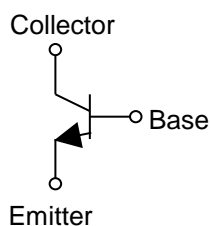


Parameter	Value
V_{CEO}	12V
I_C	500mA

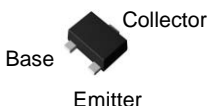

●Features

- 1) A Collector current is large.General Purpose.
- 2) Collector saturation voltage is low.
 $V_{CE(sat)} \leq 250mV$
 At $I_C=200mA$, $I_B=10mA$
- 3) Complementary NPN Types :
 2SA2030 (VMT3) / 2SA2018 (EMT3) / 2SA2119K (SMT3)
- 4) Lead Free/RoHS Compliant.

●Inner circuit



●Outline

VMT3  2SC5663 (SC-105AA)	EMT3  2SC5585 SOT-416 (SC-75A)
---	--

●Applications

Switching circuit, Muting circuit

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
2SC5663	VMT3	1212	T2L	180	8	8,000	BX
2SC5585	EMT3	1616	TL	180	8	3,000	BX

●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	I_C	500	mA
	I_{CP}^{*1}	1	A
Power dissipation	P_D^{*2}	150	mW
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}$	12	-	-	V
Collector-base breakdown voltage	BV_{CBO}	$I_C = 10\mu\text{A}$	15	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 10\mu\text{A}$	6	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = 15\text{V}$	-	-	100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 6\text{V}$	-	-	100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 200\text{mA}$, $I_B = 10\text{mA}$	-	90	250	mV
DC current gain	h_{FE}	$V_{CE} = 2\text{V}$, $I_C = 10\text{mA}$	270	-	680	-
Transition frequency	f_T	$V_{CE} = 2\text{V}$, $I_E = -10\text{mA}$ $f = 100\text{MHz}$	-	320	-	MHz
Output capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0\text{mA}$, $f = 1\text{MHz}$	-	7.5	-	pF

*1 $P_W = 10\text{ms}$ Single pulse.

*2 Each terminal mounted on a reference footprint

●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

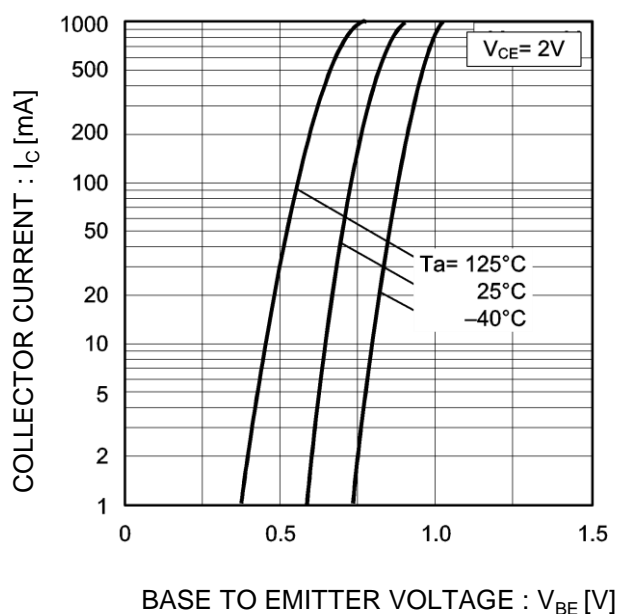


Fig.2 Typical Output Characteristics

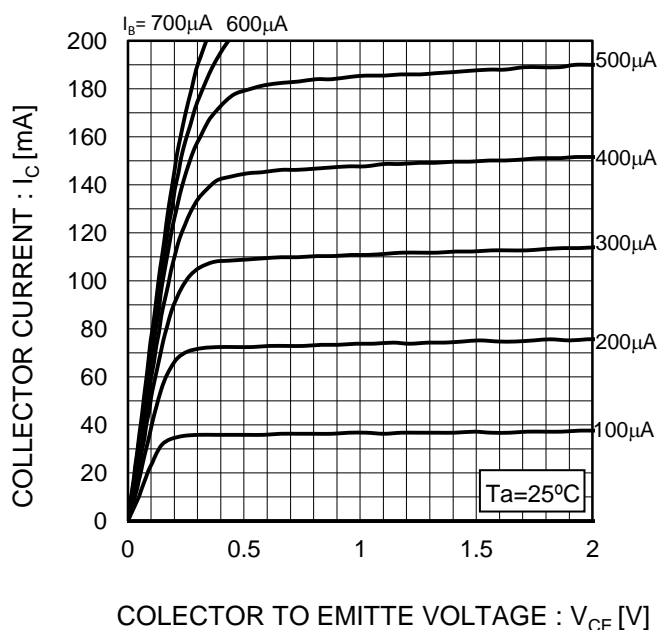


Fig.3 DC Current Gain vs. Collector Current(I)

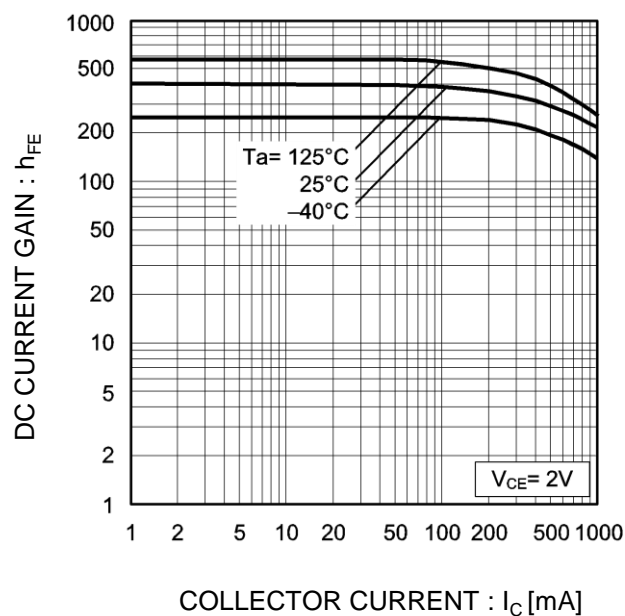
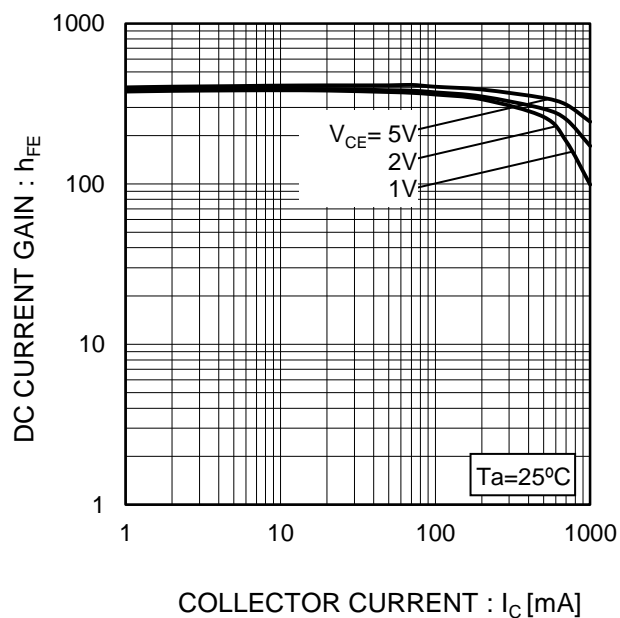


Fig.4 DC Current Gain vs. Collector Current(II)



●Electrical characteristic curves(Ta = 25°C)

Fig.5 Collector-Emitter Saturation Voltage vs. Collector Current (I)

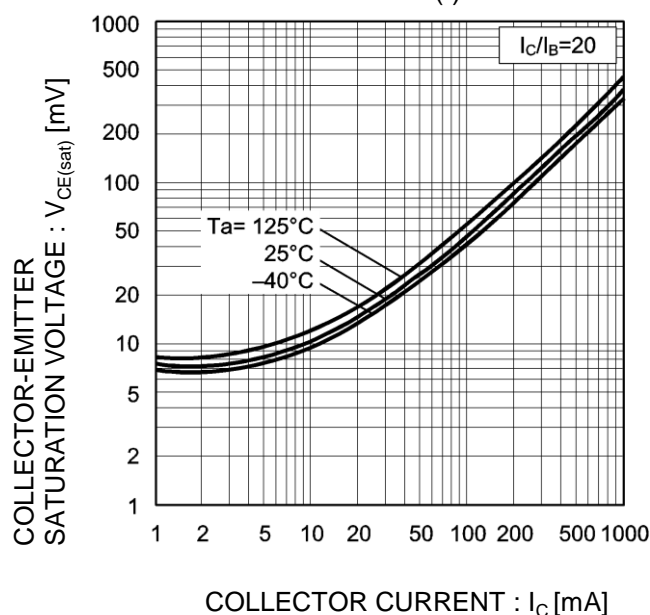


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

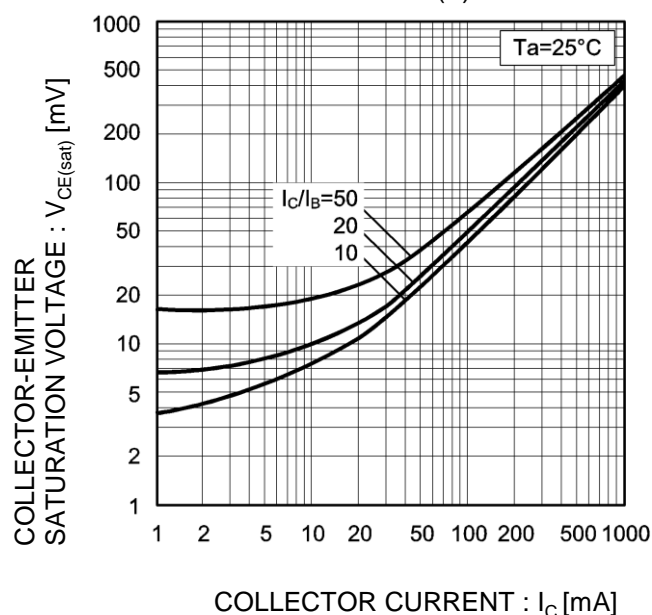


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

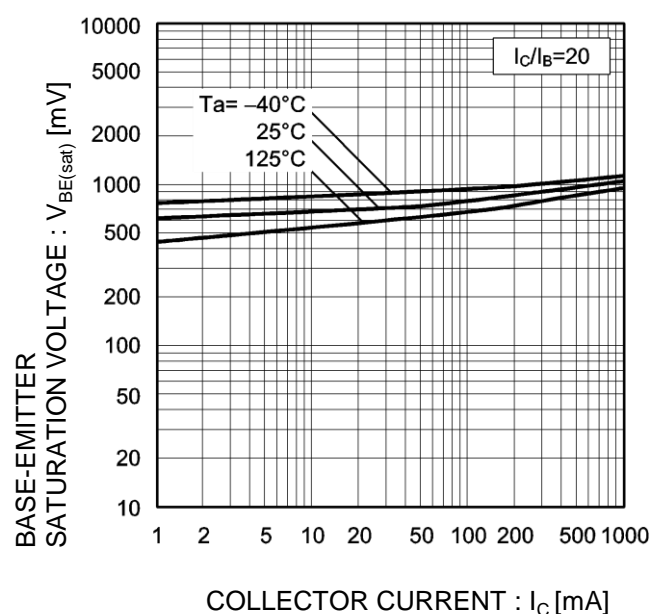
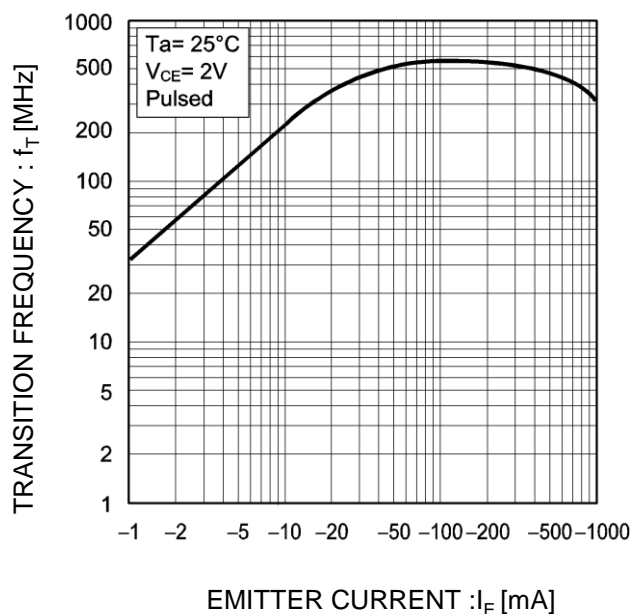


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

Fig.9 Emitter input capacitance vs.
Emitter-Base Voltage
Collector output capacitance vs.
Collector-Base Voltage

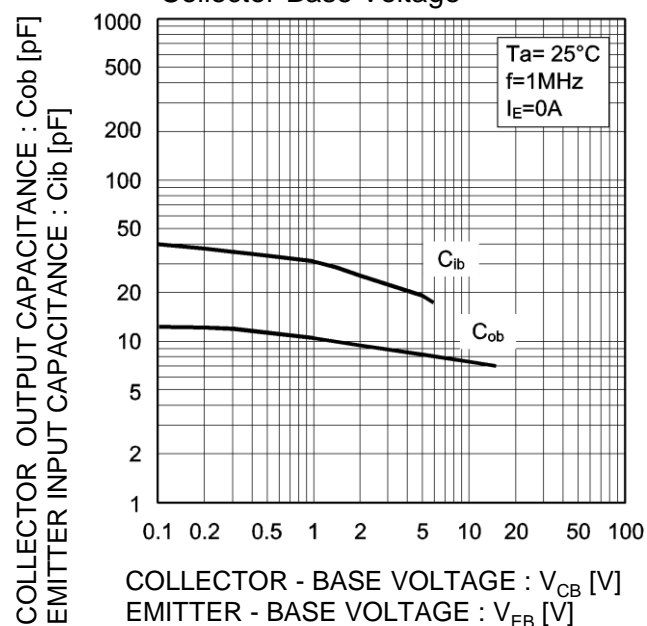


Fig.10 Safe Operating Area

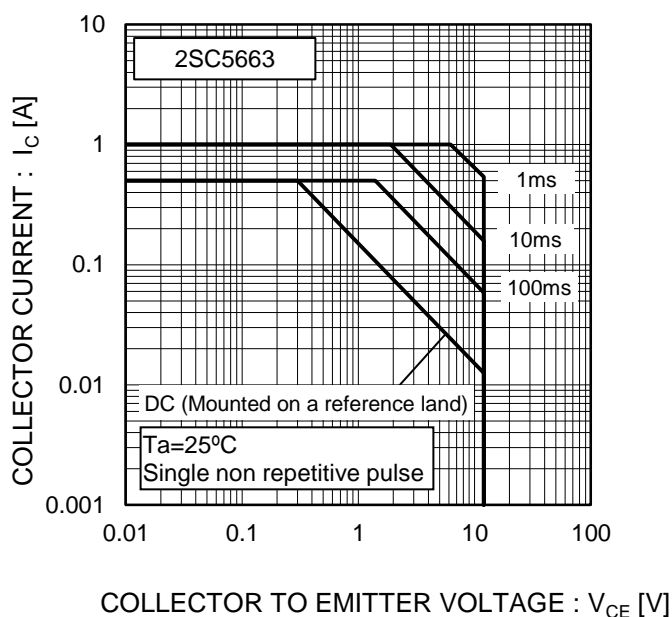
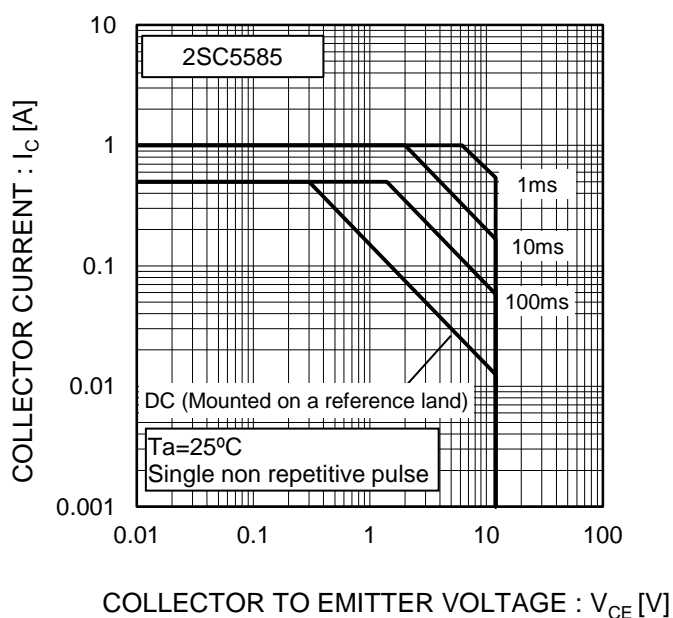
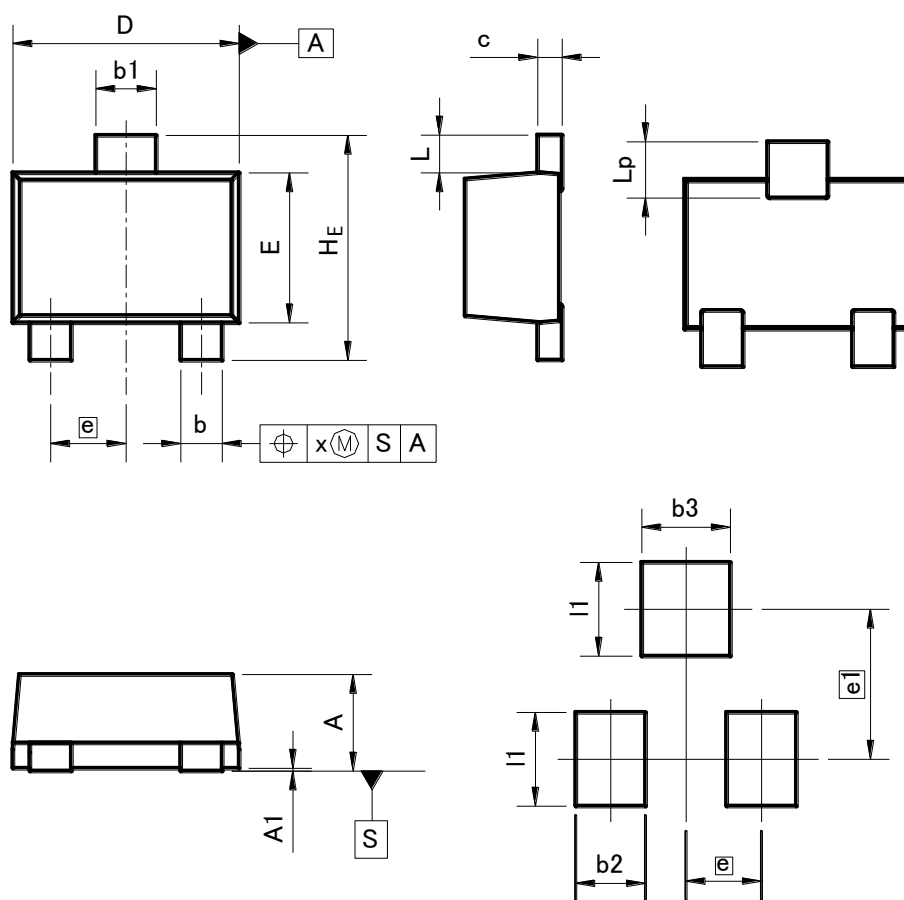


Fig.11 Safe Operating Area



●Dimensions (Unit : mm)

VMT3



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

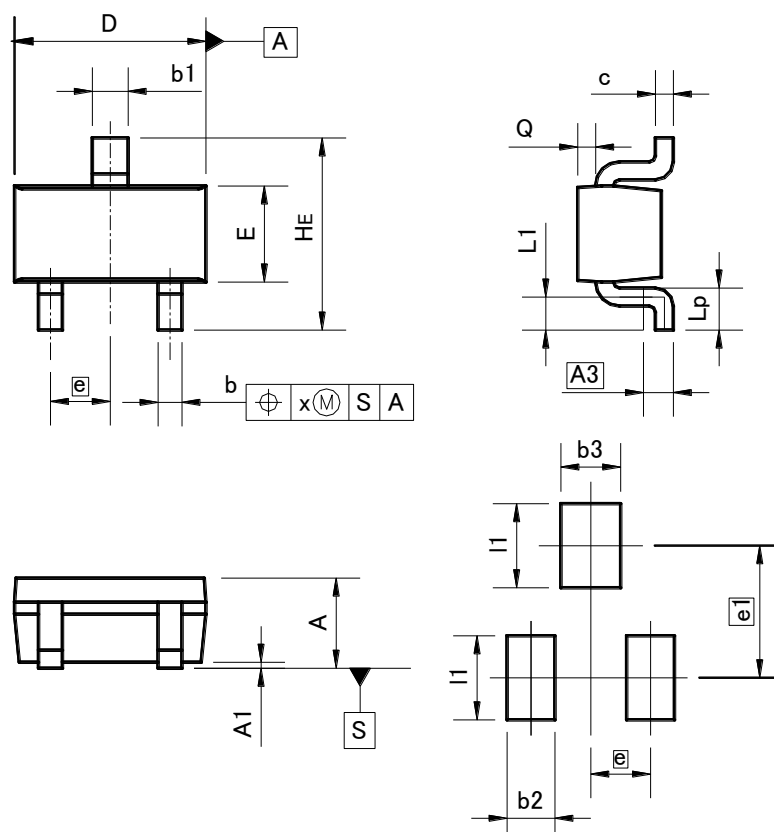
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
b1	0.27	0.37	0.011	0.015
c	0.08	0.18	0.003	0.007
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
e	0.40		0.02	
HE	1.10	1.30	0.043	0.051
L	0.10	0.30	0.004	0.012
Lp	0.20	0.40	0.008	0.016
x	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.37	—	0.015
b3	—	0.47	—	0.019
e1	0.80		0.031	
l1	—	0.50	—	0.020

Dimension in mm / inches

●Dimensions (Unit : mm)

EMT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.60	0.80	0.024	0.031
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
e	0.50		0.020	
HE	1.40	1.80	0.055	0.071
L1	0.10	—	0.004	—
Lp	0.15	—	0.006	—
Q	0.05	0.25	0.002	0.010
x	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.40	—	0.016
b3	—	0.50	—	0.020
e1	1.10		0.043	
l1	—	0.70	—	0.028

Dimension in mm / inches

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