

Silicon PNP transistor epitaxial type A5888

[Applications]

Charging circuits, DC-DC converters, MOSFET gate drivers
Motor control, Power switches

[Feature]

Very low collector saturation voltage $V_{CE(sat)} = -60\text{mV}$ (Max.) at $I_C = -1\text{A}$, $I_B = -0.1\text{A}$

[Absolute maximum ratings (Ta=25C)]

Characteristic	Symbol	Maximum ratings	Unit
Collector-base voltage	VCBO	-50	V
Collector-emitter voltage	VCEO	-40	V
Emitter-base voltage	VEBO	-7.5	V
Collector current (DC)	IC	-5.5	A
Collector current (Pulse)	IC	-15	A
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	-50	-	-	V	$I_C = -100\mu\text{A}$, $I_E = 0\text{A}$
Collector-emitter breakdown voltage	BVCES	-50	-	-	V	$I_C = -100\mu\text{A}$
Collector-emitter breakdown voltage	BVCEO	-40	-	-	V	$I_C = -10\text{mA}$, $I_B = 0\text{A}$
Emitter-base breakdown voltage	BVEBO	-7.5	-	-	V	$I_E = -100\mu\text{A}$, $I_C = 0\text{A}$
Collector cut-off current	ICBO	-	-	-20	nA	$V_{CB} = -40\text{V}$, $I_E = 0\text{A}$
Collector cut-off current	ICES	-	-	-20	nA	$V_{CES} = -32\text{V}$
Emitter cut-off current	IEBO	-	-	-20	nA	$V_{EB} = -6\text{V}$, $I_C = 0\text{A}$
DC current gain 1	hFE 1	200	-	-	-	$V_{CE} = -2\text{V}$, $I_C = -10\text{mA}$
DC current gain 2	hFE 2	200	-	550	-	$V_{CE} = -2\text{V}$, $I_C = -0.5\text{A}$
DC current gain 3	hFE 3	170	-	-	-	$V_{CE} = -2\text{V}$, $I_C = -2\text{A}$
DC current gain 4	hFE 4	110	-	-	-	$V_{CE} = -2\text{V}$, $I_C = -5.5\text{A}$
Collector-emitter saturation voltage 1	$V_{CE(sat) 1}$	-	-	-30	mV	$I_C = -0.1\text{A}$, $I_B = -10\text{mA}$
Collector-emitter saturation voltage 2	$V_{CE(sat) 2}$	-	-	-60	mV	$I_C = -1\text{A}$, $I_B = -100\text{mA}$
Collector-emitter saturation voltage 3	$V_{CE(sat) 3}$	-	-	-70	mV	$I_C = -1\text{A}$, $I_B = -50\text{mA}$
Collector-emitter saturation voltage 4	$V_{CE(sat) 4}$	-	-	-165	mV	$I_C = -1\text{A}$, $I_B = -10\text{mA}$
Collector-emitter saturation voltage 5	$V_{CE(sat) 5}$	-	-	-80	mV	$I_C = -2\text{A}$, $I_B = -200\text{mA}$
Collector-emitter saturation voltage 6	$V_{CE(sat) 6}$	-	-	-175	mV	$I_C = -2\text{A}$, $I_B = -40\text{mA}$
Collector-emitter saturation voltage 7	$V_{CE(sat) 7}$	-	-	-175	mV	$I_C = -3.5\text{A}$, $I_B = -175\text{mA}$
Collector-emitter saturation voltage 8	$V_{CE(sat) 8}$	-	-	-185	mV	$I_C = -5.5\text{A}$, $I_B = -550\text{mA}$
Base-emitter saturation voltage 1	$V_{BE(sat) 1}$	-	-	-0.9	V	$I_C = -2\text{A}$, $I_B = -40\text{mA}$
Base-emitter saturation voltage 2	$V_{BE(sat) 2}$	-	-	-1.075	V	$I_C = -5.5\text{A}$, $I_B = -550\text{mA}$
Base-emitter on voltage 1	$V_{BE(on) 1}$	-	-	-0.85	V	$V_{CE} = -2\text{V}$, $I_C = -2\text{A}$
Base-emitter on voltage 2	$V_{BE(on) 2}$	-	-	-0.95	V	$V_{CE} = -2\text{V}$, $I_C = -5.5\text{A}$
Transition frequency	fT	-	152	-	MHz	$V_{CE} = -10\text{V}$, $I_E = 50\text{mA}$
Collector output capacitance	Cob	-	53	-	pF	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$, $I_E = 0\text{A}$
Turn on time 1	ton 1	-	35	-	ns	$V_{CC} = -10\text{V}$, $I_C = -1\text{A}$
Turn off time 1	toff 1	-	385	-	ns	$-I_{B1} = I_{B2} = -100\text{mA}$
Turn on time 2	ton 2	-	162	-	ns	$V_{CC} = -30\text{V}$, $I_C = -2\text{A}$
Turn off time 2	toff 2	-	367	-	ns	$-I_{B1} = I_{B2} = -20\text{mA}$

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.

No. A5888-20080825

Fig.1 I_C - $V_{BE(on)}$
at $V_{CE} = -2V$, $T_a = 25C$

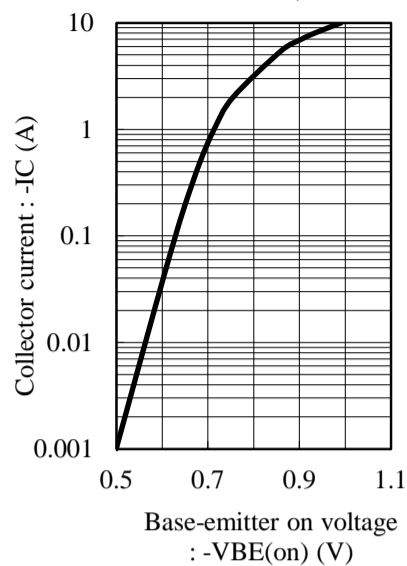


Fig.2 h_{FE} - I_C
at $V_{CE} = -2V$, $T_a = 25C$

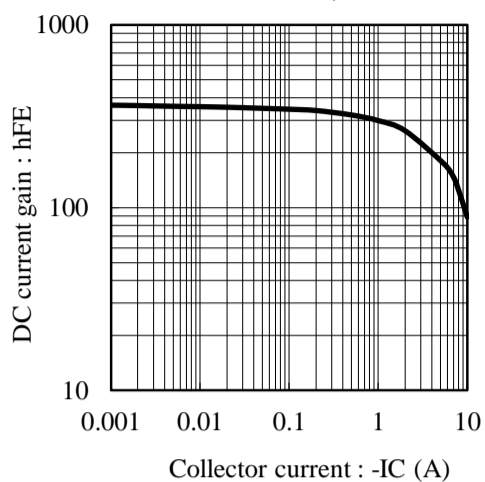


Fig.3 $V_{CE(sat)}$ - I_C
at $I_C/I_B = 10$, $T_a = 25C$

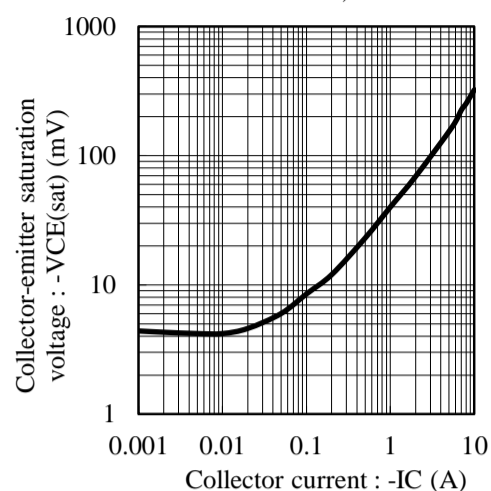


Fig.4 $V_{CE(sat)}$ - I_C
at $I_C/I_B = 20$, $T_a = 25C$

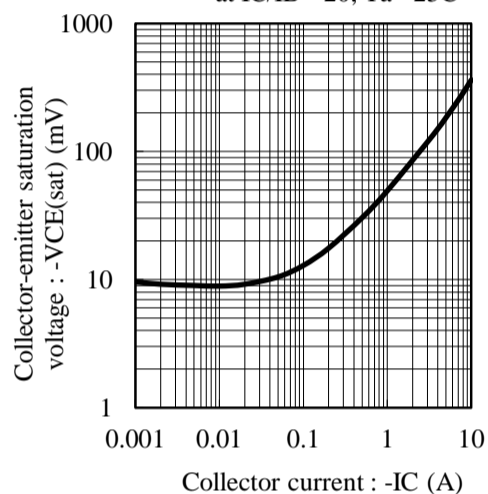


Fig.5 $V_{CE(sat)}$ - I_C
at $I_C/I_B = 50$, $T_a = 25C$

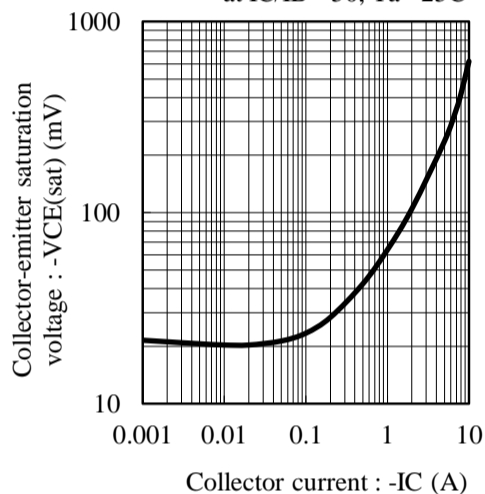


Fig.6 $V_{CE(sat)}$ - I_C
at $I_C/I_B = 100$, $T_a = 25C$

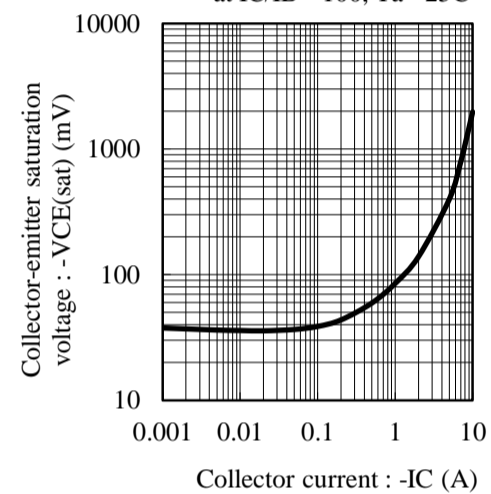


Fig.7 $V_{BE(sat)}$ - I_C
at $I_C/I_B = 10$, $T_a = 25C$

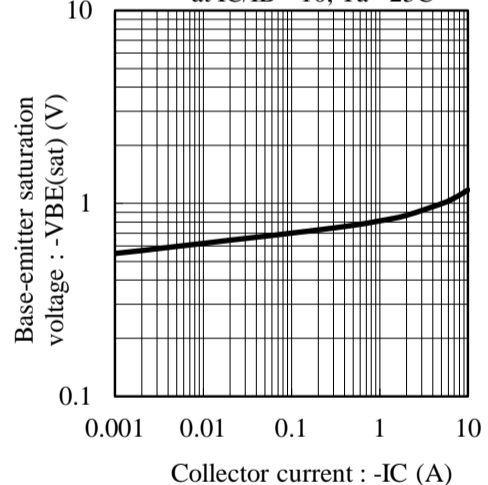


Fig.8 $V_{BE(sat)}$ - I_C
at $I_C/I_B = 50$, $T_a = 25C$

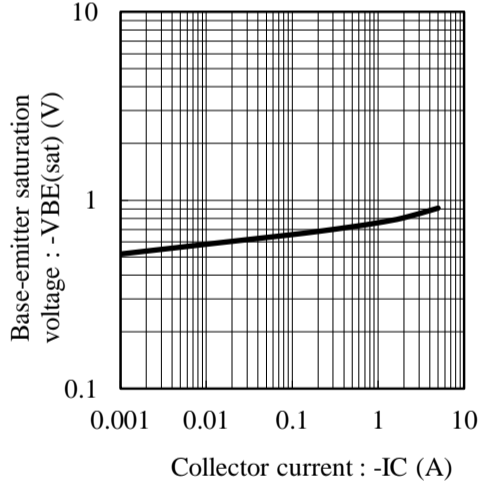


Fig.9 f_T - I_E
at $V_{CE} = -10V$, $T_a = 25C$

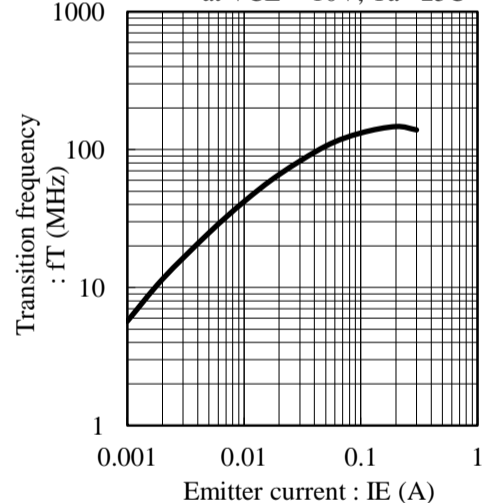


Fig.10 C_{ob} - V_{CB}
at $f = 1MHz$, $T_a = 25C$

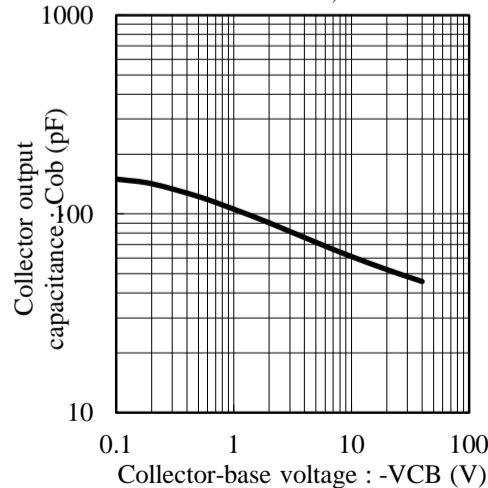


Fig.11 C_{ib} - V_{EB}
at $f = 1MHz$, $T_a = 25C$

