Silicon Epitaxal Base Mesa Transistor

T-33-21

2SB713 (PNP)
2SD751 (NPN)

TOP-3 Package (See Page 36 For Dimensions)

2SB713 (PNP)

Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Collector-Base Voltage	$-V_{CBO}$	200	V
Collector-Emitter Voltage	$-V_{CEO}$	140	V
Emitter-Base Voltage	$-V_{EBO}$	5	V
Peak Collector Current	$-I_{CM}$	15	A
Collector Current	$-I_C$	9	A
Collector Power Dissipation	P_C*	100	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~+150	°C

*Tc=25°C

High Power Audio Frequency Amplifier Complementary Pair with 2SD751

Feature:
• Large collector power dissipation: 100W(Tc=25°C)

****h_{FE} Classification**

h_{FE}	100~200	60~120	40~80
Class	P	Q	R

Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector Cutoff Current	$-I_{CBO}$	$-V_{CB}$=140V, I_E=0			50	μA
Emitter Cutoff Current	$-I_{EBO}$	$-V_{EB}$=3V, I_C=0			50	μA
DC Current Gain	h_{FE1}	$-V_{CE}$=5V, $-I_C$=0.02A	20			—
	h_{FE2}**	$-V_{CE}$=5V, $-I_C$=1.0A	40		200	—
	h_{FE3}	$-V_{CE}$=5V, $-I_C$=5.0A	15			—
Base-Emitter Voltage	$-V_{BE}$	$-V_{CE}$=5V, $-I_C$=7.0A			1.8	V
Collector-Emitter Saturation Voltage	$-V_{CE(sat)}$	$-I_C$=5A, $-I_B$=0.7A			2.0	V
Gain Bandwidth Product	f_T	$-V_{CE}$=5V, $-I_C$=0.5A		20		MHz

2SD751 (NPN)

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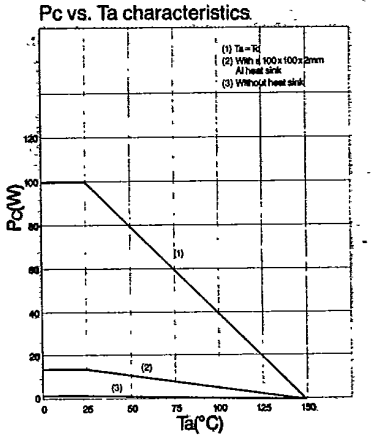
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=7.0A, I_B=0.7A			2.0	V
Gain Bandwidth Product	f_T	V_{CE}=5V, I_C=0.5A		20		MHz

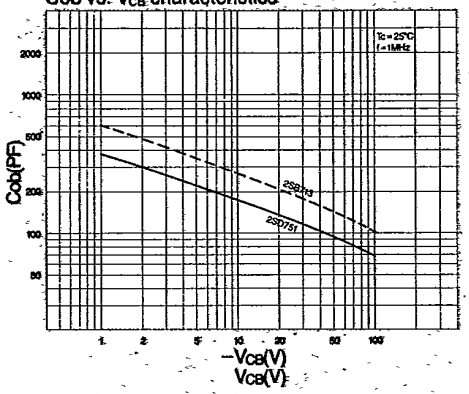
2SB713 (PNP) 2SD751 (NPN)

Typical Characteristics

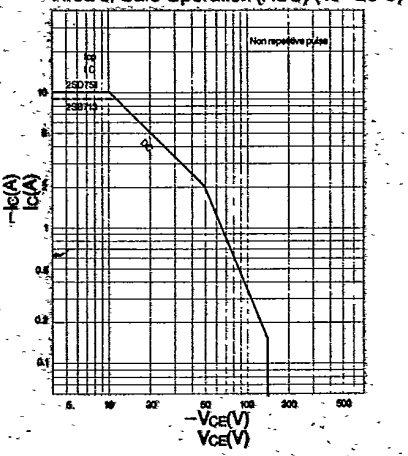
Pc vs. Ta characteristics



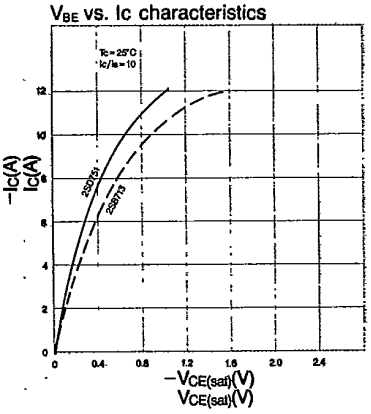
Cob vs. V_{CB} characteristics



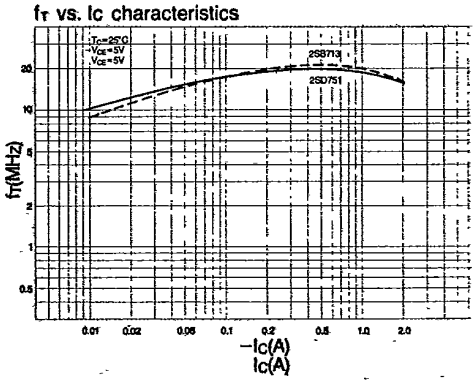
Area of Safe Operation (ASO) (Tc=25°C)



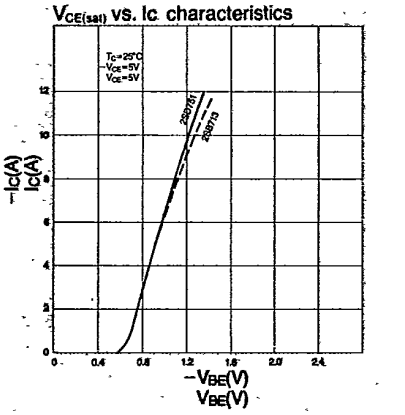
V_{BE} vs. Ic characteristics



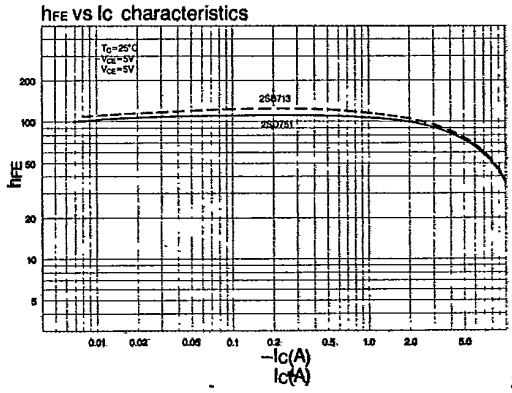
f_T vs. Ic characteristics



$V_{CE(sat)}$ vs. Ic characteristics



h_{FE} vs Ic characteristics



Transient Thermal Resistance

Notes: Rth was measured at Ta=25°C and under natural convection

Thermal Resistance vs. t