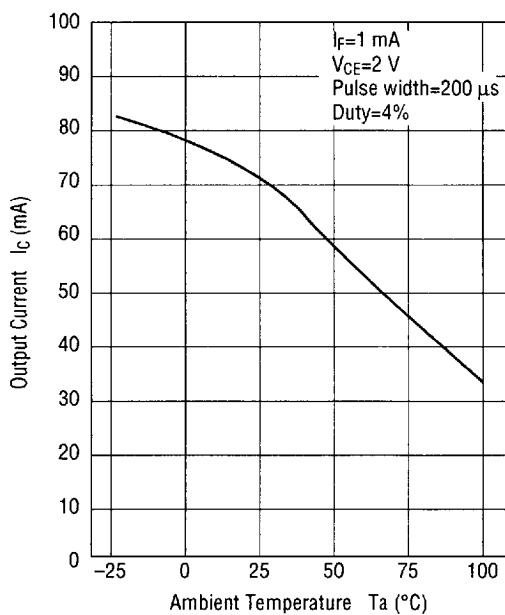


TYPICAL CHARACTERISTICS

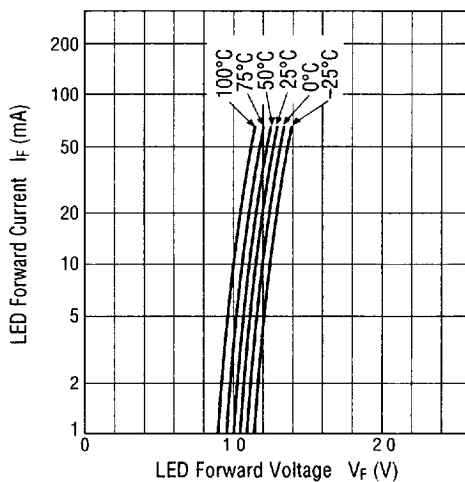
- Output Current vs. Collector-Emitter Voltage ($T_a=25^{\circ}\text{C}$)



- Output Current vs. Ambient Temperature

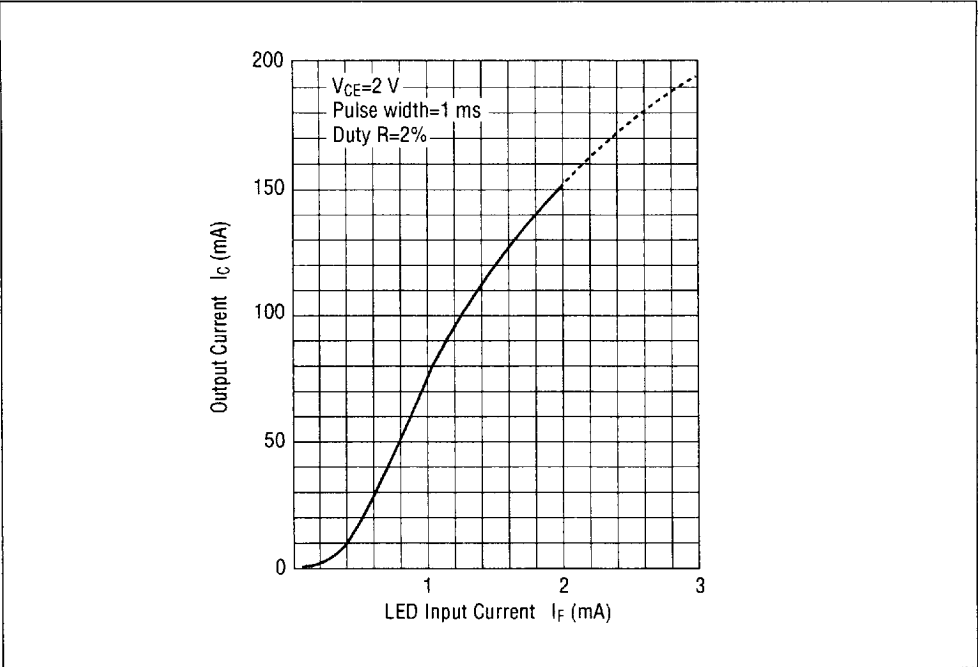


- LED Forward Current vs. LED Forward Voltage

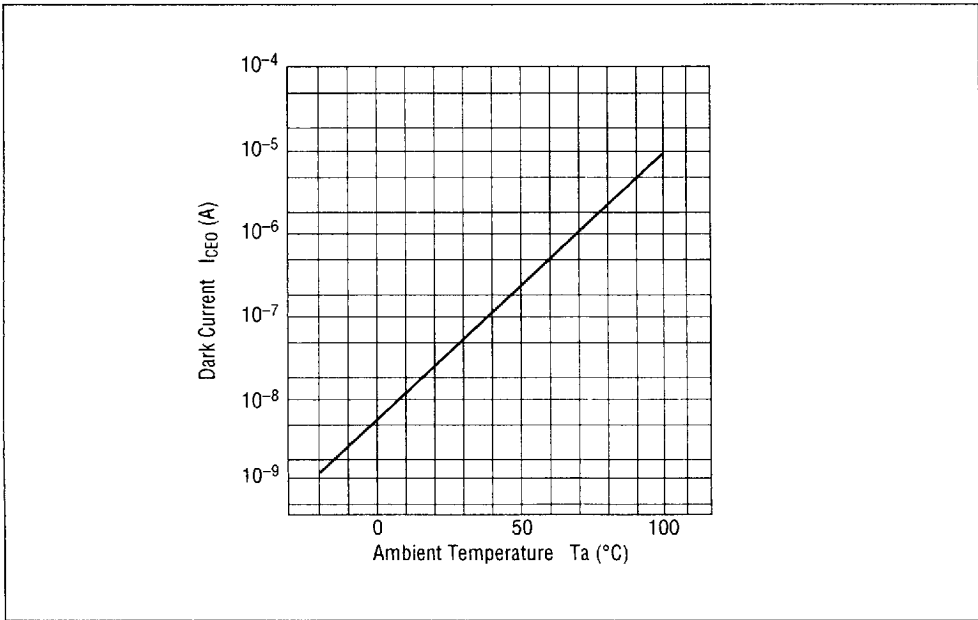


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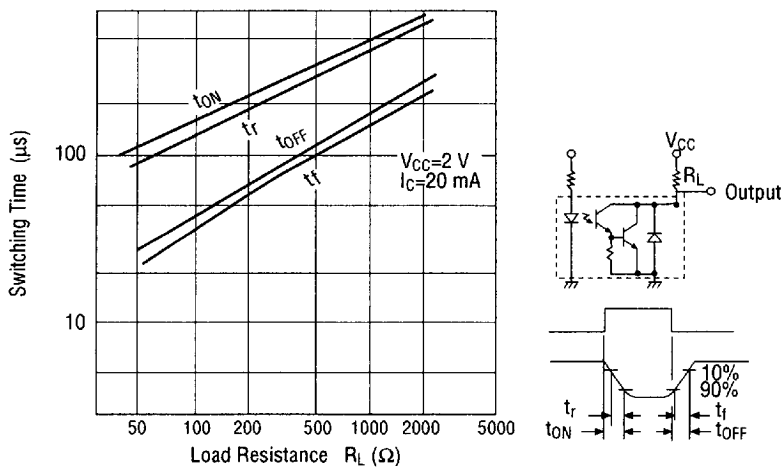
• Output Current vs. LED Input Current (Ta=25°C)



• Dark Current vs. Ambient Temperature



• Switching Time vs. Load Resistance ($T_a=25^\circ\text{C}$)



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