



DATA SHEET

● DEVICE NUMBER : BPC-817

DATE \ SHEET	1	2	3	4	5	6						CONTENTS
2003.10.09	1.0	1.0	1.0	1.0	1.0	1.0						Original Released
2005.10.30	2.0	2.0	2.0	2.0	2.0	2.0						Format Of Sheets
2009.08.21	2.1	2.1	2.1	2.1	2.1	2.1						Solder Temperature

佰鴻工業股份有限公司
 BRIGHT LED ELECTRONICS CORP.
 台北縣板橋市和平路 19 號 3 樓
 3F., No. 19, Ho Ping Road, Pan Chiao City,
 Taipei, Taiwan, R. O. C.
 Tel: 886-2-29591090
 Fax: 886-2-29547006/29558809
www.brtled.com

APPROVED	DRAWER

● Features:

1. Current transfer ratio (CTR: MIN. 50% at $I_F=5\text{mA}$, $V_{CE}=5\text{V}$)
2. High input-output isolation voltage ($V_{ISO}=5,000\text{Vrms}$)
3. Response time (t_r : TYP. $4\mu\text{s}$ at $V_{CE}=2\text{V}$, $I_C=2\text{mA}$, $R_L=100\ \Omega$)
4. UL approved (NO.E236324)
5. CSA approved (NO.218896)
6. VDE approved (NO.40007240)
7. TUV approved (NO.R50029014)
8. FIMKO approved (NO.FI 23724)
9. NEMKO approved (NO.P06206181)
10. SEMKO approved (NO.712540)
11. This product doesn't contain restriction substance, comply RoHS standard

● Description

1. The BPC-817 series are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon phototransistor
2. The lead pitch is 2.54mm

● Applications:

1. Computer terminals.
2. System appliances, measuring instruments.
3. Registers, copiers, automatic vending machines.
4. Electric home appliances, such as fan heaters, etc.
5. Signal transmission between circuits of different potentials and impedances.

● Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

	Parameter	Symbol	Rating	Unit
INPUT	Forward Current	I_F	100	mA
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	70	mW
OUTPUT	Collector-Emitter Voltage	V_{CEO}	80	V
	Emitter- Collector Voltage	V_{ECO}	6	
	Collector Current	I_C	50	mA
	Collector Power Dissipation	P_C	150	mW
Total Power Dissipation		P_{tot}	200	mW
*1 Isolation Voltage		V_{iso}	5,000	Vrms
Rated impulse isolation voltage		V_{IOTM}	6,000	V
Rated repetitive peak isolation voltage		V_{IORM}	630	V
Operating Temperature		T_{opr}	-40 to + 100	°C
Storage Temperature		T_{stg}	-55 to + 125	
*2 Soldering Temperature		T_{sol}	260	

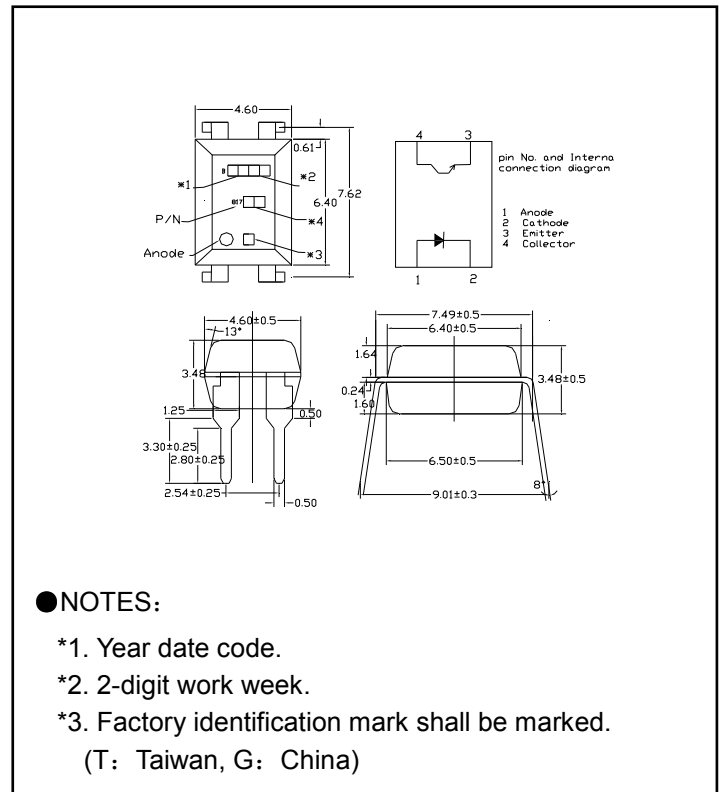
*1. AC For minute, R.H. =40~60%

Isolation voltage shall be measured using the following method.

- (1) Short between anode and cathode on the primary side and between collector and emitter on the secondary side.
- (2) The isolation voltage tester with zero-cross circuit shall be used.
- (3) The waveform of applied voltage shall be a sine wave.

*2. For 10 Seconds

● Outline Dimensions



● Electro-Optical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit.
INPUT	Forward Voltage	V_F	$I_F=20\text{mA}$	---	1.2	1.4	V
	Reverse Current	I_R	$V_R=4\text{V}$	---	---	10	μA
	Terminal Capacitance	C_t	$V=0, f=1\text{KHz}$	---	30	250	pF
OUTPUT	Collector Dark Current	I_{CEO}	$V_{CE}=20\text{V}, I_F=0$	---	---	100	nA
	Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=0.1\text{mA}$ $I_F=0$	35	---	---	V
	Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=10\mu\text{A}$ $I_F=0$	6	---	---	V
TRANSFER CHARACTERISTICS	Collector Current	I_c	$I_F=5\text{mA}$	2.5	---	30	mA
	*1 Current Transfer Ratio	CTR	$V_{CE}=5\text{V}$	50	---	600	%
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F=20\text{mA}$ $I_C=1\text{mA}$	---	0.1	0.2	V
	Isolation Resistance	R_{iso}	DC500V 40~60%R.H.	5×10^{10}	1×10^{11}	---	Ω
	Floating Capacitance	C_f	$V=0, f=1\text{MHz}$	---	0.6	1	pF
	Cut-Off Frequency	f_c	$V_{CE}=5\text{V},$ $I_C=2\text{mA}$ $R_L=100\Omega,$ -3dB	---	80	---	kHz
	Response Time(Rise)	t_r	$V_{CE}=2\text{V},$ $I_C=2\text{mA}$	---	4	18	μs
	Response Time(Fall)	t_f	$R_L=100\Omega$	---	3	18	μs

*1 $CTR = I_c / I_F \times 100\%$

● RANK TABLE OF CURRENT TRANSFER RATIO(CTR)

RANK MARK.	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

Notes:

1. Conditions: $I_F=5\text{mA}, V_{CE}=5\text{V}, T_a=25^\circ\text{C}.$

● CHARACTERISTICS CURVES

Fig.1 Forward Current

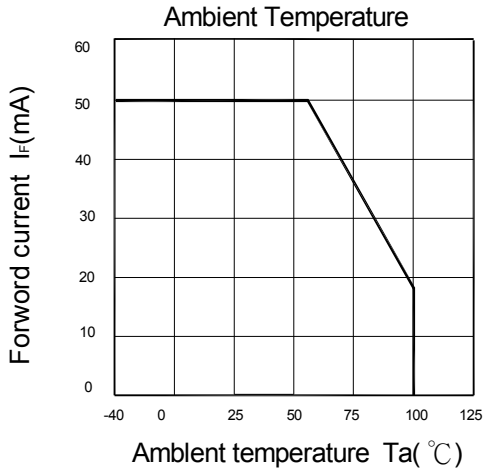


Fig.2 Collector Power Dissipation vs. Ambient Temperature

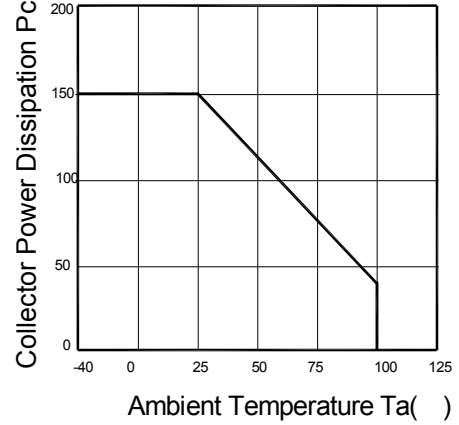


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

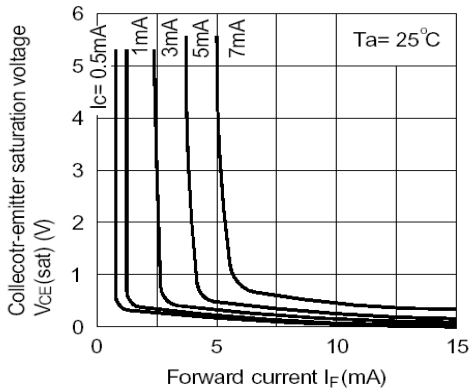


Fig.4 Forward Current vs. Forward Voltage

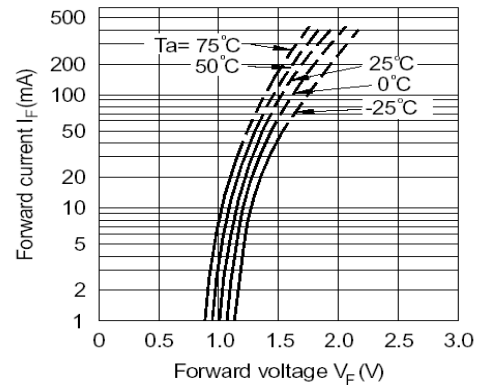


Fig.5 Current Transfer Ratio vs. Forward Current

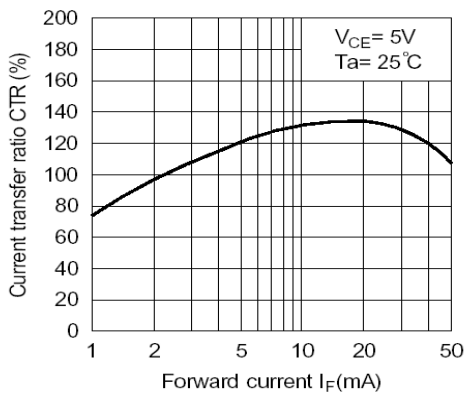
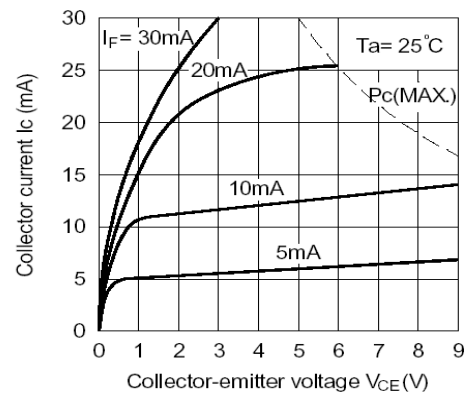


Fig.6 Collector Current vs. Collector-emitter Voltage



● Characteristics Curves

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

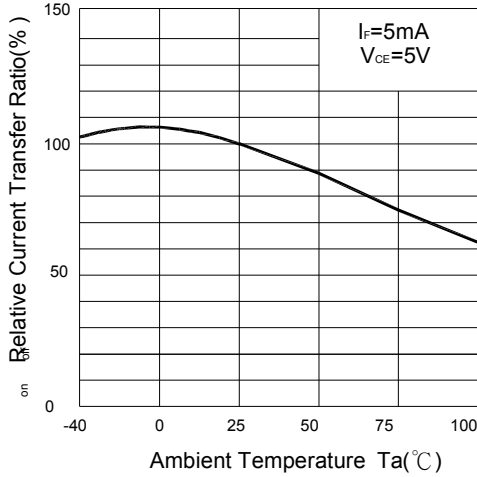


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

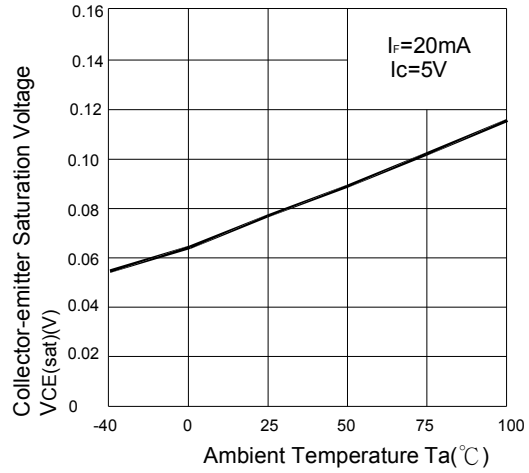


Fig.9 Collector Dark Current vs Ambient Temperature

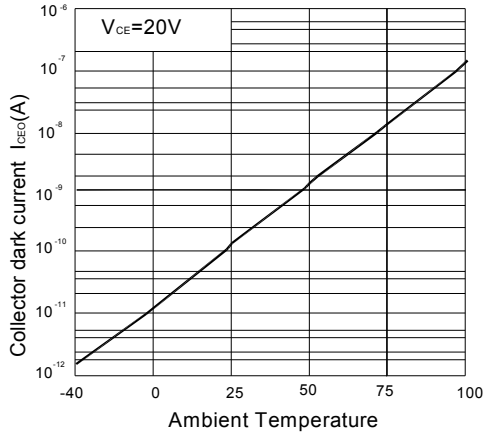


Fig.10 Response Time vs. Load Resistance

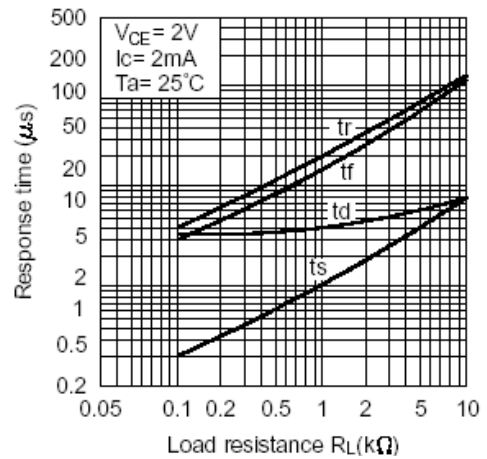
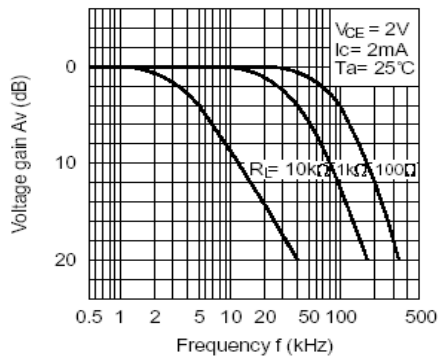
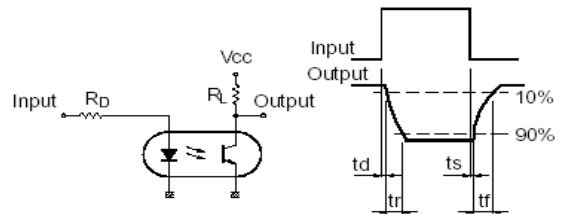


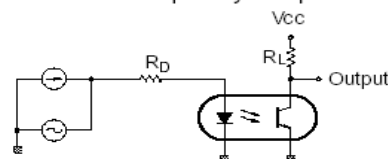
Fig.11 Frequency Response



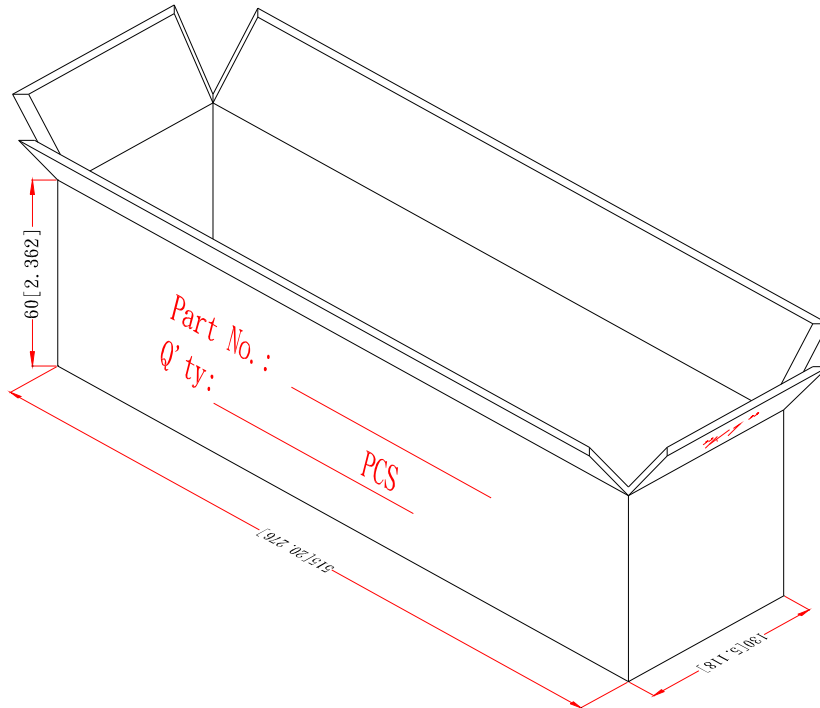
Test Circuit for Response Time



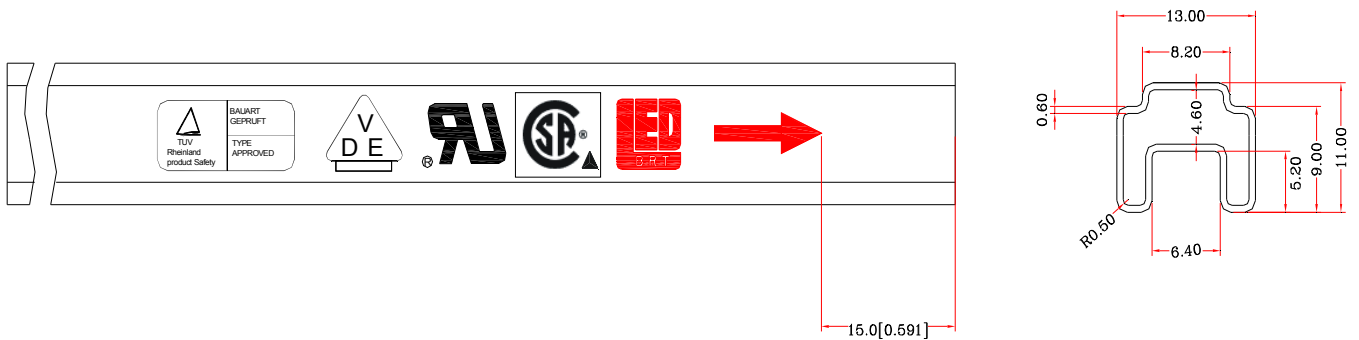
Test Circuit for Frequency Response



● Packaging Box Dimensions (Units: mm)



● Packaging Tube Dimensions



Notes:

- 1 - 100pcs per tubi, 5Kpcs per box.
- 2 - All dimensions are in millimeters (inches).
- 3 - Specifications are subject to change without notice.