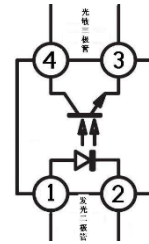


Features

- Current transfer ratio
(CTR: 50~600% at $I_F = 5\text{mA}$, $V_{CE} = 5\text{V}$)
- High isolation voltage between input and output ($V_{iso} = 5000\text{V rms}$)
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

HF

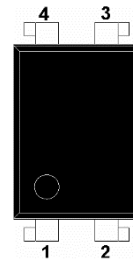


Applications

- Programmable controllers
- System appliances, measuring instruments
- Telecommunication equipments
- Home appliances, such as Fan Heaters, etc
- Signal transmission between circuits of different potentials and impedances

Mechanical Data

- Case: DIP-4L, SOP-4L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208



Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBL817	DIP-4L	100 pcs / Tube	BL817
TBL817M	DIP-4L(leads with 0.4" spacing)	100 pcs / Tube	BL817
TBL817S	SOP-4L	2000 pcs / Tape & Reel	BL817

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Value	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 Power Dissipation	P_C	150	mW
	Collector Current	I_C	50	mA
	Collector-Emitter Voltage	V_{CEO}	80	V
	Emitter-Collector Voltage	V_{ECO}	6	V

Thermal Characteristics

Parameter	Symbol	Value	Unit
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
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	430	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	350	°C/W
Thermal Resistance Junction-to-Lead	$R_{\theta JL}$	368	°C/W
Operating Temperature	T_{OPR}	-55 ~ +110	°C
Storage Temperature Range	T_{STG}	-55 ~ +125	°C
Soldering Temperature ^{*3}	T_{SOL}	260	°C

Notes:

1. Pulse width $\leq 1\mu s$, Duty ratio: 0.001
2. 40 to 60% RH, AC for 1 minute
3. For 10 seconds

Electrical Characteristics (@ $T_A = 25^\circ C$ unless otherwise specified)

Parameter		Symbol	Test Condition	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	μA
	Input Capacitance	C_{in}	$V_R = 0V, f = 1kHz$	-	30	250	pF
Output	Collector-Emitter 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}	$I_E = 10\mu A, I_F = 0$	6	-	-	V
Transfer Characteristics	Collector Current	I_C	$I_F = 5mA, V_{CE} = 5V$	2.5	-	30	mA
	Current Transfer Ratio	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_{IO}	$V_{IO} = 500Vdc$ 40~60% R.H.	5×10^{10}	1×10^{11}	-	Ω
	Floating Capacitance	C_{IO}	$V_{IO} = 0, f = 1MHz$	-	0.6	1.0	pF
	Cut-off frequency	f_c	$V_{CE} = 5V, I_C = 2mA$ $RL = 100\Omega, -3dB$	-	80	-	kHz
	Turn On Time	T_{on}	$V_{CE} = 2V, RL = 100\Omega$	-	4	18	μs
	Turn Off Time	T_{off}	$I_C = 2mA$	-	3	18	

Rank Table of Current Transfer Ratio CTR

Rank Mark	Min. (%)	Max. (%)
L	50	100
A	80	160
B	130	260
C	200	400
D	300	600
L or A or B or C or D	50	600

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

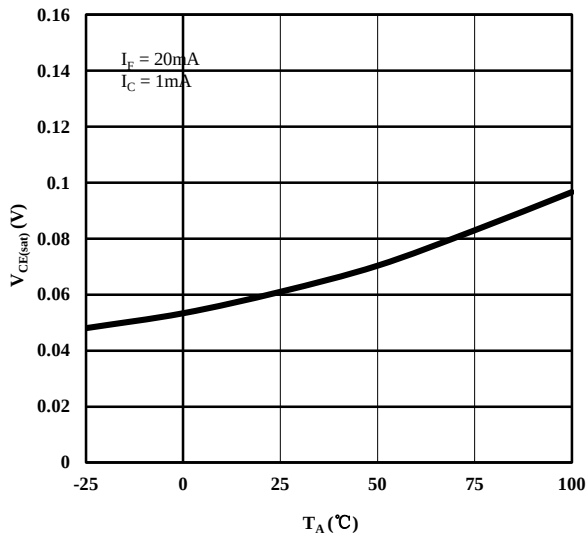


Fig. 1 Collector-Emitter Saturation Voltage vs. Ambient Temperature

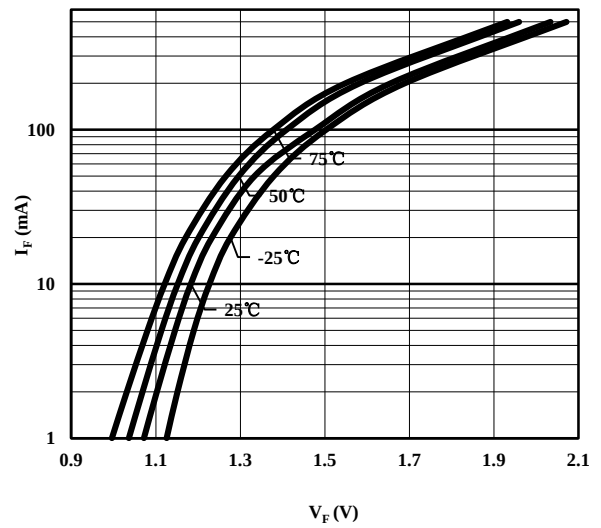


Fig. 2 Forward Current vs. Forward Voltage

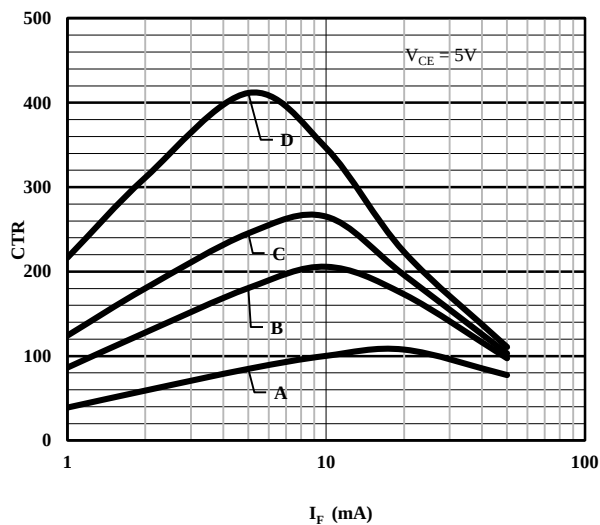
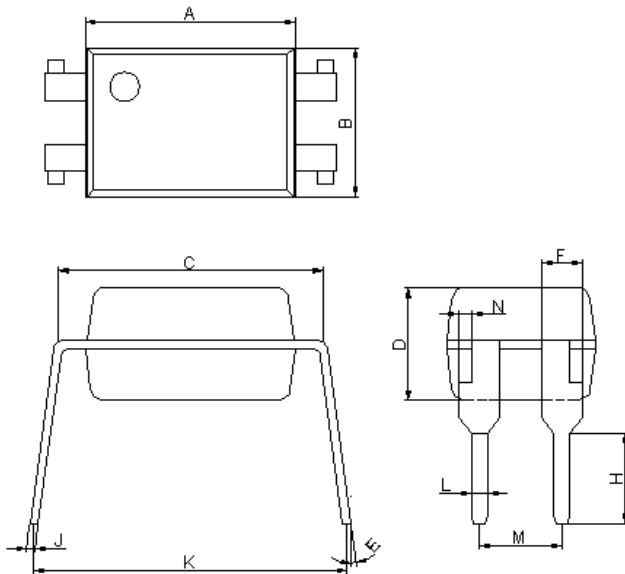


Fig. 3 Current Transfer Ratio vs. Forward Current

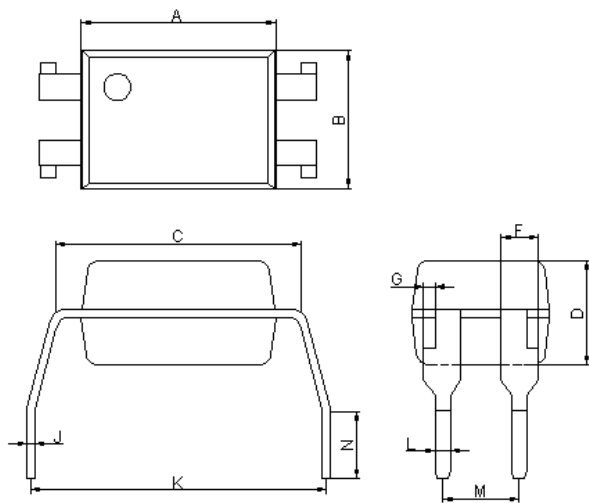
Package Outline Dimensions (unit: mm)

TBL817



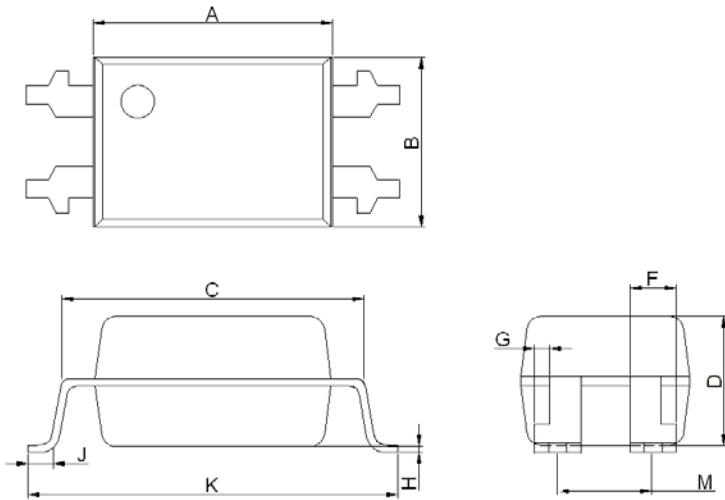
Dim	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
E	2°	8°
F	1.15	1.35
H	2.70	2.90
J	0.20	0.30
K	8.86	9.31
L	0.40	0.60
M	2.44	2.64
N	0.30	0.50

TBL817M



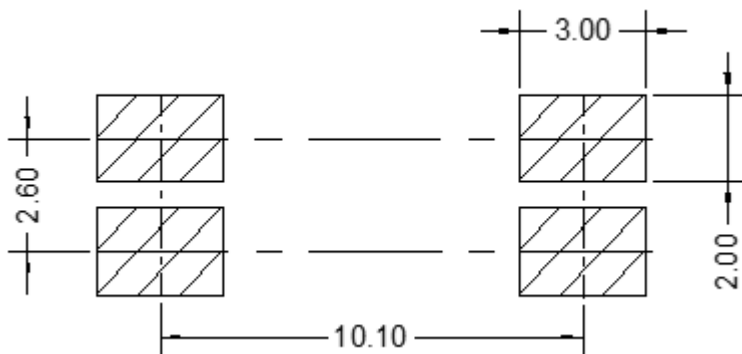
Dim	Min	Max
A	6.40	6.60
B	4.50	4.70
C	7.90	8.30
D	3.28	3.68
F	1.15	1.35
G	0.30	0.50
J	0.20	0.30
K	9.86	10.46
L	0.40	0.60
M	2.44	2.64
N	2.40	2.90

TBL817S



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

SOLDERING FOOTPRINT (unit: mm)



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