

2SD1745

Silicon NPN epitaxial planar type

For power switching

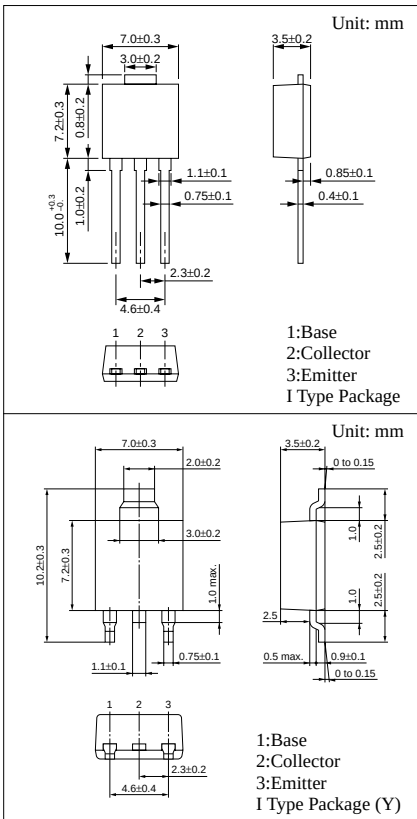
Complementary to 2SB1175

■ Features

- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector current I_C
- I type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment.

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

Parameter		Symbol	Ratings	Unit
Collector to base voltage		V _{CBO}	130	V
Collector to emitter voltage		V _{CEO}	80	V
Emitter to base voltage		V _{EBO}	7	V
Peak collector current		I _{CP}	8	A
Collector current		I _C	4	A
Collector power	T _C =25°C	P _C	15	W
dissipation	T _a =25°C		1.3	
Junction temperature		T _j	150	°C
Storage temperature		T _{stg}	−55 to +150	°C

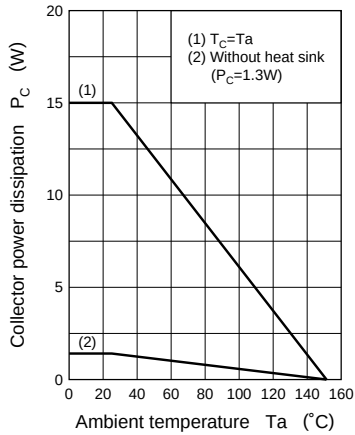
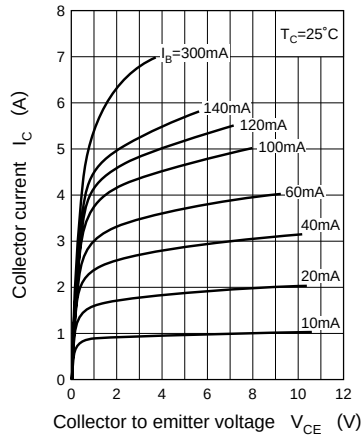
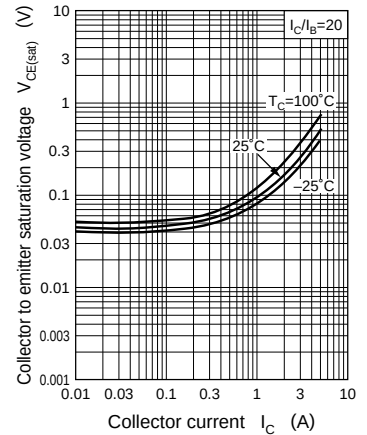
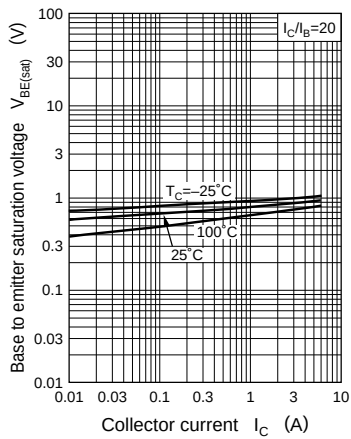
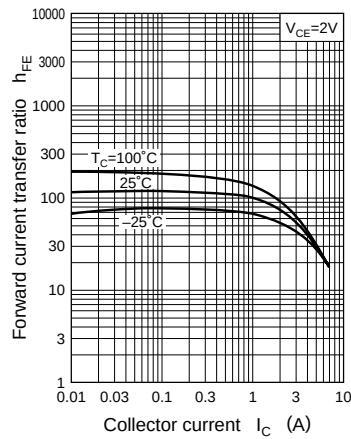
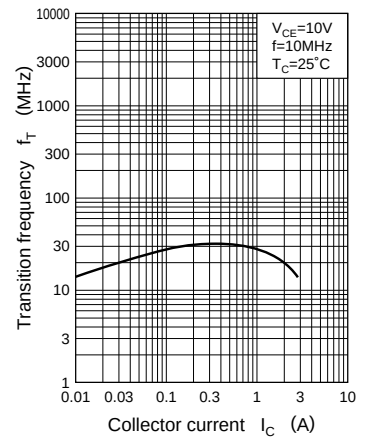
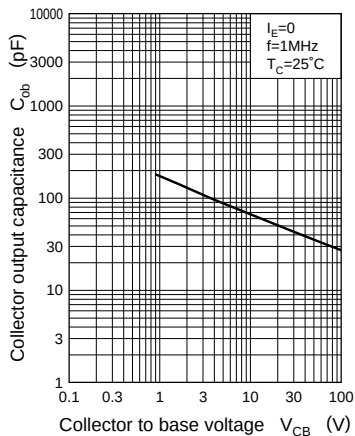
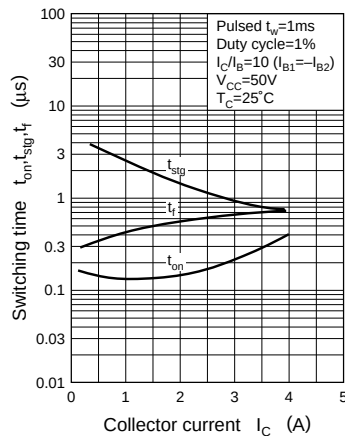


■ Electrical Characteristics ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Conditions	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 to emitter voltage	V_{CEO}	$I_C = 10\text{mA}, I_B = 0$	80			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = 2\text{V}, I_C = 0.1\text{A}$	45			
	h_{FE2}^*	$V_{CE} = 2\text{V}, I_C = 1\text{A}$	90		260	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 0.15\text{A}$			0.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3\text{A}, I_B = 0.15\text{A}$			1.5	V
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}, f = 10\text{MHz}$		30		MHz
Turn-on time	t_{on}	$I_C = 1\text{A}, I_{B1} = 0.1\text{A}, I_{B2} = -0.1\text{A}, V_{CC} = 50\text{V}$		0.5		μs
Storage time	t_{stg}			2.5		μs
Fall time	t_f			0.15		μs

* h_{FE2} Rank classification

Rank	Q	P
h_{FE2}	90 to 180	130 to 260

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

Area of safe operation (ASO)

