Elektronische Bauelemente

BL817S-C

0.05A, 80V, 150mW

High Density Mounting Type Photocoupler

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

DESCRIPTION

The BL817S-C Series of devices each consist of an Infrared Emitting Diodes, optically coupled to a phototransistor detector. They are packaged in a 4-pin DIP package and available in Wide-lead spacing and SMD option.

DIP4L

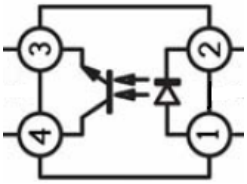
FEATURES

- Current Transfer Ratio (CTR: 50%~600% @I_F=5mA, V_{CE}=5V)
- High Isolation Voltage Between Input and Output (V_{iso}=5000V rms)
- Creepage Distance>7.62mm
- UL/CUL Approved

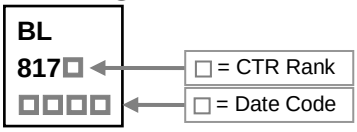
APPLICATIONS

- Programmable Controllers
- System Appliances, Measuring Instruments
- Telecommunication Equipments
- Home Appliances, Such as Fan Heaters, etc.
- Signal Transmission Between Circuits of Different Potentials and Impedances

Top View



MARKING



ORDER INFORMATION

Part Number	Type
BL817S-□-C	Lead (Pb)-free and Halogen-free

***□=Rank**

RANK TABLE OF CURRENT TRANSFER RATIO CTR

Product-Rank	BL817S-L-C	BL817S-A-C	BL817S-B-C	BL817S-C-C	BL817S-D-C	BL817S-E-C
Range(%)	50~100	80~160	130~260	200~400	300~600	50~600

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Input	Forward Current	I_F	50	mA
	Peak Forward Current [1]	I_{FM}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P_D	70	mW
Output	Collector-Emitter Voltage	V_{CEO}	80	V
	Emitter-Collector Voltage	V_{ECO}	7	V
	Collector Current	I_C	50	mA
	Collector Power Dissipation	P_C	150	mW

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Total Power Dissipation	P_{tot}	200	mW
Isolation Voltage [2]	V_{iso}	5000	Vrms
Rated Impulse Isolation Voltage	V_{IOTM}	6000	V
Rated Repetitive Peak Isolation Voltage	V_{IORM}	630	V
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	430	°C/W
Thermal Resistance Junction-Case	$R_{\theta JC}$	350	
Thermal Resistance Junction- Lead	$R_{\theta JL}$	368	
Operating Temperature	T_{opr}	-55~110	°C
Storage Temperature	T_{stg}	-55~125	
Soldering Temperature [3]	T_{sol}	260	

Notes:
1. Pulse width≦1μs, Duty ratio: 0.001.
2. 40~60% RH, AC for 1 minute.
3. For 10 Seconds.

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Input	Forward Voltage	V_F	-	1.2	1.4	V	I_F=20mA
	Peak Forward Voltage	V_{FM}	-	-	3	V	I_{FM}=0.5A
	Reverse Current	I_R	-	-	10	μA	V_R=4V
	Input Capacitance	C_t	-	30	-	pF	V=0, f=1KHz
Output	Collector-Emitter Dark Current	I_{CEO}	-	-	100	nA	V_{CE}=20V, I_F=0
	Collector-Emitter Breakdown Voltage	BV_{CEO}	80	-	-	V	I_C=0.1mA, I_F=0
	Emitter-Collector Breakdown Voltage	BV_{ECO}	7	-	-	V	I_E=10μA, I_F=0
Transfer Characteristics	Collector Current	I_C	2.5	-	30	mA	V_{CE}=5V, I_F=5mA
	Current Transfer Ratio	CTR	50	-	600	%	
	Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	0.1	0.2	V	I_F=20mA, I_C=1mA
	Isolation Resistance	R_{iso}	$1x10^{12}$	-	-	Ω	V_{IO}=500V_{DC} 40~60%R.H.
	Floating Capacitance	C_f	-	0.6	-	pF	V=0, f=1MHz
	Cut-off Frequency	f_C	-	80	-	KHz	V_{CE}=5V, I_C=2mA, R_L=100Ω, -3dB
	Turn On Time	T_{on}	-	4	-	μs	V_{CE}=2V, I_C=2mA, R_L=100Ω
	Turn Off Time	T_{off}	-	3	-		

CHARACTERISTIC CURVE

Fig. 1 Allowable Forward Current vs. Ambient Temperature

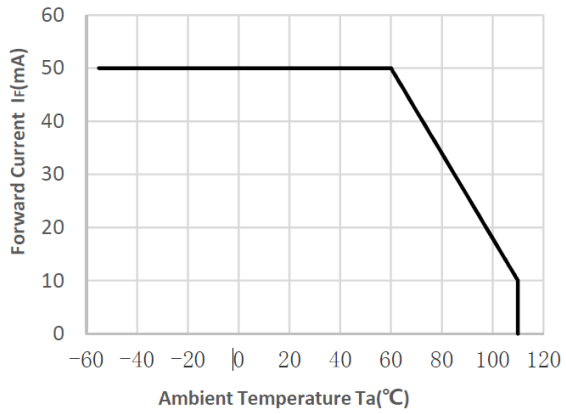


Fig. 2 Allowable collector power dissipation vs. Ambient Temperature(°C)

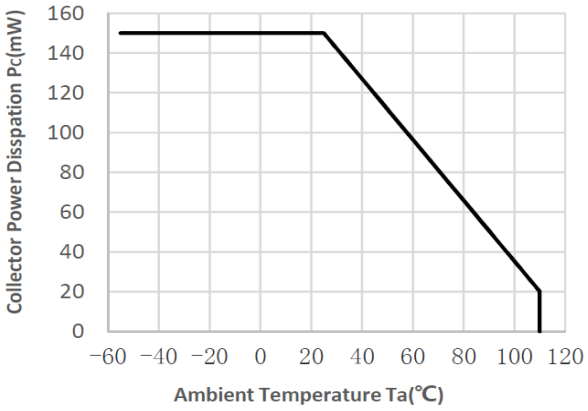


Fig. 3 Relative Current Transfer Ratio vs. Forward Current

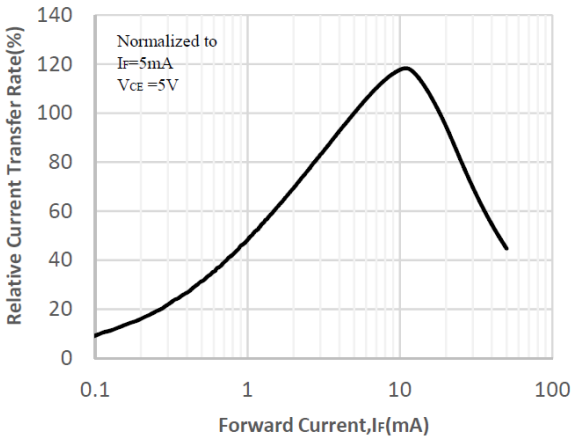


Fig. 4 Forward Current vs. Forward Voltage

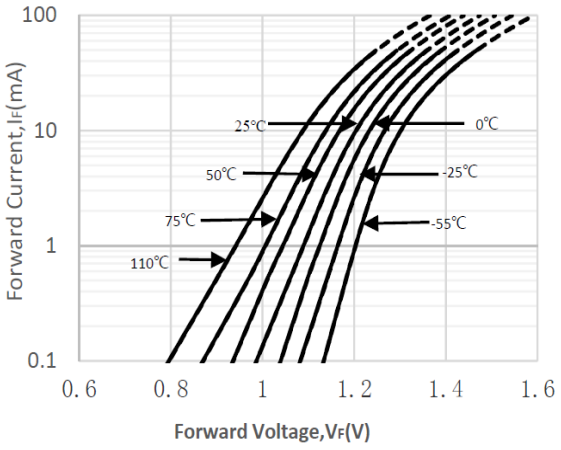


Fig. 5 Collector Current vs. Collector-emitter Voltage

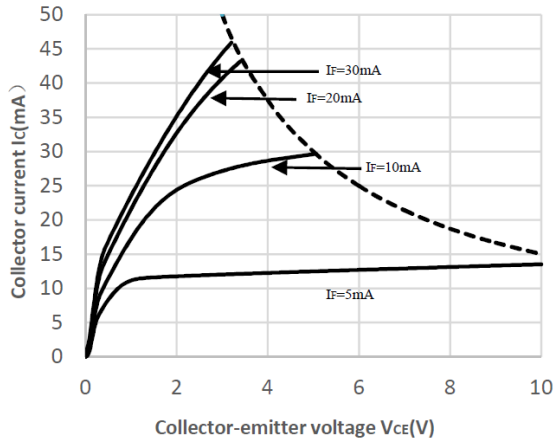
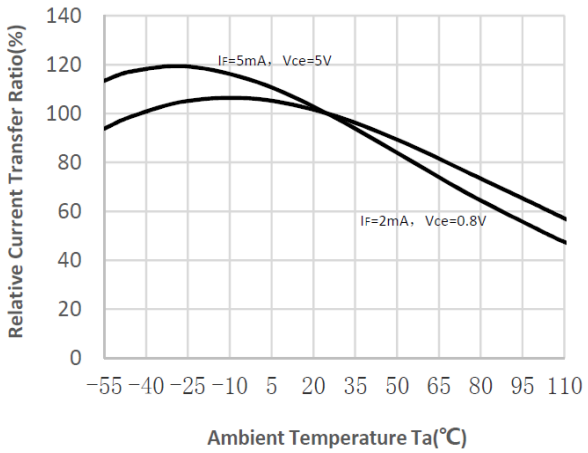


Fig. 6 Relative Current Transfer Ratio vs. Ambient Temperature



CHARACTERISTIC CURVE

Fig. 7 Collector-emitter Saturation Voltage vs. Ambient Temperature

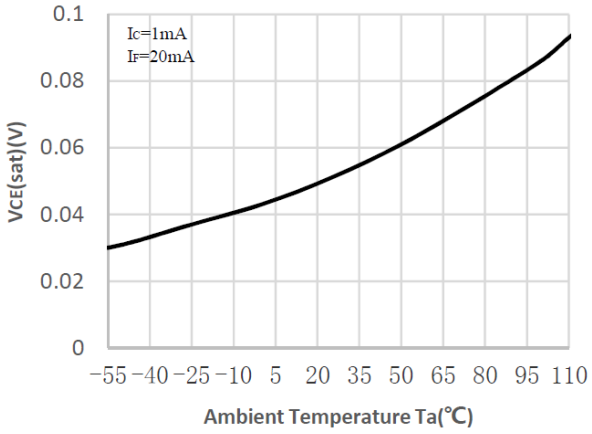


Fig. 8 Collector Dark Current vs. Ambient Temperature

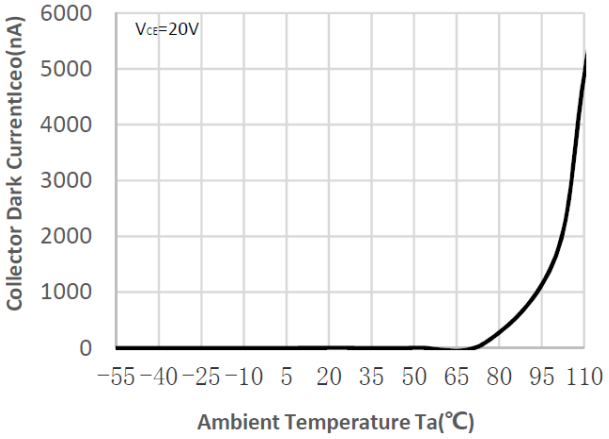


Fig. 9 Response Time vs. Load Resistance

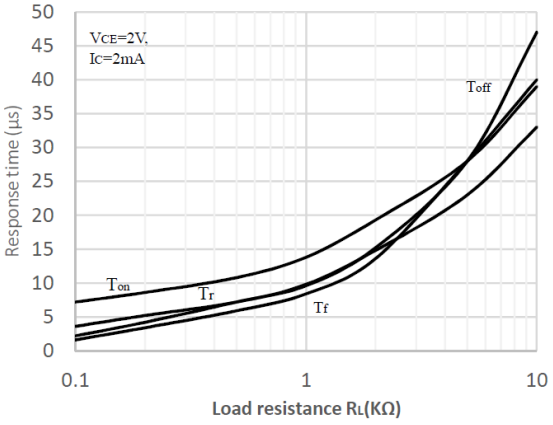


Fig. 10 Frequency Response

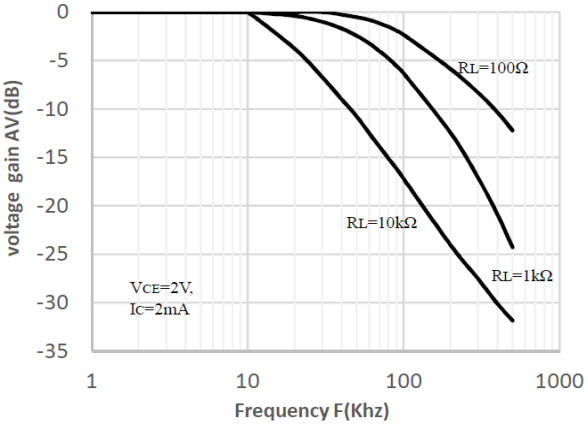


Fig. 11 Collector-emitter Saturation Voltage vs. Forward Current

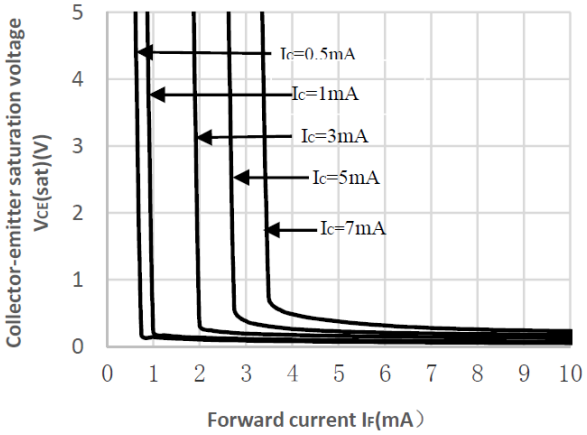
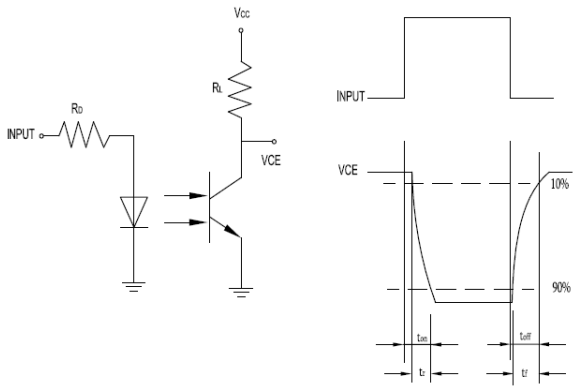


Fig. 12 Switching Time Test Circuit & Waveforms



PACKAGE OUTLINE DIMENSIONS

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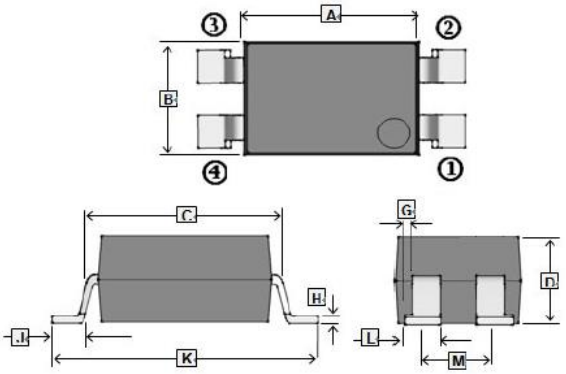
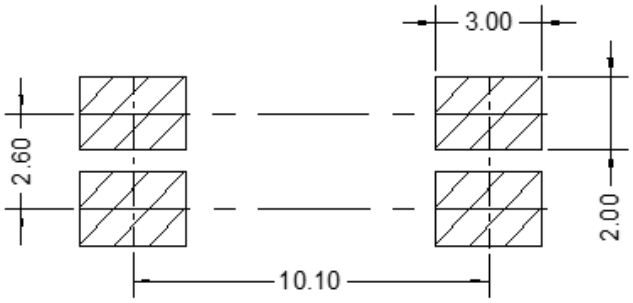


REF.	Millimeter	
	Min.	Max.
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
G	0.30	0.50
H	-	0.20
J	0.90	1.20
K	9.80	10.30
L	1.15	1.35
M	2.49	2.69

MOUNTING PAD LAYOUT

DIP4L



*Dimensions in millimeters