TRANSISTOR (NPN)

SOT-23

1. BASE
2.EMITTER
3.COLLECTOR

FEATURES

- High DC current gain.
- High emitter-base voltage.
- Low $V_{CE\ (sat)}$.

MARKING: BBV,BBW

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	25	V
V_{CEO}	Collector-Emitter Voltage	20	V
V_{EBO}	Emitter-Base Voltage	12	V
I_C	Collector Current -Continuous	0.5	A
P_C	Collector Power Dissipation	0.25	W
Tj	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10 μ A, I_E=0	25			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C =1mA, I_B=0	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10 μ A, I_C=0	12			V
Collector cut-off current	I_{CBO}	V_{CB}=20 V, I_E=0			0.5	μ A
Emitter cut-off current	I_{EBO}	V_{EB}=10V,I_C=0			0.5	μ A
DC current gain	h_{FE}	V_{CE}=3V, I_C=10mA	820		2700	
Collector-emitter saturation voltage	V_{CE}(sat)	I_C= 500mA, I_B=20 mA			0.4	V
Transition frequency	f_T	V_{CE}=10V, I_C=50mA f=100MHz		350		MHz
output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHz		8		pF
On resistance	$R_{(on)}$	V_{in}=0.1V(rms),I_B=1mA, f=1KHz		0.8		Ω

CLASSIFICATION OF h_{FE}

Rank	V	W
Range	820-1800	1200-2700

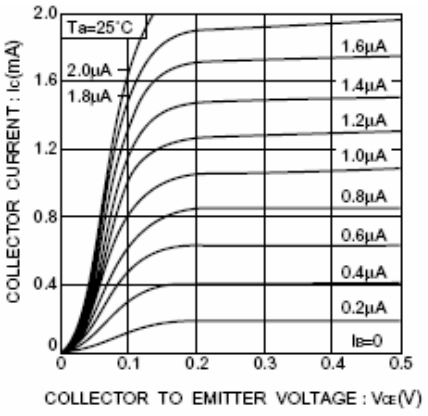

Fig.1 Grounded emitter output characteristics(I)

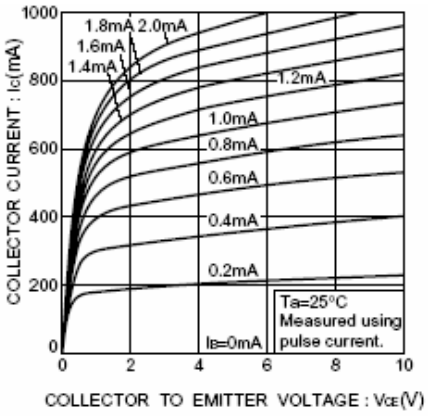

Fig.2 Grounded emitter output characteristics(II)

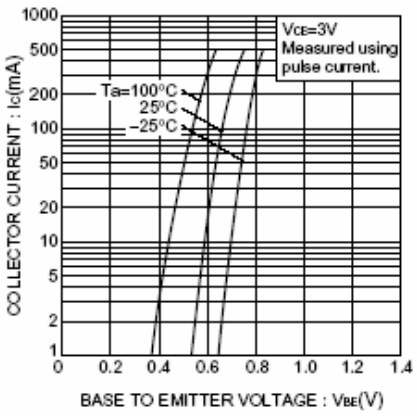

Fig.3 Grounded emitter propagation characteristics

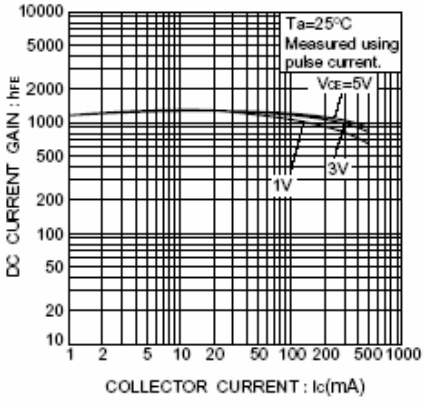

Fig.4 DC current gain vs. collector current(I)

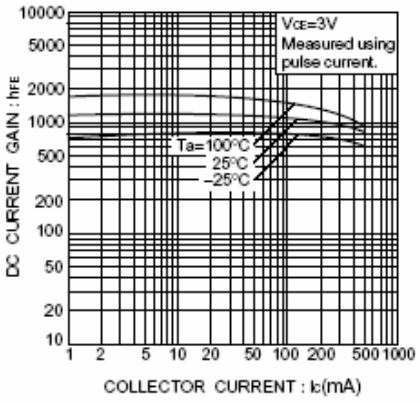

Fig.5 DC current gain vs. collector current(II)

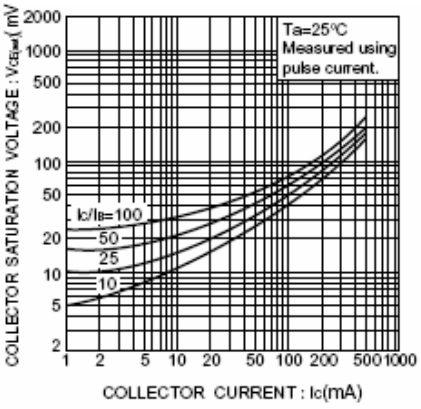

Fig.6 Collector-emitter saturation voltage vs. collector current(I)

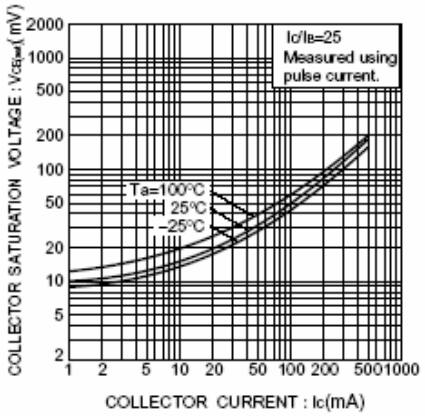

Fig.7 Collector-emitter saturation voltage vs. collector current(II)

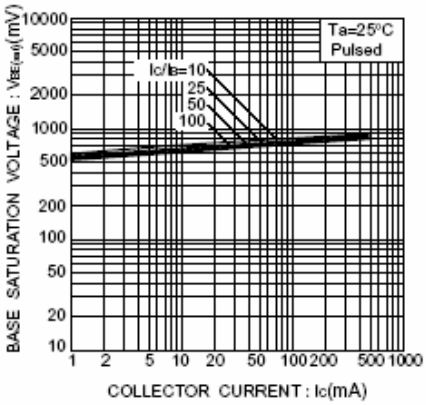

Fig.8 Base-emitter saturation voltage vs. collector current(I)

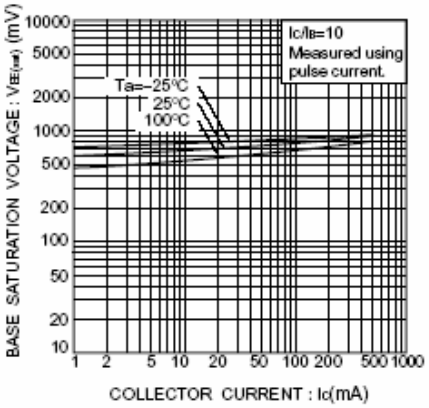

Fig.9 Base-emitter saturation voltage vs. collector current(II)

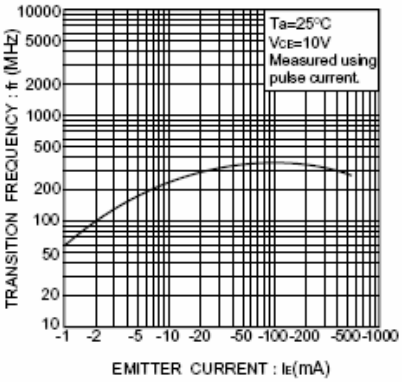

Fig.10 Gain bandwidth product vs. emitter current

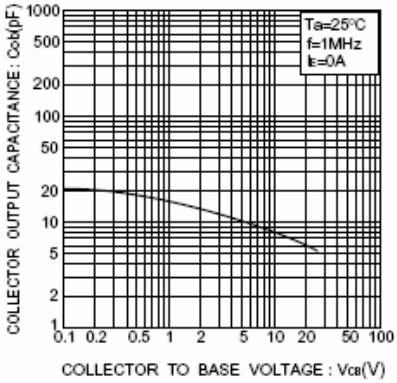

Fig.11 Collector output capacitance vs. collector-base voltage

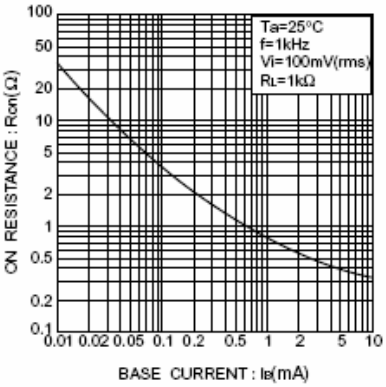

Fig.12 Output-on resistance vs. base current