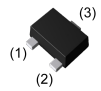
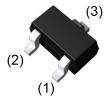
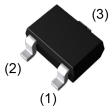
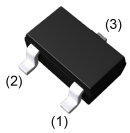
2SC5662 / 2SC4726 / 2SC4083
2SC3838K

High-Frequency Amplifier Transistor (11V, 50mA, 3.2GHz) Datasheet

Parameter	Value
V_{CEO}	11V
I_C	50mA

●Outline

VMT3  2SC5662 SC-105AA	EMT3  2SC4726 SOT-416
UMT3  2SC4083 SOT-323	SMT3  2SC3838K SOT-346

●Features

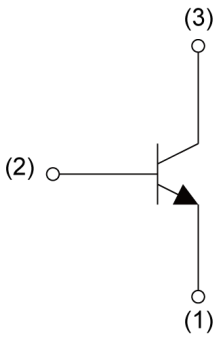
1)High transition frequency.(Typ.f_T=3.2GHz)
2)Small rbb'・Cc and high gain.(Typ.4ps)
3)Small NF

●Application

UHF/VHF FREQUENCY CONVERTER, LOCAL OSCILLATOR

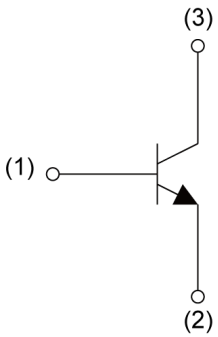
●Inner circuit

2SC4726/2SC4083/2SC3838K



(1) Emitter
(2) Base
(3) Collector

2SC5662



(1) Base
(2) Emitter
(3) Collector

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	hFE rank	Marking
2SC5662	VMT3	1212	T2L	180	8	8000	NP	AD
2SC4726	EMT3	1616	TL	180	8	3000	NP	AD
2SC4083	UMT3	2021	T106	180	8	3000	NPQ	1D
2SC3838K	SMT3	2928	T146	180	8	3000	NPQ	AD

●Notice

This product might cause chip aging and breakdown under the large electrified environment.
Please consider to design ESD protection circuit.

●Absolute maximum ratings (T_a = 25°C)

Parameter		Symbol	Values	Unit
Collector-base voltage		V_{CBO}	20	V
Collector-emitter voltage		V_{CEO}	11	V
Emitter-base voltage		V_{EBO}	3	V
Collector current		I_C	50	mA
Power dissipation	2SC5662	P_D*1	150	mW
	2SC4726		150	
	2SC4083		200	
	2SC3838K		200	
Junction temperature		T_j	150	℃
Range of storage temperature		T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = 10μA	20	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	11	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 10μA	3	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 10V	-	-	500	nA
Emitter cut-off current	I_{EBO}	V_{EB} = 2V	-	-	500	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 5mA	-	-	500	mV
DC current gain	h_{FE}	V_{CE} = 10V, I_C = 5mA	56	-	270	-
Transition frequency	f_T	V_{CE} = 10V, I_E = -10mA, f = 500MHz	1.4	3.2	-	GHz
Output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0A, f = 1MHz	-	0.8	1.5	pF
Noise figure	N_F	V_{CB} = 6V, I_C = 2mA f = 500MHz, R_g = 50Ω	-	3.5	-	dB

hFE values are calssified as follows :

rank	N	P	Q	-	-
h_{FE}	56-120	82-180	120-270	-	-

*1 Each terminal mounted on a reference land.

●Electrical characteristic curves(T_a = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

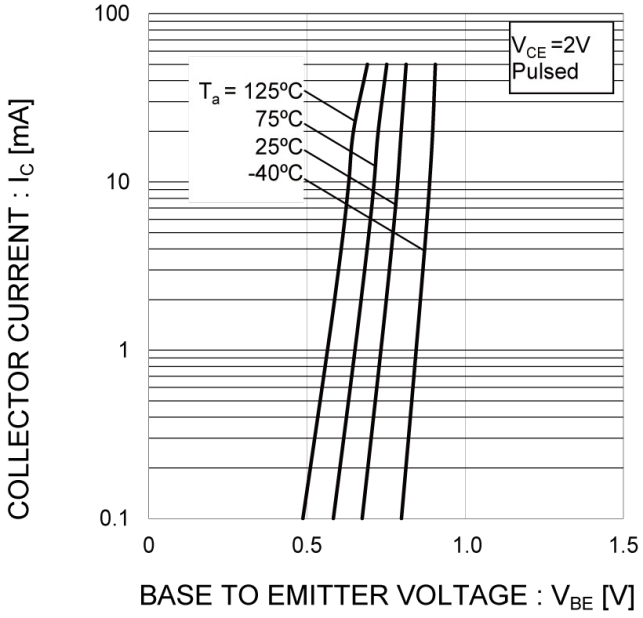


Fig.2 Typical Output Characteristics

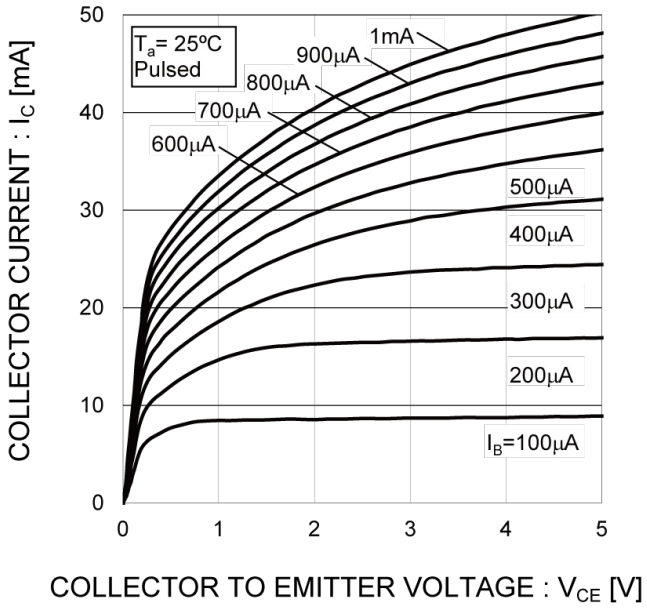


Fig.3 DC Current Gain vs. Collector Current (I)

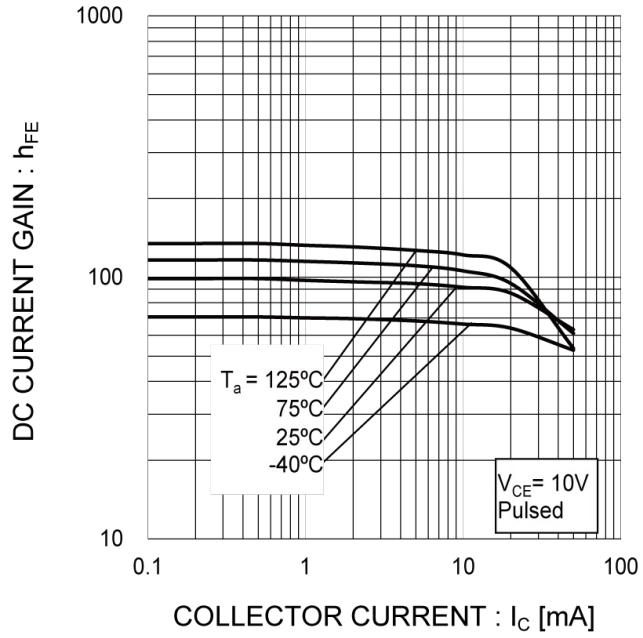
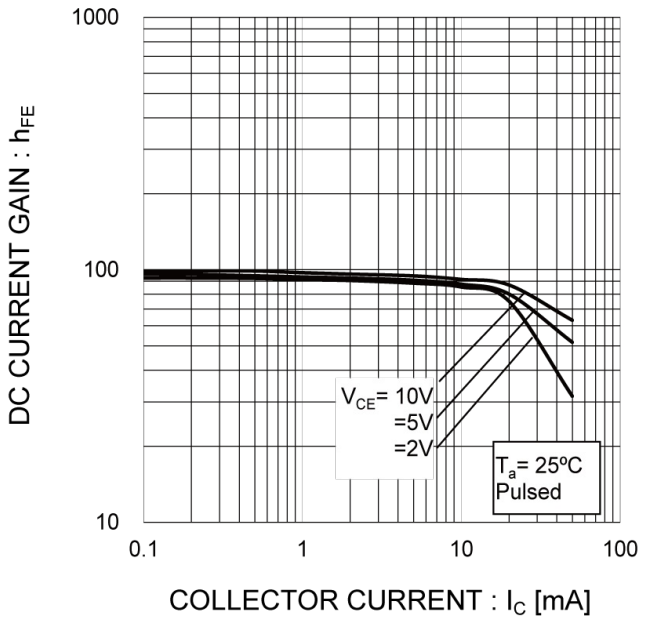


Fig.4 DC Current Gain vs. Collector Current (II)



●Electrical characteristic curves(T_a = 25°C)

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

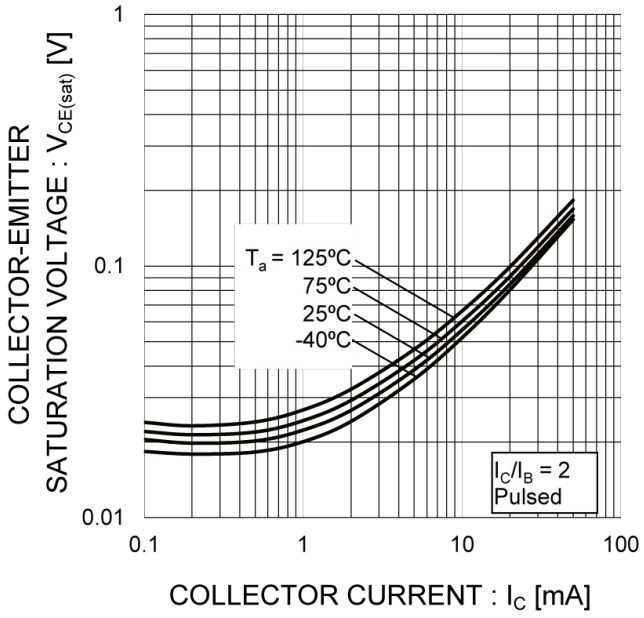


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

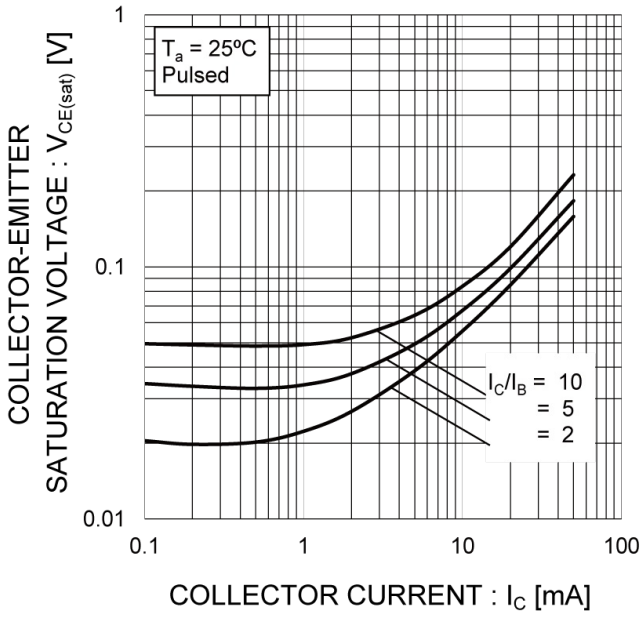


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

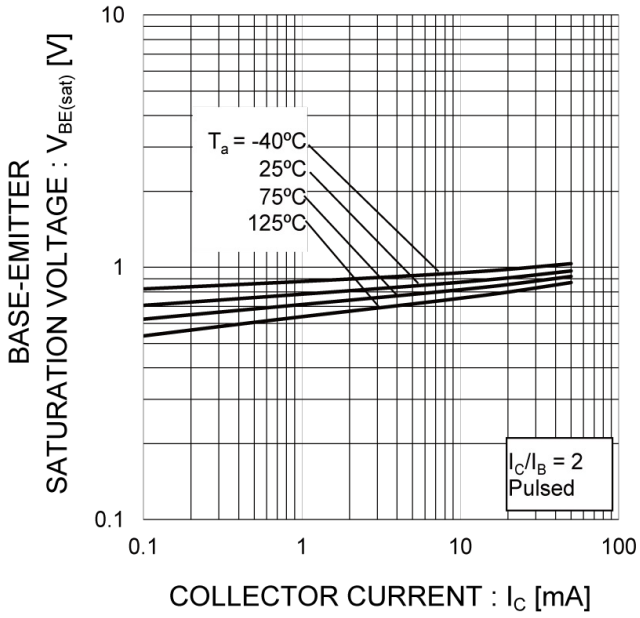
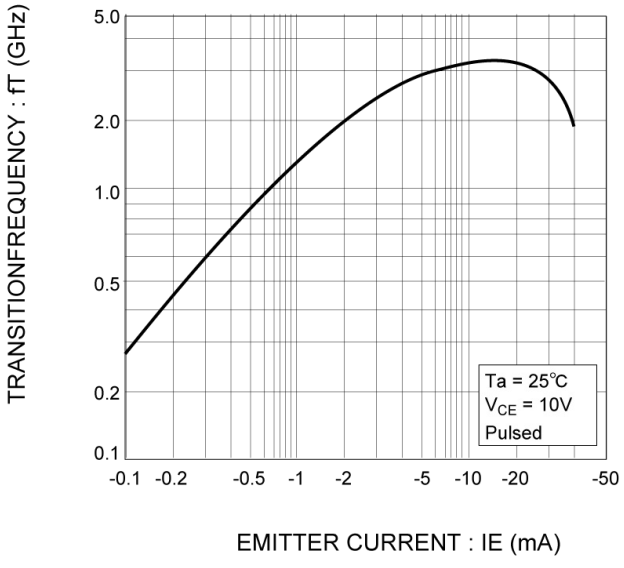


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(T_a = 25°C)

Fig.9 Capacitance vs. Reverse Bias Voltage

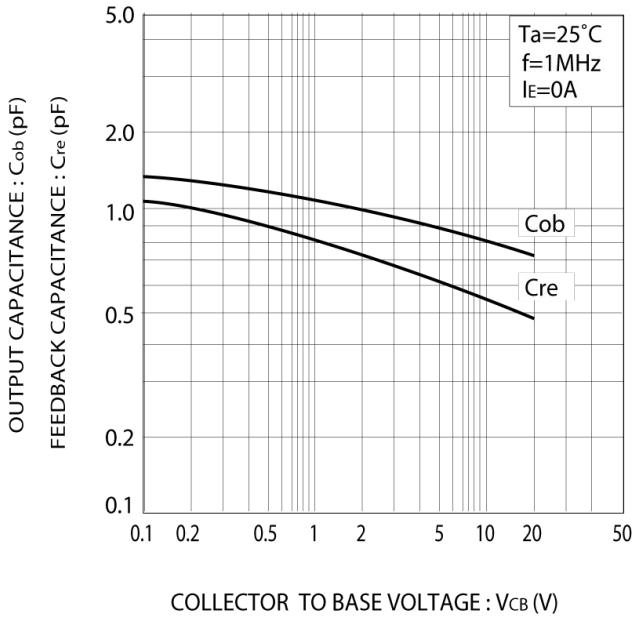


Fig.10 Collector to base time constance vs. collector current

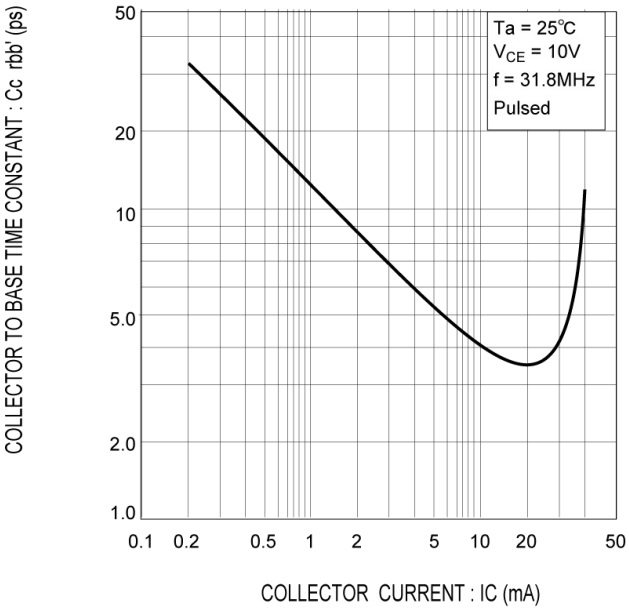
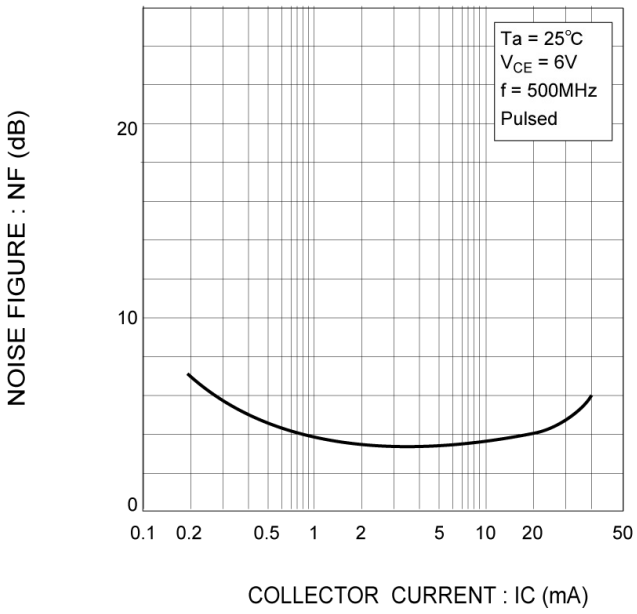
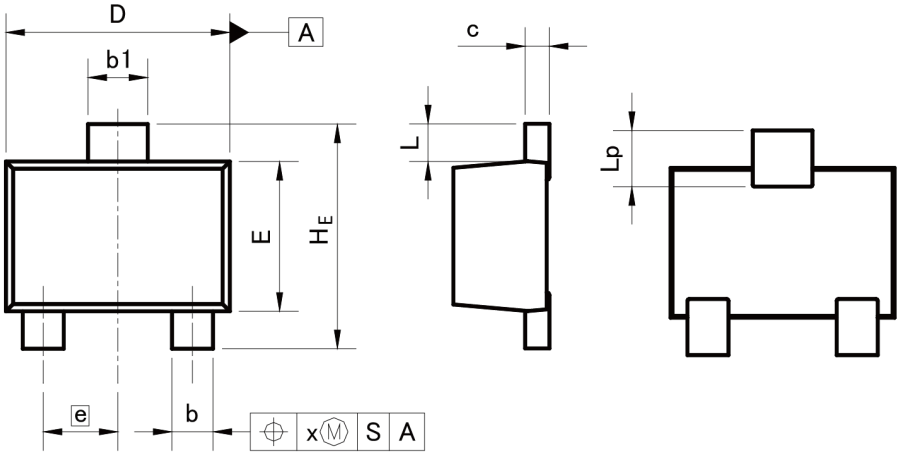


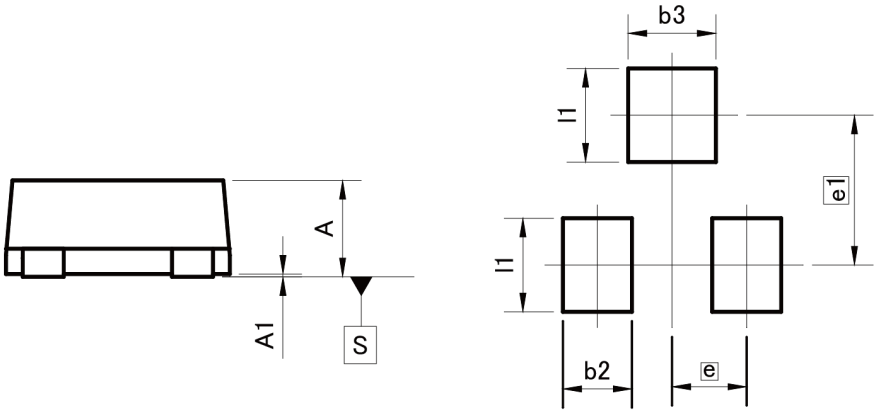
Fig.11 Noise factor vs.collector current characteristics



●Dimensions

VMT3





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

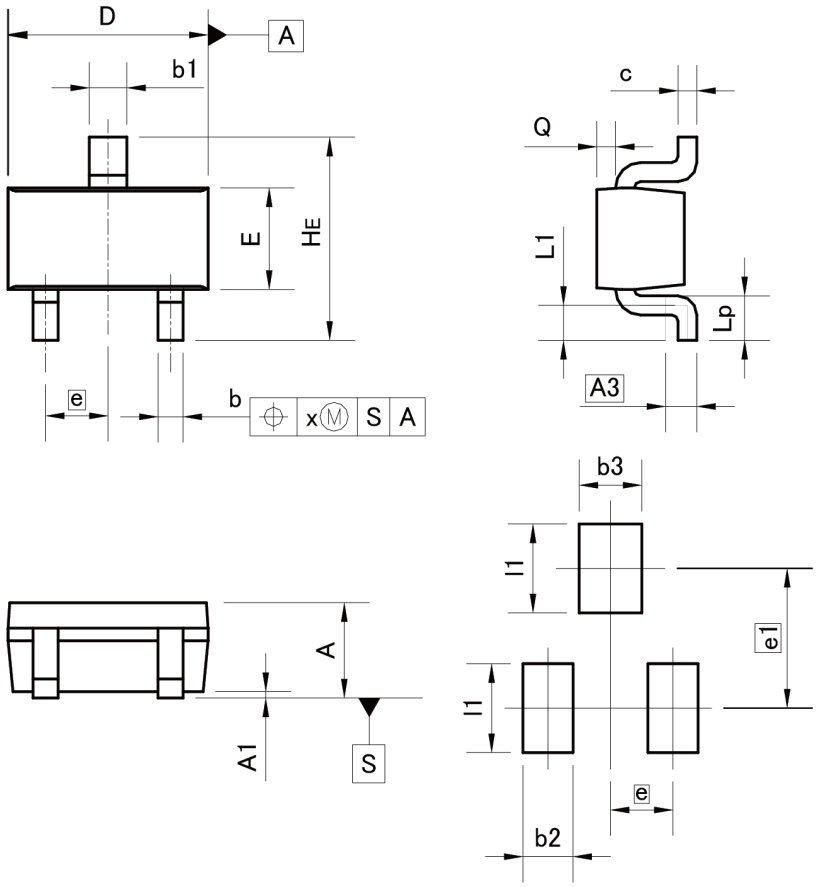
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
b1	0.27	0.37	0.011	0.015
c	0.08	0.18	0.003	0.007
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
e	0.40		0.02	
HE	1.10	1.30	0.043	0.051
L	0.10	0.30	0.004	0.012
Lp	0.20	0.40	0.008	0.016
x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

EMT3



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

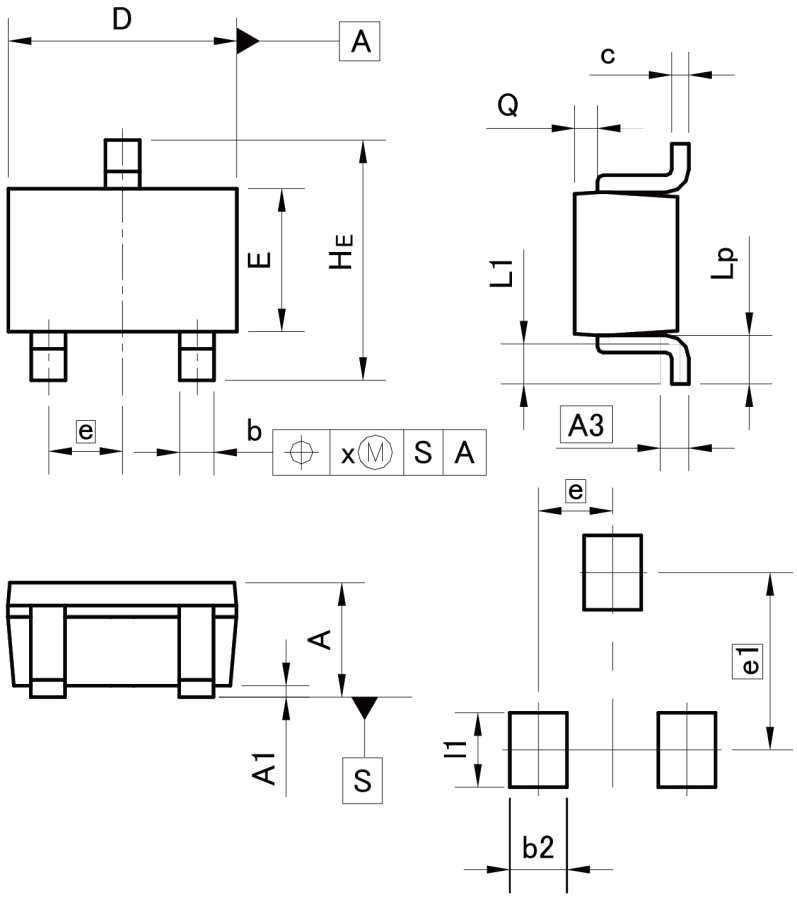
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.60	0.80	0.024	0.031
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
b1	0.25	0.40	0.010	0.016
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
e	0.50		0.020	
HE	1.40	1.80	0.055	0.071
L1	0.10	–	0.004	–
Lp	0.15	–	0.006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

●Dimensions

UMT3



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

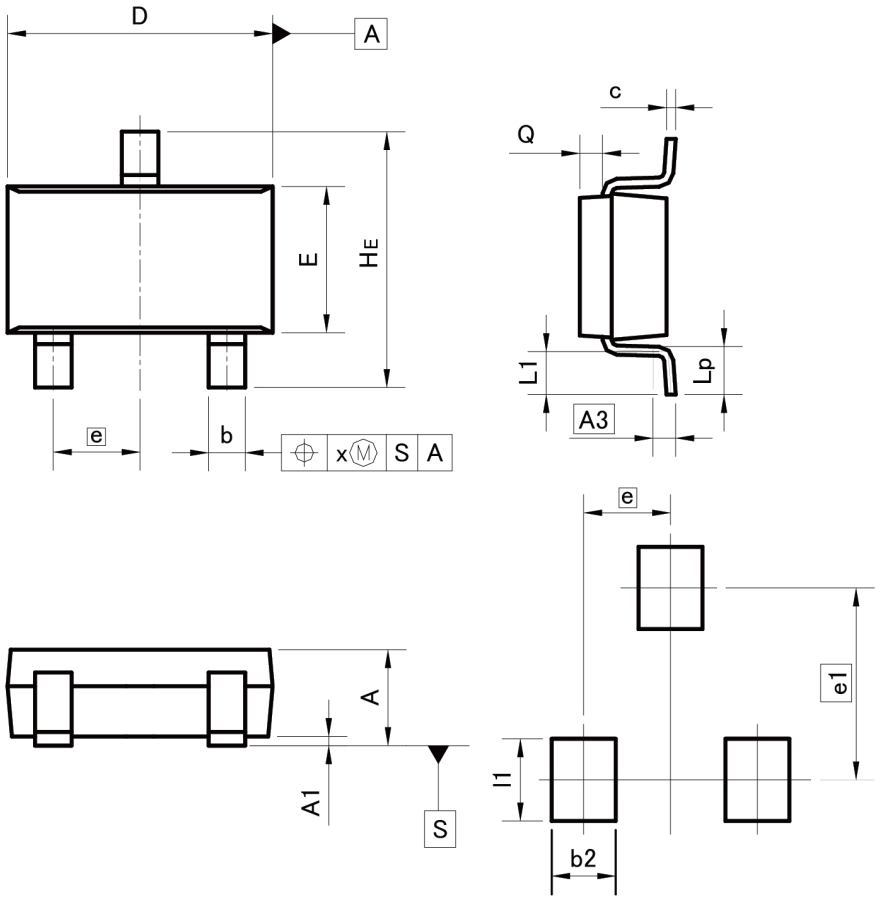
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
x	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.50	–	0.020
e1	1.55		0.061	
l1	–	0.65	–	0.026

Dimension in mm/inches

●Dimensions

SMT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	0.039	0.051
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.09	0.25	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	0.20	0.30	0.008	0.012
x	–	0.10	–	0.004
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.60	–	0.024
e1	2.10		0.083	
l1	–	0.90	–	0.035

Dimension in mm/inches

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