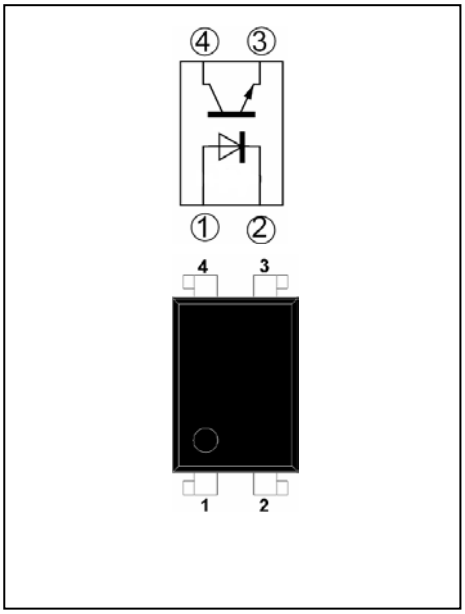
4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

FEATURES

- Current transfer ratio
  （CTR：MIN.50%at I_F=5mA,V_{CE}=5V）
- High isolation voltage between inputc and output （Viso=5000V rms）
- High collector-emitter voltage (V_{CEO}:70V)
- Pb free and ROHS compliant
- Recognized by UL, file No. E340048

HF



APPLICATIONS

- Programmable controllers
- System appliances,measuring instruments
- Signal transmission between circuits of different potentials
- And impedances

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Parameter		Symbol	Rating	Unit
Input	Forward Current	I_F	50	mA
	Peak forward Current (Note 1)	I_{FM}	1	A
	Reverse Voltage	V_R	6	V
	Power Dissipation	P	70	mW
Output	Collector-emitter voltage	V_{CEO}	70	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector Current	I_C	50	mA
	Collector power dissipation	Pc	150	mW
Total power dissipation		P_{tot}	200	mW
Isolation voltage (Note 2)		V_{iso}	5000	V_{rms}
Rated repetitive peak isolation voltage		V_{IORM}	630	V
Thermal resistance,junction to ambient air		$R_{\theta jA}$	430	℃/W
Thermal Resistance Junction-to-Case		$R_{\theta jC}$	350	℃/W
Operating temperature		T_{opr}	-30 to +100	℃
Storage temperature		T_{stg}	-55 to +125	℃
Soldering temperature (Note 3)		T_{sol}	260	℃

Note 1: Pulse width<=100ms, Duty ratio : 0.001

2: 40 to 60% RH, AC for 1 minute

3: For 10 seconds

4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter			Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage		V_F	I_F=20mA	-	1.2	1.4	V
	Peak forward voltage		V_{FM}	I_{FM}=0.5A	-	-	3.0	V
	Reverse current		I_R	V_R=4V	-	-	10	uA
	Terminal capacitance		C_t	V=0, f=1kHz	-	30	250	pF
Output	Collector dark current		I_{CEO}	V_{CE}=20V, I_F=0	-	-	10^{-7}	A
	Collector-Emitter breakdown voltage		BV_{CEO}	Ic=0.1mA,I_F=0	80	-	-	V
	Emitter–Collector breakdown voltage		BV_{ECO}	I_E=10uA,I_F=0	6	-	-	V
Transfer Charac-teristics	Current transfer ratio (Note 4)		CTR	I_F= 5mA, V_{CE}=5V	50	-	600	%
	Collector-emitter saturation voltage		$V_{CE(sat)}$	I_F=20mA, I_C=1mA	-	0.1	0.2	V
	Isolation resistance		R_{ISO}	DC500V,40 to 60%RH	$5X10^{10}$	10^{11}	-	Ω
	Floating capacitance		C_f	V=0, f=1MHz	-	0.6	1.0	pF
	Cut-off frequency		f_c	V_{CE}= 5V,I_C=2mA, R_L=100Ω, - 3dB	-	80	-	KHz
	Response time	Rise time	t_r	V_{CE}=2V, I_C=2mA R_L=100Ω	-	4	18	us
		Fall time	t_f		-	3	18	us

Note 4: Classification table of current transfer ratio is shown below.

Rank Table of Current Transfer Ratio CTR

Model No.	RANK MARK	MIN.(%)	MAX.(%)
BL816A	A	80	160
BL816B	B	130	260
BL816C	C	200	400
BL816D	D	300	600
BL816	A,B,C,D or No mark	50	600

4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Fig. 1 Forward Current vs. Ambient Temperature

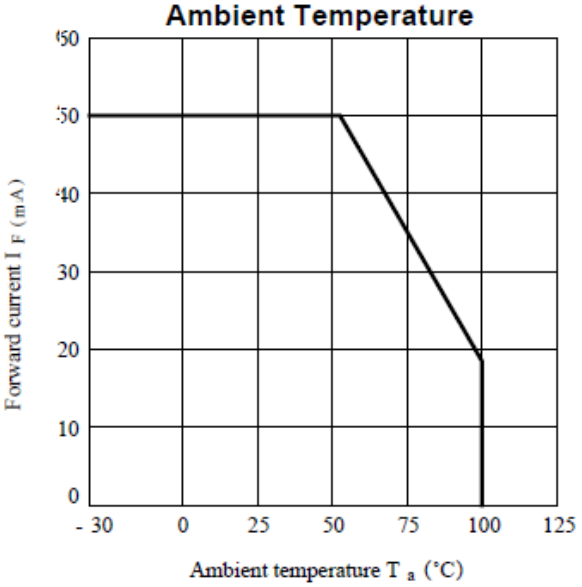


Fig. 2 Collector Power Dissipation VS. Ambient Temperature

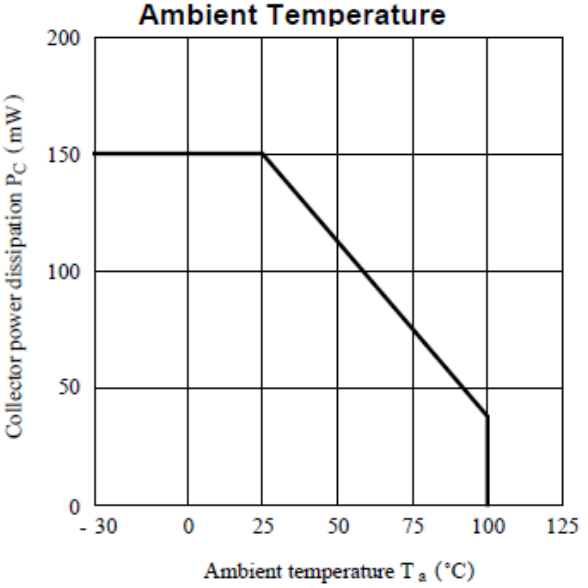


Fig. 3 Peak Forward Current vs. Duty Ratio

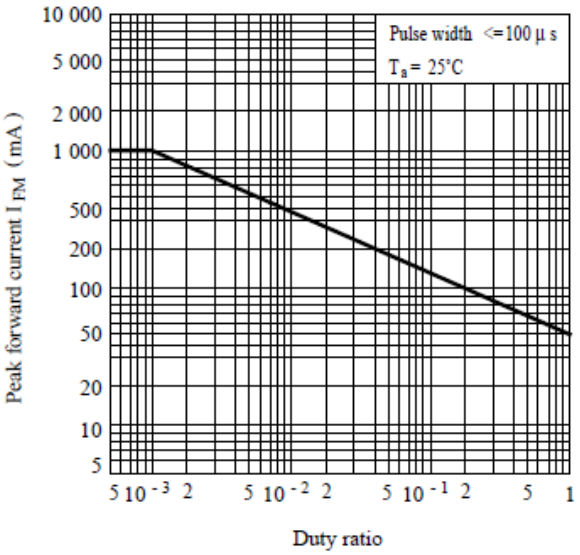
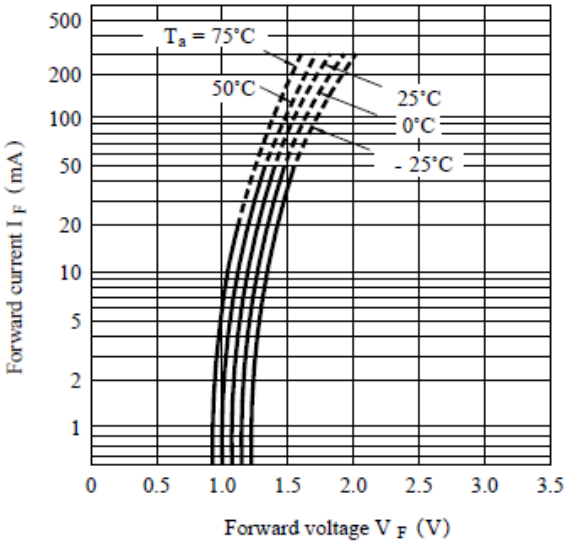


Fig. 4 Forward Current vs. Forward Voltage



4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

Fig. 5 Current Transfer Ratio vs. Forward Current

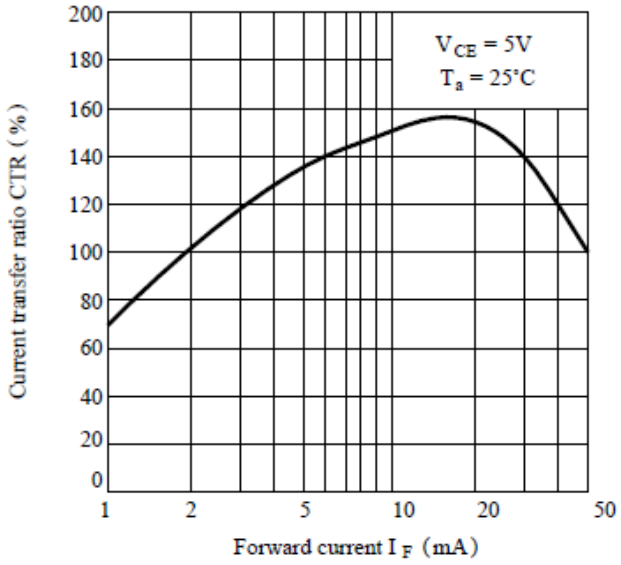


Fig. 6 Collector Current vs. Collector-emitter Voltage

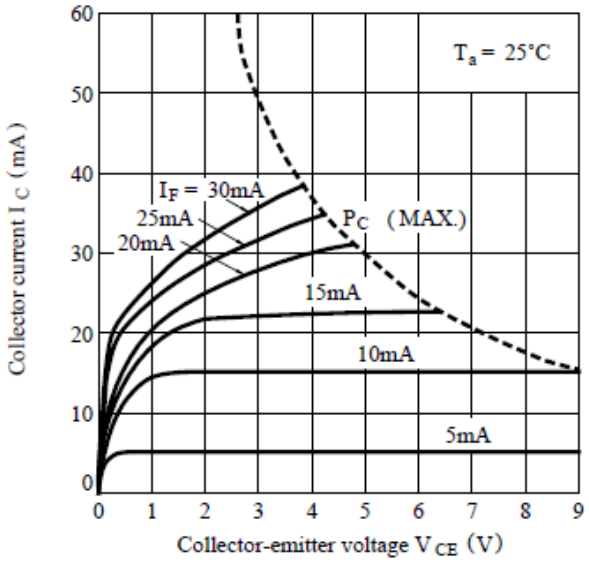


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

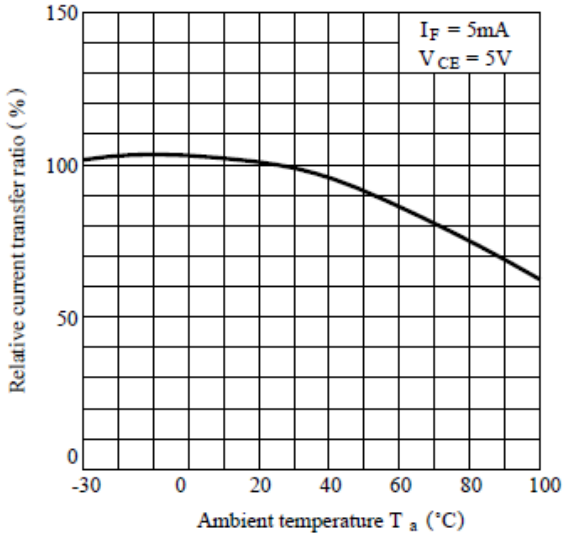
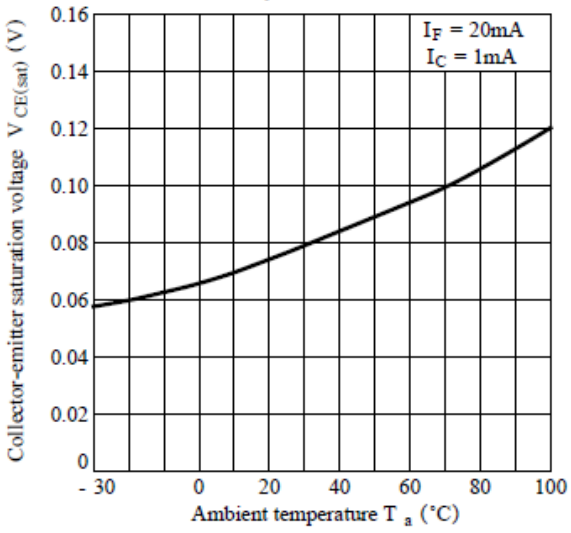


Fig. 8 Collector-emitter Saturation Voltage vs. Ambient Temperature



4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

Fig. 9 Collector Dark Current vs. Ambient Temperature

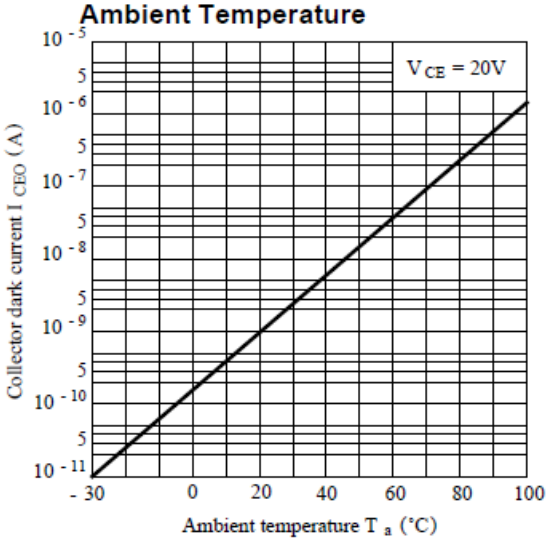


Fig.10 Response Time vs. Load Resistance

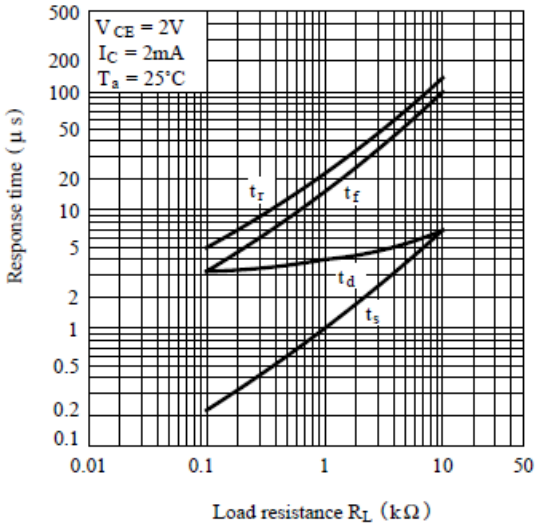


Fig.11 Frequency Response

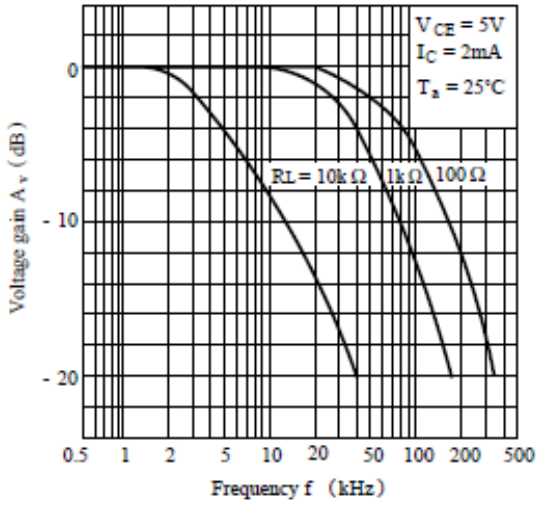
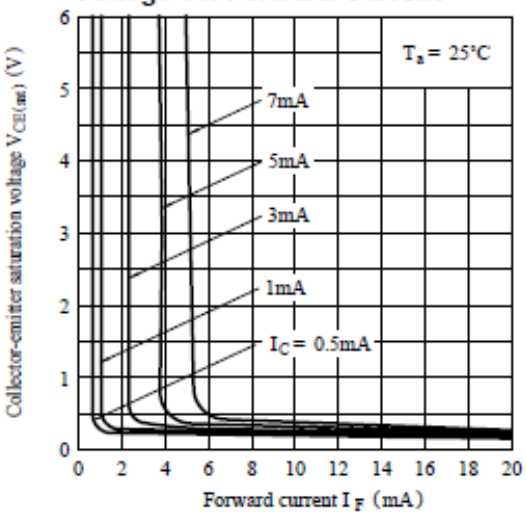
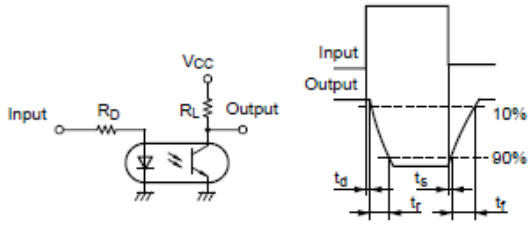


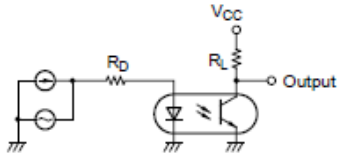
Fig.12 Collector-emitter Saturation Voltage vs. Forward Current



Test Circuit for Response Time



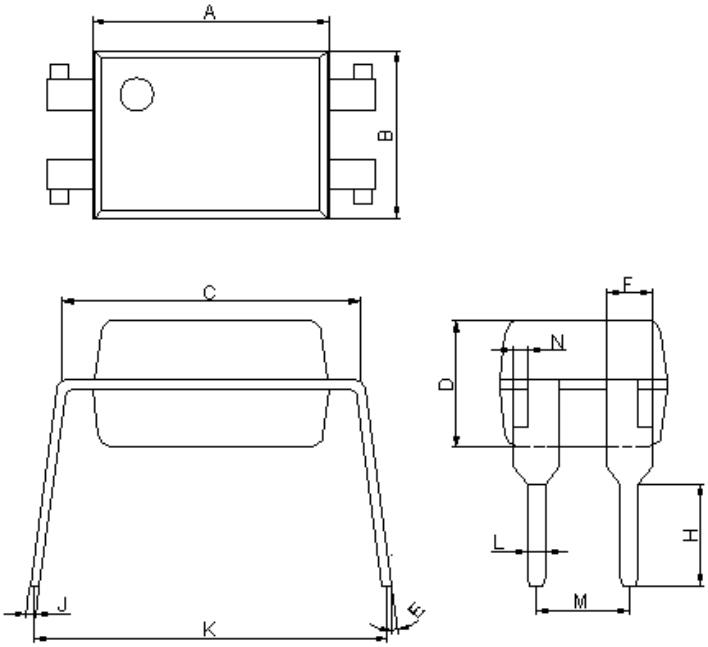
Test Circuit for Frepuency Response



4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

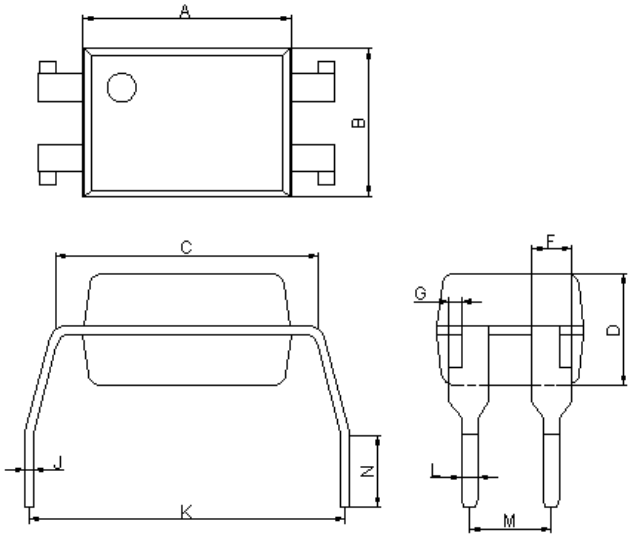
Package Dimensions（All Dimensions in mm）

BL816



Dim	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
E	2°	8°
F	1.15	1.35
H	2.70	2.90
J	0.20	0.30
K	8.86	9.31
L	0.40	0.60
M	2.44	2.64
N	0.30	0.50

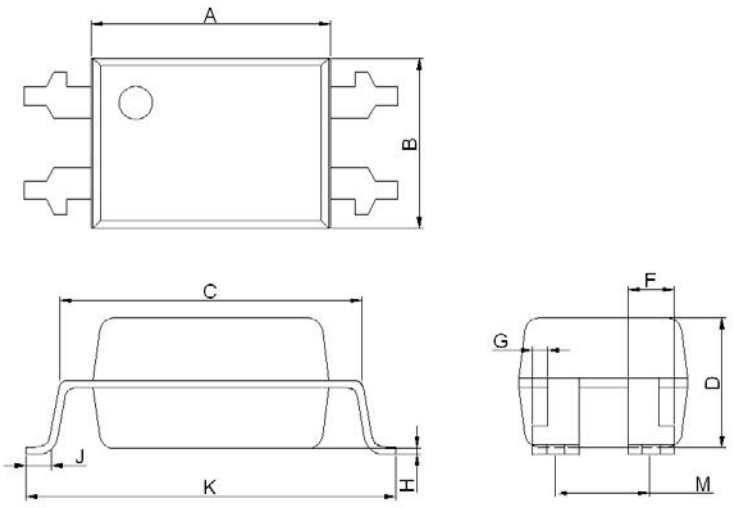
BL816M



Dim	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
F	1.15	1.35
G	0.30	0.50
J	0.20	0.30
K	9.86	10.46
L	0.40	0.60
M	2.44	2.64
N	2.40	2.90

4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER BL816 Series

BL816S

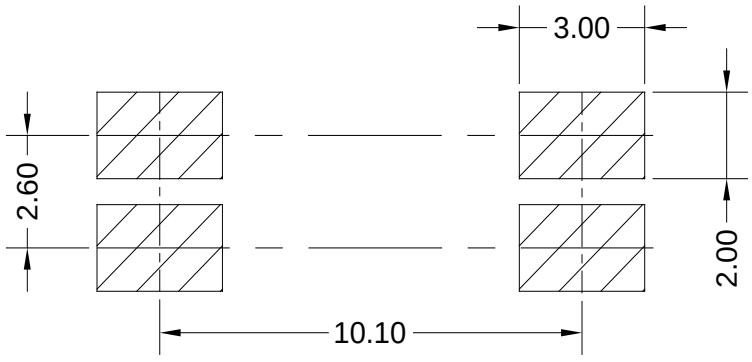


Dim	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
F	1.15	1.35
G	0.30	0.50
H	0.00	0.20
J	0.9	1.2
K	9.80	10.30
M	2.49	2.69

Ordering Information

Part Number	Package	Application part number
BL816	4-pin DIP	BL816
BL816S	4-pin（tape and reel packaging）	
BL816M	4-pin（leads with 0.4” spacing）	

SOLDERING FOOTPRINT



UNIT:mm