

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

DESCRIPTION

BL817M device consists of an infrared Emitting diode, which is optically coupled to a phototransistor detector. It is packaged in a 4-pin DIP package.

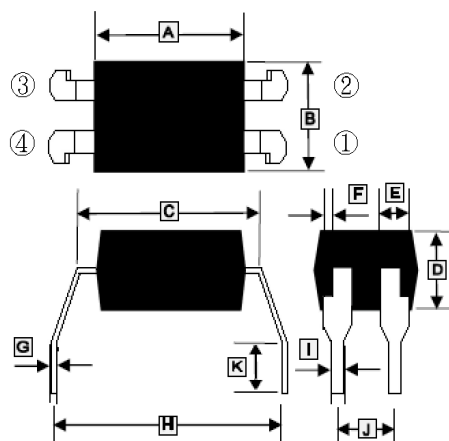
FEATURES

- 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

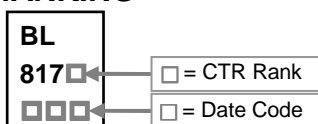
- Programmable Controllers
- System Appliances, Measuring Instruments
- Telecommunication Equipments
- Home Appliances, Such as Fan Heaters, etc.
- Signal Transmission Between Circuits of Different Potentials and Impedances

DIP4M

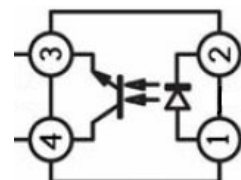


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.40	6.60	G	0.20	0.30
B	4.50	4.70	H	9.86	10.46
C	7.90	8.30	I	0.50 TYP.	
D	3.28	3.68	J	2.44	2.64
E	1.25 TYP.		K	2.08	2.90
F	0.40 TYP.				

MARKING



Top View



ORDER INFORMATION

Part Number	Type
BL817M-□	Lead (Pb)-free
BL817M-□-C	Lead (Pb)-free and Halogen-free

*□=Rank

RANK TABLE OF CURRENT TRANSFER RATIO (CTR)

Product-Rank	BL817M-L	BL817M-A	BL817M-B	BL817M-C	BL817M-D	BL817M-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	Ratings	Unit
Forward Current	I_F	50	mA
Peak Forward Current ¹	I_{FM}	1	A
Reverse Voltage	V_R	6	V
Power Dissipation	P	70	mW
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 ²	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}	-30~100	°C
Storage Temperature	T_{stg}	-55~125	
Soldering Temperature ³	T_{sol}	260	

Notes:

1. Pulse width $\leq 100\text{ms}$, Duty ratio:0.001.
2. 40~60% RH, AC for 1 minute.
3. For 10 Seconds.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward Voltage	V_F	-	1.2	1.4	V	$I_F=20\text{mA}$
Peak Forward Voltage	V_{FM}	-	-	3	V	$I_{FM}=0.5\text{A}$
Reverse Current	I_R	-	-	10	μA	$V_R=4\text{V}$
Terminal Capacitance	C_t	-	30	250	pF	$V=0$, $f=1\text{KHz}$
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	$I_E=10\mu\text{A}$, $I_F=0$
Collector Current	I_C	2.5	-	30	mA	$V_{CE}=5\text{V}$, $I_F=5\text{mA}$
Current Transfer Ratio ¹	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_f	-	0.6	1	pF	$V=0$, $f=1\text{MHz}$
Cut-Off Frequency	f_c	-	80	-	KHz	$V_{CE}=5\text{V}$, $I_C=2\text{mA}$, $R_L=100\Omega$ -3dB
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	

Note:

1. $CTR=I_C/I_F \times 100\%$.

CHARACTERISTIC CURVE

Fig.1 Forward Current vs. Ambient Temperature

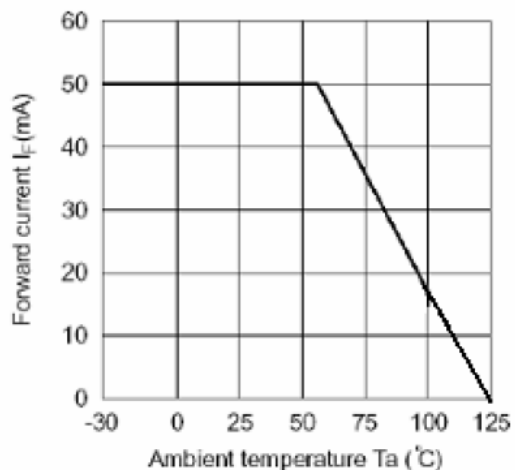


Fig.2 Collector Power Dissipation vs. Ambient Temperature

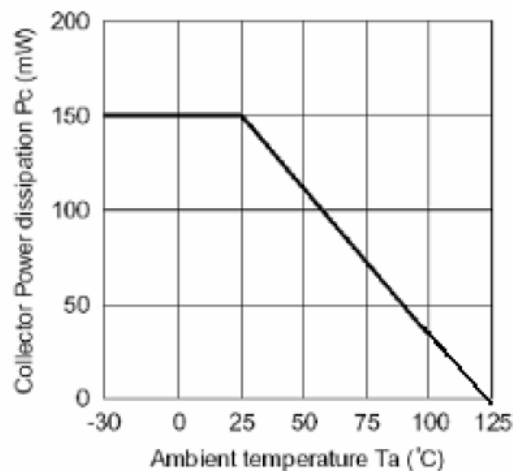


Fig.3 Collector-emitter Saturation Voltage vs. Forward Current

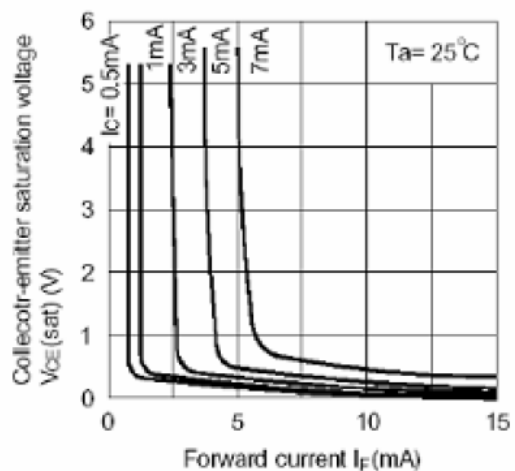


Fig.4 Forward Current vs. Forward Voltage

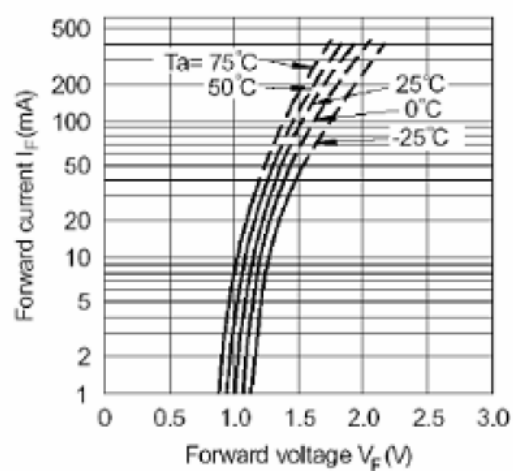


Fig.5 Current Transfer Ratio vs. Forward Current

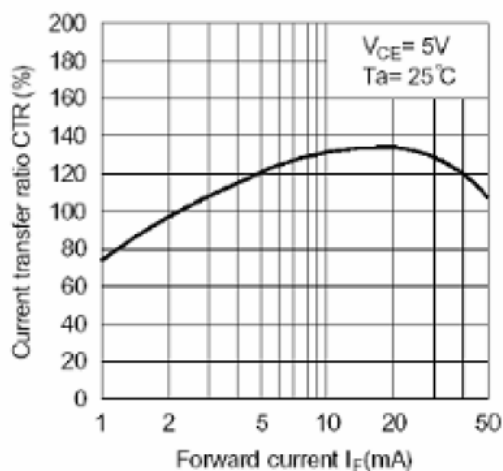
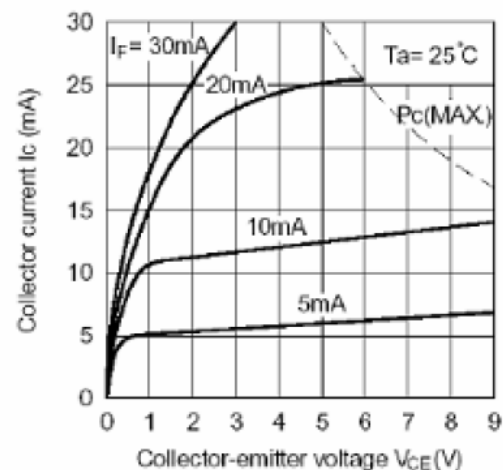


Fig.6 Collector Current vs. Collector-emitter Voltage



CHARACTERISTIC CURVE

Fig.7 Relative Current Transfer Ratio vs. Ambient Temperature

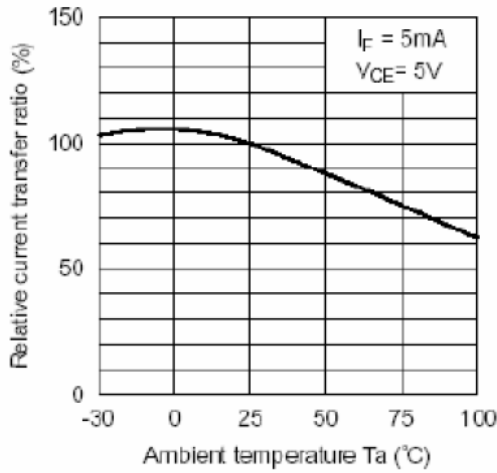


Fig.8 Collector-emitter Saturation Voltage vs. Ambient Temperature

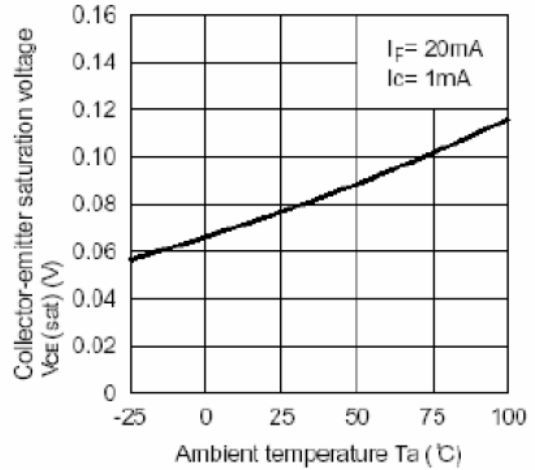


Fig.9 Collector Dark Current vs. Ambient Temperature

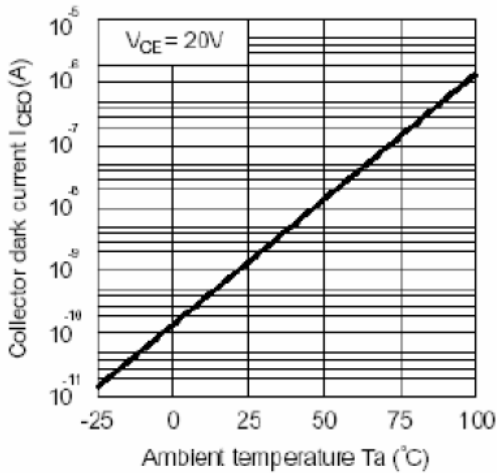


Fig.10 Response Time vs. Load Resistance

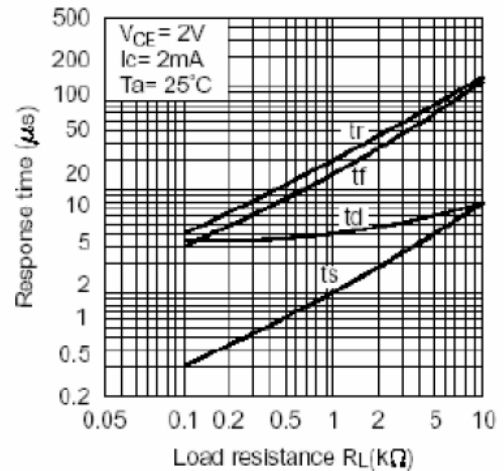
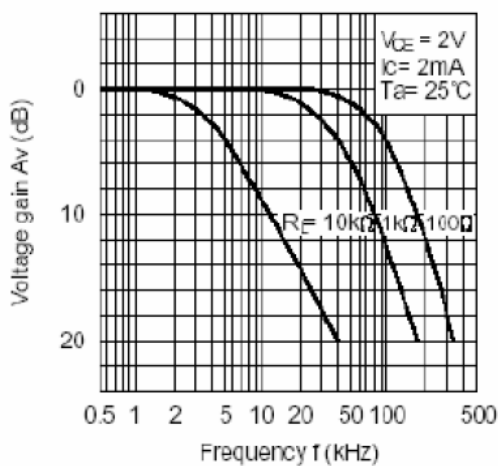
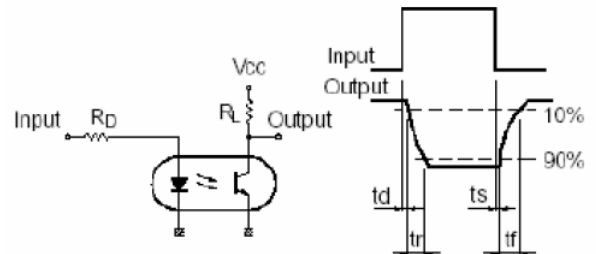


Fig.11 Frequency Response



Test Circuit for Response Time



Test Circuit for Frequency Response

