

# 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 $T_C = 25^\circ\text{C}$

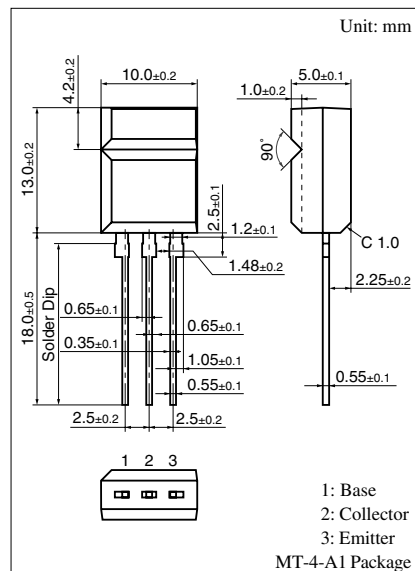
Parameter	Symbol	Rating	Unit	
Collector to base voltage	2SD2242	$V_{CBO}$	60	V
	2SD2242A		80	
Collector to emitter voltage	2SD2242	$V_{CEO}$	60	V
	2SD2242A		80	
Emitter to base voltage	$V_{EBO}$	5	V	
Peak collector current	$I_{CP}$	8	A	
Collector current	$I_C$	4	A	
Collector power dissipation	$T_C = 25^\circ\text{C}$	$P_C$	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 $T_C = 25^\circ\text{C}$

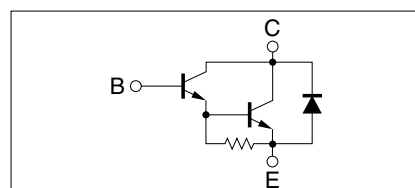
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	2SD2242	$V_{CB} = 60\text{ V}, I_E = 0$			200	$\mu\text{A}$
	2SD2242A	$V_{CB} = 80\text{ V}, I_E = 0$			200	
Collector cutoff current	2SD2242	$V_{CE} = 30\text{ V}, I_B = 0$			500	$\mu\text{A}$
	2SD2242A	$V_{CE} = 40\text{ V}, I_B = 0$			500	
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$			2	$\mu\text{A}$
Collector to emitter voltage	2SD2242	$I_C = 30\text{ mA}, I_B = 0$	60			V
	2SD2242A		80			
Forward current transfer ratio	$h_{FE1}$	$V_{CE} = 3\text{ V}, I_C = 0.5\text{ A}$	1 000			
	$h_{FE2}^*$	$V_{CE} = 3\text{ V}, I_C = 3\text{ A}$	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		$\mu\text{s}$
Storage time	$t_{stg}$	$V_{CC} = 50\text{ V}$		4		$\mu\text{s}$
Fall time	$t_f$			1		$\mu\text{s}$

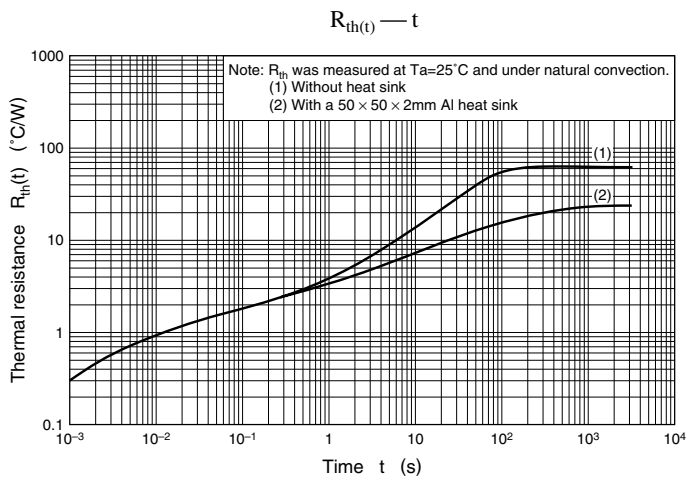
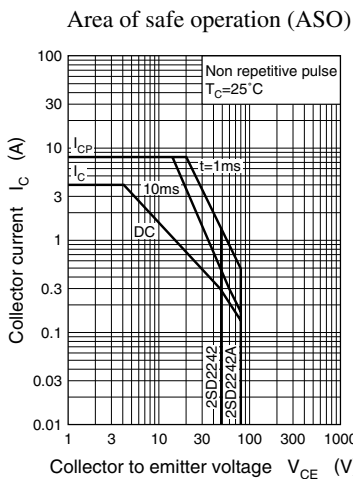
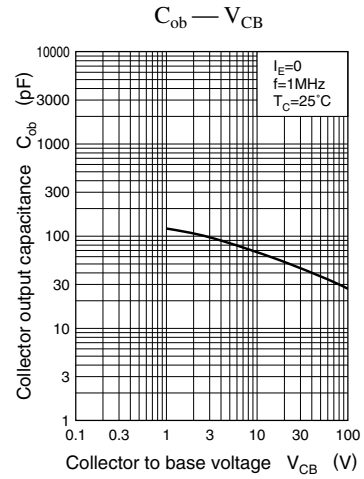
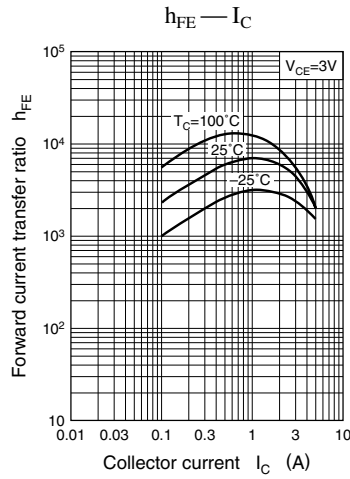
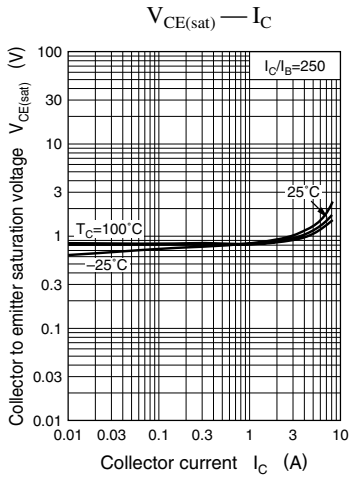
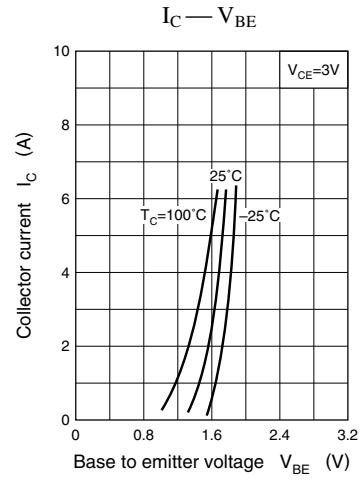
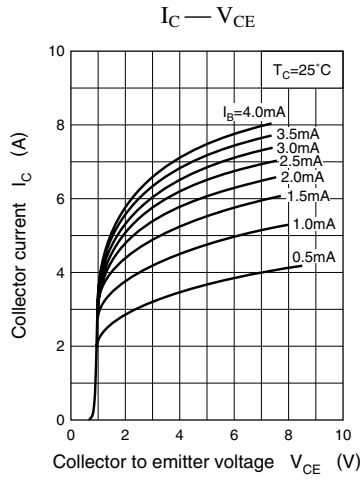
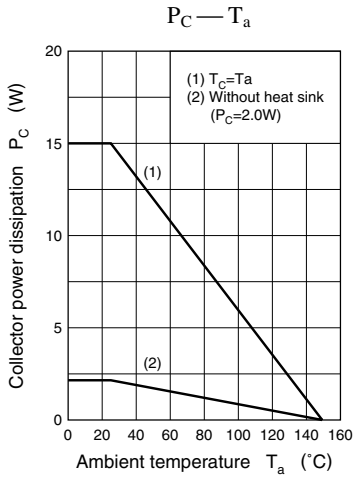
Note) \*: Rank classification

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



## Internal Connection





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