

2SD1706

Silicon NPN Epitaxial Planar Type

Power Switching

Complementary Pair with 2SB1155

■ Features

- Low collector-emitter saturation voltage ($V_{CE(sat)}$)
- Good linearity of DC current gain (h_{FE})
- High collector current (I_C)
- "Full Pack" package for simplified mounting on a heat sink with one screw

■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	130	V
Collector-emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	7	V
Peak collector current	I_{CP}	25	A
Collector current	I_C	15	A
Collector power dissipation	$T_c=25^\circ\text{C}$	80	W
	$T_a=25^\circ\text{C}$	3	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

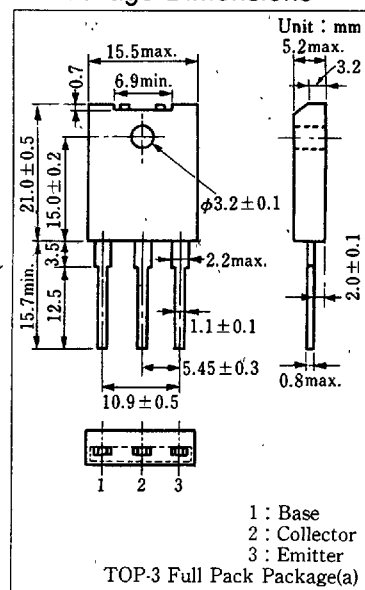
■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

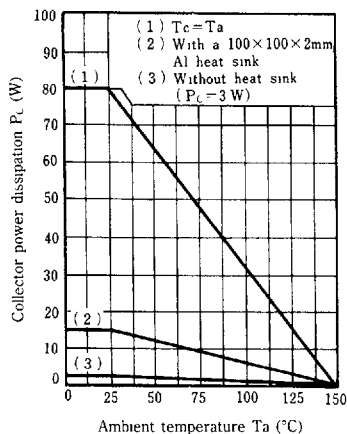
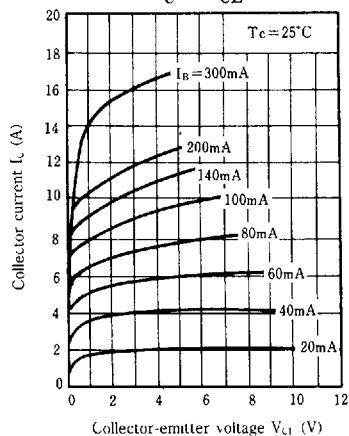
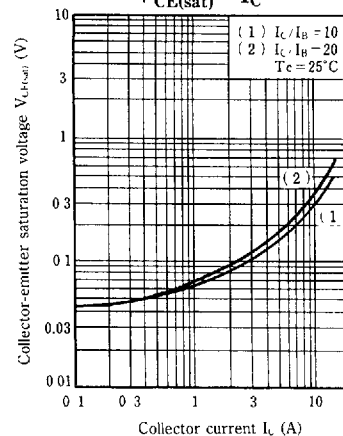
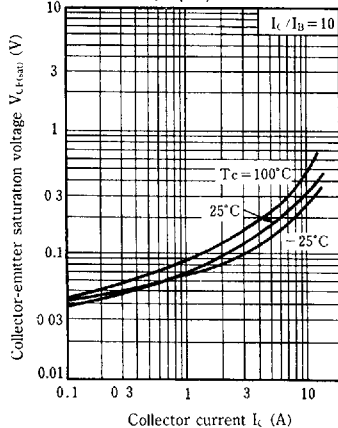
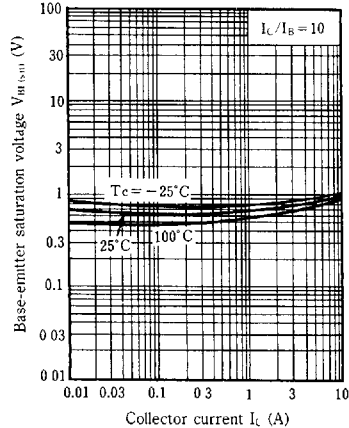
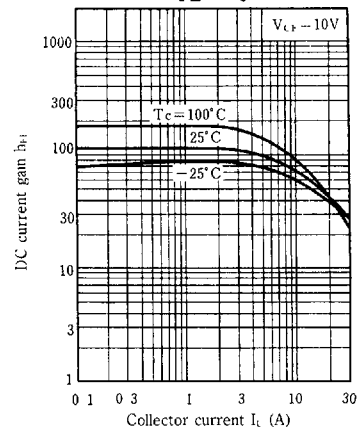
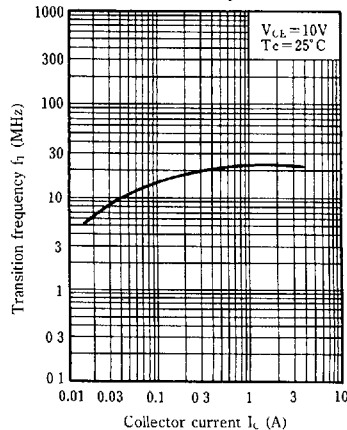
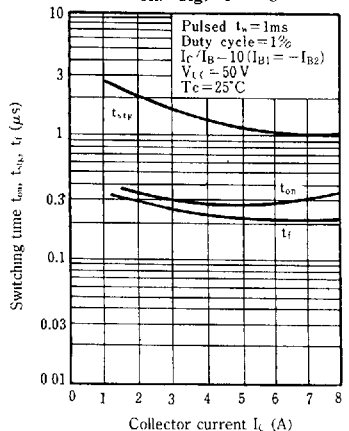
Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB}=100\text{ V}, I_E=0$			10	μA
Emitter cutoff current	I_{EBO}	$V_{EB}=5\text{ V}, I_C=0$			50	μA
Collector-emitter voltage	V_{CEO}	$I_C=10\text{ mA}, I_B=0$	80			V
DC current gain	h_{FE1}	$V_{CE}=2\text{ V}, I_C=0.1\text{ A}$	45			
	h_{FE2}^*	$V_{CE}=2\text{ V}, I_C=3\text{ A}$	60		260	
	h_{FE3}	$V_{CE}=2\text{ V}, I_B=8\text{ A}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=7\text{ A}, I_B=0.35\text{ A}$			0.5	V
	$V_{CE(sat)2}$	$I_C=15\text{ A}, I_B=1.5\text{ A}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=7\text{ A}, I_B=0.35\text{ A}$			1.5	V
	$V_{BE(sat)2}$	$I_C=15\text{ A}, I_B=1.5\text{ A}$			2.5	V
Transition frequency	f_T	$V_{CE}=10\text{ V}, I_C=0.5\text{ A}, f=1\text{ MHz}$		20		MHz
Turn-on time	t_{on}	$I_C=7\text{ A}, I_{B1}=0.7\text{ A}, I_{B2}=-0.7\text{ A}$ $V_{CC}=50\text{ V}$		0.5		μs
Storage time	t_{stg}			2.0		μs
Fall time	t_f			0.2		μs

* h_{FE2} Classifications

Class	R	Q	P
h_{FE2}	60~120	90~180	130~260

■ Package Dimensions



$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$  $t_{on}, t_{stg}, t_f - I_C$ 

Area of safe operation (ASO)

