

# 2SD2151

## Silicon NPN Epitaxial Planar Type

### Power Switching

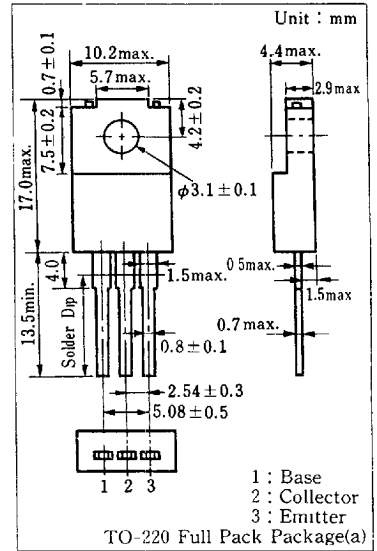
#### ■ Features

- 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	$T_c = 25^\circ\text{C}$	30	W
	$T_a = 25^\circ\text{C}$	2	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +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			
	$h_{FE2}^*$	$V_{CE} = 2\text{V}, I_C = 3\text{A}$	90		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		$\mu\text{s}$
Collector current fall time	$t_f$			0.2		$\mu\text{s}$

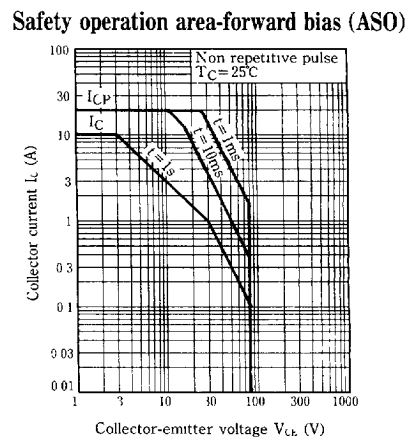
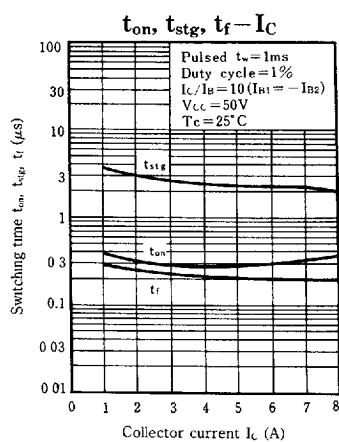
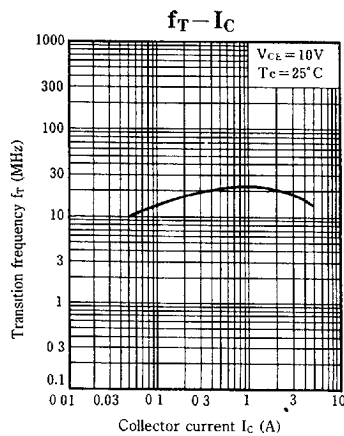
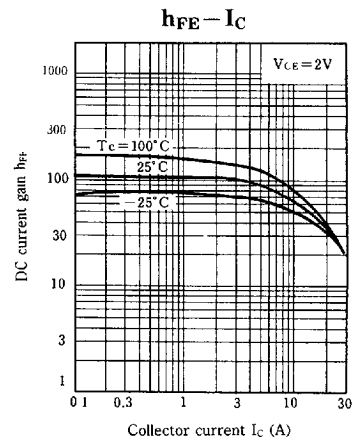
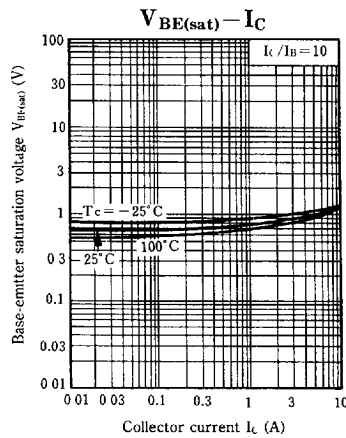
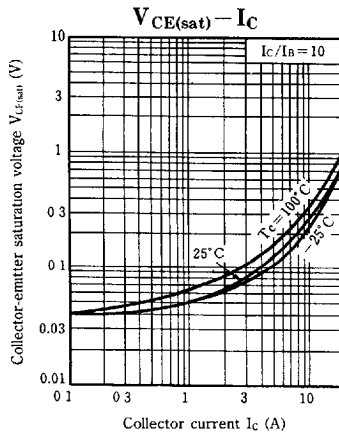
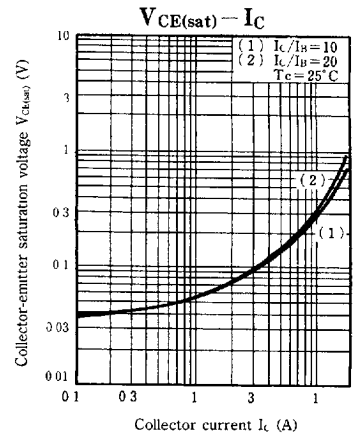
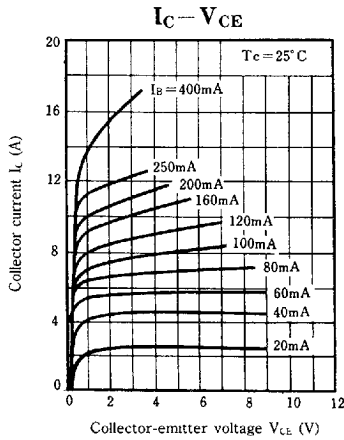
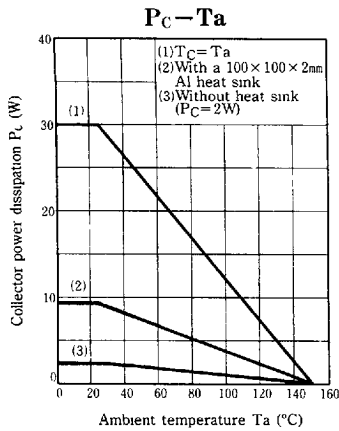
#### \* $h_{FE2}$ Classifications

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

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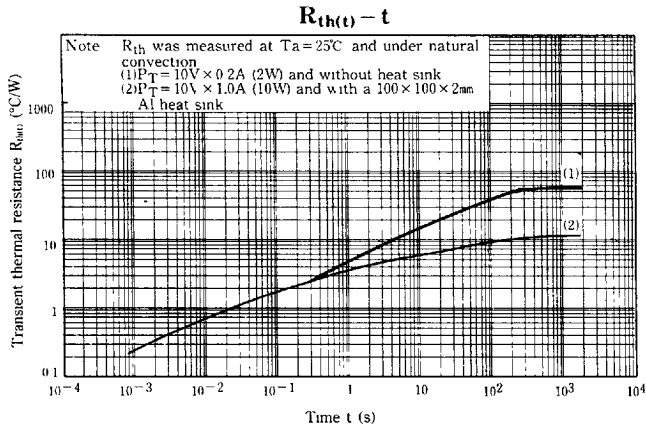
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