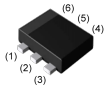
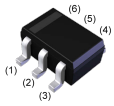
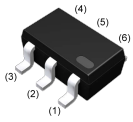
EMT2 / UMT2N / IMT2A

General purpose transistor (dual transistors)

Datasheet

Parameter	Tr1 and Tr2
V_{CEO}	-50V
I_C	-150mA

●Outline

EMT6  EMT2 SOT-563	UMT6  UMT2N SOT-363
SMT6  IMT2A SOT-457	

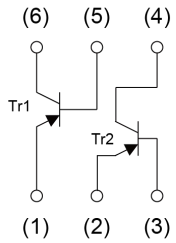
●Features

1) Two 2SA1037AK chips in a EMT, UMT or SMT package.
2) Mounting possible with EMT3, UMT3 or SMT3 automatic mounting machines.
3) Transistor elements are independent, eliminating interference.
4) Mounting cost and area can be cut in half.

●Inner circuit

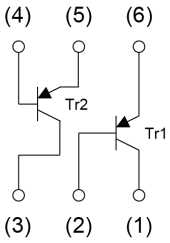
EMT2 / UMT2N

(1) Tr1 Emitter
(2) Tr2 Emitter
(3) Tr2 Base
(4) Tr2 Collector
(5) Tr1 Base
(6) Tr1 Collector



IMT2A

(1) Tr1 Collector
(2) Tr1 Base
(3) Tr2 Collector
(4) Tr2 Base
(5) Tr2 Emitter
(6) Tr1 Emitter



●Application

GENERAL PURPOSE SMALL SIGNAL AMPLIFIER

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
EMT2	EMT6	1616	T2R	180	8	8000	T2
UMT2N	UMT6	2021	TR	180	8	3000	T2
IMT2A	SMT6	2928	T108	180	8	3000	T2

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●Absolute maximum ratings (T_a = 25°C)

<For Tr1 and Tr2 in common>

Parameter		Symbol	Values	Unit
Collector-base voltage		V_{CBO}	-60	V
Collector-emitter voltage		V_{CEO}	-50	V
Emitter-base voltage		V_{EBO}	-6	V
Collector current		I_C	-150	mA
Power dissipation	EMT2/ UMT2N	P_D *1 *2	150	mW/Total
	IMT2A	P_D *1 *3	300	mW/Total
Junction temperature		T_j	150	℃
Range of storage temperature		T_{stg}	-55 to +150	℃

●Electrical characteristics (T_a = 25°C)

<For Tr1 and Tr2 in common>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	BV_{CBO}	I_C = -50μA	-60	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = -1mA	-50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = -50μA	-6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = -60V	-	-	-100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = -6V	-	-	-100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = -50mA, I_B = -5mA	-	-	-500	mV
DC current gain	h_{FE}	V_{CE} = -6V, I_C = -1mA	120	-	560	-
Transition frequency	f_T	V_{CE} = -12V, I_E = 2mA, f = 100MHz	-	140	-	MHz
Output capacitance	C_{ob}	V_{CB} = -12V, I_E = 0A, f = 1MHz	-	4.0	5.0	pF

*1 Each terminal mounted on a reference land.

*2 120mW per element must not be exceeded.

*3 200mW per element must not be exceeded.

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●Electrical characteristic curves (T_a = 25°C)

<For Tr1 and Tr2 in common>

Fig.1 Ground Emitter Propagation Characteristics

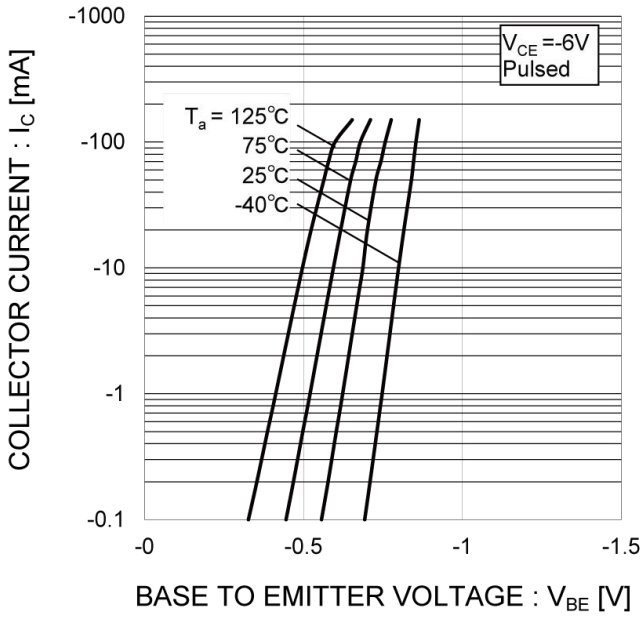


Fig.2 Grounded Emitter Output Characteristics

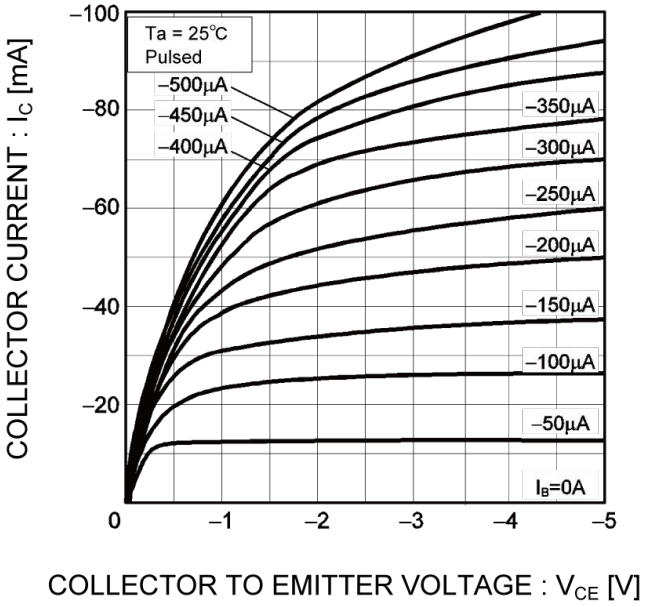


Fig.3 DC Current Gain vs. Collector Current (I)

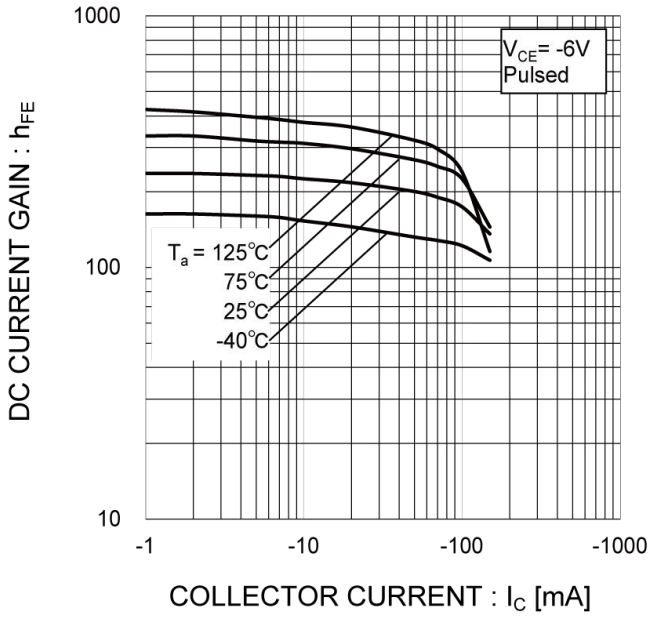
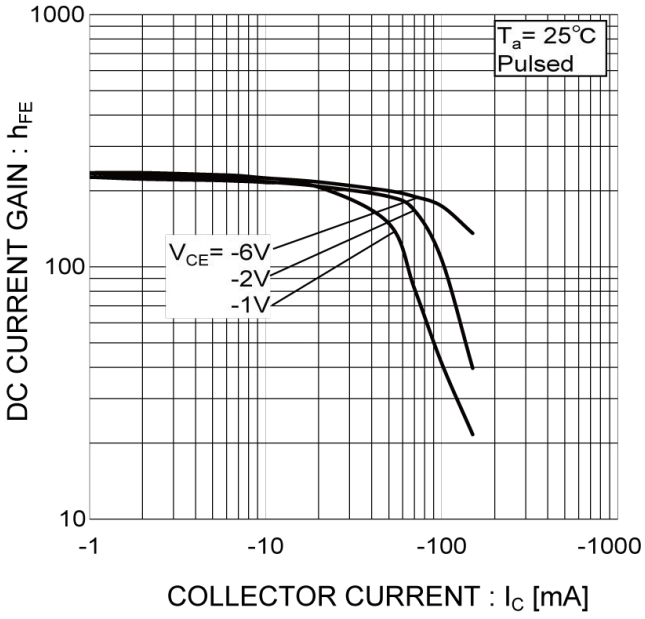


Fig.4 DC Current Gain vs. Collector Current (II)



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●Electrical characteristic curves (T_a = 25°C)

<For Tr1 and Tr2 in common>

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

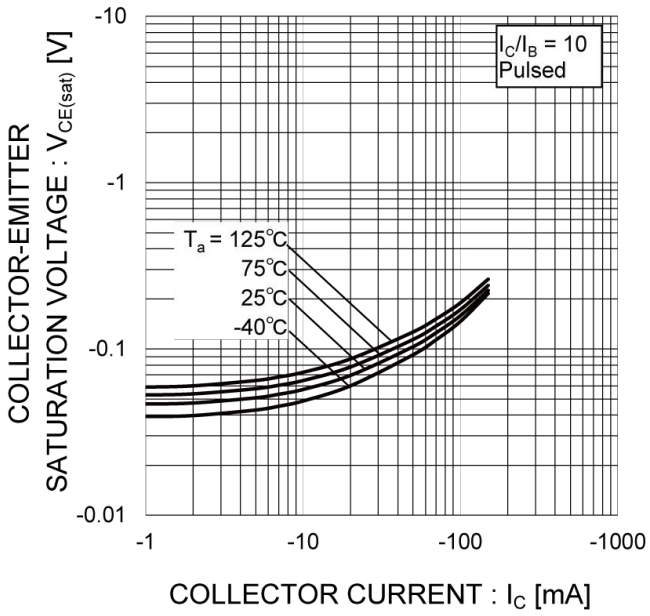


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current(II)

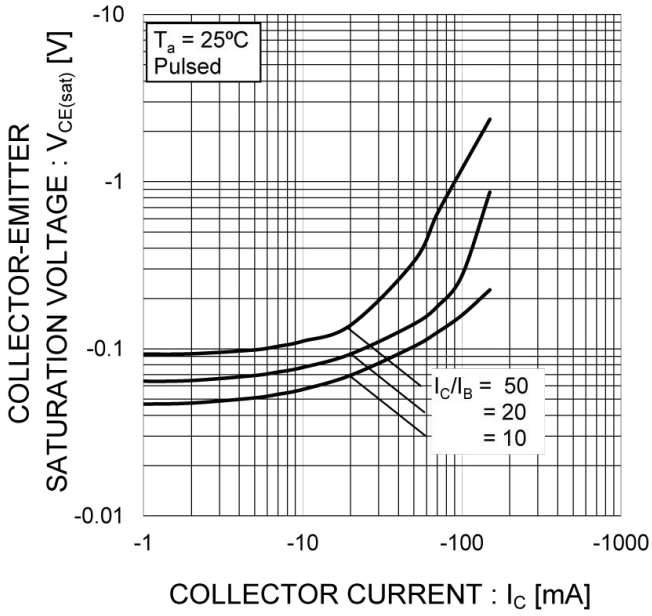


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current (I)

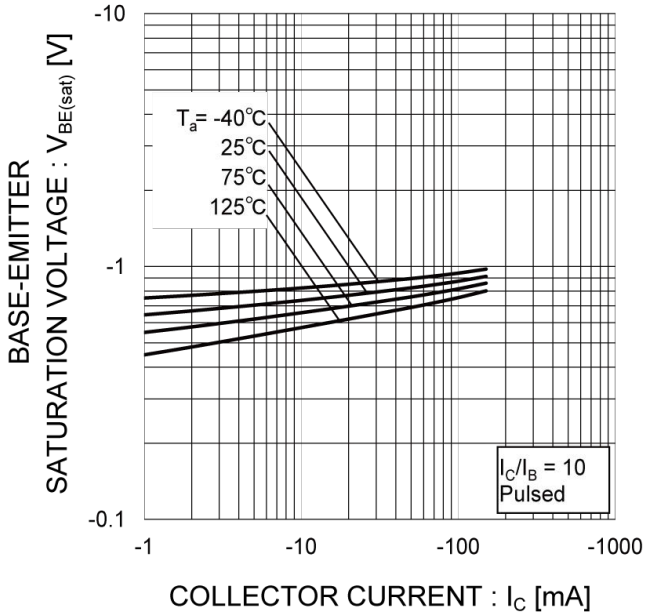
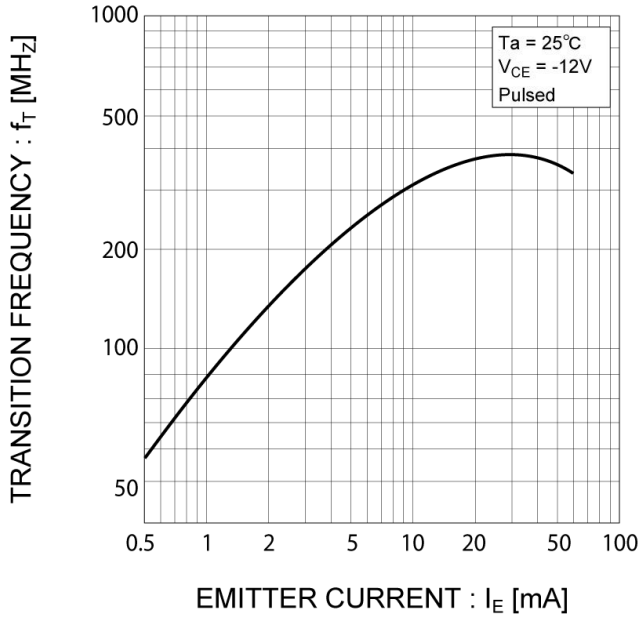


Fig.8 Gain Bandwith Product vs. Emitter Current



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●Electrical characteristic curves (T_a =25°C)

<For Tr1 and Tr2 in common>

Fig.9 Collector Output Capacitance vs. Collector-Base Voltage
Emitter Input Capacitance vs. Emitter-Base Voltage

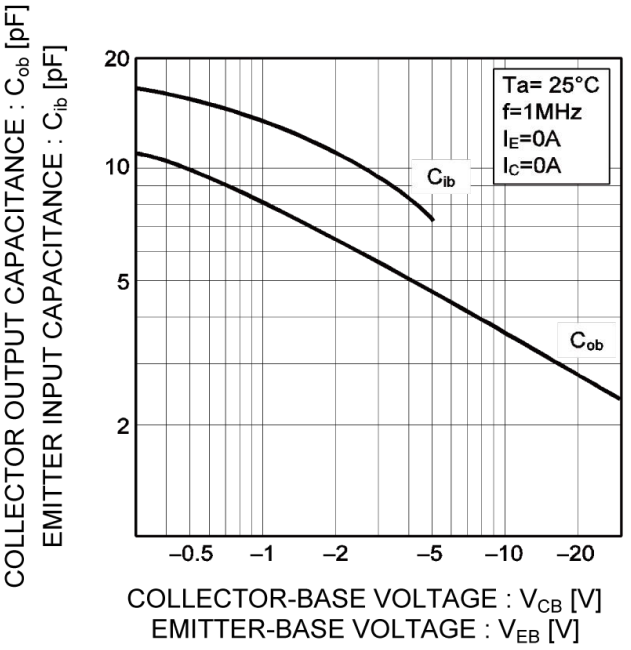


Fig.10 Safe Operating Area

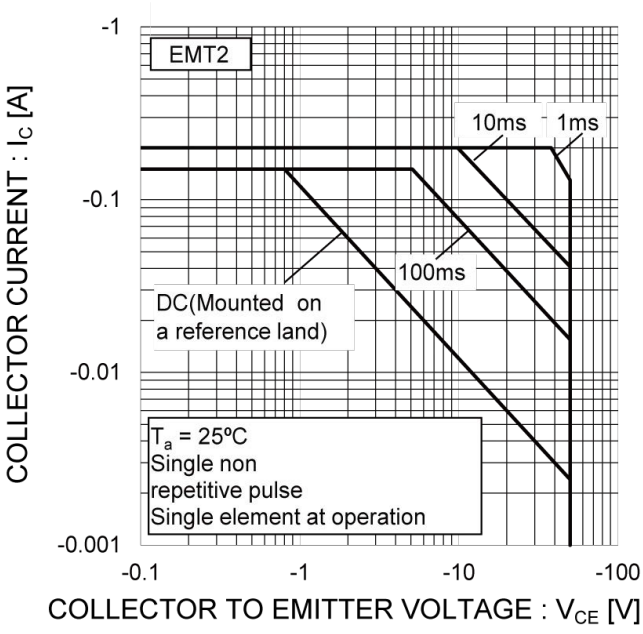


Fig.11 Safe Operating Area

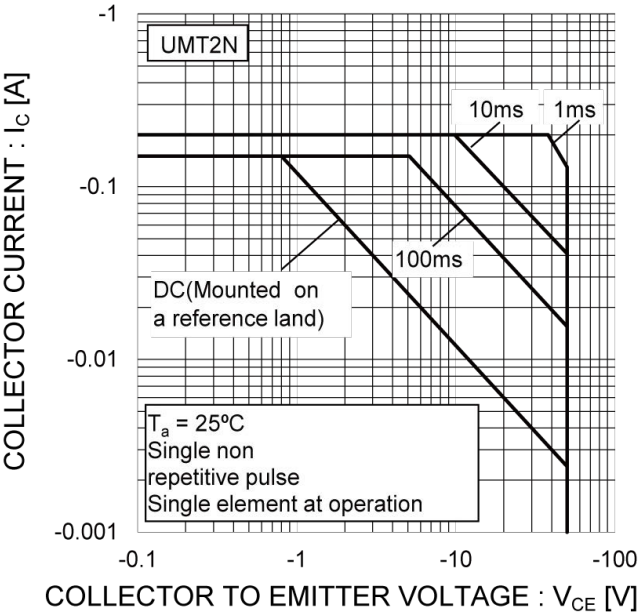
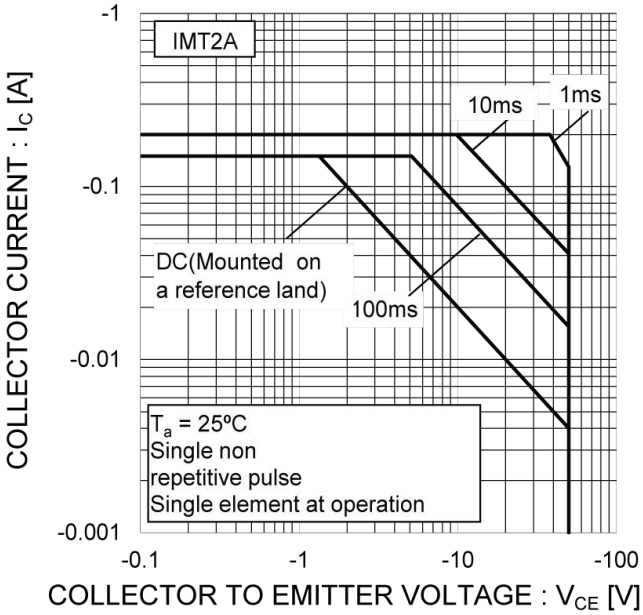


Fig.12 Safe Operating Area

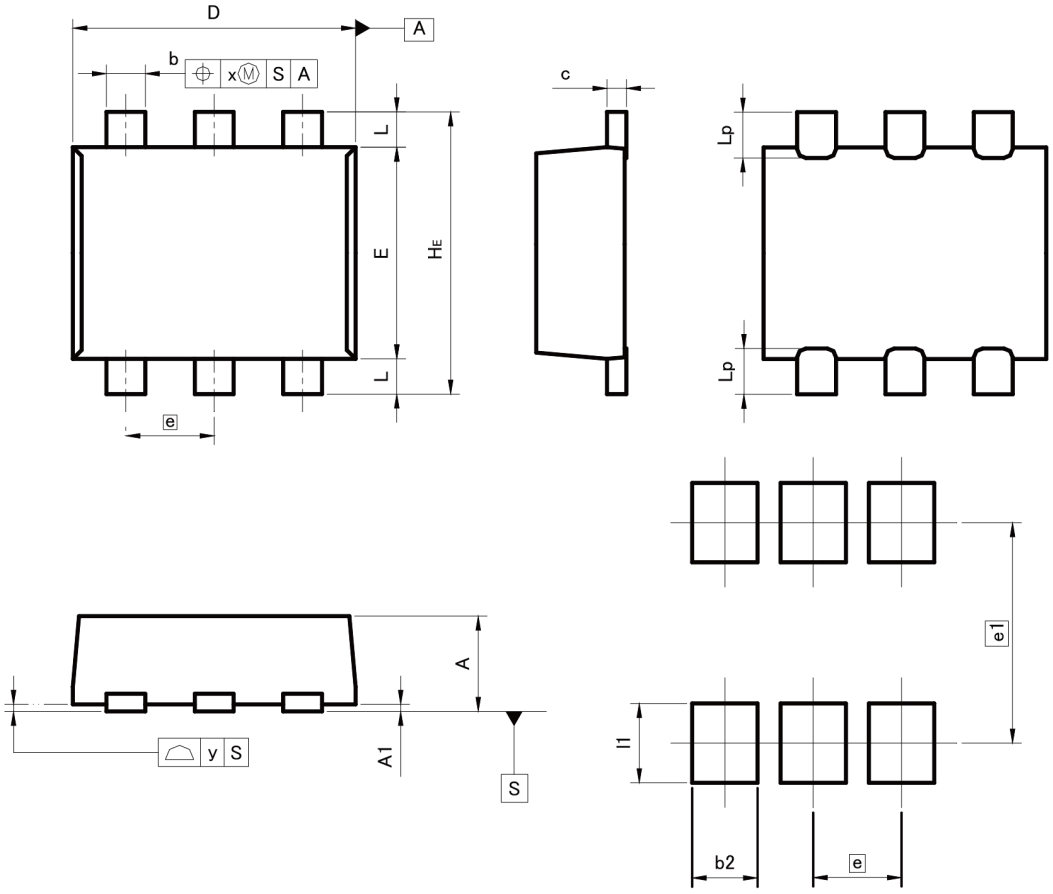


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●Dimensions

EMT6



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
c	0.08	0.18	0.003	0.007
D	1.50	1.70	0.059	0.067
E	1.10	1.30	0.043	0.051
e	0.50		0.020	
HE	1.50	1.70	0.059	0.067
L	0.10	0.30	0.004	0.012
Lp	–	0.35	–	0.014
x	–	0.10	–	0.004
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.37	–	0.015
e1	1.25		0.049	
l1	–	0.45	–	0.018

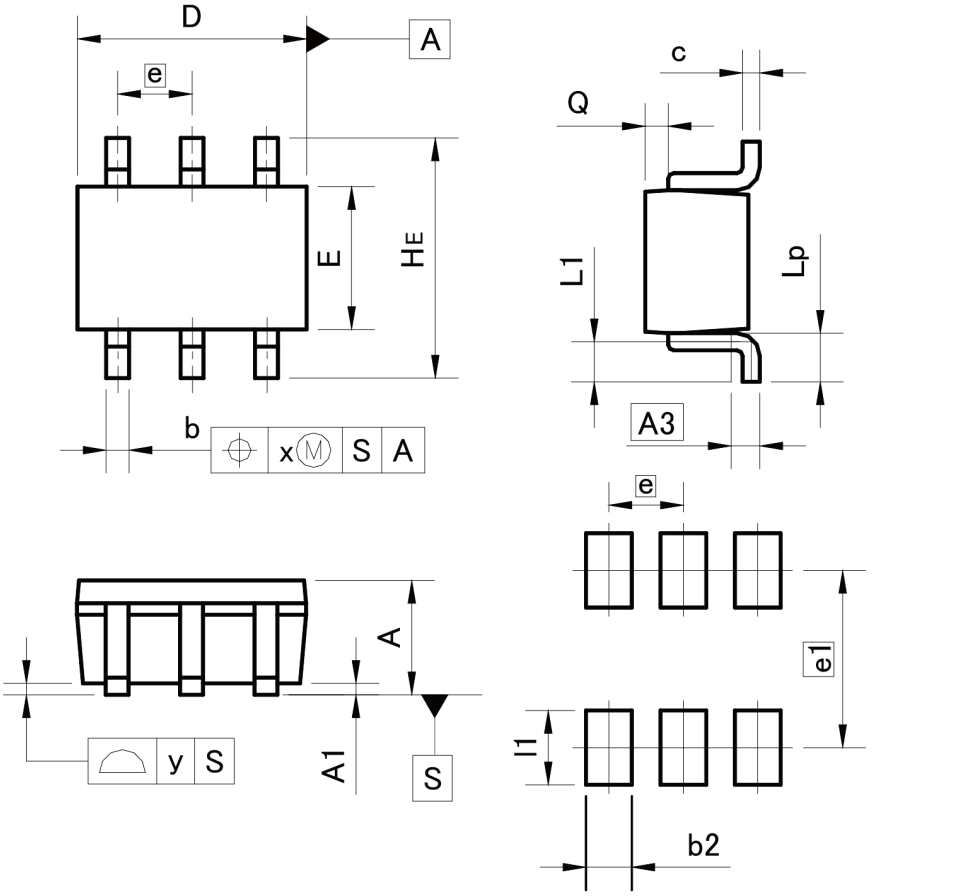
Dimension in mm/inches

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●Dimensions

UMT6



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
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	–	0.40	–	0.016
e1	1.55		0.061	
l1	–	0.65	–	0.026

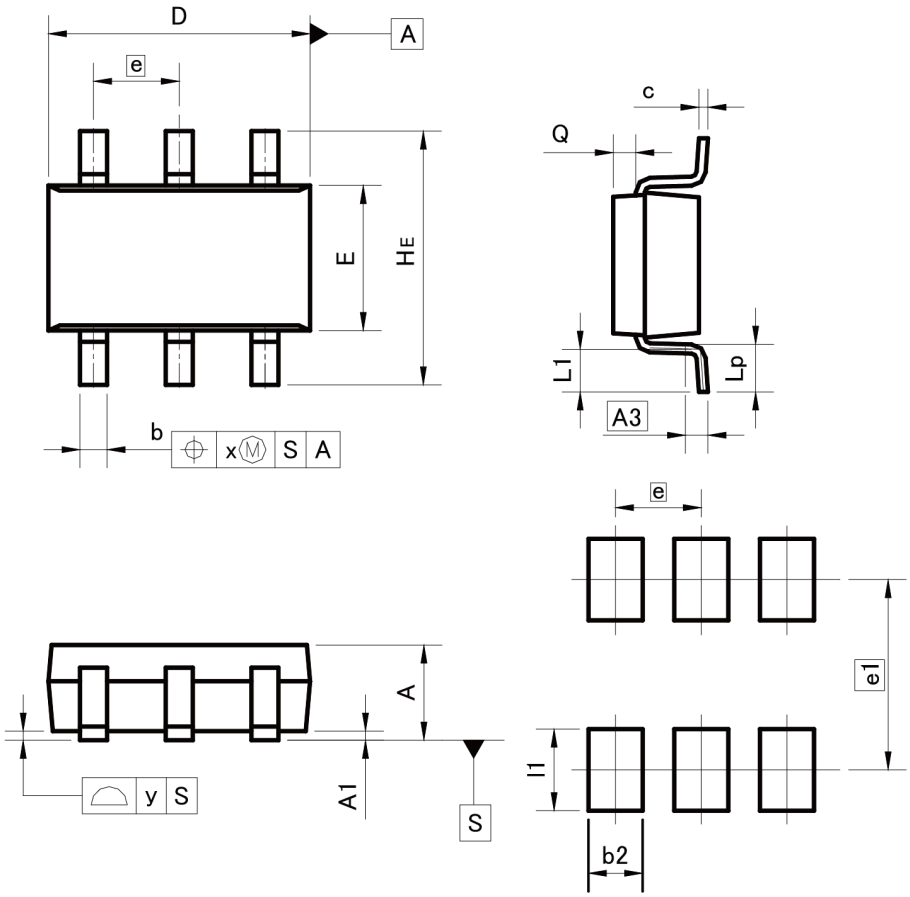
Dimension in mm/inches

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●Dimensions

SMT6



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	0.25	0.40	0.010	0.016
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	−	0.20	−	0.008
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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