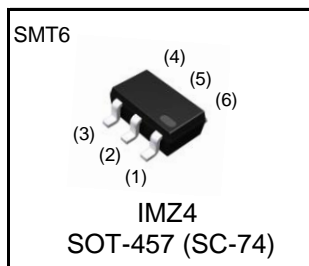


Parameter	Tr1
$V_{CEO}$	32V
$I_{C(MAX.)}$	500mA
Parameter	Tr2
$V_{CEO}$	-32V
$I_{C(MAX.)}$	-500mA

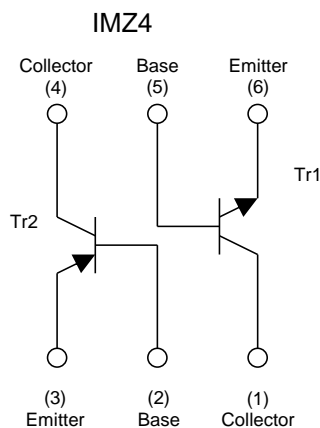
### ●Outline



### ●Features

- 1) Both a 2SA1036K chip and 2SC2411K chip in a SMT6 package.
- 2) Mounting possible with SMT3 automatic mounting machines.
- 3) Transistor elements are independent, eliminating interference.
- 4) Mounting cost and area can be cut in half.
- 5) Lead Free/RoHS Compliant.

### ●Inner circuit



### ●Application

Driver circuit

### ●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
IMZ4	SMT6	2928	T108	180	8	3,000	Z4

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Values		Unit
		Tr1	Tr2	
Collector-base voltage	$V_{CB0}$	40	-40	V
Collector-emitter voltage	$V_{CEO}$	32	-32	V
Emitter-base voltage	$V_{EBO}$	5	-5	V
Collector current	$I_C$	500	-500	mA
	$I_{CP}^{*1}$	1	-1	A
Collector Power dissipation	$P_D^{*2}$	300 (Total) <sup>*3</sup>		mW
Junction temperature	$T_j$	150		°C
Range of storage temperature	$T_{stg}$	-55 to +150		°C

●Electrical characteristics (Ta = 25°C)

<Tr1>

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$BV_{CB0}$	$I_C = 100\mu A$	40	-	-	V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1mA$	32	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu A$	5	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 20V$	-	-	1.0	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4V$	-	-	1.0	$\mu A$
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C / I_B = 500mA / 50mA$	-	-	0.6	V
DC current gain	$h_{FE}$	$V_{CE} = 3V, I_C = 100mA$	180	-	390	-
Transition frequency	$f_T$	$V_{CE} = 5V, I_E = -20mA,$ $f = 100MHz$	-	250	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0A,$ $f = 1MHz$	-	6.5	-	pF

<Tr2>

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$BV_{CB0}$	$I_C = -100\mu A$	-40	-	-	V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = -1mA$	-40	-	-	V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_C = -100\mu A$	-5	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 20V$	-	-	-1.0	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4V$	-	-	-1.0	$\mu A$
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C / I_B = 500mA / 50mA$	-	-	-0.6	V
DC current gain	$h_{FE}$	$V_{CE} = 3V, I_C = 100mA$	180	-	390	-
Transition frequency	$f_T$	$V_{CE} = -5V, I_E = 20mA,$ $f = 100MHz$	-	200	-	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0A,$ $f = 1MHz$	-	7	-	pF

\*1  $P_W = 10ms$ . Single Pulse.

\*2 Each terminal mounted on a reference footprint

\*3 200mW per element must not be exceeded.

●Electrical characteristic curves(Ta = 25°C)

<Tr1>

Fig.1 Ground Emitter Propagation Characteristics

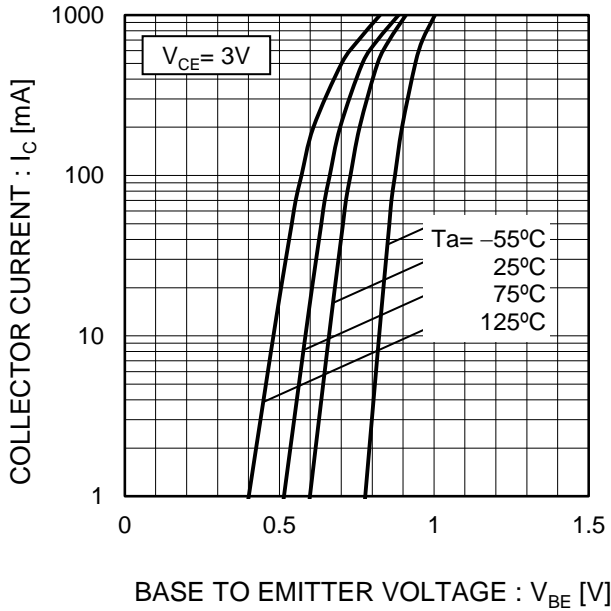


Fig.2 Typical Output Characteristics

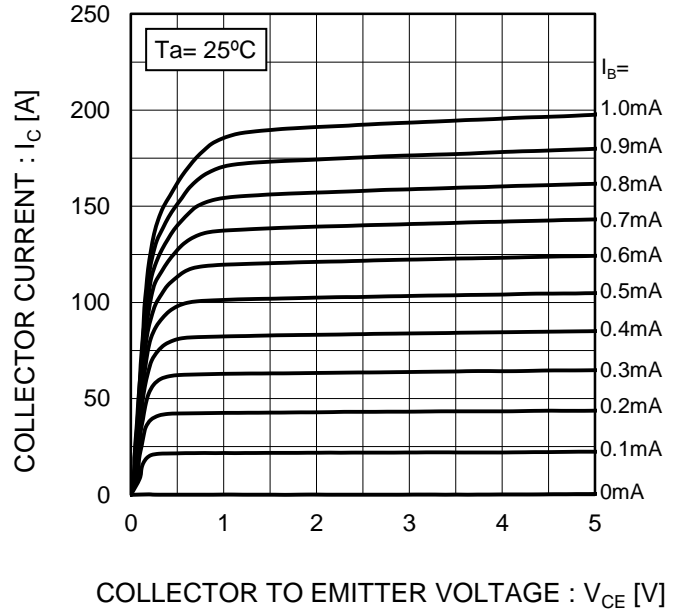


Fig.3 DC Current Gain vs. Collector Current (I)

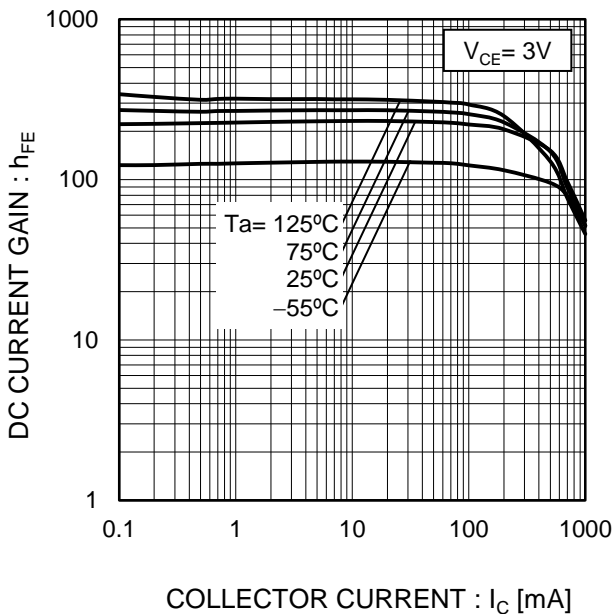
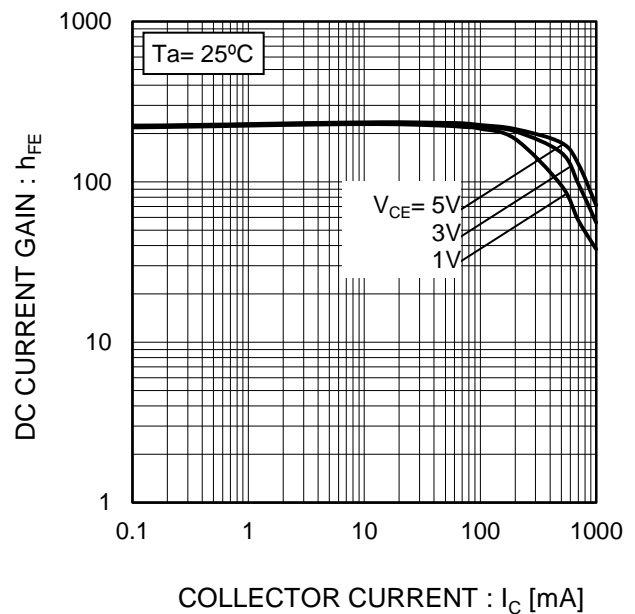


Fig.4 DC Current Gain vs. Collector Current (II)



●Electrical characteristic curves(Ta = 25°C)

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

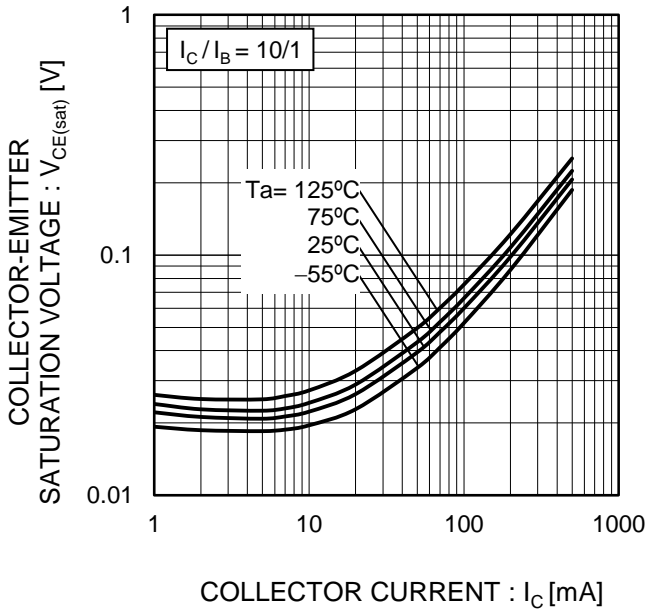


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

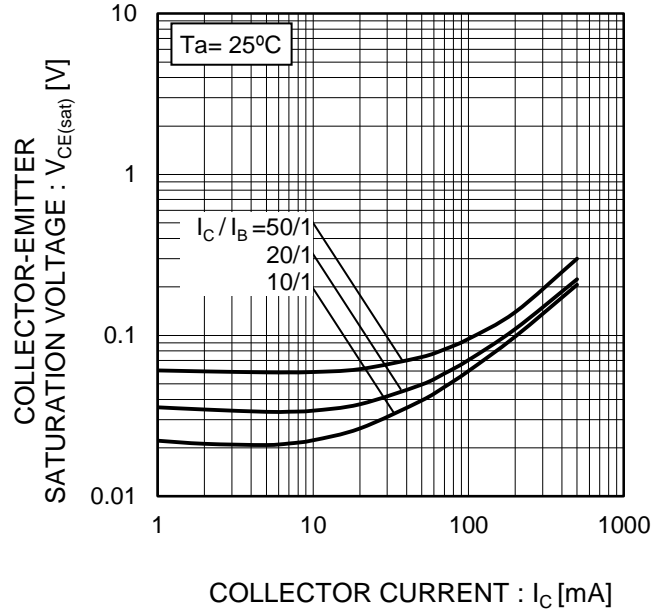


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

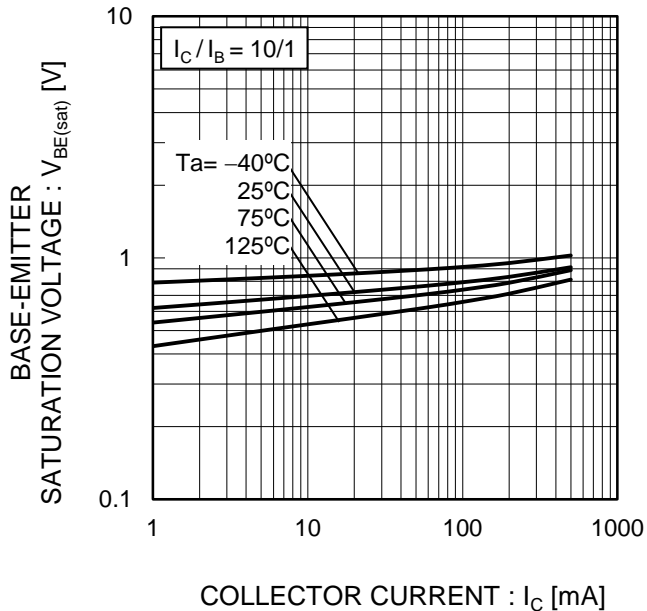
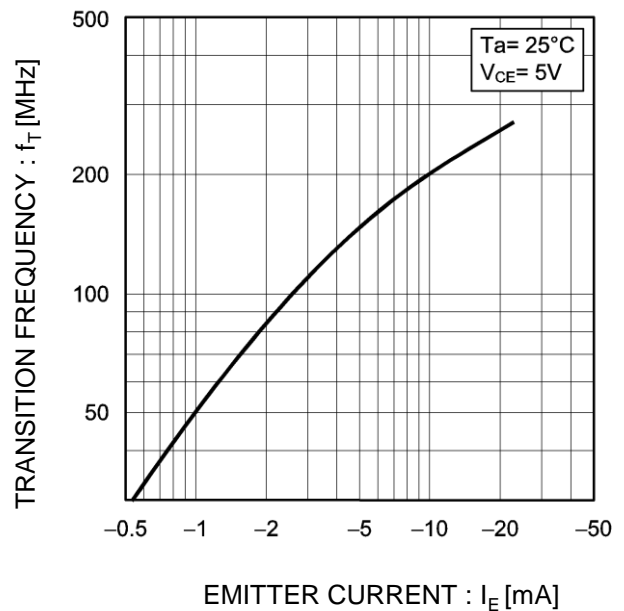


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

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

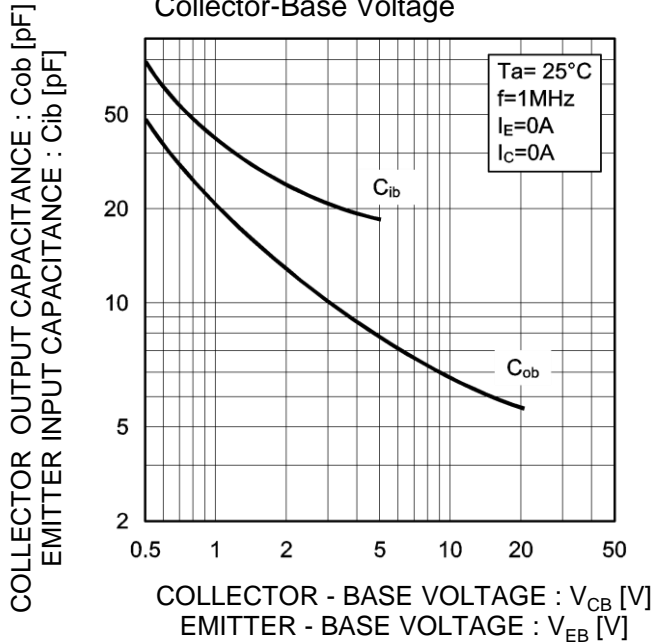
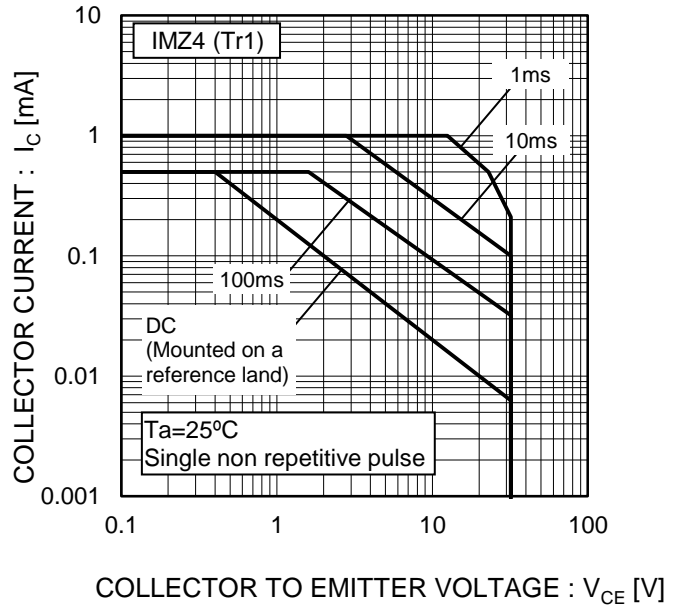


Fig.10 Safe Operating Area



<Tr2>

Fig.11 Ground Emitter Propagation Characteristics

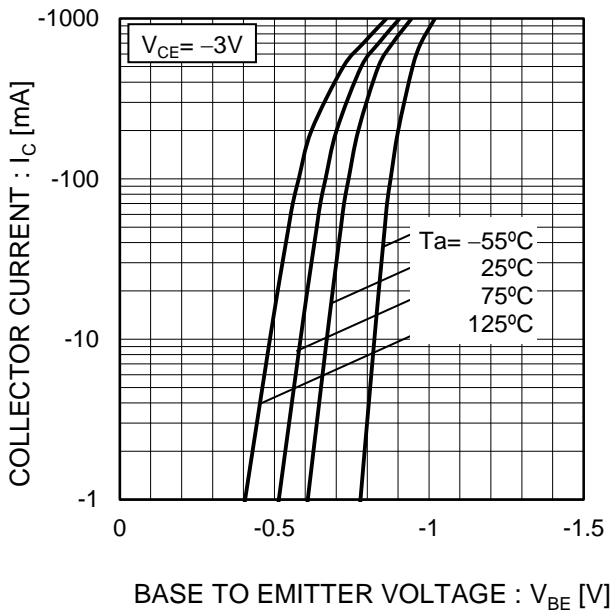
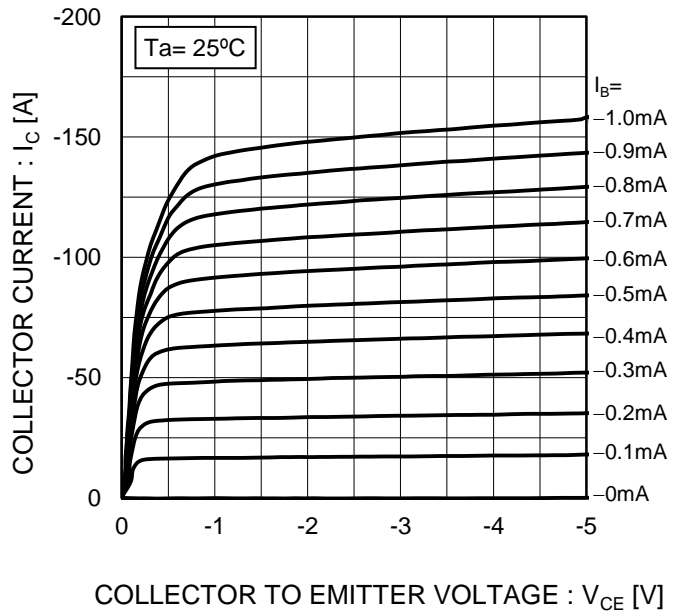


Fig.12 Typical Output Characteristics



●Electrical characteristic curves(Ta = 25°C)

Fig.13 DC Current Gain vs. Collector Current (I)

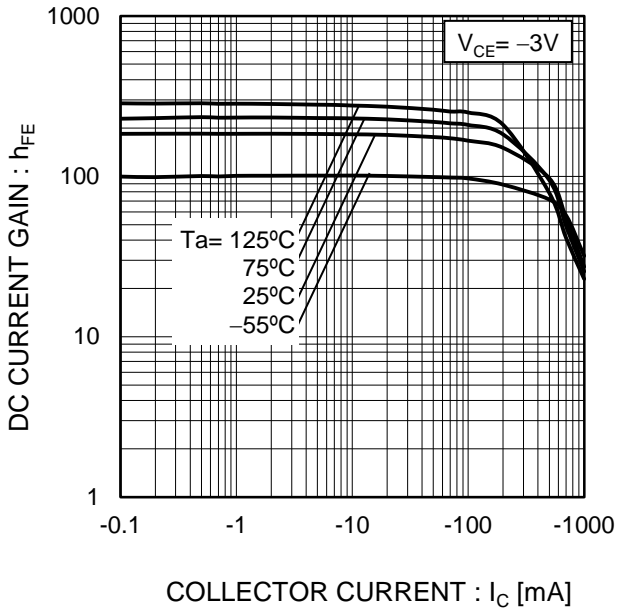


Fig.14 DC Current Gain vs. Collector Current (II)

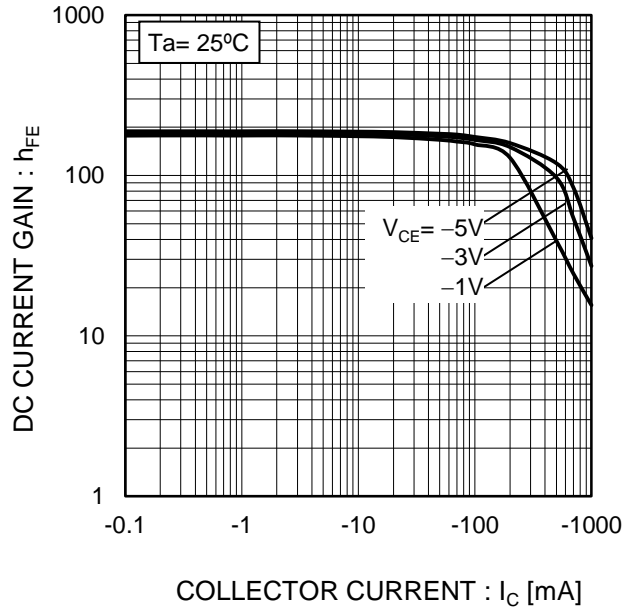


Fig.15 Collector-Emitter Saturation Voltage vs. Collector Current (I)

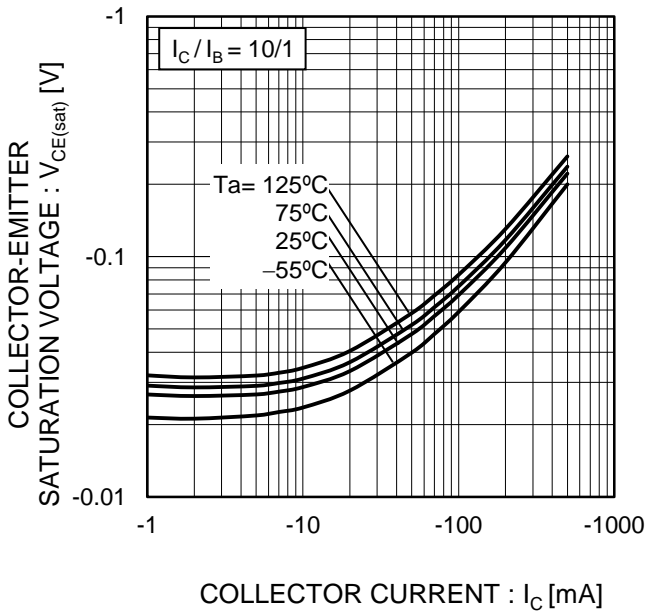
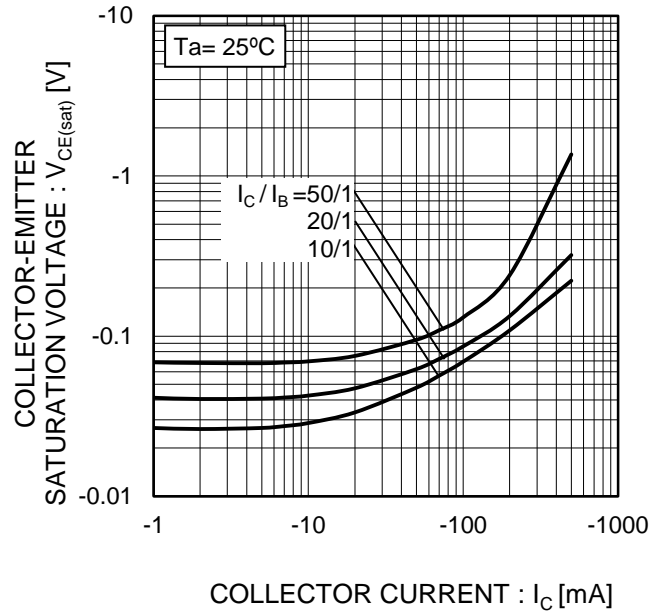


Fig.16 Collector-Emitter Saturation Voltage vs. Collector Current (II)



●Electrical characteristic curves(Ta = 25°C)

Fig.17 Base-Emitter Saturation Voltage vs. Collector Current

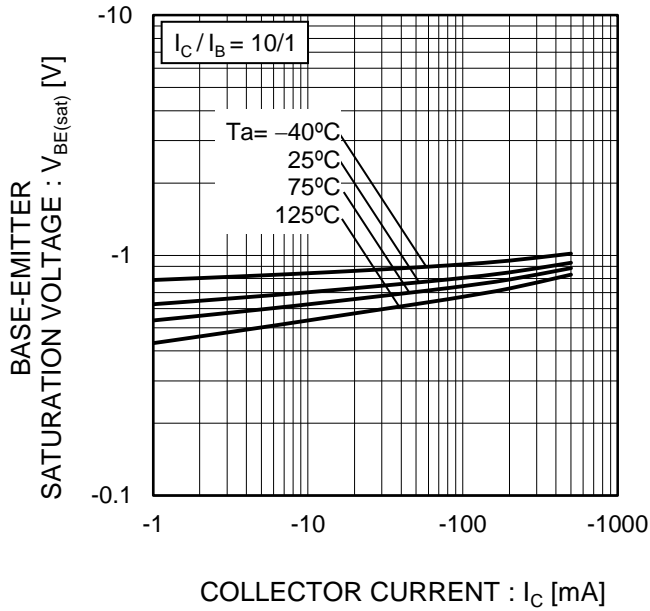


Fig.18 Gain Bandwidth Product vs. Emitter Current

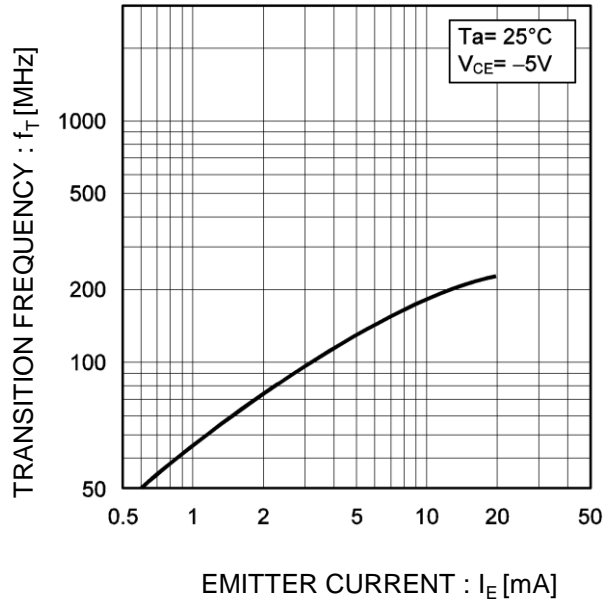


Fig.19 Emitter input capacitance vs. Emitter-Base Voltage  
Collector output capacitance vs. Collector-Base Voltage

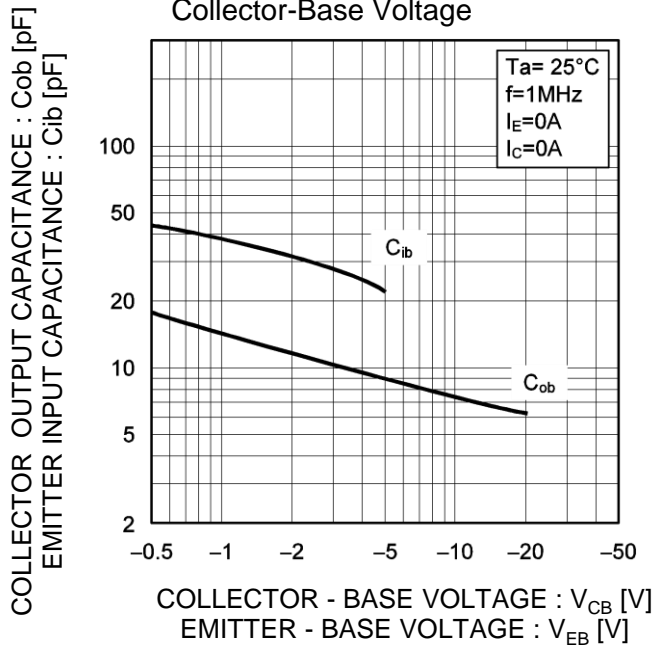
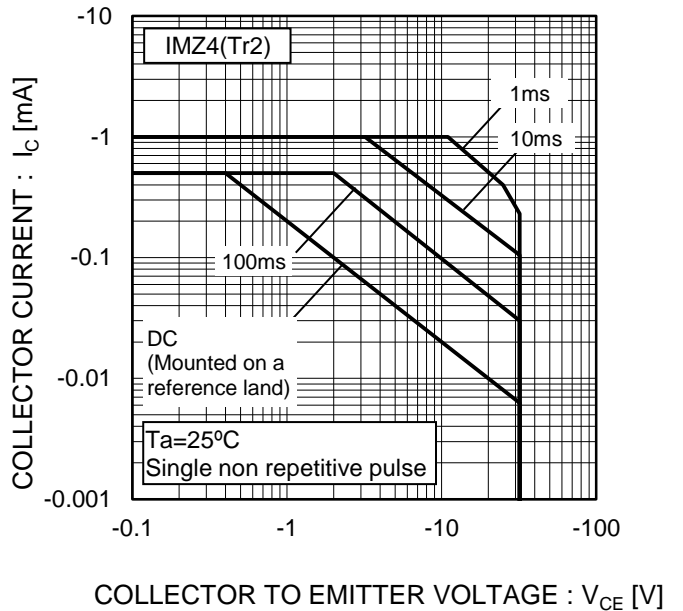
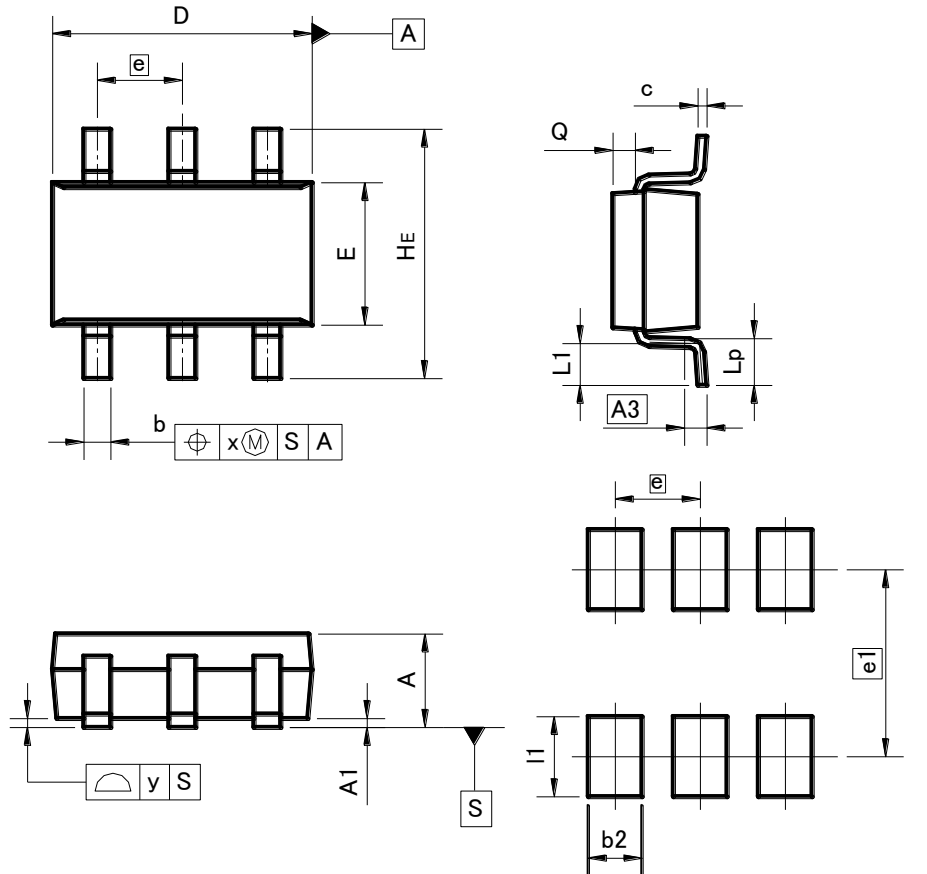


Fig.20 Safe Operating Area



●Dimensions (Unit : mm)

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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