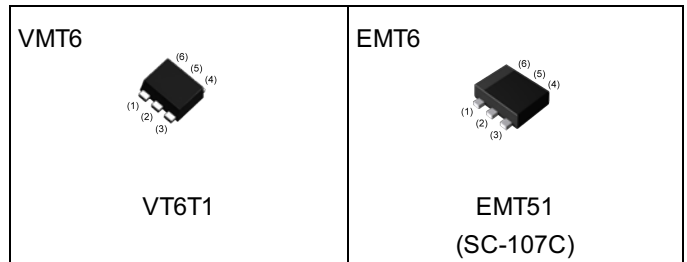


Parameter	Tr1 and Tr2
$V_{CEO}$	-20V
$I_C$	-200mA

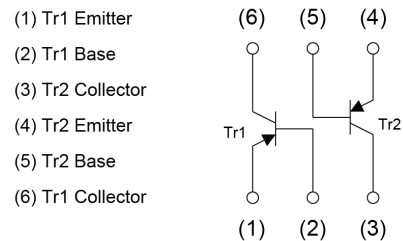
### ●Outline



### ●Features

- 1) General Purpose.
- 2) Two 2SAR522 chips in one package.
- 3) Transistor elements are independent, eliminating interface.
- 4) Mounting cost and area can be cut in half.
- 5) Lead Free/RoHS Compliant.

### ●Inner circuit



### ●Application

Switching, LED driver

### ●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
VT6T1	VMT6	1212	T2R	180	8	8000	T1
EMT51	EMT6	1616	T2R	180	8	8000	T51

● **Absolute maximum ratings** ( $T_a = 25^\circ\text{C}$ )

<For Tr1 and Tr2 in common>

Parameter		Symbol	Values	Unit
Collector-base voltage		$V_{\text{CBO}}$	-20	V
Collector-emitter voltage		$V_{\text{CEO}}$	-20	V
Emitter-base voltage		$V_{\text{EBO}}$	-5	V
Collector current		$I_{\text{C}}$	-200	mA
		$I_{\text{CP}}^{*1}$	-400	mA
Power dissipation	VT6T1	$P_{\text{D}}^{*2*3}$	150	mW
	EMT51		150	
Junction temperature		$T_{\text{j}}$	150	$^\circ\text{C}$
Range of storage temperature		$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

● **Electrical characteristics** ( $T_a = 25^\circ\text{C}$ )

<For Tr1 and Tr2 in common>

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	$BV_{\text{CBO}}$	$I_{\text{C}} = -50\mu\text{A}$	-20	-	-	V
Collector-emitter breakdown voltage	$BV_{\text{CEO}}$	$I_{\text{C}} = -1\text{mA}$	-20	-	-	V
Emitter-base breakdown voltage	$BV_{\text{EBO}}$	$I_{\text{E}} = -50\mu\text{A}$	-5	-	-	V
Collector cut-off current	$I_{\text{CBO}}$	$V_{\text{CB}} = -20\text{V}$	-	-	-0.1	$\mu\text{A}$
Emitter cut-off current	$I_{\text{EBO}}$	$V_{\text{EB}} = -5\text{V}$	-	-	-0.1	$\mu\text{A}$
Collector-emitter saturation voltage	$V_{\text{CE(sat)}}$	$I_{\text{C}} = -100\text{mA}$ , $I_{\text{B}} = -10\text{mA}$	-	-0.12	-0.30	V
DC current gain	$h_{\text{FE}}$	$V_{\text{CE}} = -6\text{V}$ , $I_{\text{C}} = -1\text{mA}$	120	-	560	-
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}} = -10\text{V}$ , $I_{\text{E}} = 10\text{mA}$ , $f = 100\text{MHz}$	-	350	-	MHz
Output capacitance	$C_{\text{ob}}$	$V_{\text{CB}} = 10\text{V}$ , $I_{\text{E}} = 0\text{A}$ , $f = 1\text{MHz}$	-	1.6	-	pF

\*1  $P_{\text{w}}=1\text{ms}$  Single Pulse

\*2 Each terminal mounted on a reference footprint

\*3 120mW per element must not be exceeded.

● **Electrical characteristic curves(Ta=25°C)**  
 <For Tr1 and Tr2 in common>

Fig.1 Grounded Emitter Propagation Characteristics

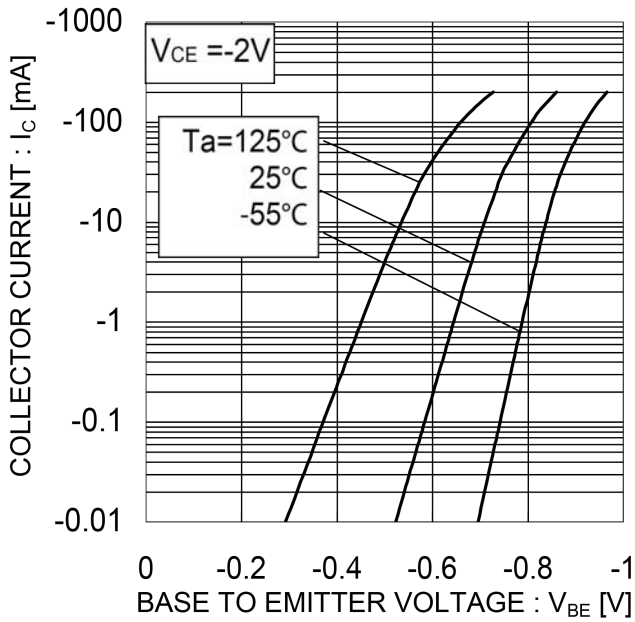


Fig.2 Typical Output Characteristics

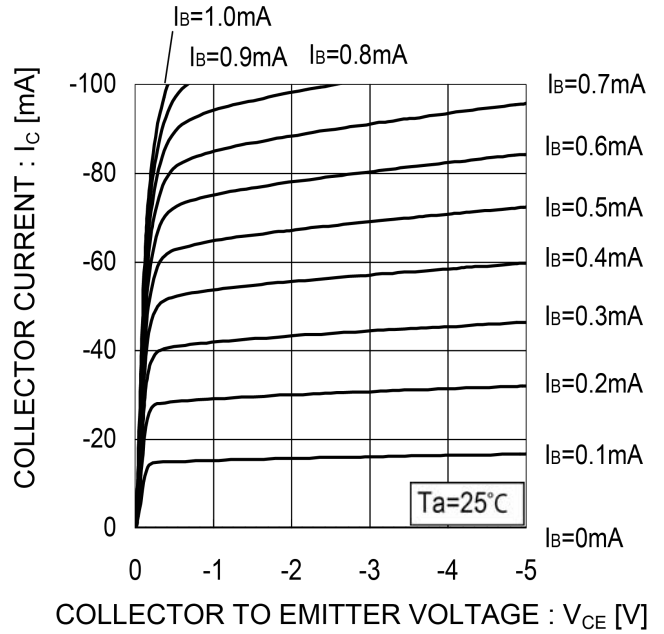


Fig.3 DC Current Gain vs. Collector Current(I)

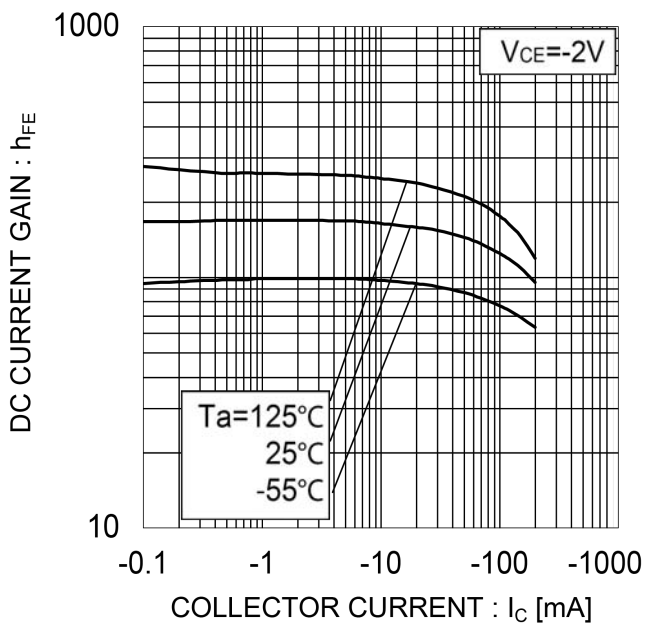
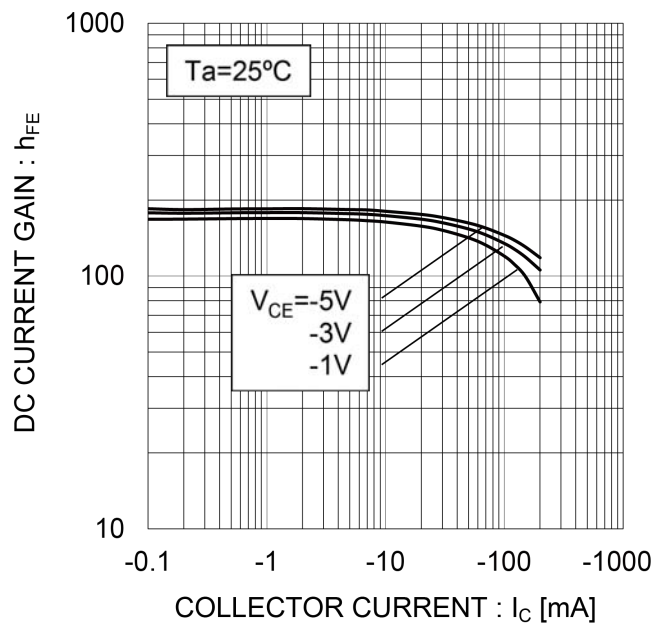


Fig.4 DC Current Gain vs. Collector Current(II)



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

<For Tr1 and Tr2 in common>

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

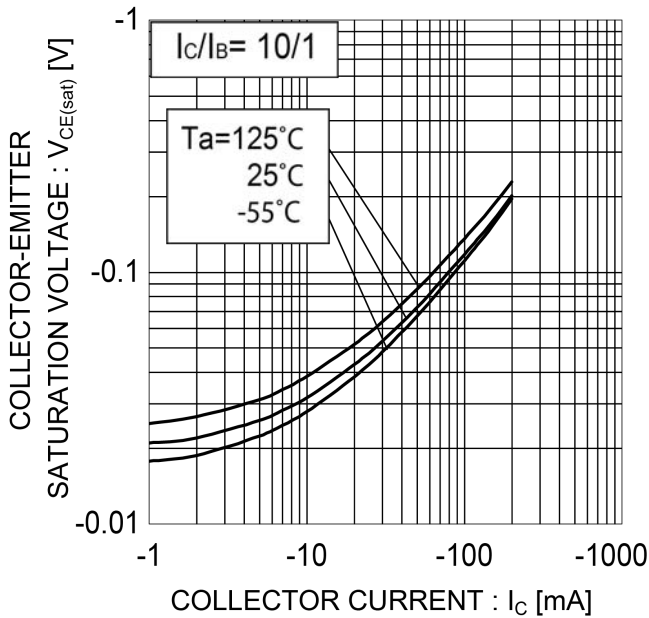


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current(II)

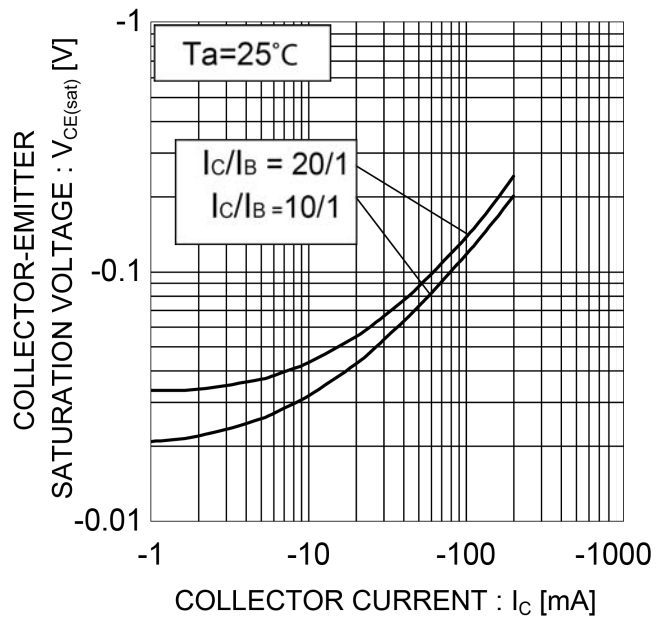


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

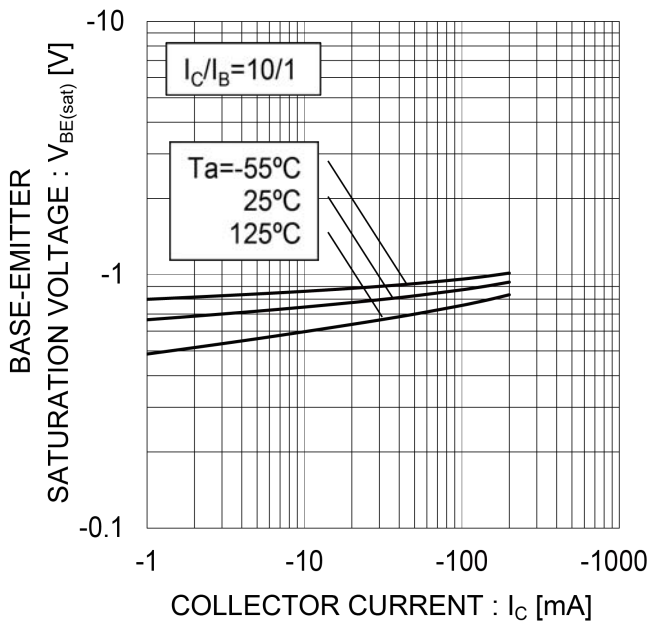
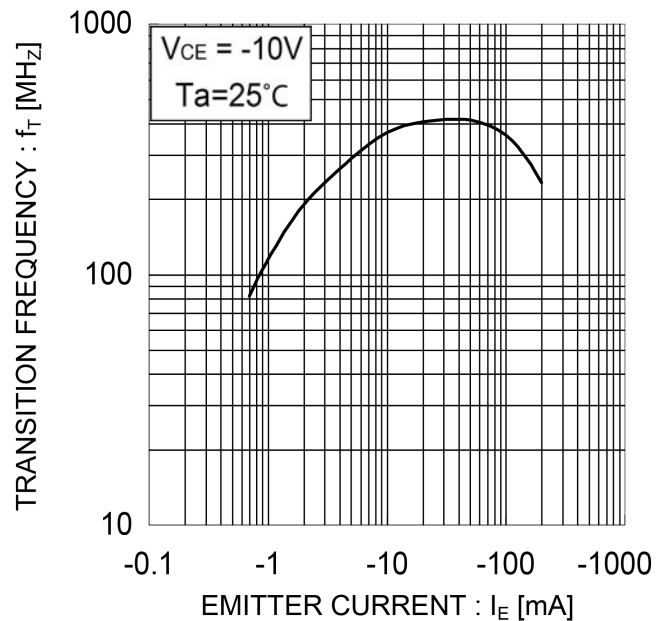


Fig.8 Gain Bandwidth Product vs. Emitter Current



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

<For Tr1 and Tr2 in common>

Fig.9 Emitter input capacitance Collector output capacitance

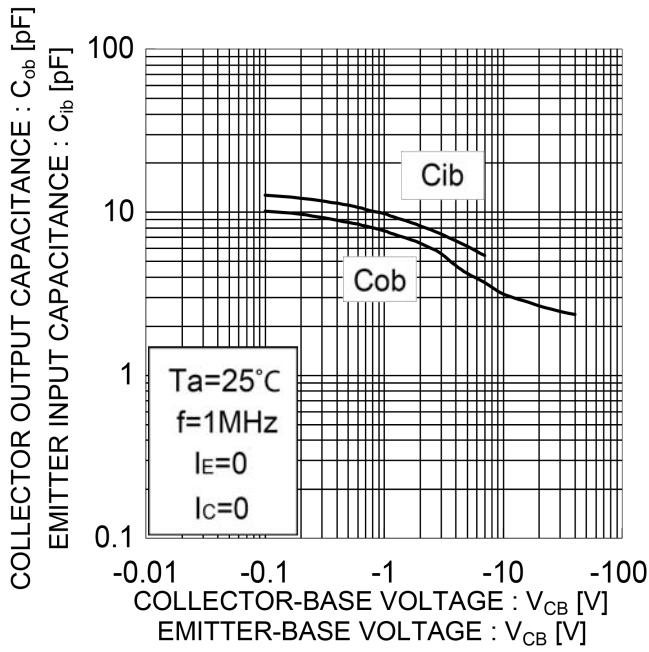
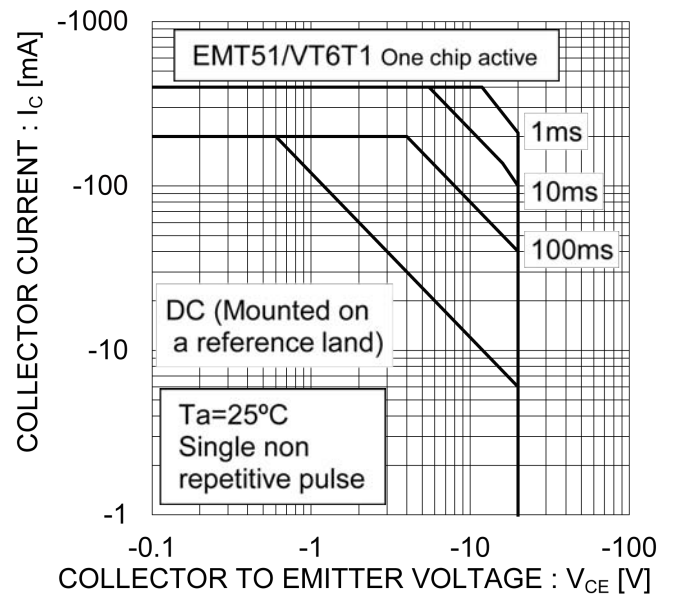
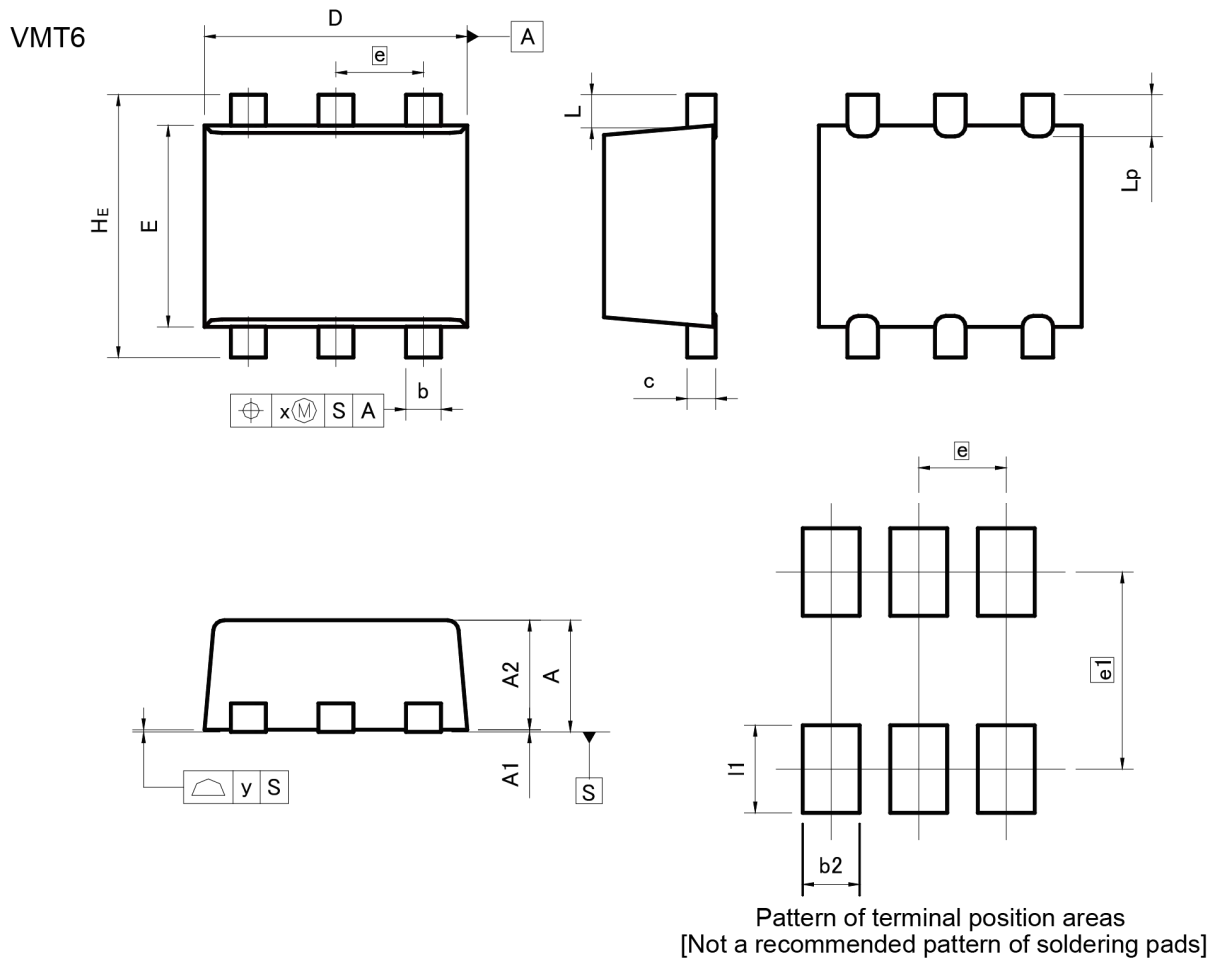


Fig.10 Safe Operating Area



●Dimensions



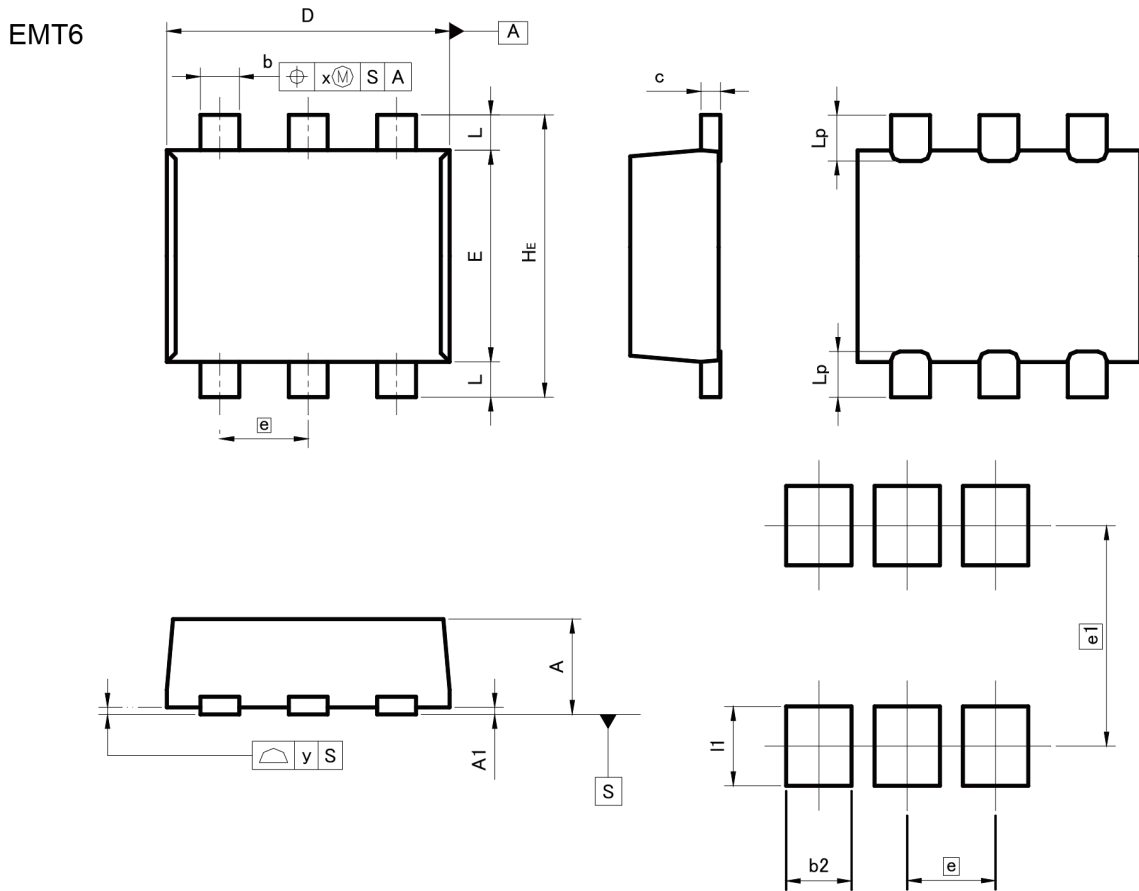
DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.42	0.62	0.017	0.024
A1	0.00	0.05	0.000	0.002
A2	0.40	0.60	0.016	0.024
b	0.11	0.21	0.004	0.008
c	0.08	0.18	0.003	0.007
D	1.10	1.30	0.043	0.051
E	0.82	1.02	0.032	0.04
e	0.40		0.016	
HE	1.10	1.30	0.043	0.051
L	0.14		0.006	
Lp	0.10	0.30	0.004	0.012
x	-	0.05	-	0.002
y	-	0.10	-	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.26	-	0.010
e1	0.90		0.035	
l1	-	0.40	-	0.016

Dimension in mm/inches

●Dimensions



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	
I1	-	0.45	-	0.018

Dimension in mm/inches

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