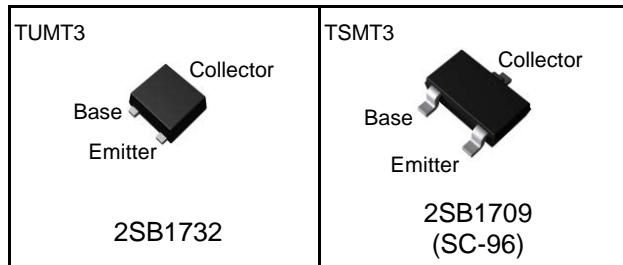


Parameter	Value
V_{CEO}	-12V
I_C	-1.5A

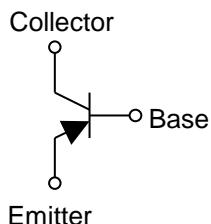
●Outline



●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary PNP Types : 2SD2702, 2SD2674
- 3) Low $V_{CE(sat)}$
 $V_{CE(sat)} = -0.20V$ (Max.)
 $(I_C/I_B = -500mA / -25mA)$
- 4) Lead Free/RoHS Compliant.

●Inner circuit



●Applications

Motor driver , LED driver
Power supply

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
2SB1732	TUMT3	2021	TL	180	8	3,000	EV
2SB1709	TSMT3	2928	TL	180	8	3,000	EV

● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Values	Unit	
Collector-base voltage	V _{CBO}	-15	V	
Collector-emitter voltage	V _{CEO}	-12	V	
Emitter-base voltage	V _{EBO}	-6	V	
Collector current	DC	I _C	-1.5	A
	Pulsed	I _{CP} ^{*1}	-3.0	A
Power dissipation	2SB1732	P _D ^{*2}	0.4	W
	2SB1709	P _D ^{*2}	0.5	W
Junction temperature	T _j	150	°C	
Range of storage temperature	T _{stg}	-55 to +150	°C	

*1 Pw=1ms, single pulse

*2 Each terminal mounted on a reference land

● Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	BV _{CEO}	I _C = -10μA	-15	-	-	V
Collector-base breakdown voltage	BV _{CBO}	I _C = -1mA	-12	-	-	V
Emitter-base breakdown voltage	BV _{EBO}	I _E = -10μA	-6	-	-	V
Collector cut-off current	I _{CBO}	V _{CB} = -15V	-	-	-100	nA
Emitter cut-off current	I _{EBO}	V _{EB} = -6V	-	-	-100	nA
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = -500mA, I _B = -25mA	-	-85	-200	mV
DC current gain	h _{FE} ^{*3}	V _{CE} = -2V, I _C = -200mA	270	-	680	-
Transition frequency	f _T ^{*3}	V _{CE} = -2V, I _E = 200mA f = 100MHz	-	400	-	MHz
Output capacitance	C _{ob}	V _{CB} = -10V, I _E = 0A, f = 1MHz	-	12	-	pF

*3 Pulsed

● Electrical characteristic curves ($T_a = 25^\circ\text{C}$)

Fig.1 Ground Emitter Propagation Characteristics

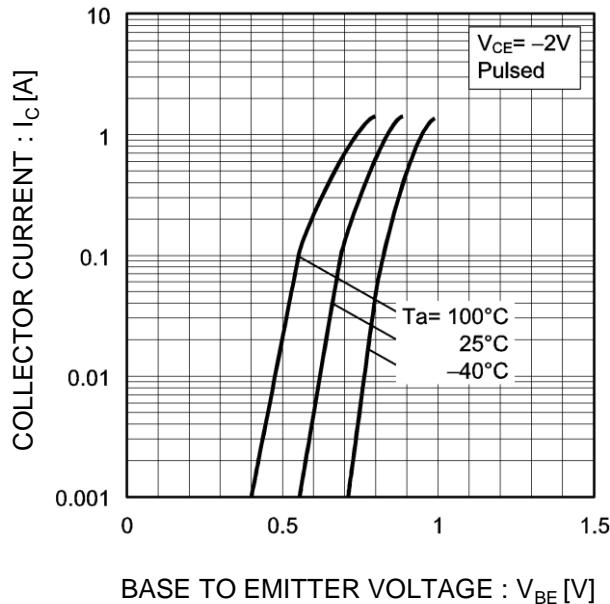


Fig.2 Typical Output Characteristics

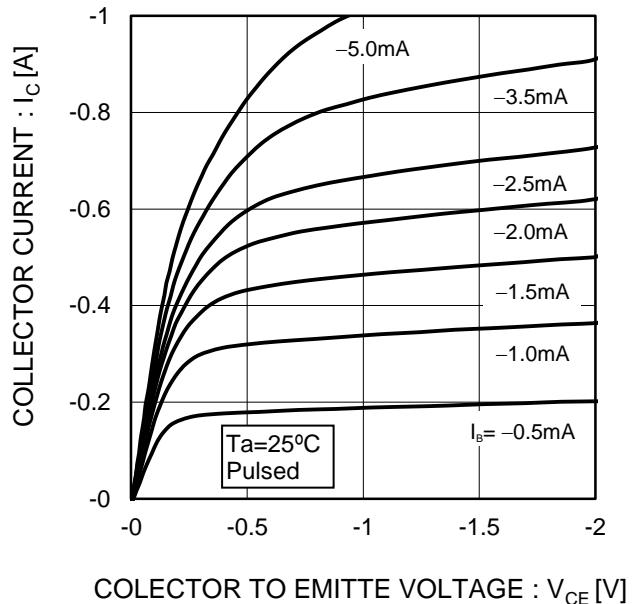


Fig.3 DC Current Gain vs. Collector Current(I)

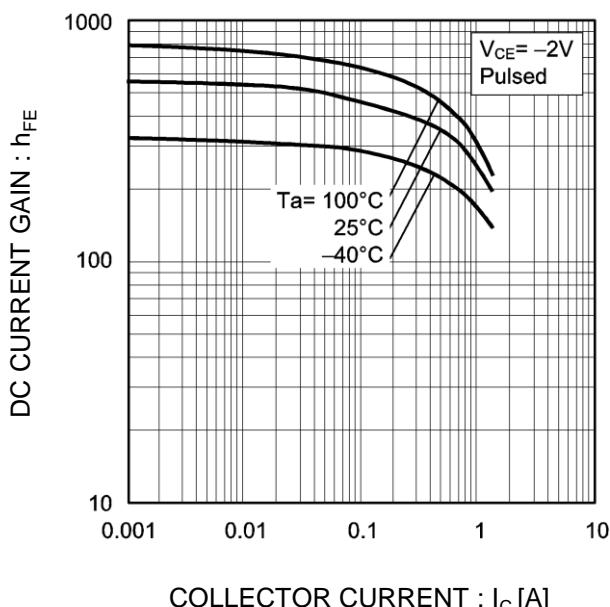
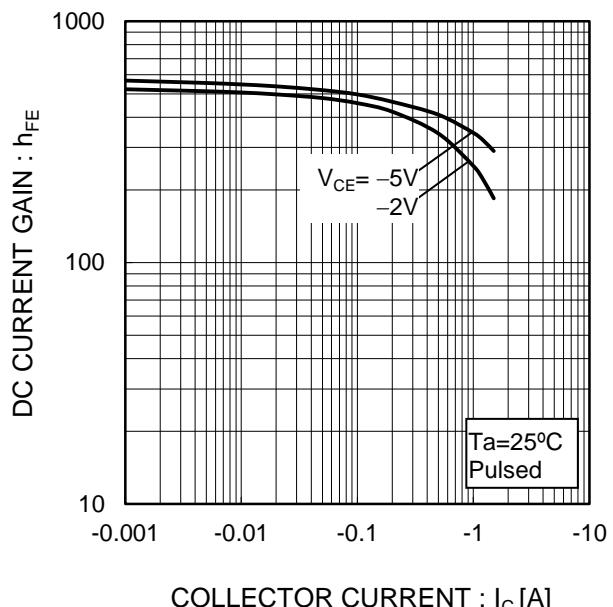


Fig.4 DC Current Gain vs. Collector Current(II)



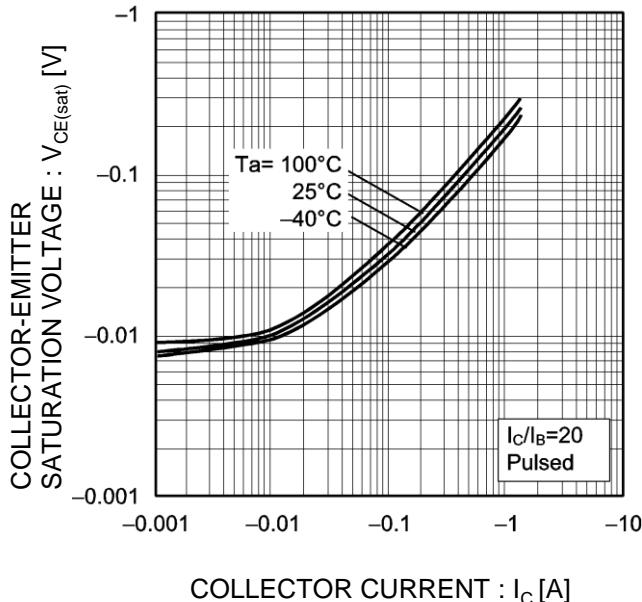
●Electrical characteristic curves($T_a = 25^\circ\text{C}$)Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

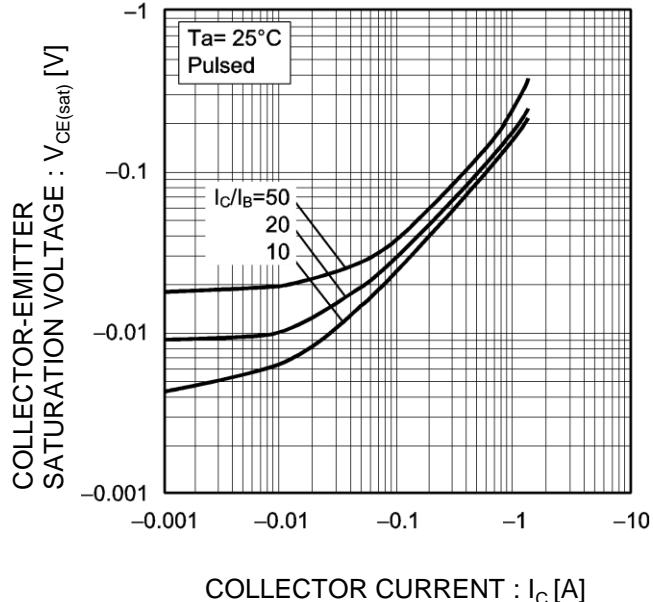


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

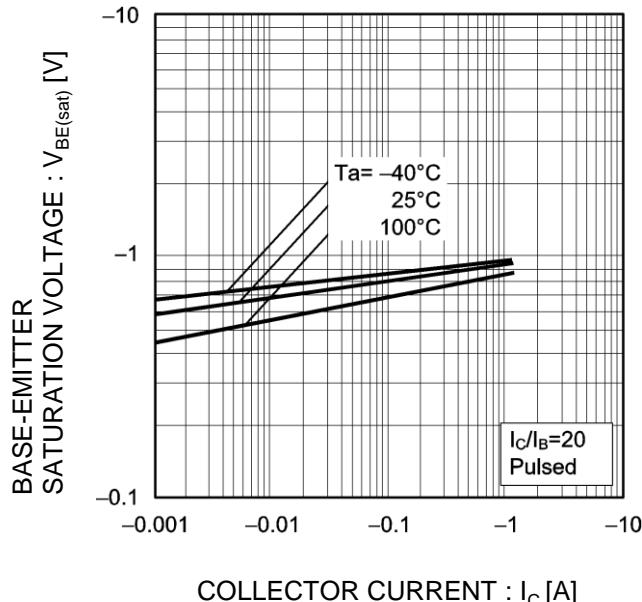
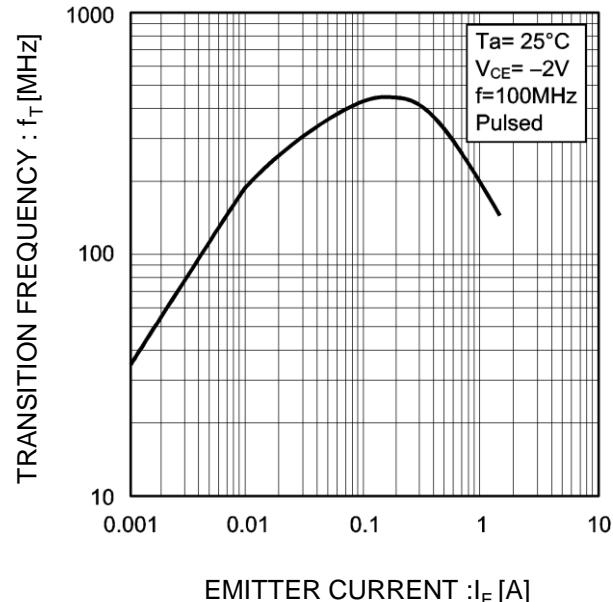


Fig.8 Gain Bandwidth Product vs. Emitter Current



● Electrical characteristic curves (Ta = 25°C)

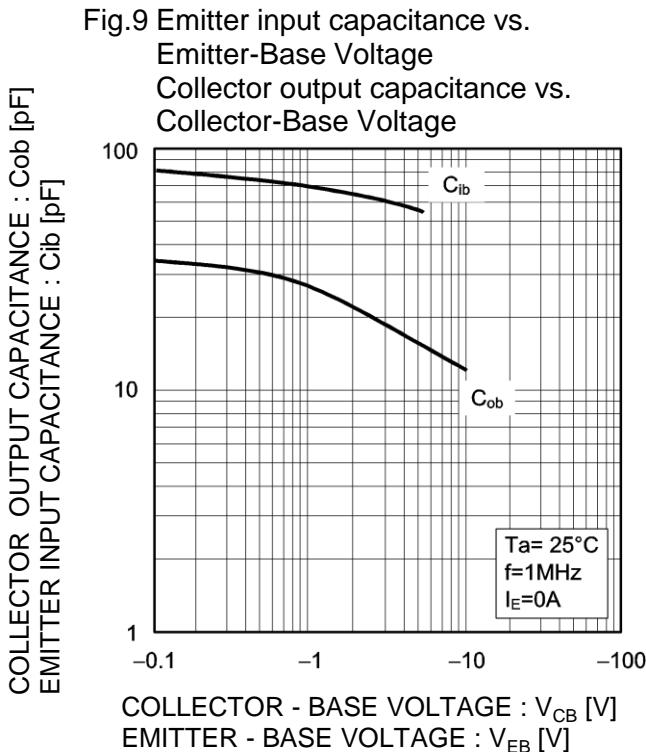


Fig.10 Safe Operating Area

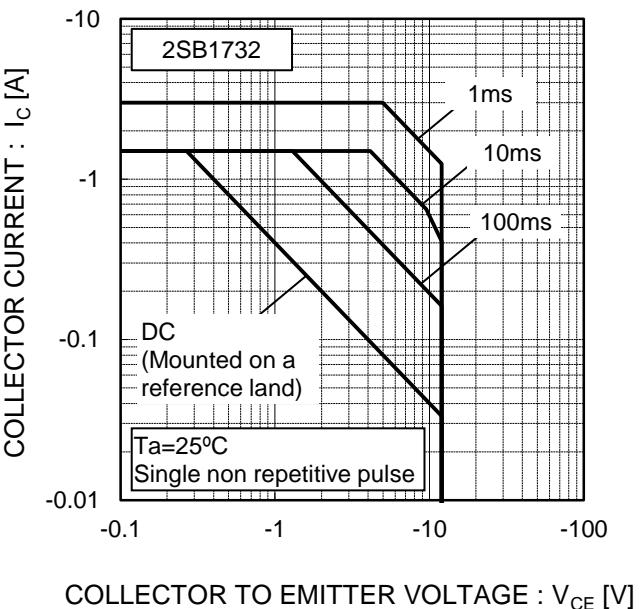
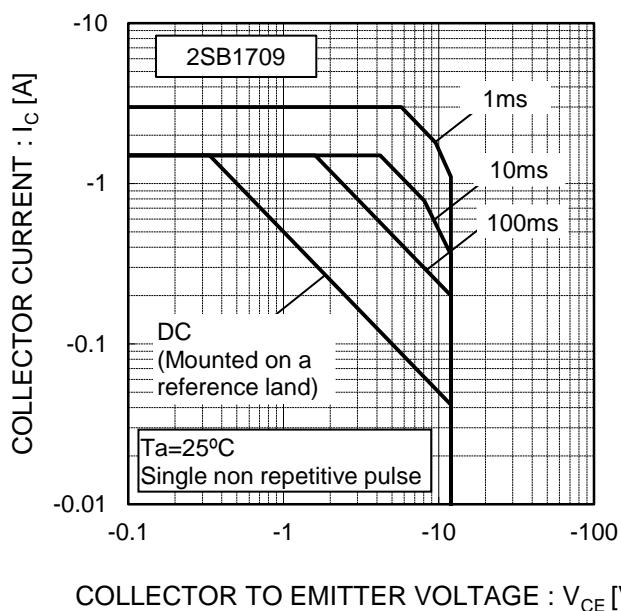
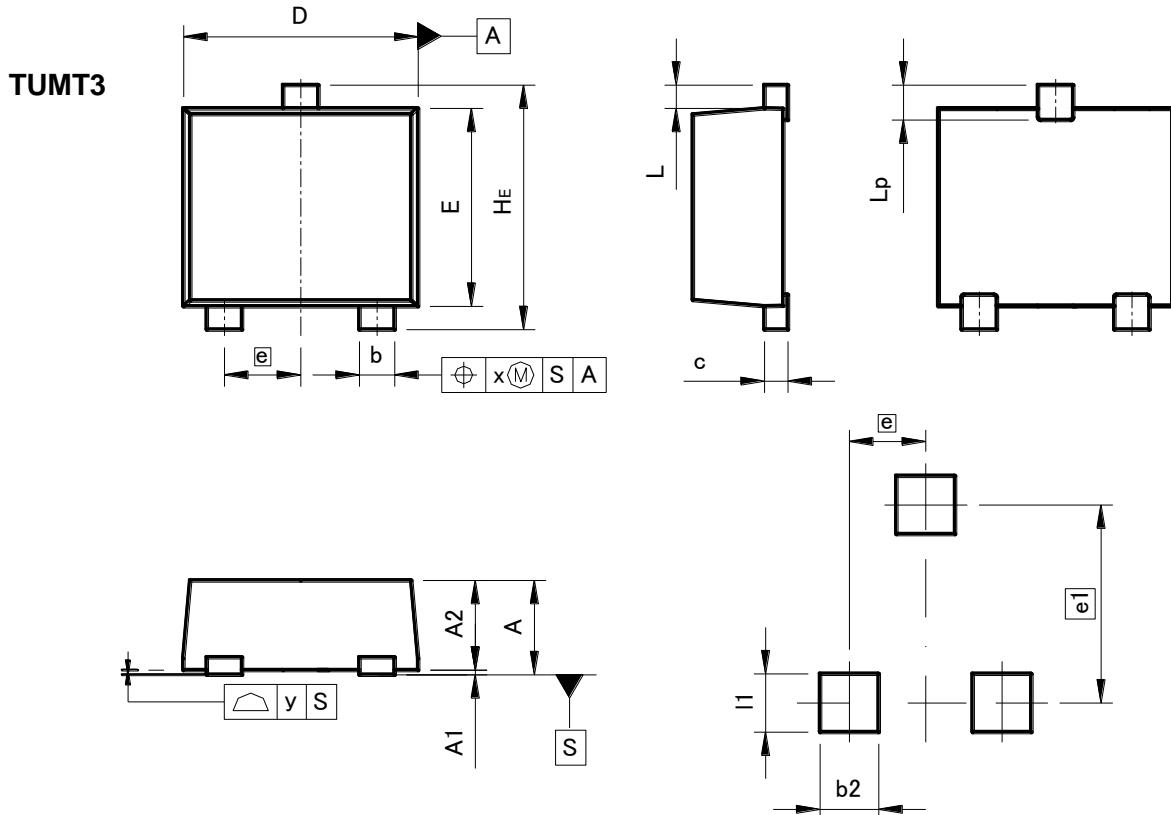


Fig.11 Safe Operating Area



●Dimensions (Unit : mm)



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

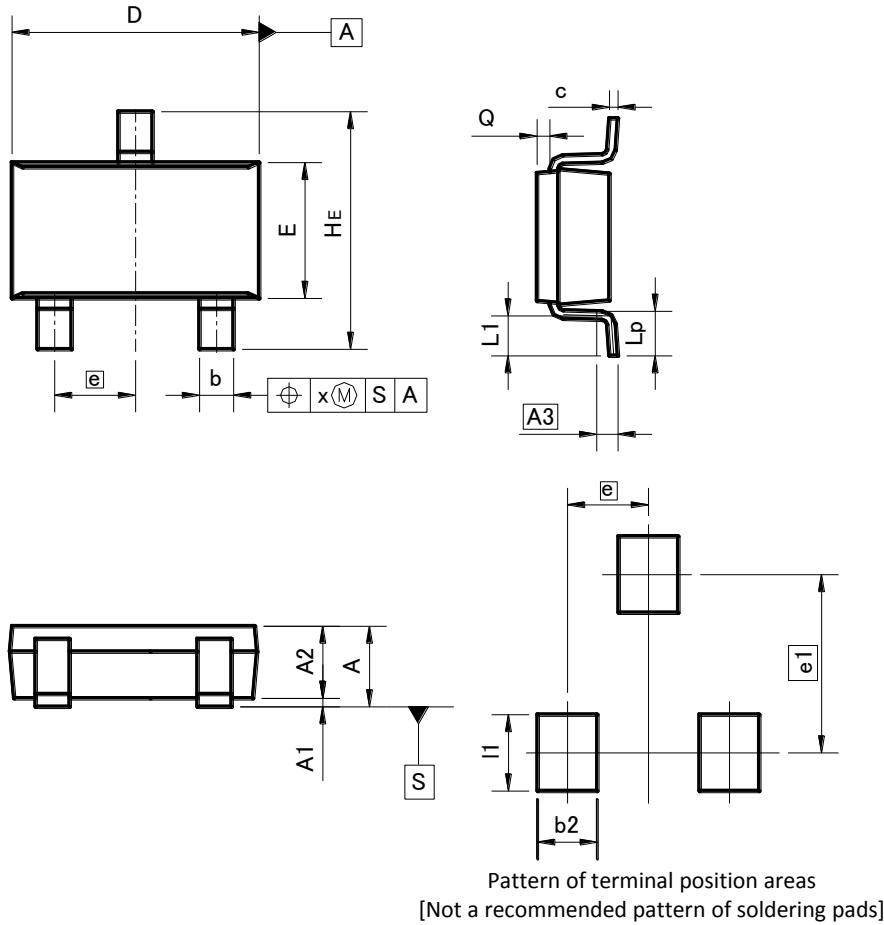
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	0.85	—	0.033
A1	0.00	0.10	0.000	0.004
A2	0.72	0.82	0.028	0.032
b	0.25	0.40	0.010	0.016
c	0.12	0.22	0.005	0.009
D	1.90	2.10	0.075	0.083
E	1.60	1.80	0.063	0.071
e	0.65		0.026	
H _E	2.00	2.20	0.079	0.087
L	0.20		0.008	
L _p	—	0.40	—	0.016
x	—	0.10	—	0.004
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b ₂	—	0.50	—	0.020
e ₁	1.70		0.067	
l ₁	—	0.50	—	0.020

Dimension in mm / inches

●Dimensions (Unit : mm)

TSMT3



DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	—	1.00	—	0.039
A1	0.00	0.10	0.000	0.004
A2	0.75	0.95	0.030	0.037
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.10	0.26	0.004	0.010
D	2.80	3.00	0.110	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.037	
He	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.05	0.25	0.002	0.010
x	—	0.20	—	0.008

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2		0.70	—	0.028
e1	2.10		0.083	
l1	—	0.90	—	0.035

Dimension in mm / inches

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