

# Medium power transistor (60V, 2A)

**2SC5866**
**●Features**

- 1) High speed switching. ( $T_f$  : Typ. : 35ns at  $I_c = 2A$ )
- 2) Low saturation voltage, typically  
(Typ. : 200mV at  $I_c = 1.0A$ ,  $I_B = 0.1A$ )
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2094

**●Applications**

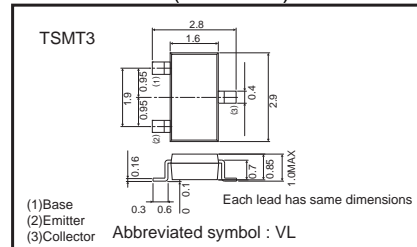
Low frequency amplifier  
 High speed switching

**●Structure**

NPN Silicon epitaxial planar transistor

**●Packaging specifications**

Type	Package	Taping
	Code	TL
	Basic ordering unit (pieces)	3000
2SC5866		○

**●Dimensions (Unit : mm)**

**●Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	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
	$I_{CP}$	4	A <sup>*1</sup>
Power dissipation	$P_c$	500	mW <sup>*2</sup>
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

\*1  $P_w=10ms$

\*2 Each terminal mounted on a recommended land.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	60	-	-	V	$I_C=100\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	60	-	-	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	6	-	-	V	$I_E=100\mu A$
Collector cut-off current	$I_{CBO}$	-	-	1.0	$\mu A$	$V_{CB}=40V$
Emitter cut-off current	$I_{EBO}$	-	-	1.0	$\mu A$	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	200	500	mV	$I_C=1A, I_B=0.1A$ *1
DC current gain	$h_{FE}$	120	-	390	-	$V_{CE}=2V, I_C=100mA$
Transition frequency	fT	-	200	-	MHz	$V_{CE}=10V, I_E=-100mA, f=10MHz$ *1
Collector output capacitance	$C_{ob}$	-	10	-	pF	$V_{CB}=10V, I_E=0mA, f=1MHz$
Turn-on time	$T_{on}$	-	50	-	ns	$I_C=2A,$ $I_{B1}=2000mA$
Storage time	$T_{stg}$	-	120	-	ns	$I_{B2}=-200mA$
Fall time	$T_f$	-	35	-	ns	$V_{CC}=25V$ *2

\*1 Non repetitive pulse

\*2 See switching characteristics measurement circuits

●hFE RANK

Q	R
120-270	180-390

●Electrical characteristic curves

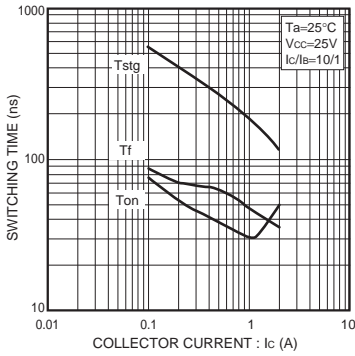


Fig.1 Switching Time

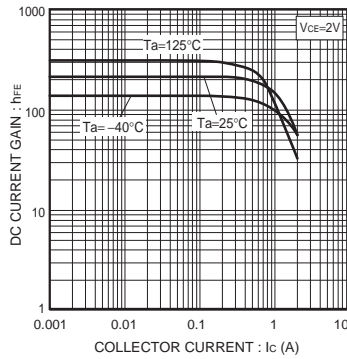


Fig.2 DC current gain vs. collector current

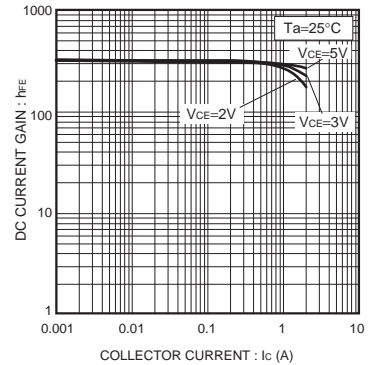


Fig.3 DC current gain vs. collector current

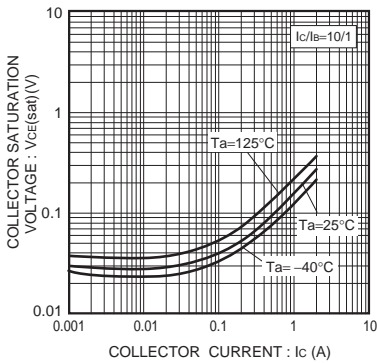


Fig.4 Collector-emitter saturation voltage vs. Collector Current

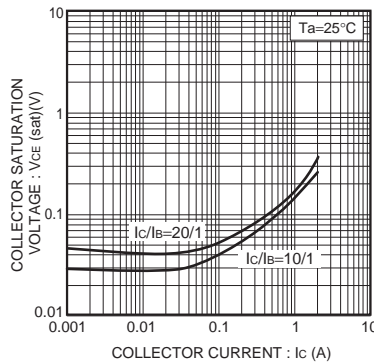


Fig.5 Collector-emitter saturation voltage vs. collector current

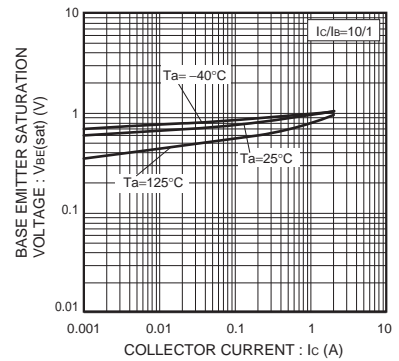


Fig.6 Base-emitter saturation voltage vs. collector current

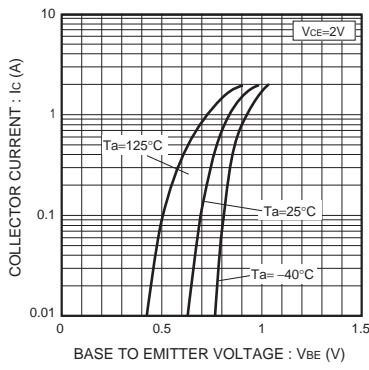


Fig.7 Ground emitter propagation characteristics

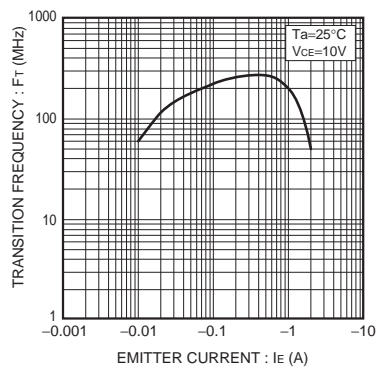


Fig.8 Transition frequency

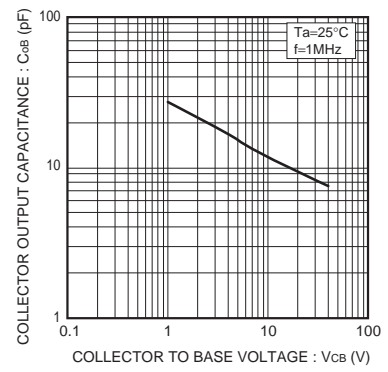
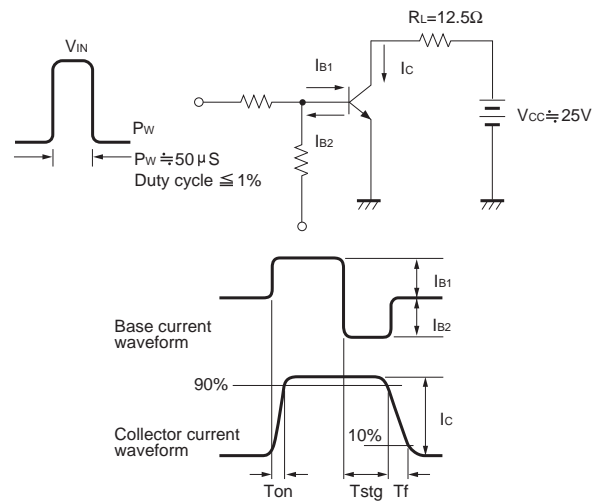


Fig.9 Collector output capacitance

●Switching characteristics measurement circuits



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