

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

DESCRIPTION

The BL817S 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.

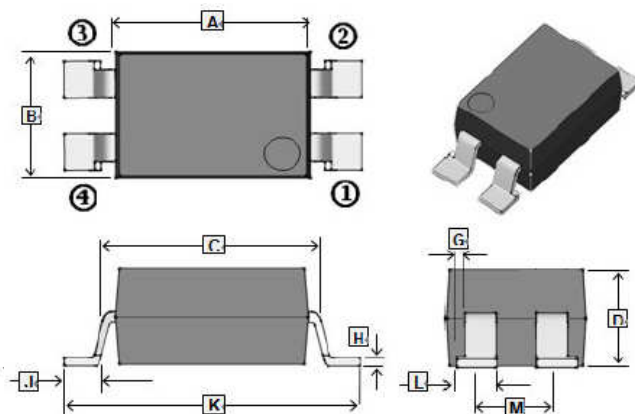
FEATURES

- 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

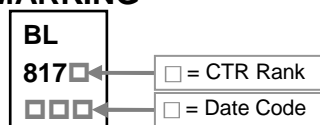
- Programmable Controllers
- System Appliances, Measuring Instruments
- Telecommunication Equipments
- Home Appliances, Such as Fan Heaters, etc.
- Signal Transmission Between Circuits of Different Potentials and Impedances

DIP4L

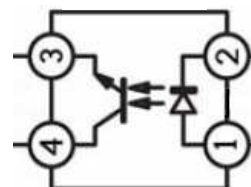


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.60	H	-	0.20
B	4.50	4.70	J	0.90	1.20
C	7.90	8.30	K	9.80	10.30
D	3.28	3.68	L	1.15	1.35
G	0.30	0.50	M	2.49	2.69

MARKING



Top View



ORDER INFORMATION

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

*□=Rank

RANK TABLE OF CURRENT TRANSFER RATIO CTR

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

Note:

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

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	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
Isolation Voltage		V_{iso}	5000	V rms
Rated Impulse Isolation Voltage		V_{IOTM}	6000	V
Rated Repetitive Peak Isolation Voltage		V_{IORM}	630	V
Operating Temperature		T_{opr}	-40~125	°C
Storage Temperature		T_{stg}	-55~125	
Soldering Temperature		T_{sol}	260	

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

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

CHARACTERISTIC CURVE

Fig.1 Forward Current vs. Ambient Temperature

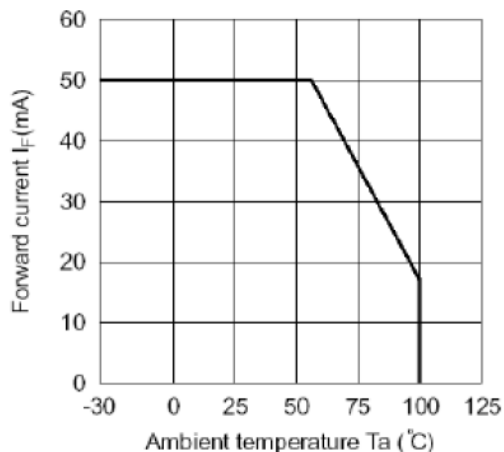


Fig.2 Collector Power Dissipation vs. Ambient Temperature

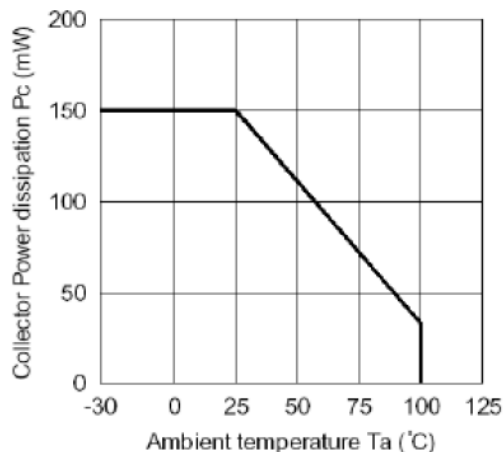


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

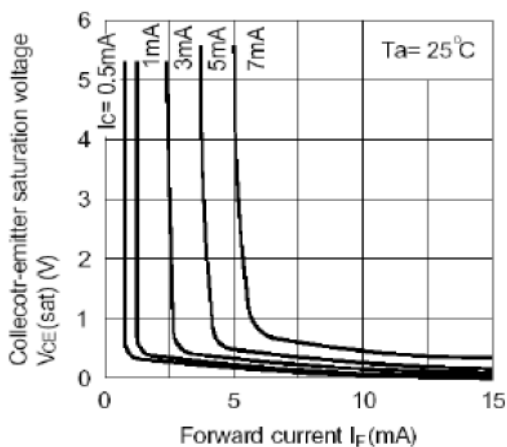


Fig.4 Forward Current vs. Forward Voltage

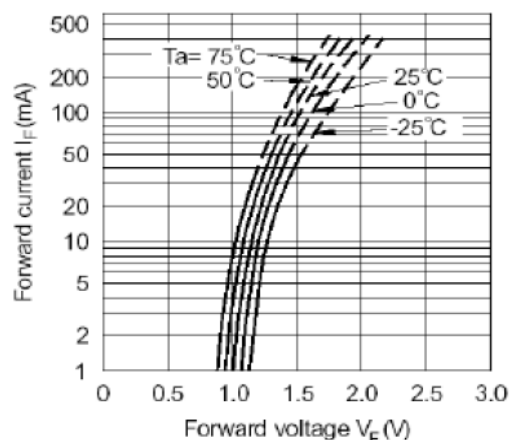


Fig.5 Current Transfer Ratio vs. Forward Current

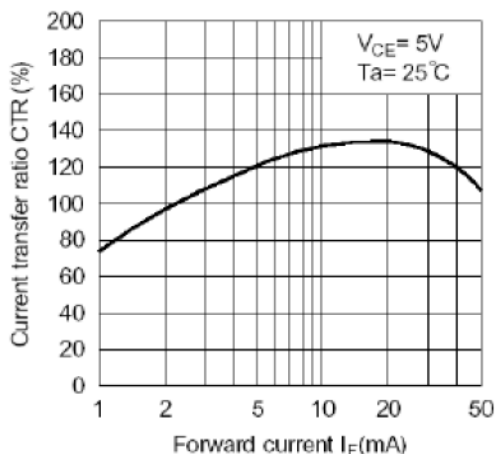
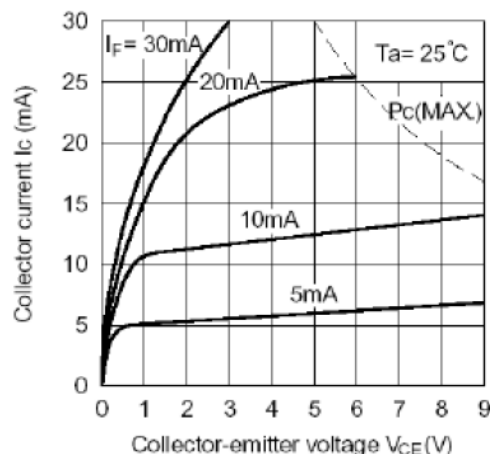


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTIC CURVE

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

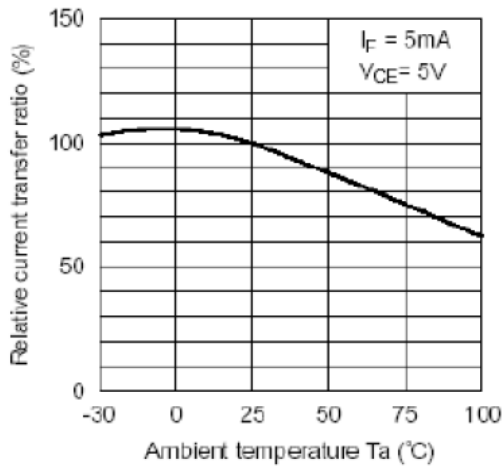


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

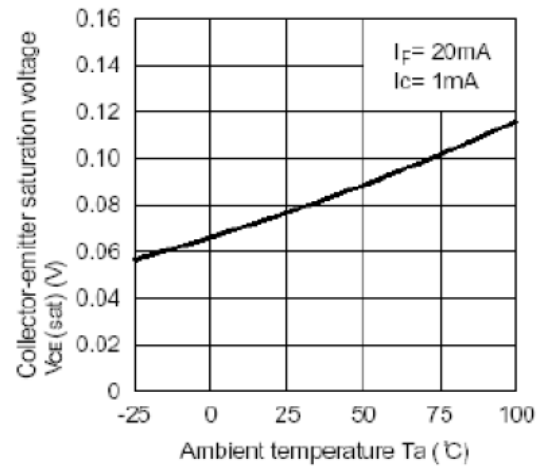


Fig.9 Collector Dark Current vs. Ambient Temperature

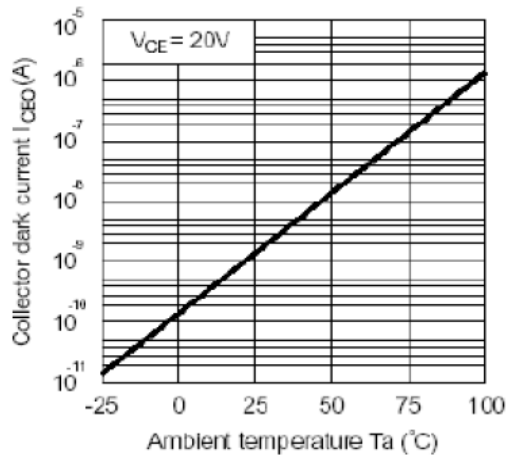


Fig.10 Response Time vs. Load Resistance

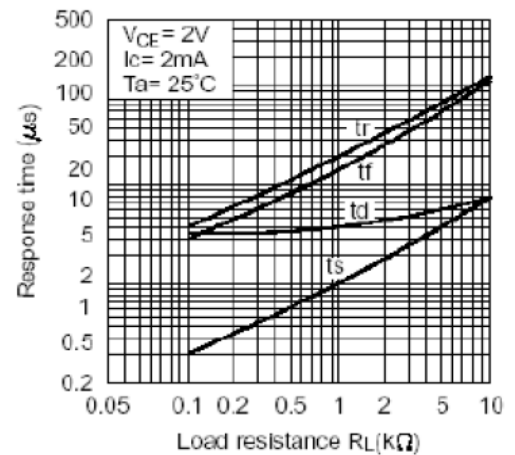
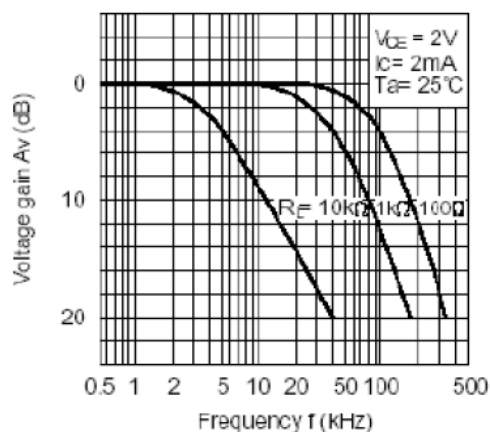
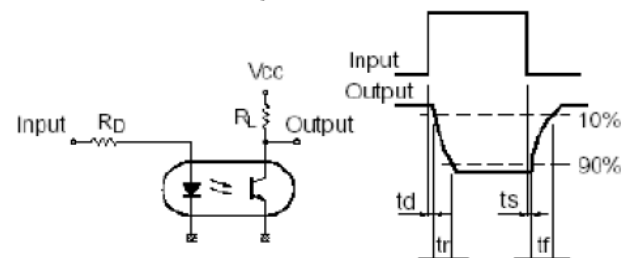


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

