

# 2SD2420, 2SD2420A

## Silicon NPN triple diffusion planar type darlington

For power amplification

Complementary to 2SB1623, 2SB1623A

### Features

- High forward current transfer ratio  $h_{FE}$
- Dielectric breakdown voltage of the package: > 5 kV

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	60 80	V
Collector-emitter voltage (Base open)	$V_{CEO}$	60 80	V
Emitter-base voltage (Collector open)	$V_{EBO}$	5	V
Collector current	$I_C$	4	A
Peak collector current	$I_{CP}$	8	A
Collector power dissipation	$P_C$	30 2.0	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

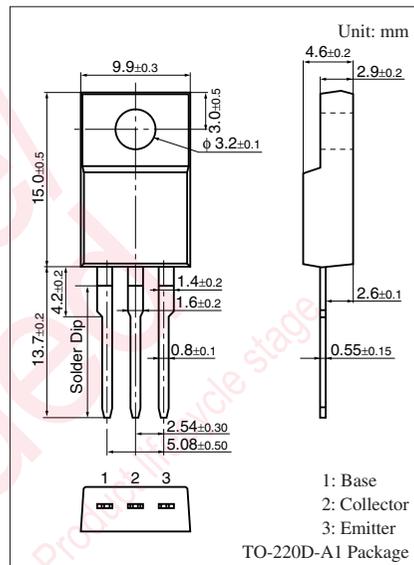
### Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 30\text{ mA}, I_B = 0$	60			V
Base-emitter voltage	$V_{BE}$	$V_{CE} = 3\text{ V}, I_C = 3\text{ A}$			2.5	V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 60\text{ V}, I_E = 0$ $V_{CB} = 80\text{ V}, I_E = 0$			200	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 30\text{ V}, I_B = 0$ $V_{CE} = 40\text{ V}, I_B = 0$			500	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 5\text{ V}, I_C = 0$			2	mA
Forward current transfer ratio	$h_{FE1}$ $h_{FE2}^*$	$V_{CE} = 3\text{ V}, I_C = 0.5\text{ A}$ $V_{CE} = 3\text{ V}, I_C = 3\text{ A}$	1000 2000		10000	—
Collector-emitter saturation voltage	$V_{CE(sat)1}$ $V_{CE(sat)2}$	$I_C = 3\text{ A}, I_B = 12\text{ mA}$ $I_C = 5\text{ A}, I_B = 20\text{ mA}$			2.0 4.0	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	$t_{on}$	$I_C = 3\text{ A}, I_{B1} = 12\text{ mA}, I_{B2} = -12\text{ mA}$		0.5		$\mu\text{s}$
Storage time	$t_{stg}$	$V_{CC} = 50\text{ V}$		4.0		$\mu\text{s}$
Fall time	$t_f$			1.0		$\mu\text{s}$

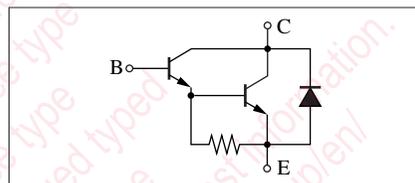
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

Rank	Q	P
$h_{FE2}$	2000 to 5000	4000 to 10000



### Internal Connection



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