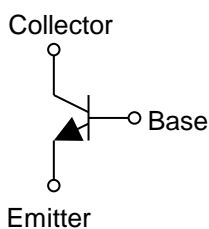


Parameter	Value
V_{CEO}	60V
I_C	2A

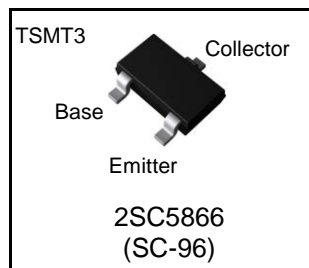
●Features

- 1) Suitable for Middle Power Driver
- 2) Complementary PNP Types : 2SA2094
- 3) Low $V_{CE(sat)}$
 $V_{CE(sat)}=0.50V(\text{Max.})$
 $(I_C/I_B= 1A / 0.1A)$
- 4) Lead Free/RoHS Compliant.

●Inner circuit



●Outline



●Applications

Motor driver , LED driver
Power supply

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
2SC5866	TSMT3	2928	TL	180	8	3,000	VL

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	6	V
Collector current	DC	I_C	2.0
	Pulsed	I_{CP}^{*1}	4.0
Power dissipation	P_D^{*2}	0.5	W
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

*1 Pw=10ms , single pulse

*2 Each terminal mounted on a reference land

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1\text{mA}$	60	-	-	V
Collector-base breakdown voltage	BV_{CBO}	$I_C = 100\mu\text{A}$	60	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 100\mu\text{A}$	6	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = 40\text{V}$	-	-	1.0	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 4\text{V}$	-	-	1.0	μA
Collector-emitter saturation voltage	$V_{CE(sat)}^{*1}$	$I_C = 500\text{mA}, I_B = 25\text{mA}$	-	200	500	mV
DC current gain	h_{FE}	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$	120	-	390	-
Transition frequency	f_T^{*1}	$V_{CE} = 10\text{V}, I_E = -100\text{mA}$ $f = 10\text{MHz}$	-	200	-	MHz
Output capacitance	C_{ob}	$V_{CB} = 10\text{V}, I_E = 0\text{A}$ $f = 1\text{MHz}$	-	10	-	pF
Turn-on time	t_{on}^{*2}	$I_C = 2\text{A}$ $I_{B1} = 200\text{mA}$ $I_{B2} = -200\text{mA}$ $V_{CC} \approx 25\text{V}$	-	50	-	ns
Storage time	t_{stg}^{*2}		-	120	-	ns
Fall time	t_f^{*2}		-	35	-	ns

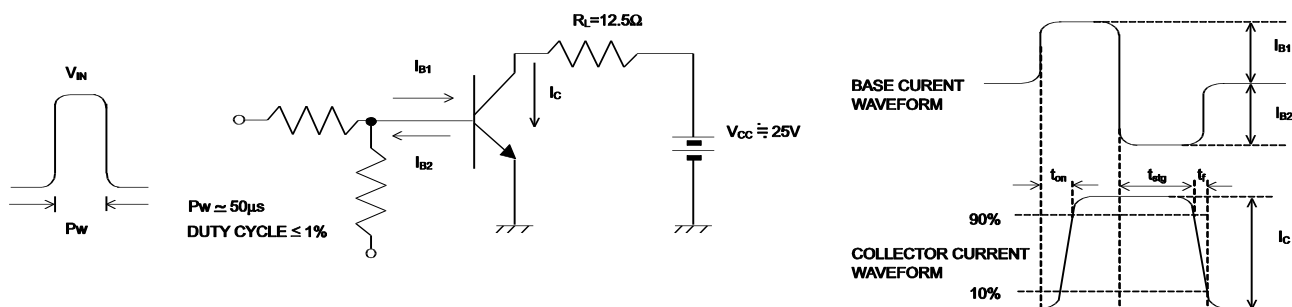
*1 Pulsed

*2 See switching time test circuit

● h_{FE} rank categories

Rank	Q	R
h_{FE}	120 to 270	180 to 390

●Switching time test circuit



●Electrical characteristic curves(Ta = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

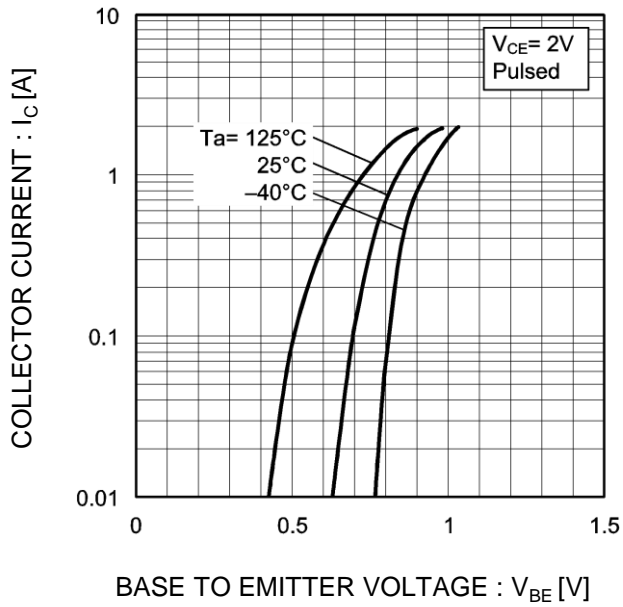


Fig.2 Typical Output Characteristics

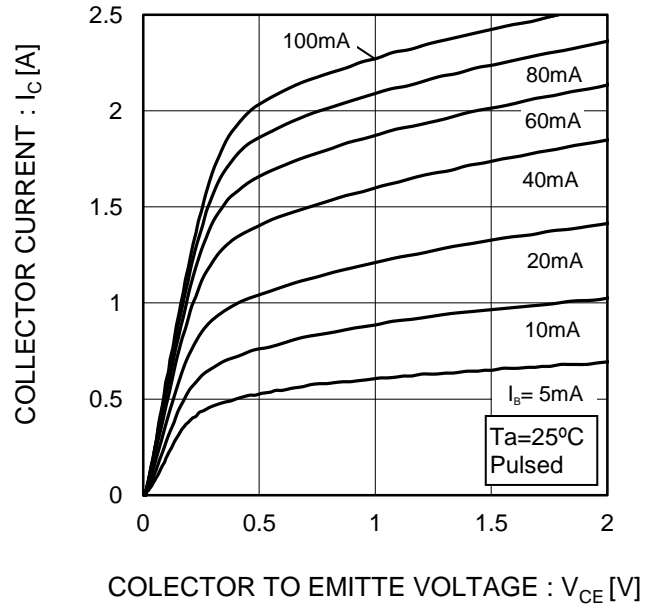


Fig.3 DC Current Gain vs. Collector Current (I)

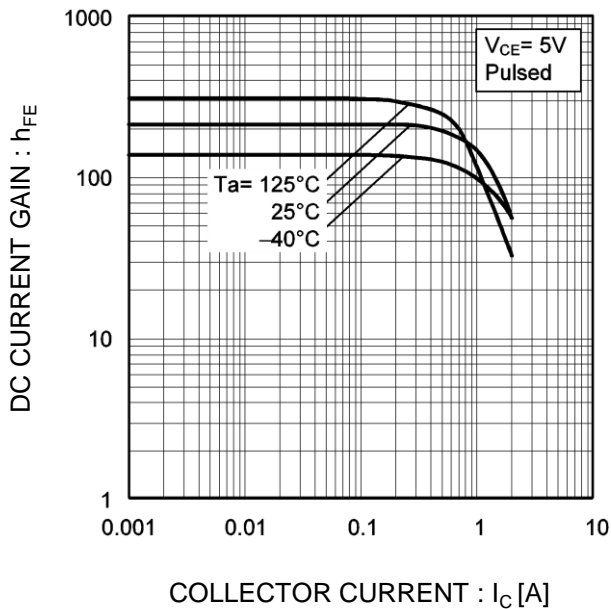
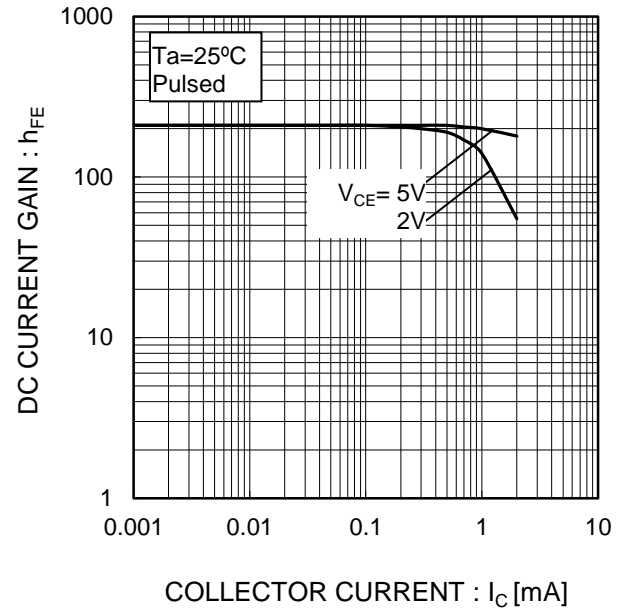


Fig.4 DC Current Gain vs. Collector Current (II)



●Electrical characteristic curves(Ta = 25°C)

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

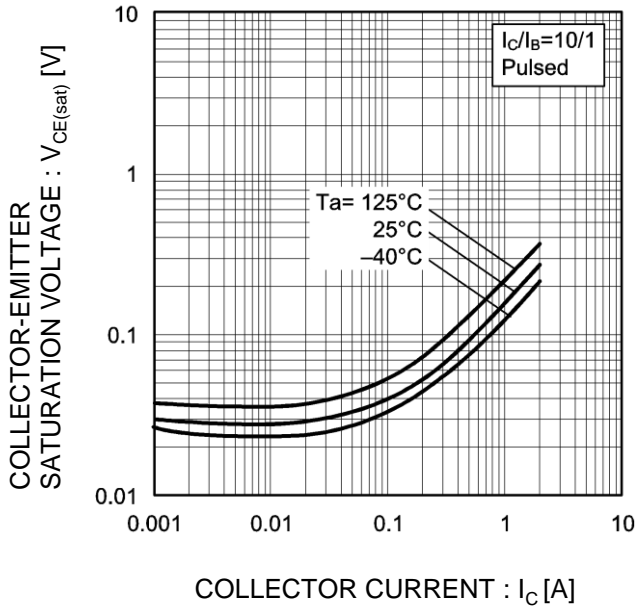


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

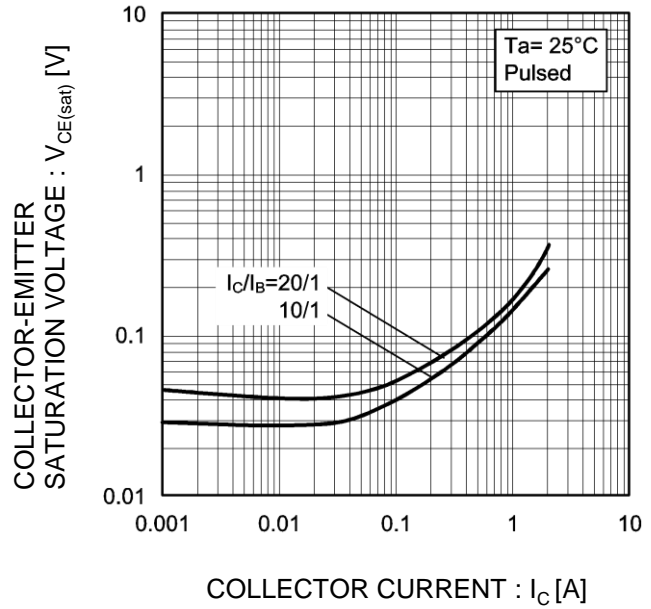


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

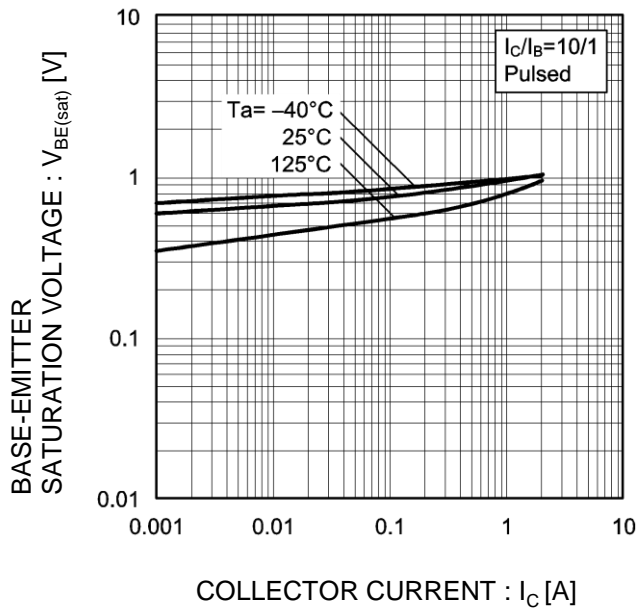
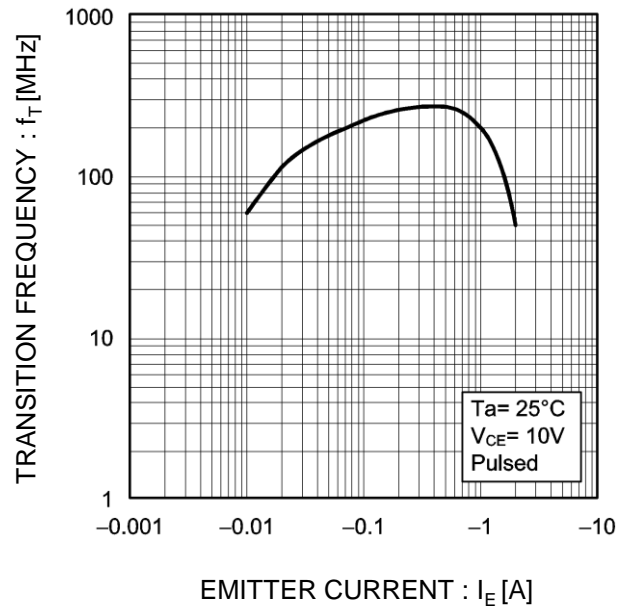


Fig.8 Gain Bandwidth Product vs. Emitter Current



●Electrical characteristic curves(Ta = 25°C)

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

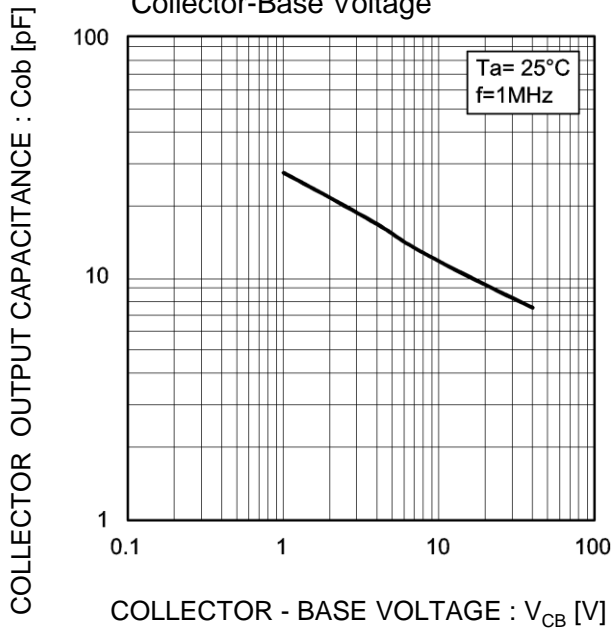
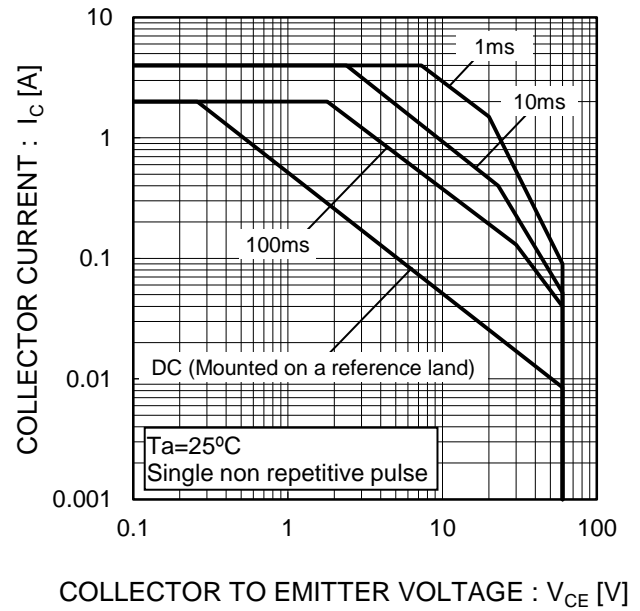
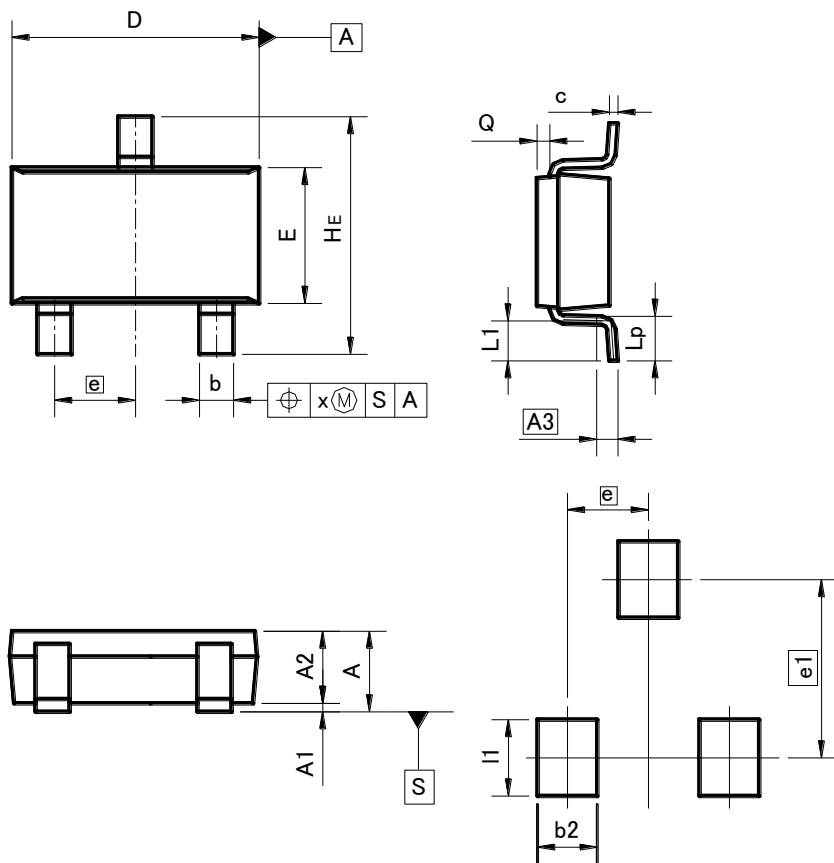


Fig.10 Safe Operating Area



●Dimensions (Unit : mm)

TSMT3



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

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	-	1.00	-	0.039
A1	0.00	0.10	0.000	0.004
A2	0.75	0.95	0.030	0.037
A3	0.25		0.010	
b	0.35	0.50	0.014	0.020
c	0.10	0.26	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	0.05	0.25	0.002	0.010
x	-	0.20	-	0.008

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	-	0.70	-	0.028
e1	2.10		0.083	
l1	-	0.90	-	0.035

Dimension in mm / inches

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