2SD1895

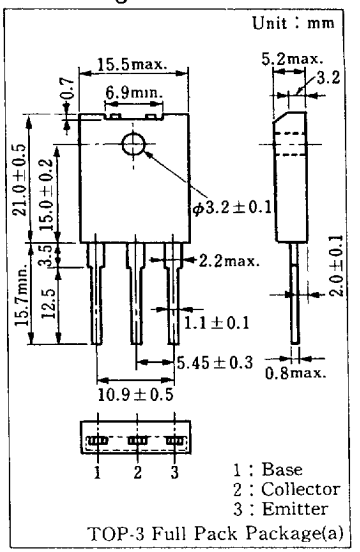
Silicon NPN Triple-Diffused Planar Darlington Type

Power Amplifier
Complementary Pair with 2SB1252

■ Features

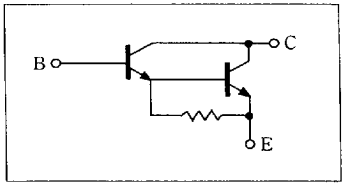
- Optimum for 90W hi-fi output
- High DC current gain (h_{FE}): 5000~30000
- Low collector-emitter saturation voltage ($V_{CE(sat)}$): <2.5V
- "Full Pack" package for simplified mounting on a heat sink with one screw

■ Package Dimensions



TOP-3 Full Pack Package(a)

■ Inner Circuit



■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage		V_{CBO}	160	V
Collector-emitter voltage		V_{CEO}	140	V
Emitter-base voltage		V_{EBO}	5	V
Peak collector current		I_{CP}	15	A
Collector current		I_C	8	A
Collector power dissipation	T_C=25℃	P_C	100	W
	T_a=25℃		3	
Junction temperature		T_j	150	℃
Storage temperature		T_{stg}	−55~+150	℃

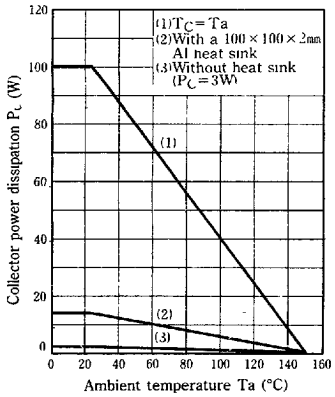
■ Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	V_{CB}=160V, I_E=0			100	μA
Collector cutoff current	I_{CEO}	V_{CE}=140V, I_B=0			100	μA
Emitter cutoff current	I_{EBO}	V_{EB}=5V, I_C=0			100	μA
Collector-emitter voltage	V_{CEO}	I_C=30mA, I_B=0	140			V
DC current gain	h_{FE1}	V_{CE}=5V, I_C=1A	2000			
	h_{FE2}*	V_{CE}=5V, I_C=7A	5000		30000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=7A, I_B=7mA			2.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=7A, I_B=7mA			3.0	V
Transition frequency	f_T	V_{CE}=10V, I_C=0.5A, f=1MHz		20		MHz
Turn-on time	t_{on}	I_C=7A I_{B1}=7mA, I_{B2}=−7mA V_{CC}=50V		2.0		μs
Storage time	t_{stg}			6.0		μs
Collector current fall time	t_f			1.2		μs

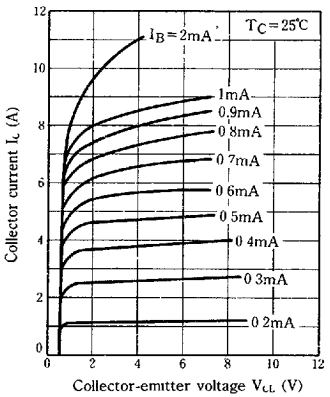
*h_{FE2} Classifications

Class	Q	P
h_{FE2}	5000~15000	8000~30000

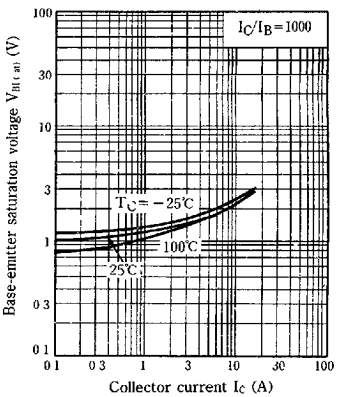
$P_C - Ta$



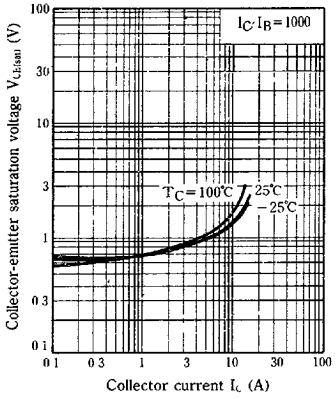
$I_C - V_{CE}$



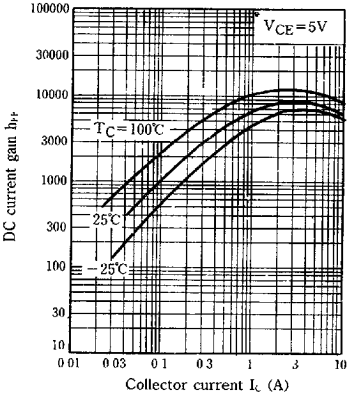
$V_{BE\,(sat)} - I_C$



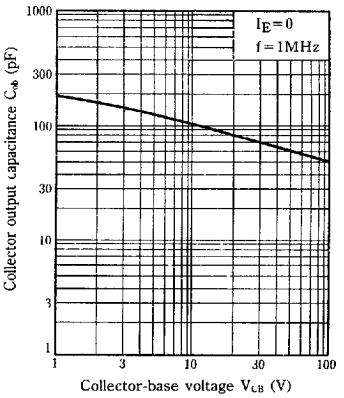
$V_{CE\,(sat)} - I_C$



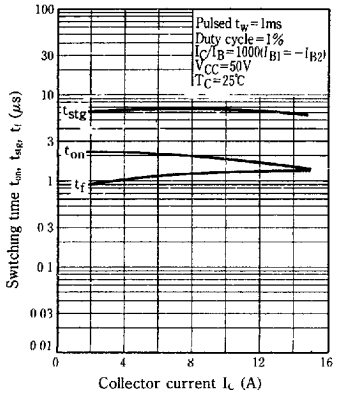
$h_{FE} - I_C$



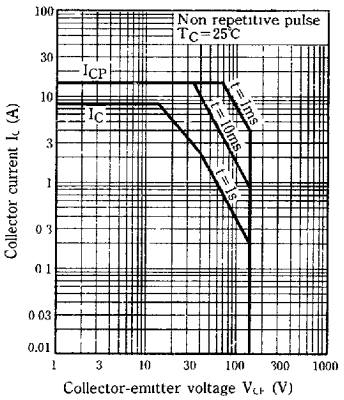
$C_{ob} - V_{CB}$



t_{on}, t_{stg}, $t_f - I_C$



Area of safe operation (ASO)



$R_{th(t)}-t$