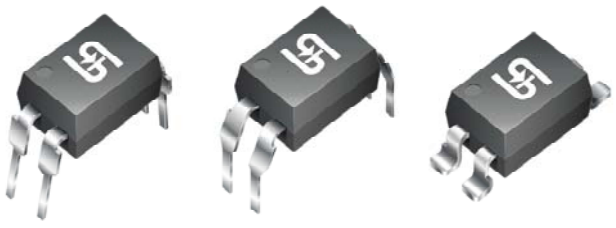
4 PIN DIP PHOTOTRANSISTOR PHOTOCOUPLER

FEATURES

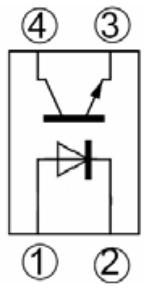
- Current transfer ratio
  (CTR: MIN.80% at I_F=5mA, V_{CE}=5V)
- High isolation voltage between input and output (Viso=5000V rms)
- Creepage distance＞7.62mm
- UL Recognized File # E478892
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21
- Packing code with suffix "G" means green compound (halogen-free)



DIP-4 **DIP-4M** **SOP-4**

Pb-Free

RoHS COMPLIANT



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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)				
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	V
	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	Vrms
Rated impulse isolation voltage		V_{IOTM}	6000	V
Rated repetitive peak isolation voltage		V_{IORM}	630	V
Operating temperature		T_{opr}	-40 to +125	°C
Storage temperature		T_{stg}	-55 to +125	°C
Soldering temperature		T_{sol}	260	°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)								
PARAMETER			SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input	Forward voltage		V_F	I_F=20mA	-	1.2	1.4	V
	Reverse current		I_R	V_R=4V	-	-	10	μA
	Terminal capacitance		C_t	V=0, f=1kHz	-	30	250	pF
Output	Collector dark current		I_{CEO}	V_{CE}=20V, I_F=0	-	-	100	nA
	Collector-emitter breakdown voltage		BV_{CEO}	I_C=0.1mA, I_F=0	80	-	-	V
	Emitter-collector breakdown voltage		BV_{ECO}	I_E=10μA, I_F=0	6	-	-	V
Transfer Characteristics	Collector current		I_C	I_F=5mA, V_{CE}=5V	2.5	-	30	mA
	Current transfer ration		CTR		80	-	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	μs
		Fall time	t_f		-	3	18	μs

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

RANK TABLE OF CURRENT TRANSFER RATIO, CTR

RANK MARK	MIN (%)	MAX (%)
A	80	160
B	130	260
C	200	400
D	300	600

ORDERING INFORMATION				
PART NO. (Note 1, 2)	PACKING CODE	PACKING CODE SUFFIX	PACKAGE	PACKING
TPC817x	C9	G	DIP-4	100 / TUBE
TPC817Mx	C9		DIP-4M (Leads with 0.4" spacing)	100 / TUBE
TPC817S1x	RA		SOP-4	2K / 13" Reel

Note 1: "x" defines CTR rank from "A" to "D"

Note 2: Whole series with green compound

EXAMPLE				
PREFERRED P/N	PART NO.	PACKING CODE	PACKING CODE SUFFIX	DESCRIPTION
TPC817A C9G	TPC817A	C9	G	Green compound

MARKING

Note:
817: Product type
B: CTR rank mark
YWW: Date code

Small Signal Product

RATINGS AND CHARACTERISTICS CURVES

(T_A=25°C unless otherwise noted)

Fig. 1 Forward Current vs. Ambient Temperature

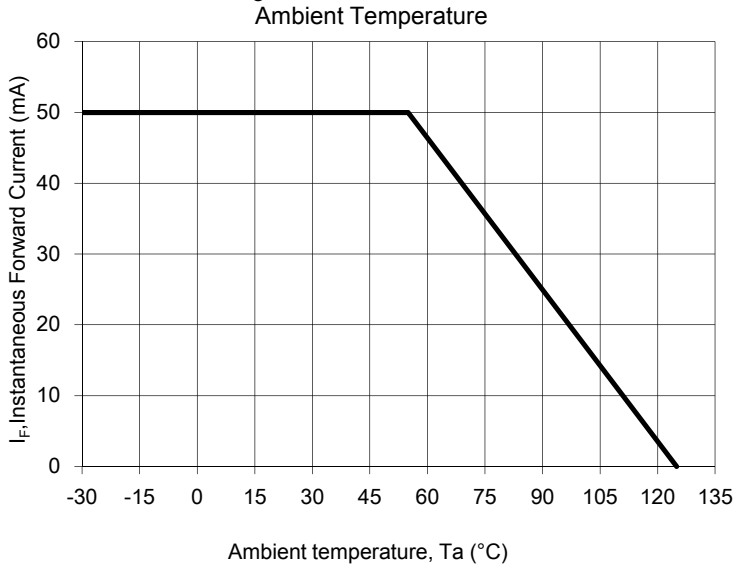


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

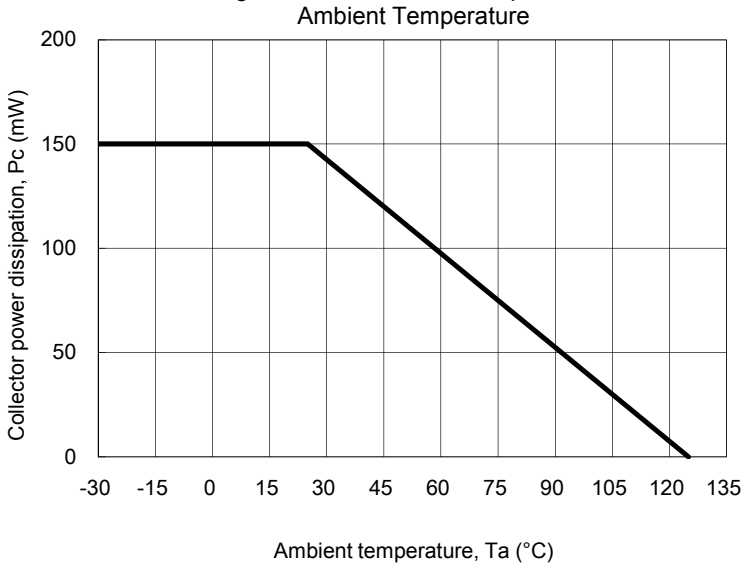


Fig. 3 Collector-emitter Saturation Voltage vs

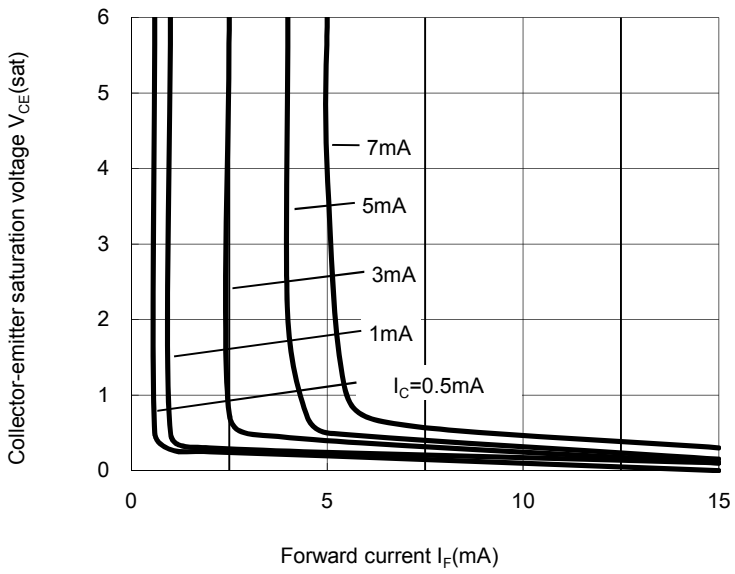


Fig. 4 Forward Current vs. Forward Voltage

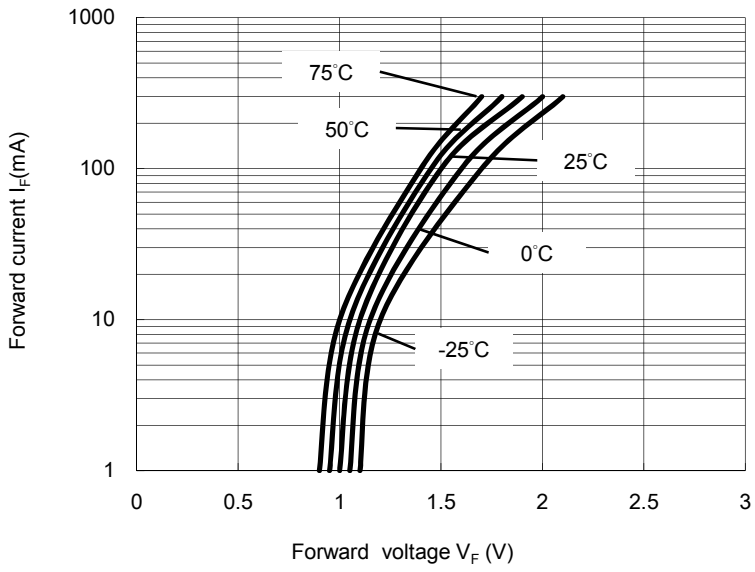


Fig. 5 Current Transfer Ratio vs. Forward Current

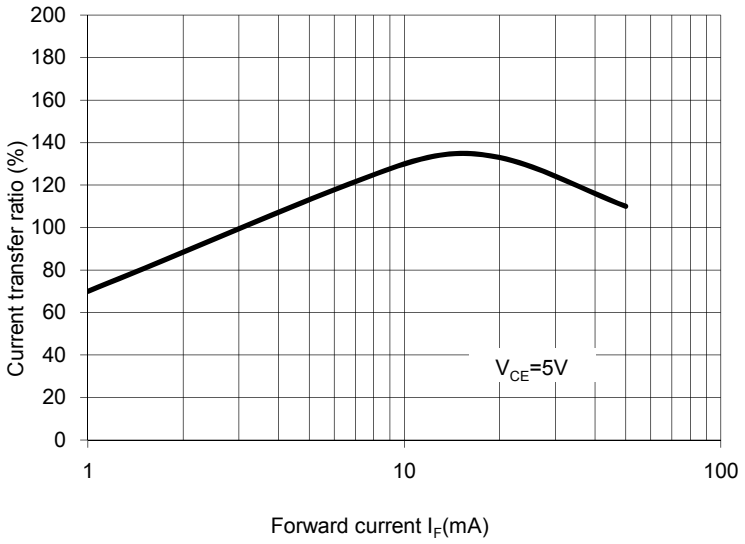


Fig. 6 Collector Current vs. Collector-emitter Voltage

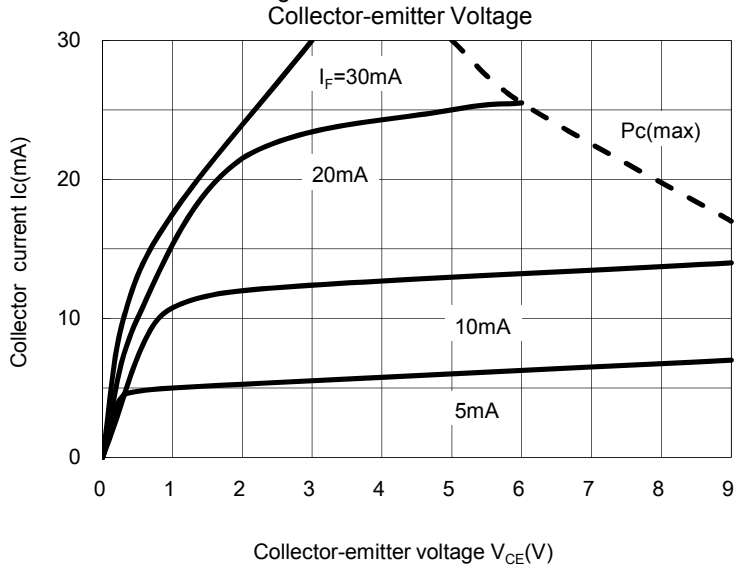


Fig. 7 Relative Current Transfer Ratio vs. Ambient Temperature

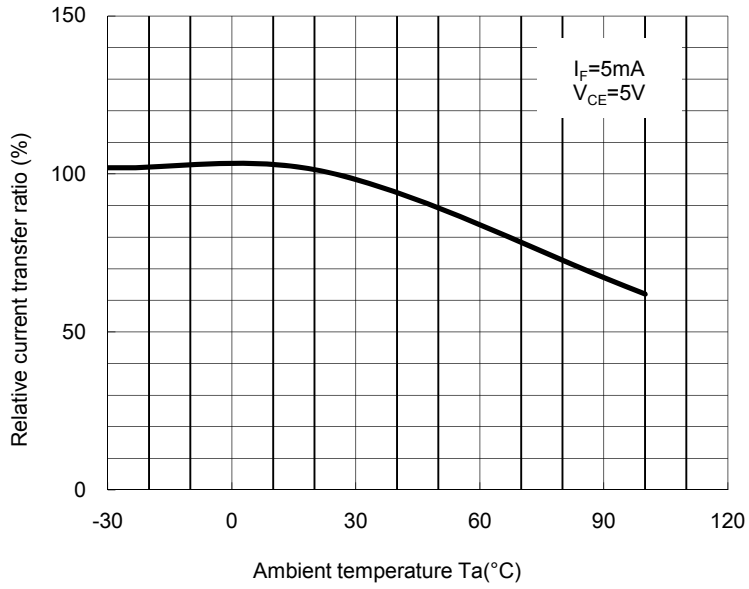


Fig. 8 Collector-emitter Saturation Voltage vs Ambient Temperature

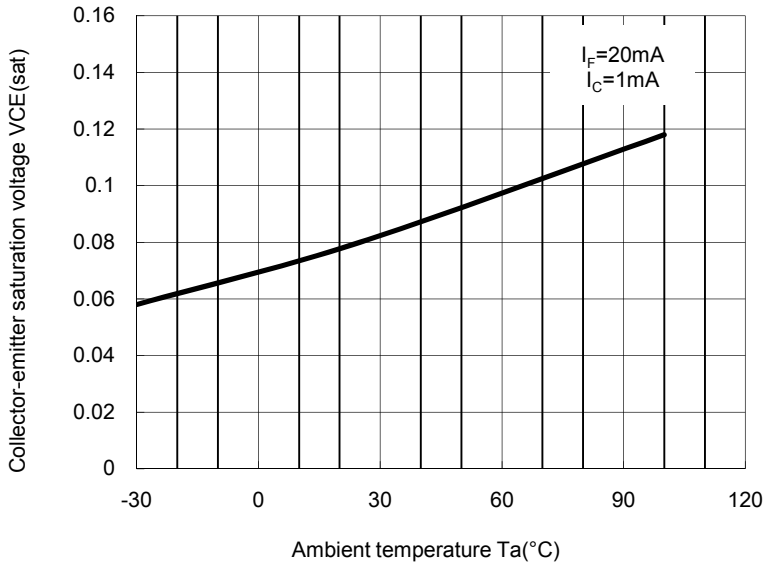


Fig. 9 Collector Dark Current vs. Ambient temperature

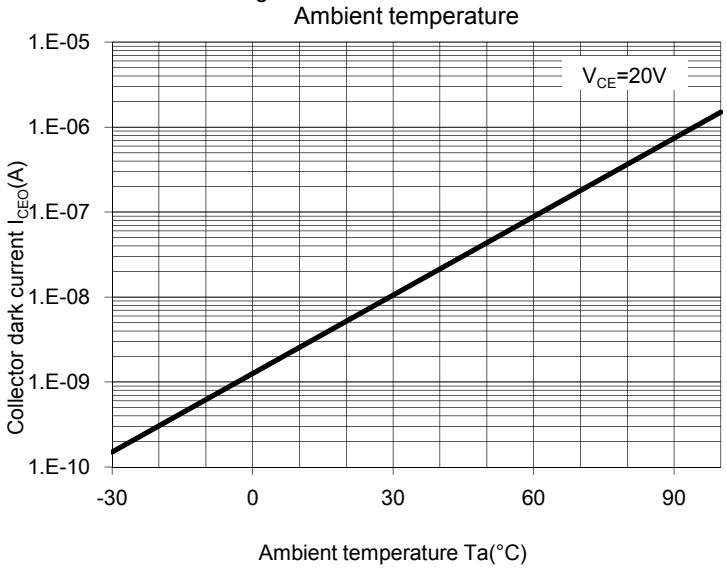


Fig. 10 Response Time vs. Load Resistance

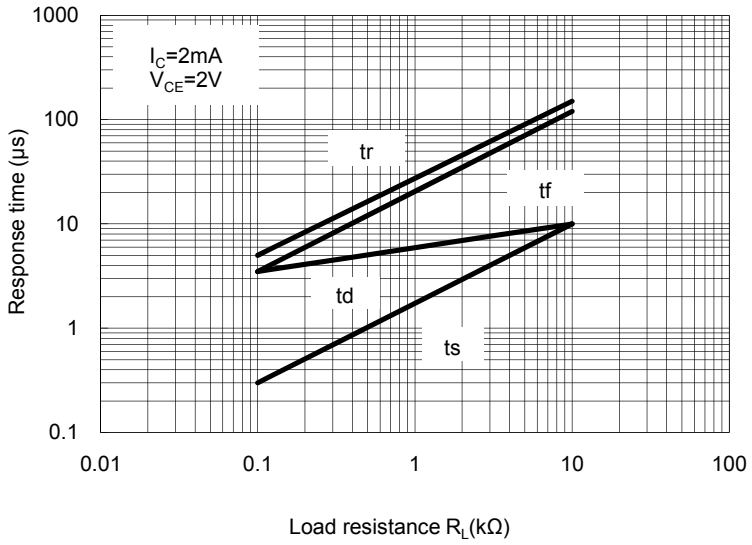
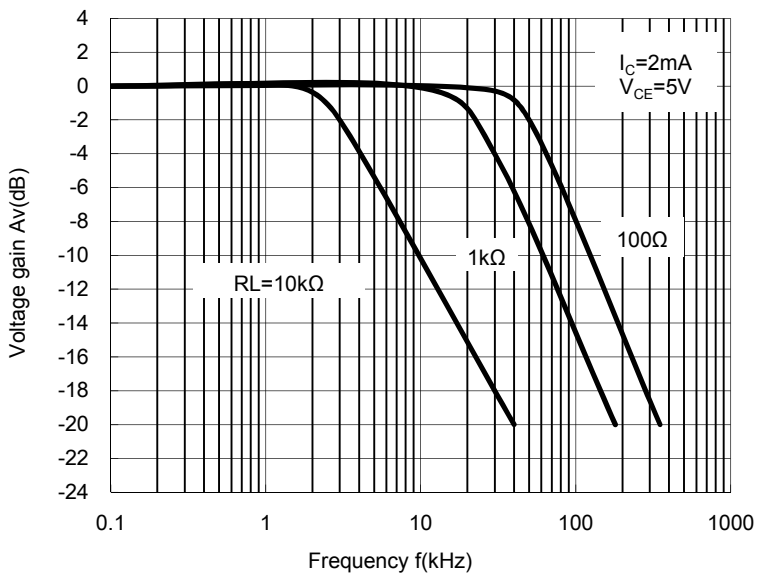
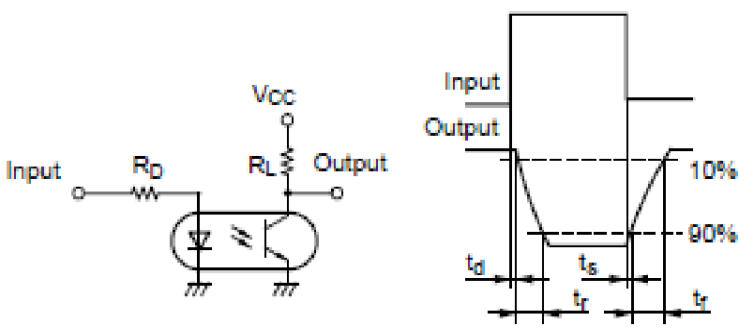


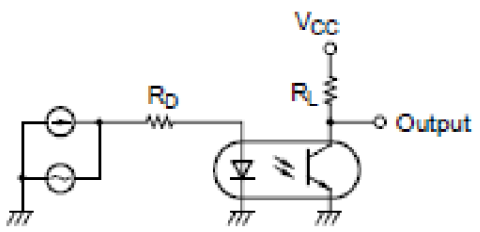
Fig. 11Frequency Response



Test Circuit Response Time

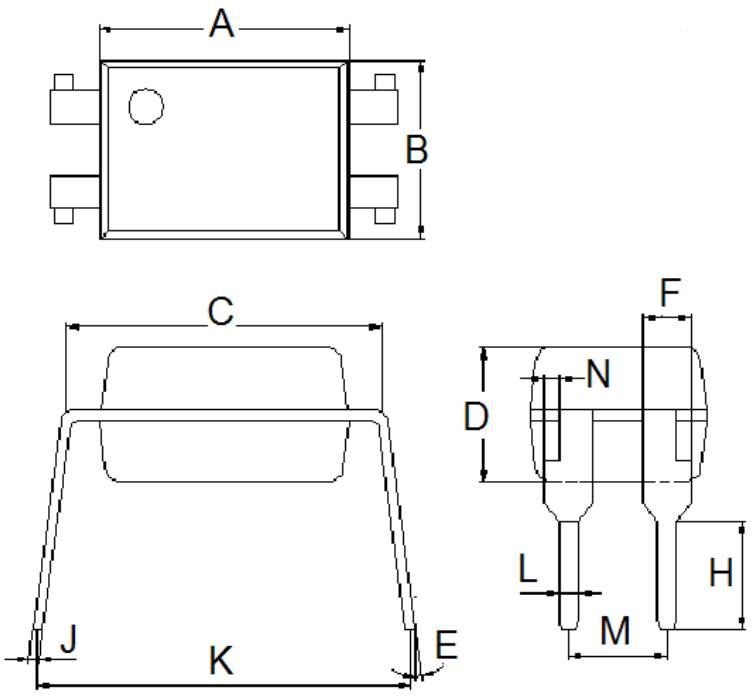


Test Circuit for Frequency Response



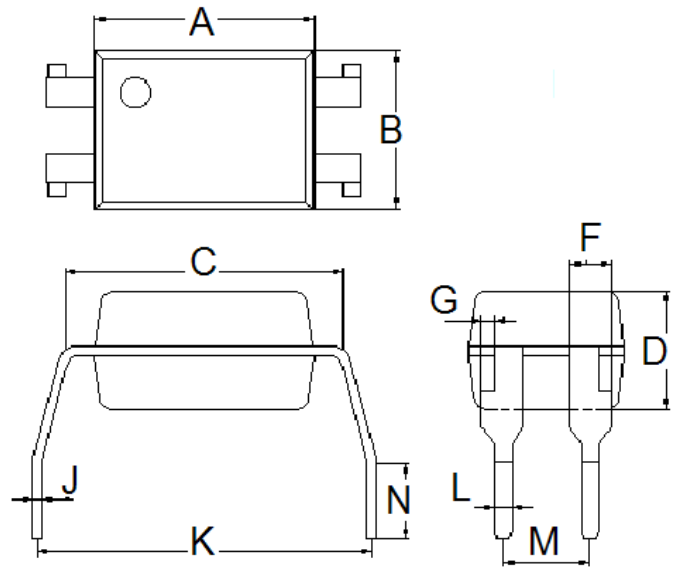
DIMENSIONS

DIP-4



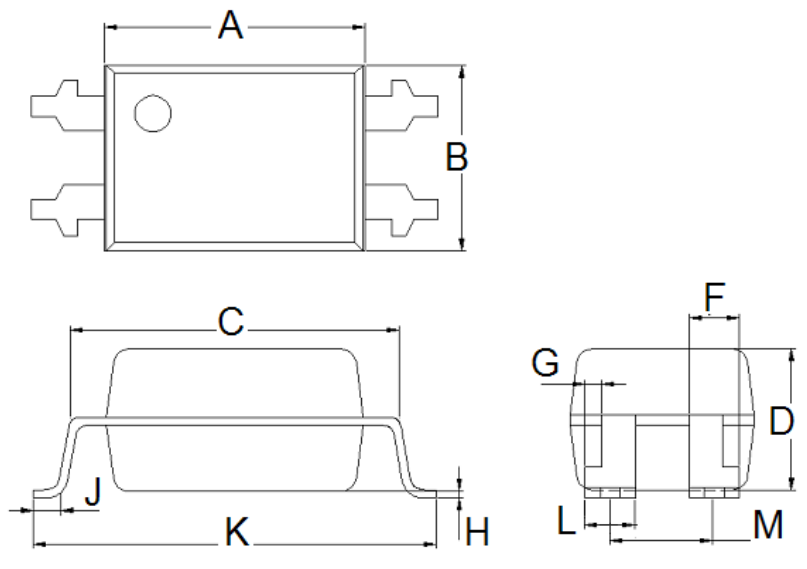
DIM.	Unit (mm)	
	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
E	2°	8°
F	1.25 typ.	
H	2.70	2.90
J	0.23	0.26
K	8.86	9.31
L	0.50 typ.	
M	2.44	2.64
N	0.40 typ.	

DIP-4M (Leads with 0.4" spacing)



DIM.	Unit (mm)	
	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
F	1.25 typ.	
G	0.40 typ.	
J	0.23	0.26
K	9.86	10.46
L	0.50 typ.	
M	2.44	2.64
N	2.08	2.48

SOP-4



DIM.	Unit (mm)	
	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
F	1.25 typ.	
G	0.40 typ.	
H	0.00	0.20
J	0.50	0.70
K	9.80	10.30
L	1.25 typ.	
M	2.49	2.69

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