

**Silicon NPN transistor epitaxial type**  
**6D978**
**[ Applications ]**

Audio muting circuit  
 DC-DC converter  
 Low voltage output amplifier

**[ Feature ]**

High DC current gain  $hFE=400\sim 2700$   
 High emitter-base breakdown voltage  $BVEBO=12V$   
 Low collector saturation voltage  $VCE(sat)=0.15V(Typ.)$  at  $IC/IB=500mA/20mA$

**[ Absolute maximum ratings (Ta=25C) ]**

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	25	V
Collector-emitter voltage	VCEO	20	V
Emitter-base voltage	VEBO	12	V
Collector current	IC	500	mA
Junction temperature	Tj	150	C
Storage temperature	Tstg	-55 to 150	C

**[ Electrical characteristics (Ta=25C) ]**

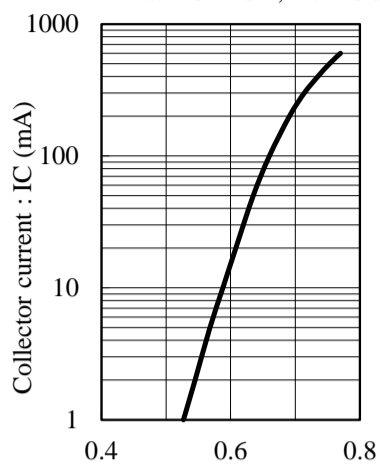
Characteristic	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	25	-	-	V	IC= 10uA, IE= 0A
Collector-emitter breakdown voltage	BVCEO	20	-	-	V	IC= 1mA, IB= 0A
Emitter-base breakdown voltage	BVEBO	12	-	-	V	IE= 10uA, IC= 0A
Collector cut-off current	ICBO	-	-	0.5	uA	VCB= 25V, IE= 0A
Emitter cut-off current	IEBO	-	-	0.5	uA	VEB= 10V, IE= 0A
DC current gain	hFE	400	-	2700	-	VCE= 3V, IC= 100mA
Collector-emitter saturation voltage	VCE(sat)	-	0.15	0.4	V	IC= 500mA, IB= 20mA
Transition frequency	fT	-	250	-	MHz	VCE= 10V, IE= -50mA
Collector output capacitance	Cob	-	7.5	-	pF	VCB= 10V, f = 1MHz, IE= 0A

Notice 1) These are measured data of transistors assembled by PHENITEC SEMICONDUCTOR Corp. and are for reference only.

Notice 2) The contents described herein are subject to change without notice.

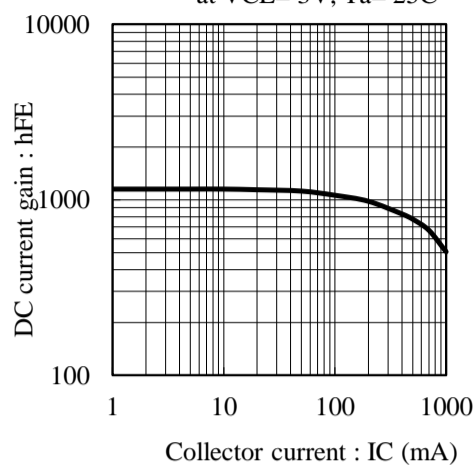
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Fig.1 VBE(on) - IC  
at VCE= 5V, Ta= 25C



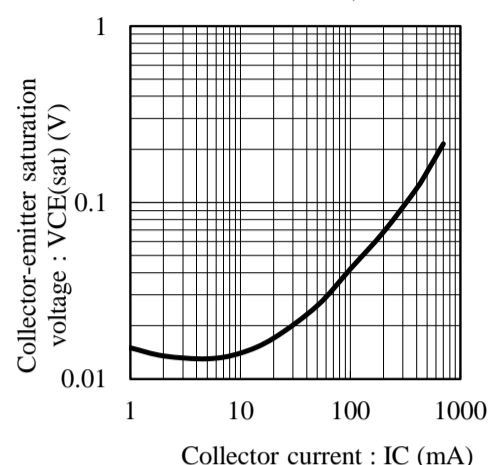
Base-emitter on voltage : VBE(on) (V)

Fig.2 hFE - IC  
at VCE= 3V, Ta= 25C



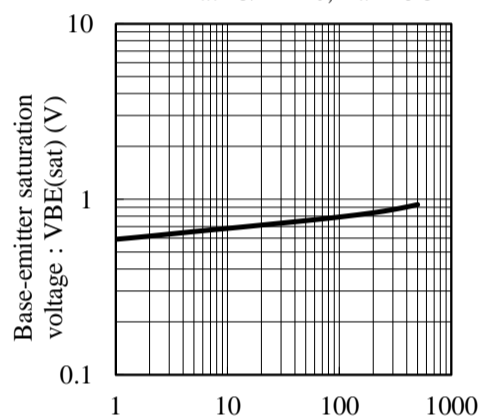
Collector current : IC (mA)

Fig.3 VCE(sat) - IC  
at IC/IB= 25, Ta= 25C



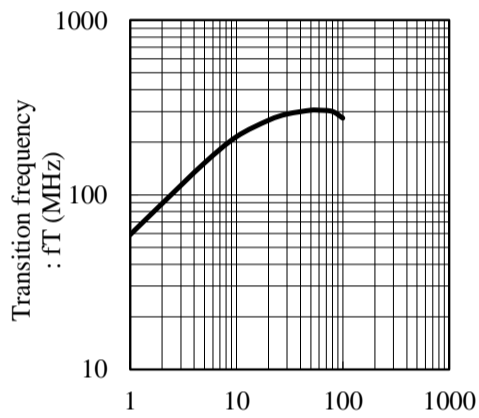
Collector current : IC (mA)

Fig.4 VBE(sat) - IC  
at IC/IB=10, Ta= 25C



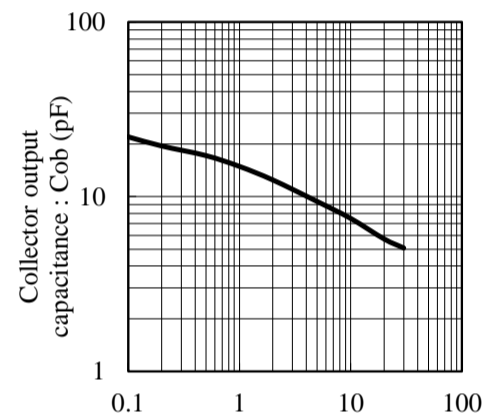
Collector current : IC (mA)

Fig.5 fT - IE  
at VCE= 10V, Ta= 25C



Emitter current : -IE (mA)

Fig.6 Cob - VCB  
at f= 1MHz, Ta= 25C



Collector-base voltage : VCB (V)