HAMAMATSU

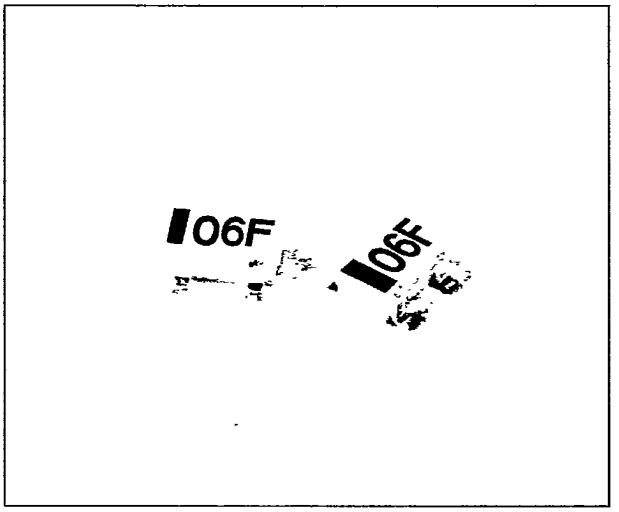
TECHNICAL DATA

MINI-MOLD PHOTOCOUPLER P2824

T-41-83

LED input, Phototransistor output, Mini-mold package offers surface mounting

The P2824 is a subminiature photocoupler, efficiently combining an infrared LED and a phototransistor in a mini-mold package. The mini-mold package offers a cubic measure and weight of less than 1/10 of the currently available DIP type photocouplers. In spite of its subminiature size, the P2824 has a high isolation voltage of 1500 Vrms minimum. It is ideal for hybrid ICs, 8 mm VTRs, compact discs, cassette decks, etc. which especially require miniature components.



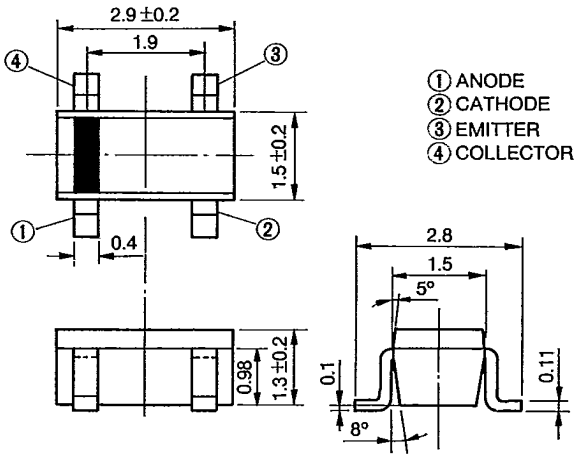
FEATURES

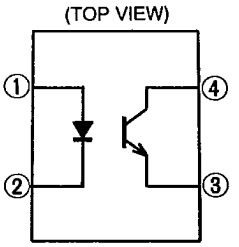
- **Subminiature size due to mini-mold package**
- **Input-output isolation voltage : 1500 Vrms Min.**
- **Low dark current**
- **Surface-mountable**
- **Taping available (option)**
- **UL listed (E75521)**

APPLICATIONS

- **Hybrid ICs**
- **Compact 8mm VTRs**
- **Compact discs, cassette decks**

Figure 1: Dimensional Outline and Pin Connection (Unit:mm)





MAXIMUM RATINGS (Ta = 25°C)

Parameters		Symbols	Ratings	Unit
Input	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P	75	mW
Output	Collector-Emitter Voltage	V_{CEO}	35	V
	Emitter-collector Voltage	V_{ECO}	4	V
	Collerctor Current	I_C	20	mA
	Collerctor Power Dissipation	P_C	60	mW
Isolation Voltage (1)		V_{iso}	1500	Vrms
Operating Temperature		T_{opr}	−25 ~ +85	°C
Storage Temperature		T_{stg}	−40~ +100	°C
Soldering Temperature		260°C, within 10 sec.		

(1) RH40~60%, 1 minute

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

	Parameters	Symbols	Conditions	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F = 20mA	–	1.2	1.4	V
	Reverse Current	I_R	V_R = 5V	–	–	10	μA
	Terminal Capacitance	C_t	V = 0, f = 1MHz	–	30	–	pF
Output	Dark Current	I_{CEO}	V_{CE} = 20V	–	–	10^{-7}	A
Transfer Characteristics	Current Transfer Ratio	CTR	V_{CE} = 5V, I_F = 10mA	50	80	–	%
	Collector-Emitter Saturation Voltage	V_{CE}(sat)	I_F = 20mA, I_C = 1mA	–	0.25	0.4	V
	Isolation Resistance	R_{iso}	RH40 – 60%, DC500V	$5x10^{10}$	–	–	Ω
	Input-Output Capacitance	C_f	V = 0, f = 1MHz	–	0.8	5	pF
	Rise Time (1)	t_r	V_{CC} = 5V, I_C = 1mA	–	3	–	μs
	Fall Time (1)	t_f	R_L = 100Ω	–	2.5	–	μs

(1) Response Time Measuring Circuit

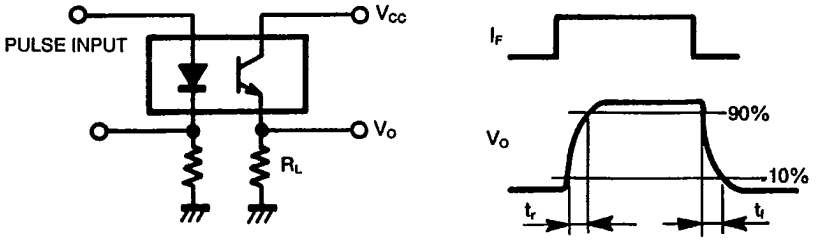

Figure 2: LED Allowable Forward Current vs. Temperature

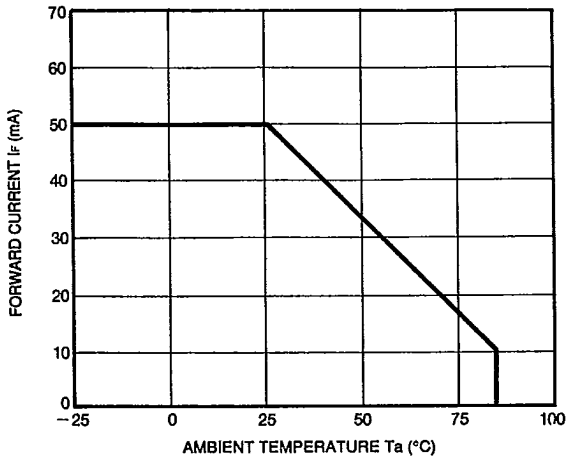

Figure 3: Collector Allowable Power Dissipation vs. Temperature

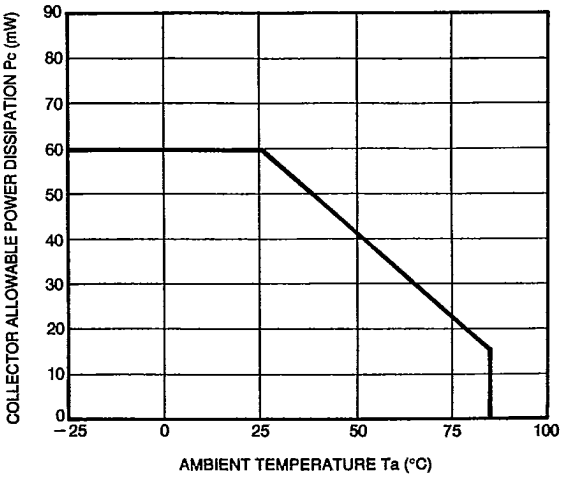

Figure 4: Peak Forward Current vs. Duty Ratio

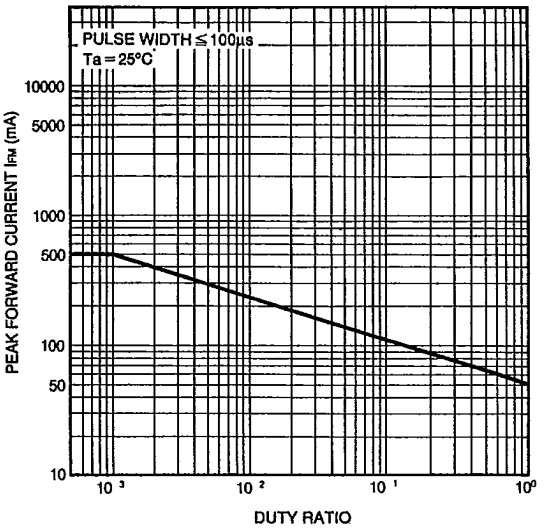

Figure 5: Forward Current vs. Forward Voltage

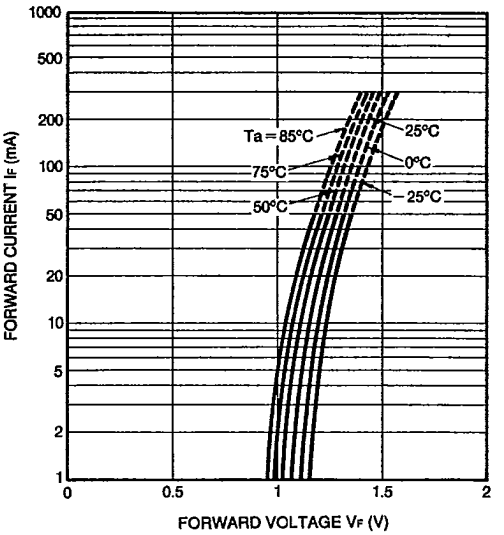

Figure 6: Photocurrent vs. Collector-Emitter Voltage

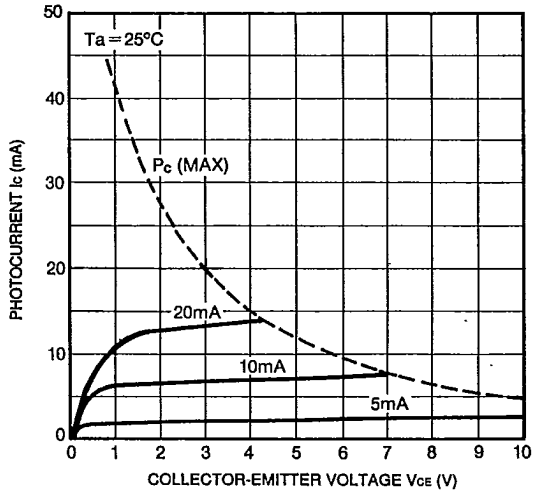

Figure 7: Current Transfer Ratio vs. Forward Current

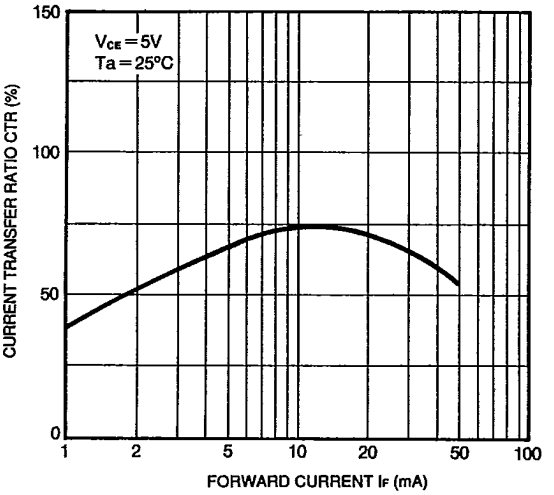

Figure 8: Current Transfer Ratio vs. Temperature

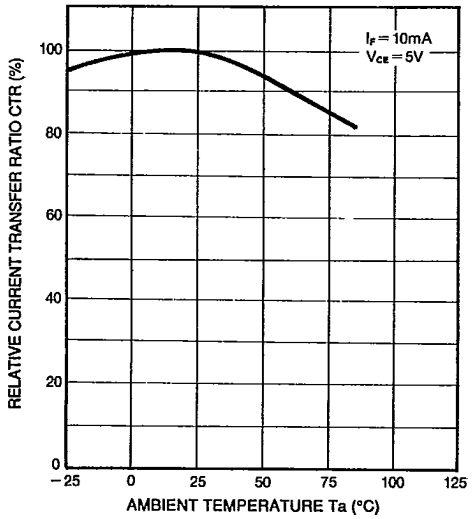

Figure 9: Collector-Emitter Saturation Voltage vs. Temperature

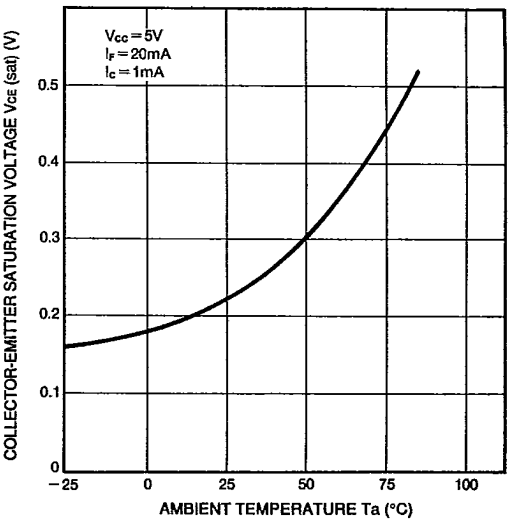

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Figure 10: Dark Current vs. Temperature

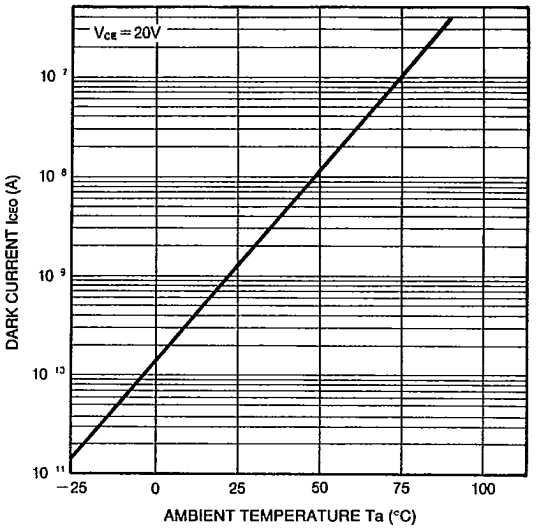

Figure 11: Dark Current vs. Ambient Light

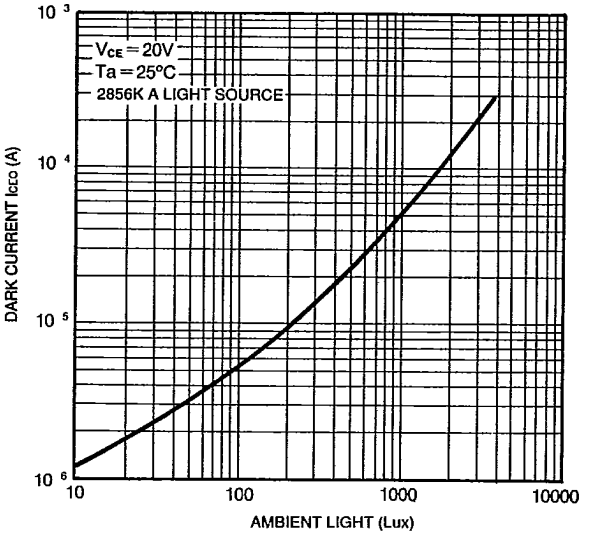

Figure 12: Rise/Fall Time vs. Load Resistance