

# 2SD1705

## Silicon NPN Epitaxial Planar Type

Power Switching

Complementary Pair with 2SB1154

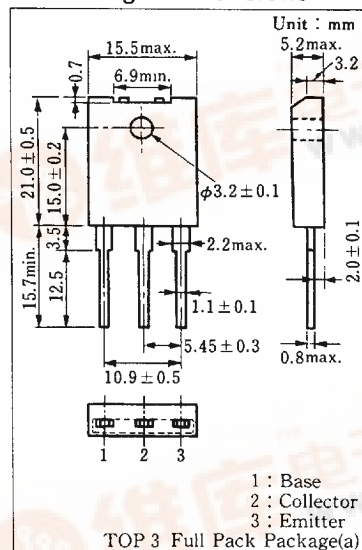
### ■ Features

- 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	$I_{CP}$	20	A
Collector current	$I_C$	10	A
Collector power dissipation	$T_c=25^\circ\text{C}$	70	W
	$T_a=25^\circ\text{C}$	3	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$

### ■ Package Dimensions



### ■ 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	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB}=5\text{ V}, I_C=0$			50	$\mu\text{A}$
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	
	$h_{FE3}$	$V_{CE}=2\text{ V}, I_C=6\text{ A}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)1}$	$I_C=6\text{ A}, I_B=0.3\text{ A}$			0.5	V
	$V_{CE(sat)2}$	$I_C=10\text{ A}, I_B=1\text{ A}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)1}$	$I_C=6\text{ A}, I_B=0.3\text{ A}$			1.5	V
	$V_{BE(sat)2}$	$I_C=10\text{ A}, I_B=1\text{ A}$			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	$t_{on}$	$I_C=6\text{ A}, I_{B1}=0.6\text{ A}, I_{B2}=-0.6\text{ A}$ $V_{CC}=50\text{ V}$		0.5		$\mu\text{s}$
Storage time	$t_{stg}$			2.0		$\mu\text{s}$
Fall time	$t_f$			0.2		$\mu\text{s}$

### \* $h_{FE2}$ Classifications

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

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