

2SD2242, 2SD2242A

Silicon NPN triple diffusion planar type Darlington

For power amplification

■ Features

- High forward current transfer ratio h_{FE}
- High-speed switching
- Allowing supply with the radial taping

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

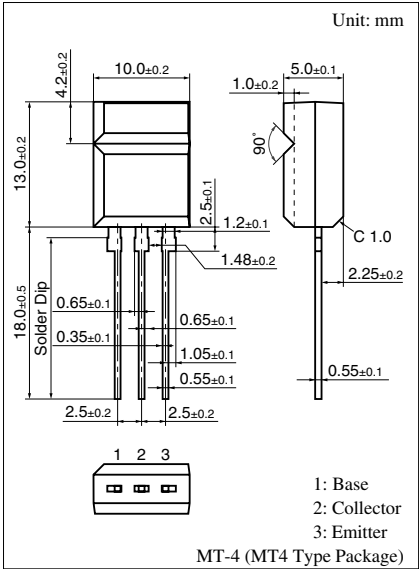
Parameter		Symbol	Rating	Unit
Collector to base voltage	2SD2242	V_{CBO}	60	V
	2SD2242A		80	
Collector to emitter voltage	2SD2242	V_{CEO}	60	V
	2SD2242A		80	
Emitter to base voltage		V_{EBO}	5	V
Peak collector current		I_{CP}	8	A
Collector current		I_C	4	A
Collector power dissipation	$T_C = 25^{\circ}\text{C}$	P_C	15	W
	$T_a = 25^{\circ}\text{C}$		2	
Junction temperature		T_j	150	$^{\circ}\text{C}$
Storage temperature		T_{stg}	-55 to +150	$^{\circ}\text{C}$

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

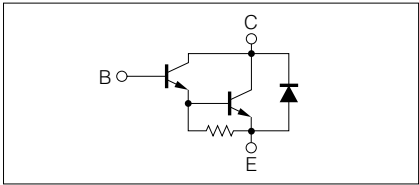
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	2SD2242 2SD2242A	I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$		200	μA
					200	
Collector cutoff current	2SD2242 2SD2242A	I_{CEO}	$V_{CE} = 30\text{ V}, I_B = 0$		500	μA
					500	
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$			2	μA
Collector to emitter voltage	2SD2242 2SD2242A	V_{CEO}	$I_C = 30\text{ mA}, I_B = 0$	60		V
				80		
Forward current transfer ratio	h_{FE1}	$V_{CE} = 3\text{ V}, I_C = 0.5\text{ A}$	1 000			
		$V_{CE} = 3\text{ V}, I_C = 3\text{ A}$	2 000		10 000	
Base to emitter voltage	V_{BE}	$V_{CE} = 3\text{ V}, I_C = 3\text{ A}$			2.5	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3\text{ A}, I_B = 12\text{ mA}$			2	V
		$I_C = 5\text{ A}, I_B = 20\text{ mA}$			4	
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}	$I_C = 3\text{ A}, I_{B1} = 12\text{ mA}, I_{B2} = -12\text{ mA}$		0.5		μs
Storage time	t_{stg}	$V_{CC} = 50\text{ V}$		4		μs
Fall time	t_f			1		μs

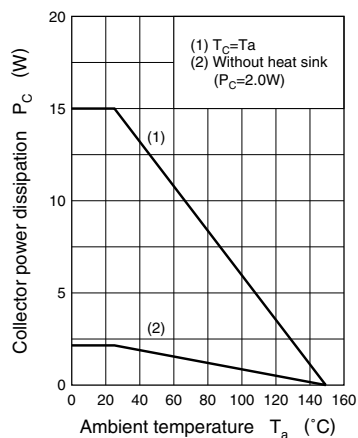
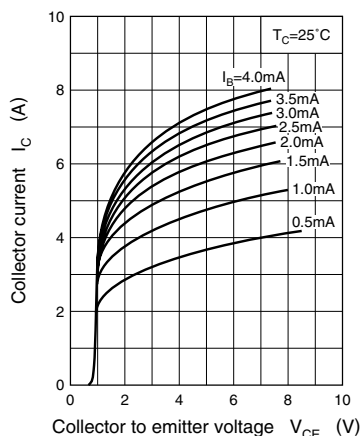
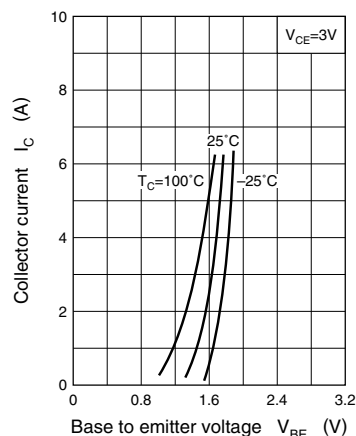
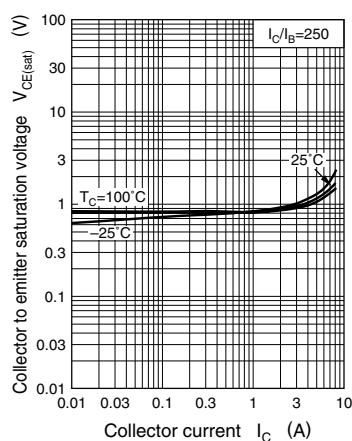
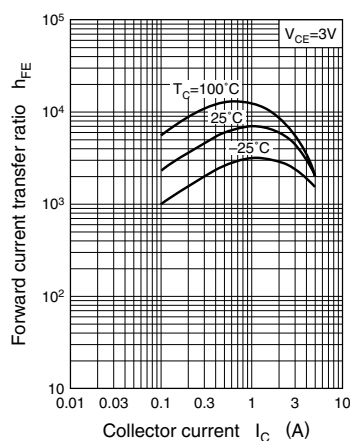
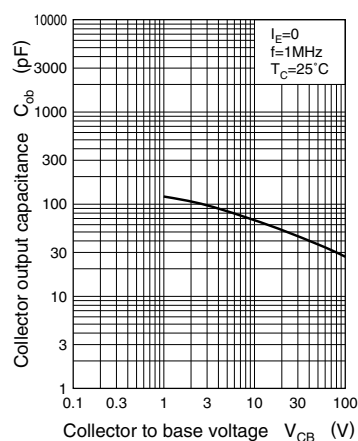
Note) *: Rank classification

Rank	Q	R
h_{FE2}	2 000 to 5 000	4 000 to 10 000

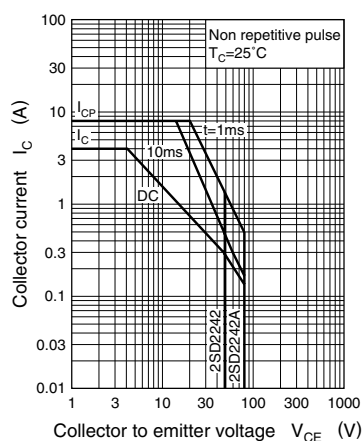
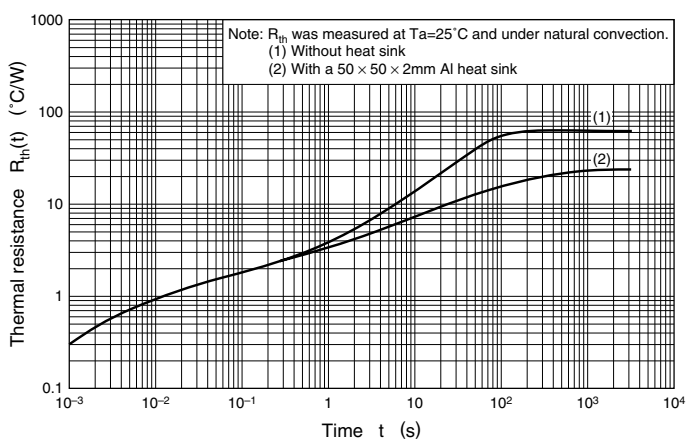


Internal Connection



$P_C - T_a$  $I_C - V_{CE}$  $I_C - V_{BE}$  $V_{CE(sat)} - I_C$  $h_{FE} - I_C$  $C_{ob} - V_{CB}$ 

Area of safe operation (ASO)

 $R_{th(t)} - t$ 

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