

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

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
	Collector Current	I_C	20	mA
	Collector 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

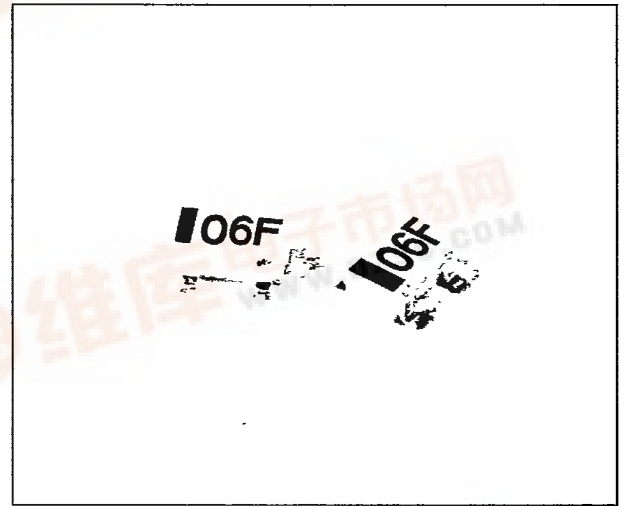
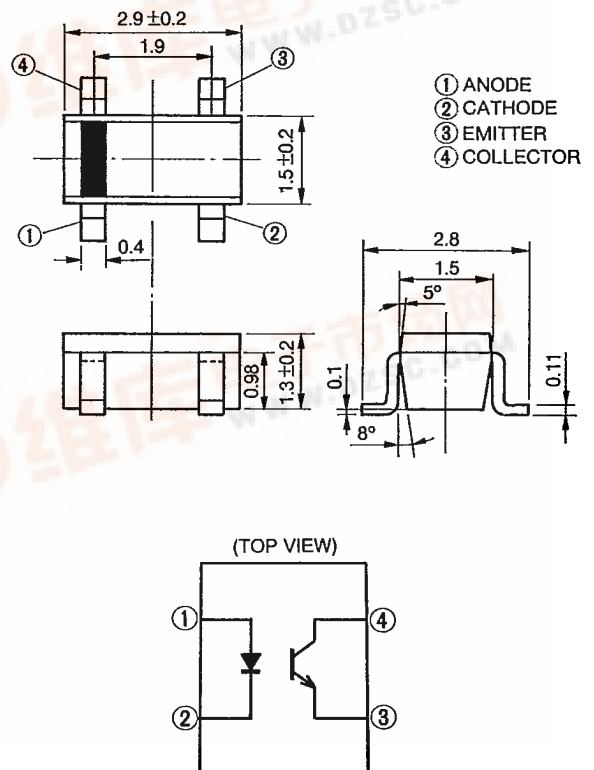


Figure 1: Dimensional Outline and Pin Connection (Unit:mm)



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

(1) Response Time Measuring Circuit

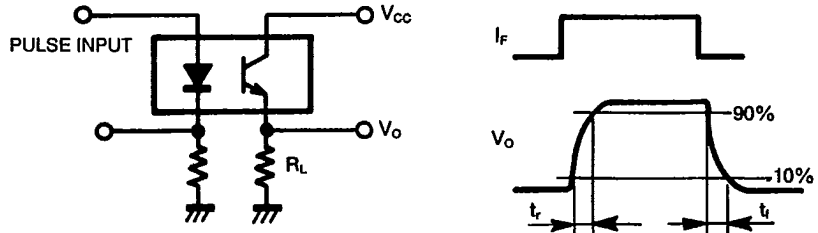


Figure 2: LED Allowable Forward Current vs. Temperature

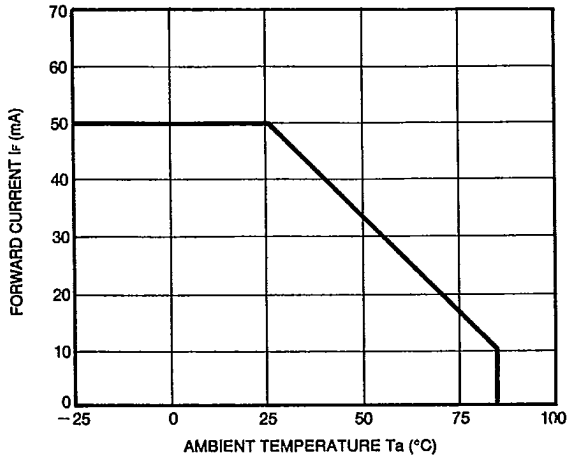


Figure 3: Collector Allowable Power Dissipation vs. Temperature

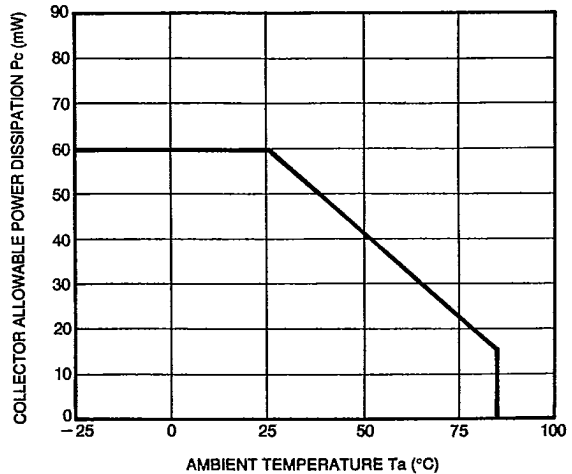


Figure 4: Peak Forward Current vs. Duty Ratio

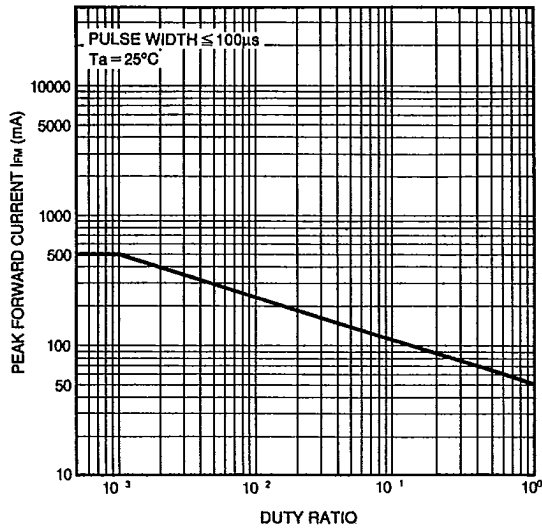


Figure 5: Forward Current vs. Forward Voltage

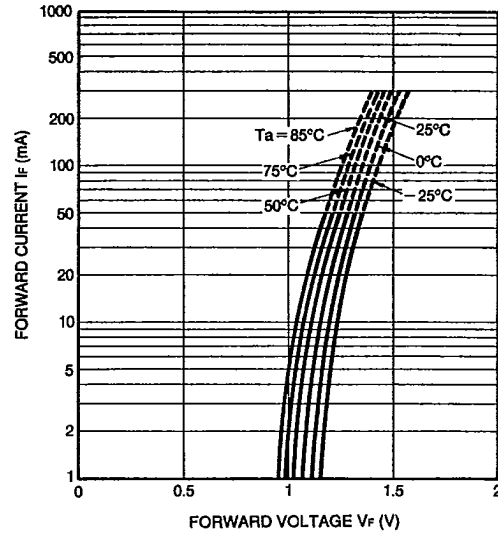


Figure 6: Photocurrent vs. Collector-Emitter Voltage

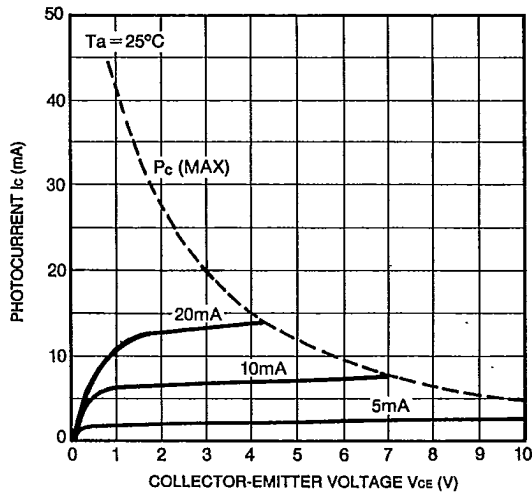


Figure 7: Current Transfer Ratio vs. Forward Current

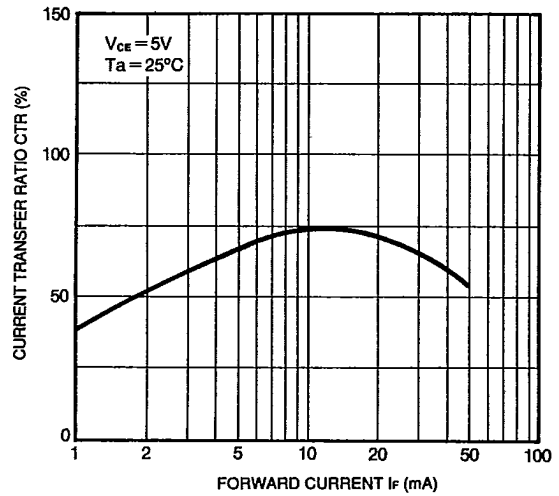


Figure 8: Current Transfer Ratio vs. Temperature

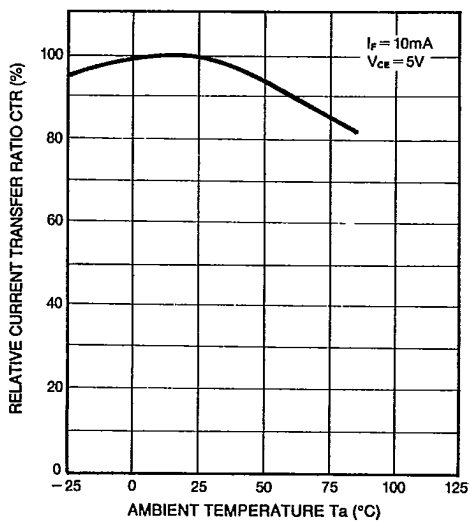
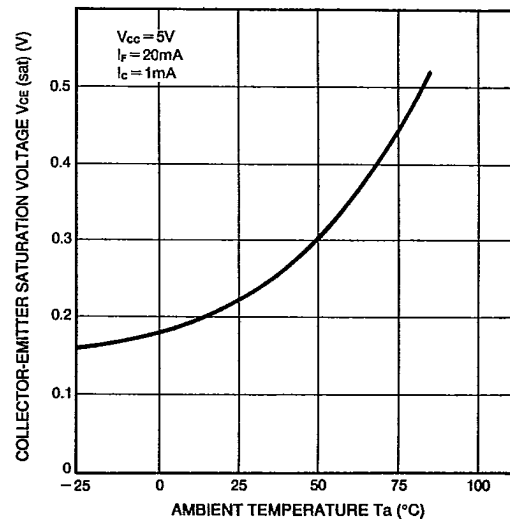


Figure 9: Collector-Emitter Saturation Voltage vs. Temperature



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Figure 10: Dark Current vs. Temperature

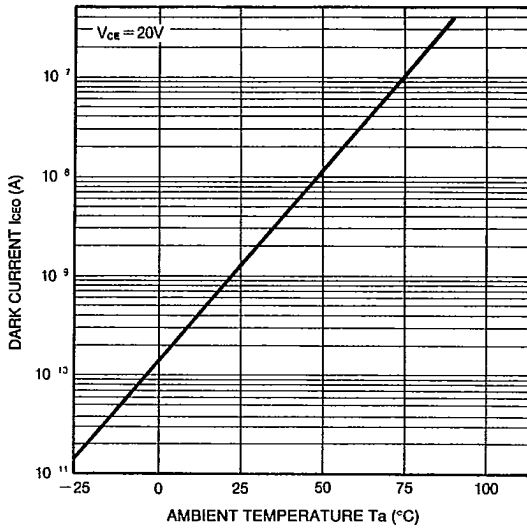


Figure 11: Dark Current vs. Ambient Light

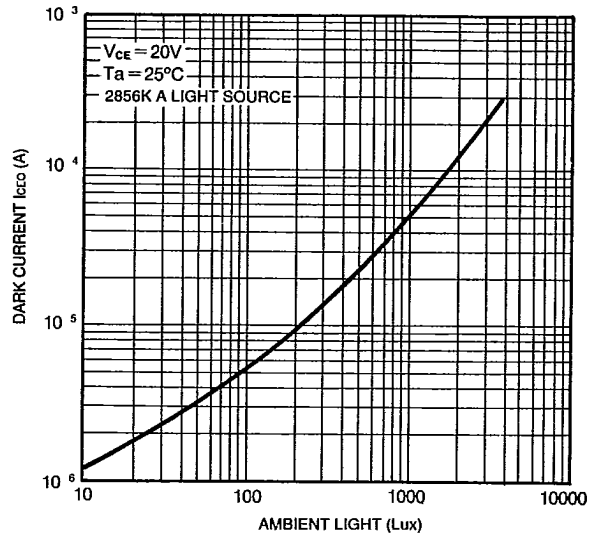


Figure 12: Rise/Fall Time vs. Load Resistance

