UMW PC817

1.Description

The UMW PC817 photocoupler consist of one piece of GaAs emitter and one piece of NPN transistor, BIN width of UMW PC817 is 2.54mm

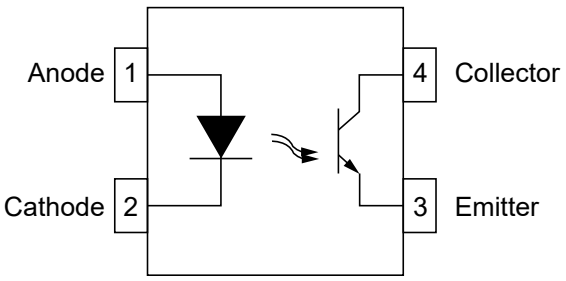
2.Applications

- Computer
- Instrumental application, measurement machine
- Imbursement equipments, duplicating machine, automat
- Family-use electric equipments, such as fans, etc…
- Signal transforming systems

3.Features

- Current Conversion Ratio (Min 50% Working Condition I_F=5mA, V_{CE}=5V)
- Insulation Voltage = 5,000Vrms
- Response Time (tr: TYP. 4μs working condition
- V_{CE}=2V, I_C=2mA, R_L=100 Ω)
- UL approved: UL1577, file No.E547318

4.Pinning information



DIP-4/SOP-4

5.Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
INPUT			
Forward Current	I_F	50	mA
Reverse Voltage	V_R	6	V
Consume Power	P	70	mW
OUTPUT			
Collector and Emitter Voltage	V_{CEO}	35	V
Emitter and Collector Voltage	V_{ECO}	6	V
Collector Current	I_C	50	mA
Consume Power	P_C	150	mW
Total Consume Power	P_{TOT}	200	mW
Isolation Voltage (1)	V_{ISO}	500	Vrms
Max Insulation Voltage	V_{IOTM}	6000	V
Rated Impulse Insulation Voltage	V_{IORM}	630	V
Working Temperature	T_{OPR}	-30 to 100	°C
Deposit Temperature	T_{STG}	-55 to 125	°C
Soldering Temperature (2)	T_{SOL}	260	°C

Notes:

1. AC Test, 1 minute, humidity = 40~60%

Insulation test method as below:

(1) Short circuit both terminals of photocoupler

(2) No current when testing insulation voltage

(3) Adding sine wave voltage when testing

2. Soldering time is 10 seconds

6.Electrical Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Input						
Forward Voltage	V_F	I_F=20mA		1.2	1.4	V
Reverse Current	I_R	V_R=4V			10	μA
Collector Capacitance	C_t	V=0, f=1kHZ		30	250	pF
Output						
Collector to emitter Current	I_{CEO}	V_{CE}=20V, I_F=0			100	nA
Collector and Emitter attenuation Voltage	BV_{CEO}	I_C=0.1mA, I_F=0	35			V
Emitter and Collector Attenuation Voltage	BV_{ECO}	I_E=0.1μA, I_F=0	6			V
Transfer Characteristics						
Collector Current	I_C	I_F=5mA, V_{CE}=5V	2.5		30	mA
Current Conversion Ratio	CTR		50		600	%
Collector and Emitter Saturation Voltage	$V_{CE(sat)}$	I_F=20mA, I_C=1mA		0.1	0.2	V
Insulation Impedance	R_{ISO}	DC500V, 40 ~ 60% R.H.	$5x10^{10}$	$1x10^{11}$		Ω
Capacotance	C_f	V=0, f=1kHZ		0.6	1	pF
Transforming Frequency	F_C	V_{CE}=5V, I_C=2mA, R_L=100Ω,-3dB		80		kHz
Risetime	T_r	V_{CE}=2V, I_C=2mA		4	18	μs
Descend Time	T_f	R_L=100Ω		3	18	μs

Current Conversion Ratio = IC / IF × 100%

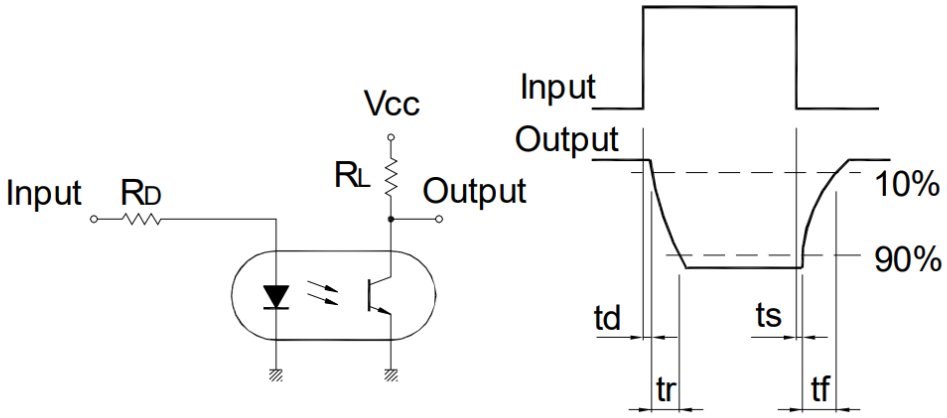
7.Grades of Current Conversion Ratio

Grade Sign	Min (%)	Max (%)
L	50	100
A	80	160
B	130	260
C	200	400
D	300	600
L or A or B or C or D	50	600

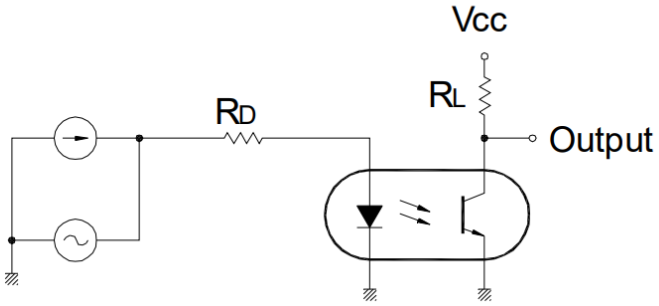
Note: Working condition: I_F=5mA, V_{CE}=5V, T_a=25°C.

8.Test circuit

Test Circuit for Response Time



Test Circuit for Frequency Response



9.Typical Characteristic

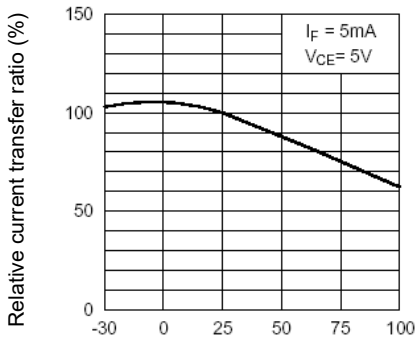


Figure 7: Relative Current Transfer Ratio vs. Ambient Temperature

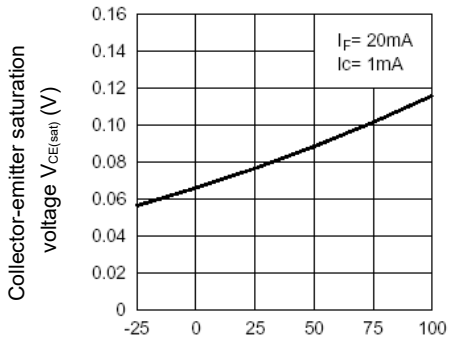


Figure 8: Relative Current Transfer Ratio vs. Ambient Temperature

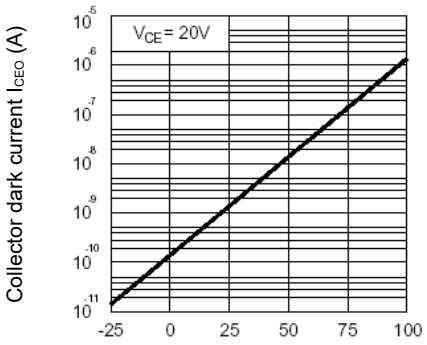


Figure 9: Collector Dark Current vs. Ambient Temperature

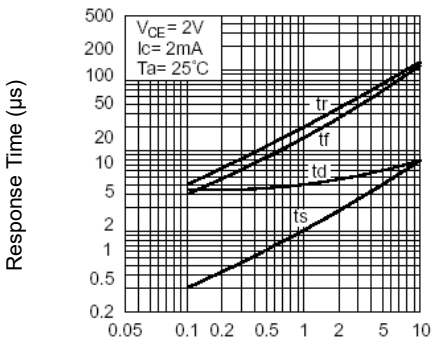


Figure 10: Response Time vs. Load Resistance

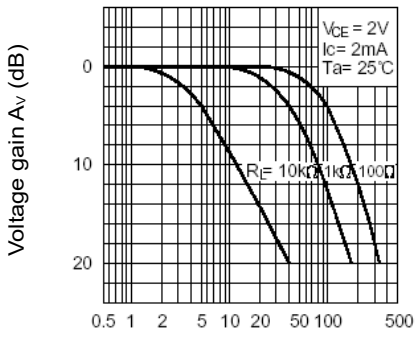
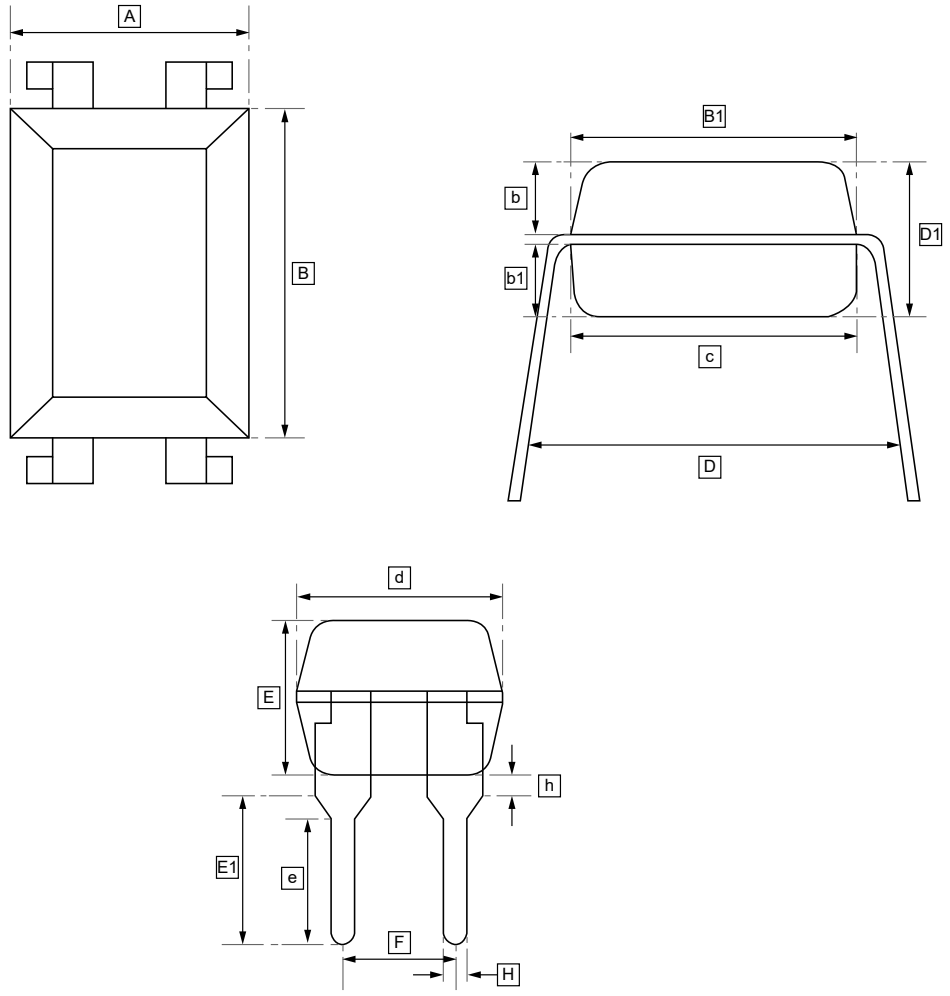


Figure 11: Frequency Response

10.1DIP-4 Package Outline Dimensions

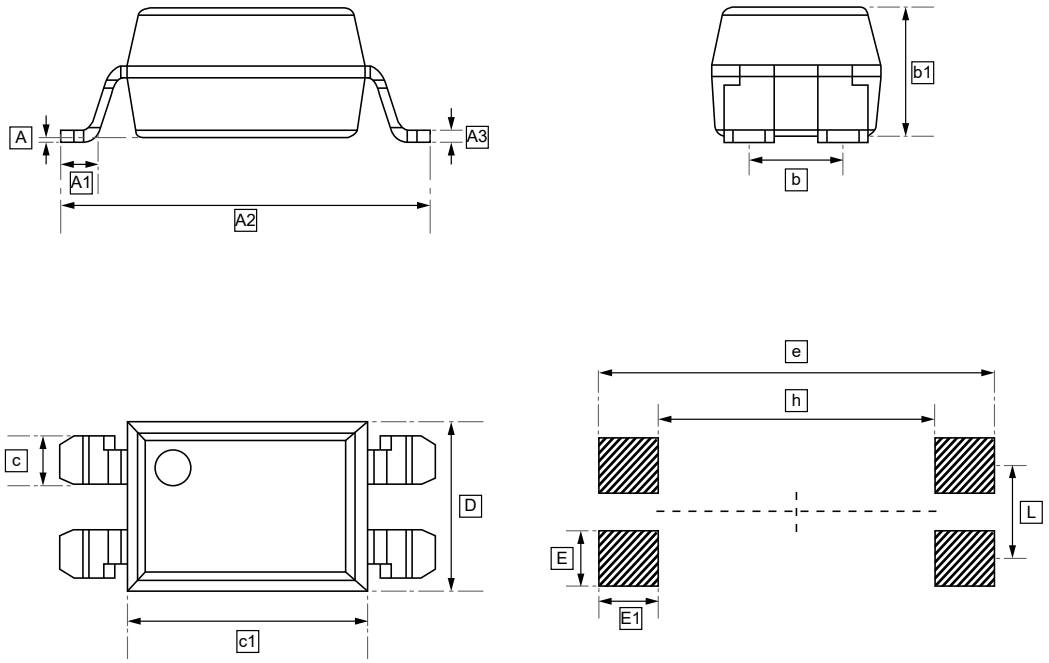


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	B1	b	b1	c	D	D1	d	E	E1	e
Min	4.60	6.40	6.35	1.64	1.60	6.45	8.86	3.43	4.55	3.48	3.05	2.55
Max			6.45			6.55	9.16	3.53	4.65		3.55	3.05

Symbol	F	H	h
Min	2.29	0.50	0.50
Max	2.79		

10.2SOP-4 Package Outline Dimensions

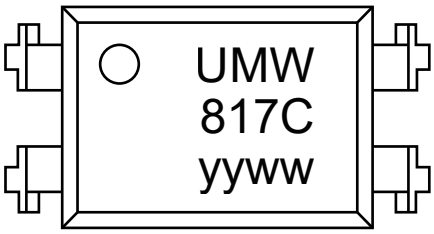


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	A3	b	b1	c	c1	D	E	E1	e
Min	0	0.75	9.86	0.25	2.29	3.20	1.1	6.2	4.3	1.50	1.60	10.80
Max	0.3	1.25	10.46		2.79	3.80	1.5	6.8	4.9			

Symbol	h	L
Min	7.60	2.50
Max		

11.Ordering information



yy: Year Code
ww: Week Code

Order Code	Marking	Package	Base QTY	Delivery Mode
UMW PC817B	817B	DIP-4	5000	Tube and box
UMW PC817B-S	817B	SOP-4	2000	Tape and reel
UMW PC817C	817C	DIP-4	5000	Tube and box
UMW PC817C-S	817C	SOP-4	2000	Tape and reel
UMW PC817D-S	817D	SOP-4	2000	Tape and reel

12.Disclaimer

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