

2SD1742, 2SD1742A

Silicon NPN triple diffusion planar type

For low-frequency power amplification

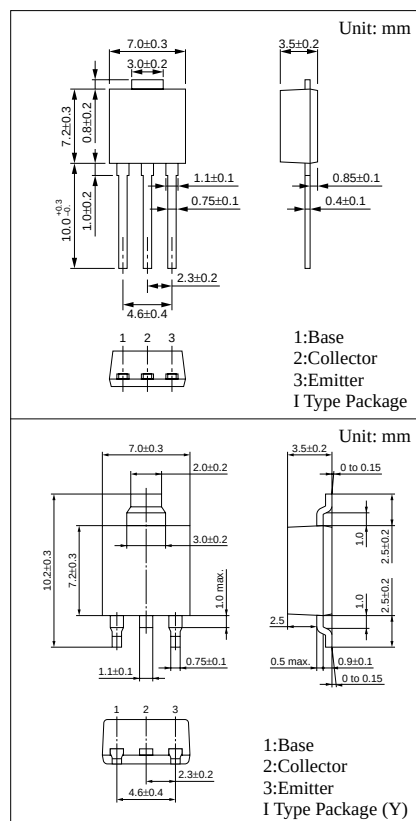
Complementary to 2SB1172 and 2SB1172A

■ Features

- High forward current transfer ratio h_{FE} which has satisfactory linearity
- Low collector to emitter saturation voltage $V_{CE(sat)}$
- 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°C)

Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SD1742	V_{CBO}	60	V
	2SD1742A		80	
Collector to emitter voltage	2SD1742	V_{CEO}	60	V
	2SD1742A		80	
Emitter to base voltage		V_{EBO}	6	V
Peak collector current		I_{CP}	5	A
Collector current		I_C	3	A
Collector power dissipation	$T_C=25^{\circ}\text{C}$	P_C	15	W
	$T_a=25^{\circ}\text{C}$		1.3	
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature		T_{stg}	-55 to +150	$^{\circ}\text{C}$

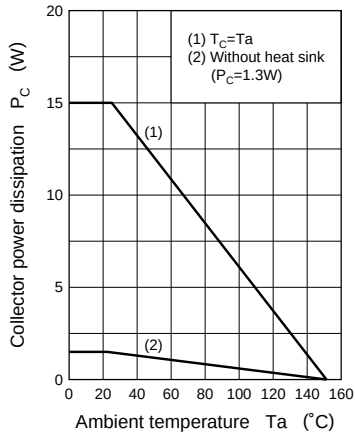
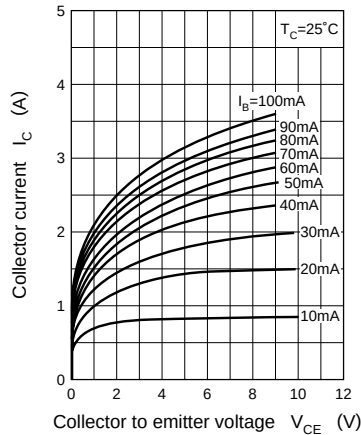
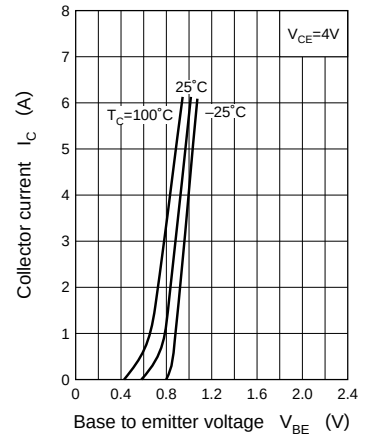
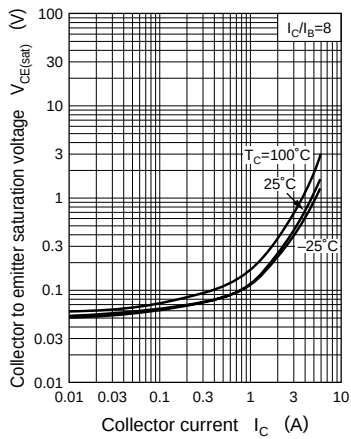
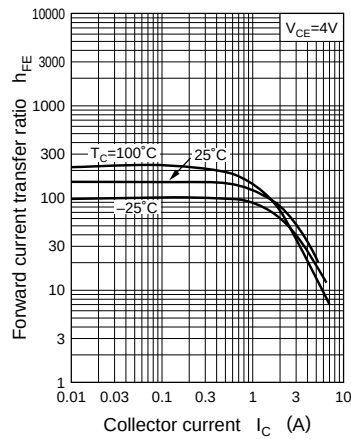
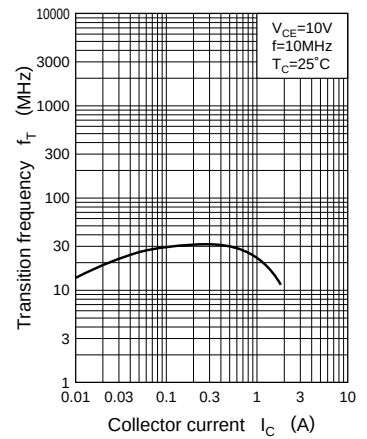


■ Electrical Characteristics (T_C=25°C)

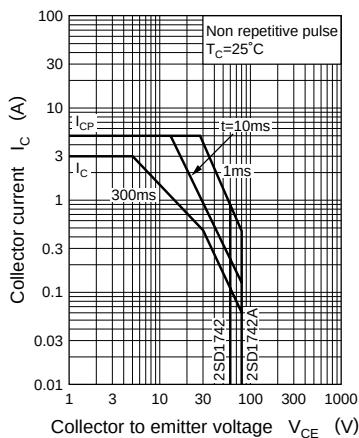
Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	2SD1742	I_{CES}	$V_{CE} = 60V, V_{BE} = 0$			200	μA
	2SD1742A		$V_{CE} = 80V, V_{BE} = 0$			200	
Collector cutoff current	2SD1742	I_{CEO}	$V_{CE} = 30V, I_B = 0$			300	μA
	2SD1742A		$V_{CE} = 60V, I_B = 0$			300	
Emitter cutoff current		I_{EBO}	$V_{EB} = 6V, I_C = 0$			1	mA
Collector to emitter voltage	2SD1742	V_{CEO}	$I_C = 30mA, I_B = 0$	60			V
	2SD1742A			80			
Forward current transfer ratio		h_{FE1}^*	$V_{CE} = 4V, I_C = 1A$	70		250	
		h_{FE2}	$V_{CE} = 4V, I_C = 3A$	10			
Base to emitter voltage		V_{BE}	$V_{CE} = 4V, I_C = 3A$			1.8	V
Collector to emitter saturation voltage		$V_{CE(sat)}$	$I_C = 3A, I_B = 0.375A$			1.2	V
Transition frequency		f_T	$V_{CE} = 10V, I_C = 0.5A, f = 10MHz$		30		MHz
Turn-on time		t_{on}	$I_C = 1A, I_{B1} = 0.1A, I_{B2} = -0.1A, V_{CC} = 50V$		0.5		μs
Storage time		t_{stg}			2.5		μs
Fall time		t_f			0.4		μs

^{*}h_{FE1} Rank classification

Rank	Q	P
h_{FE1}	70 to 150	120 to 250

$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$ 

Area of safe operation (ASO)

 $R_{th(t)} - t$ 