2SC5866

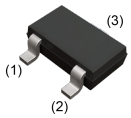
Medium power transistor (60V, 2A)

Datasheet

Parameter	Value
V_{CEO}	60V
I_C	2A

●Outline

TSMT3



SOT-346T

SC-96

●Features

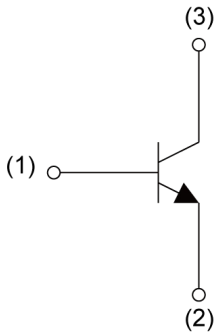
1)High speed switching.
(t_f:Typ.:35ns at I_C=2A)

2)Low saturation voltage, typically
(Typ.:200mV at I_C=1.0A, I_B=100mA)

3)Storong discharge power for inductive load and capacitance load.

4)Complements the 2SA2094

●Inner circuit



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

●Application

LOW FREQUENCY AMPLIFIER, HIGH SPEED SWITCHING

●Packaging specifications

Part No.	Package	Package size	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit.(pcs)	Marking
2SC5866	TSMT3	2928	TL	180	8	3000	VL

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●Absolute maximum ratings (T_a = 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	I_C	2	A
	I_{CP} *1	4	A
Power dissipation	P_D *2	0.5	W
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 = 100μA	60	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C = 1mA	60	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E = 100μA	6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 40V	-	-	1.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 4V	-	-	1.0	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 1.0A, I_B = 100mA	-	200	500	mV
DC current gain	h_{FE}	V_{CE} = 2V, I_C = 100mA	120	-	390	-
Transition frequency	f_T *3	V_{CE} = 10V, I_E = -100mA, f = 10MHz	-	200	-	MHz
Output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0A, f = 1MHz	-	10	-	pF
Turn-On time	t_{on} *3	I_C = 2A, I_{B1} = 200mA, I_{B2} = -200mA, V_{CC} ≃ 25V, R_L = 12.5Ω See test circuit	-	50	-	ns
Storage time	t_{stg} *3		-	120	-	ns
Fall time	t_f *3		-	35	-	ns

hFE values are calssified as follows :

rank	Q	R	-	-	-
hFE	120-270	180-390	-	-	-

*1 Pw=10ms

*2 Each terminal mounted on a reference land.

*3 Pulsed

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●Electrical characteristic curves(T_a = 25°C)

Fig.1 Ground Emitter Propagation Characteristics

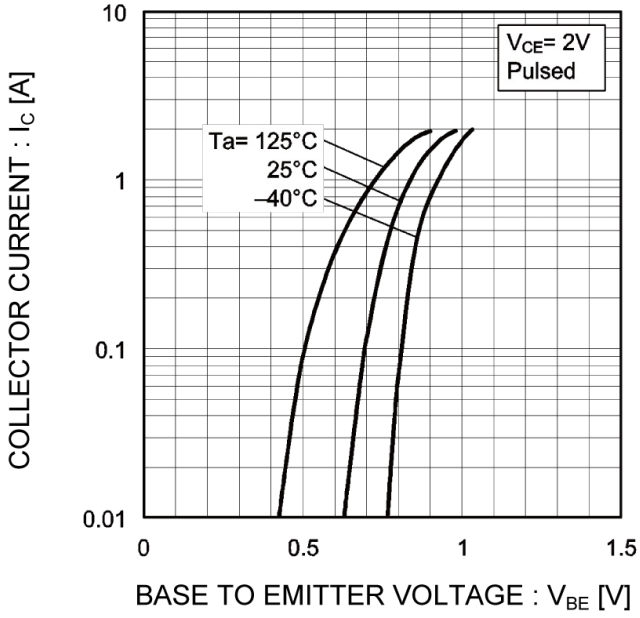


Fig.2 Typical Output Characteristics

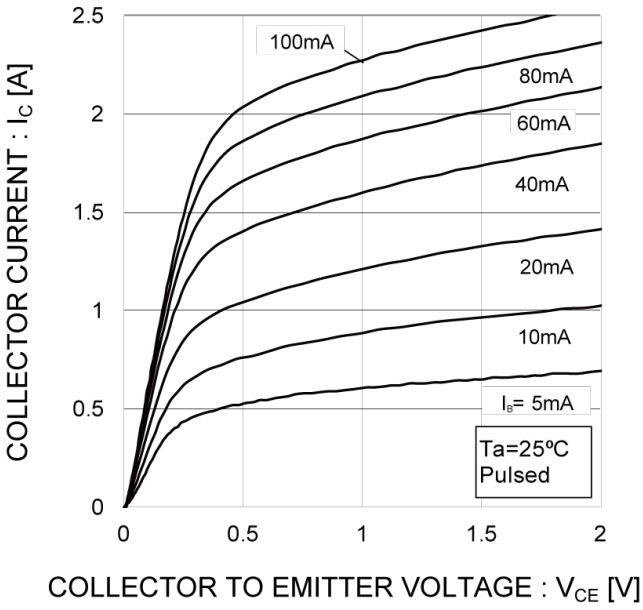


Fig.3 DC Current Gain vs. Collector Current (I)

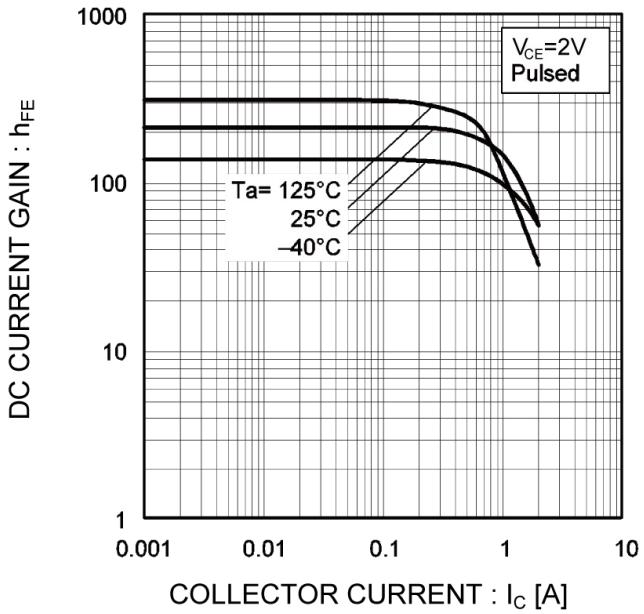
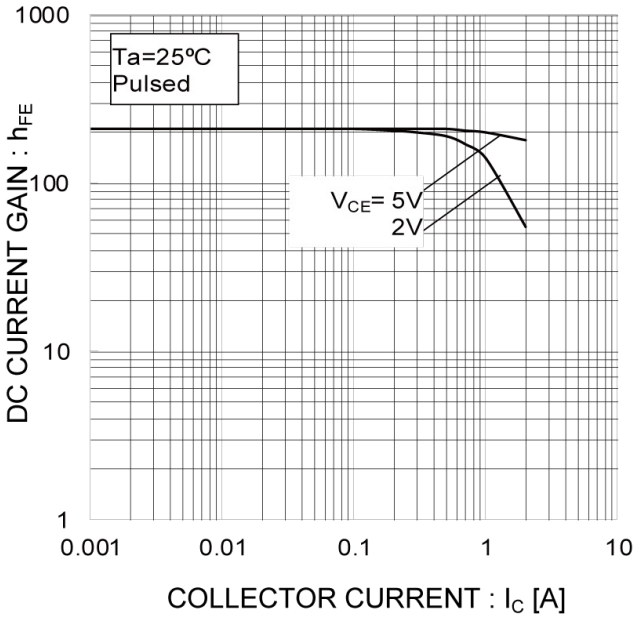


Fig.4 DC Current Gain vs. Collector Current (II)



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●Electrical characteristic curves(T_a = 25°C)

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

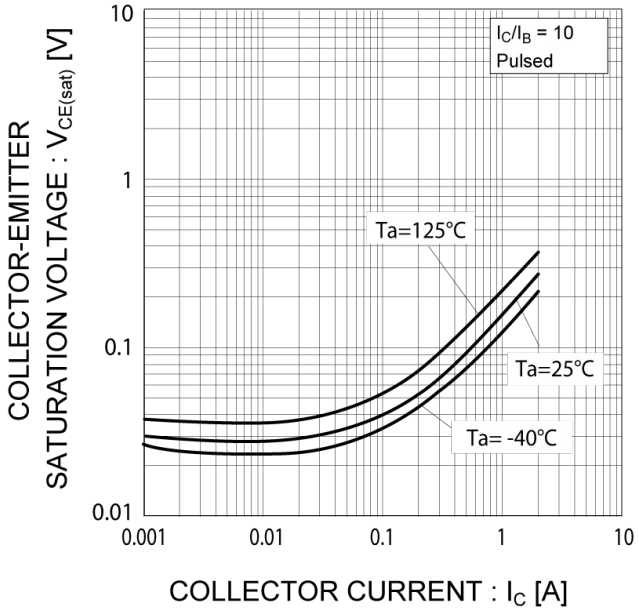


Fig.6 Collector-Emitter Saturation Voltage vs. Collector Current (II)

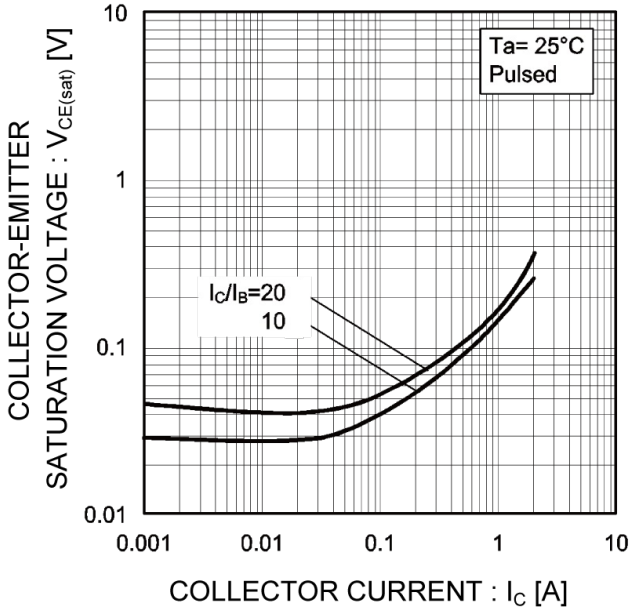


Fig.7 Base-Emitter Saturation Voltage vs. Collector Current

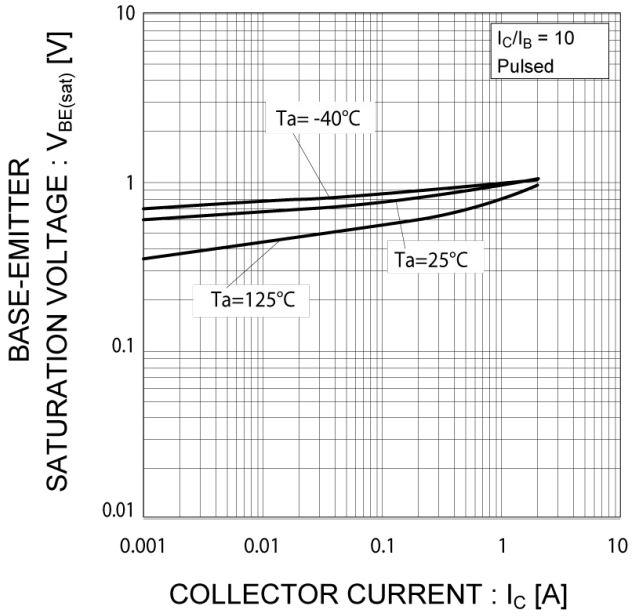
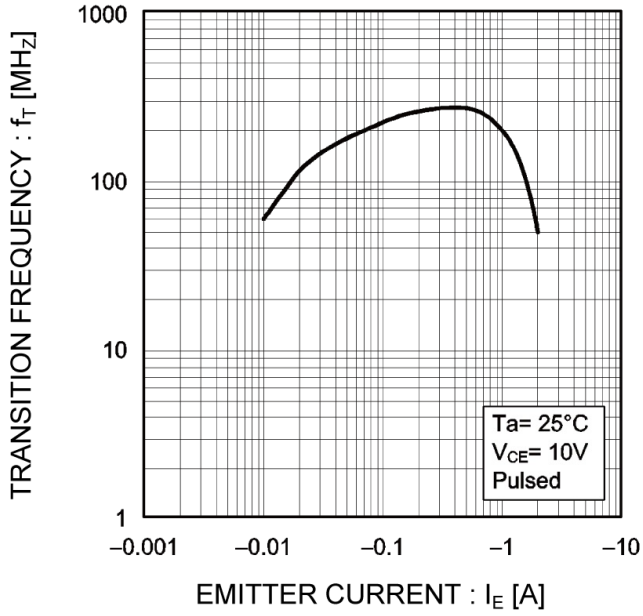


Fig.8 Gain Bandwidth Product vs. Emitter Current



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●Electrical characteristic curves(T_a = 25°C)

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

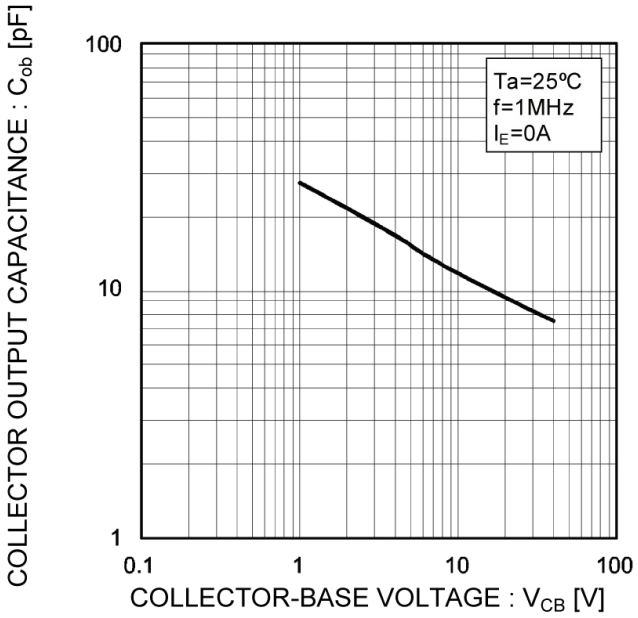
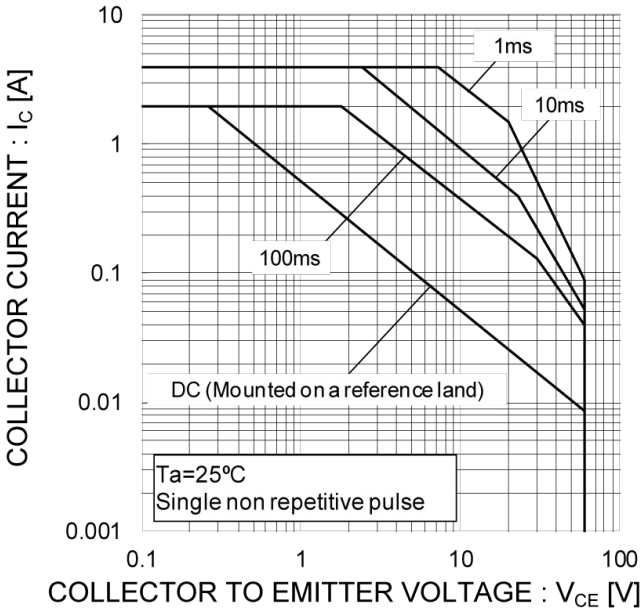
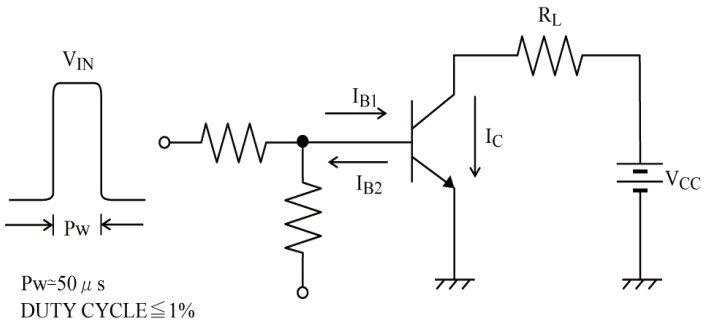
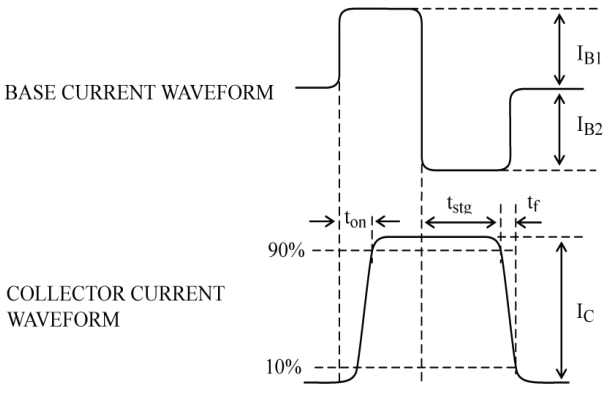


Fig.10 Safe Operating Area



SWITCHING TIME TEST CIRCUIT



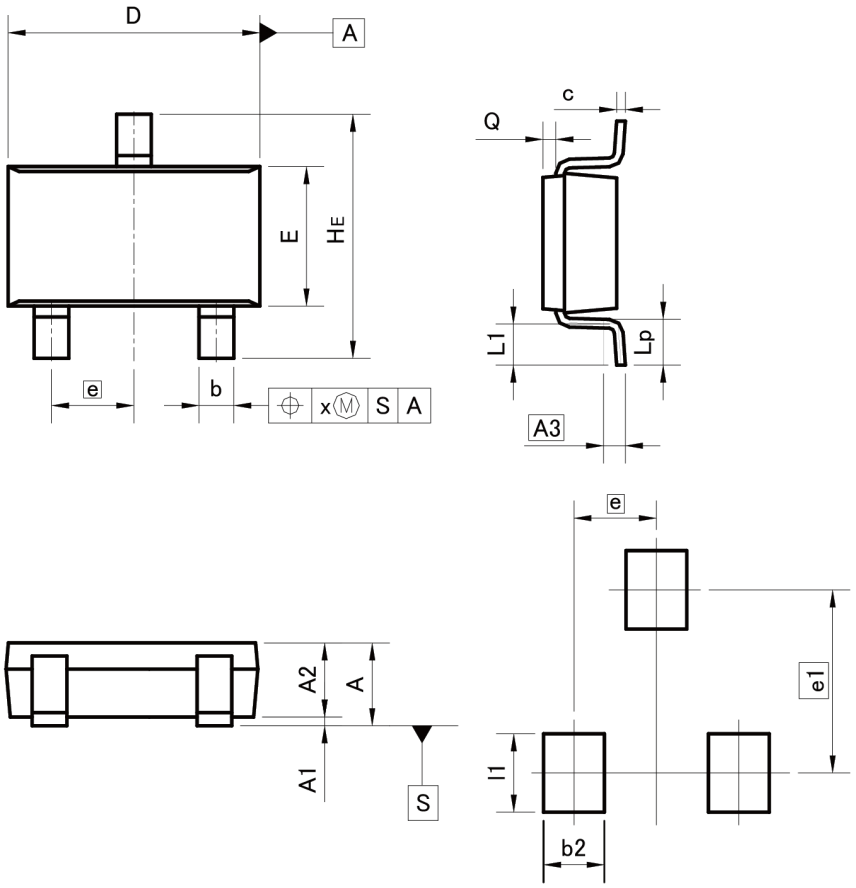


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●Dimensions

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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4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

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7) The Products specified in this document are not designed to be radiation tolerant.

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Distribution Inventory

Part Number	2sc5866
Package	TSMT3
Unit Quantity	3000
Minimum Package Quantity	3000
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes

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