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# 2SC3004

Silicon NPN Epitaxial

## HITACHI

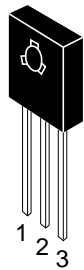
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### Application

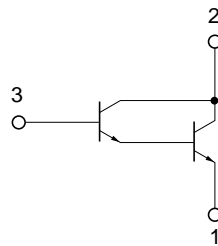
High gain amplifier medium speed switching

### Outline

TO-18 MOD



1. Emitter  
2. Collector  
3. Base



## 2SC3004

### Absolute Maximum Ratings (Ta = 25°C)

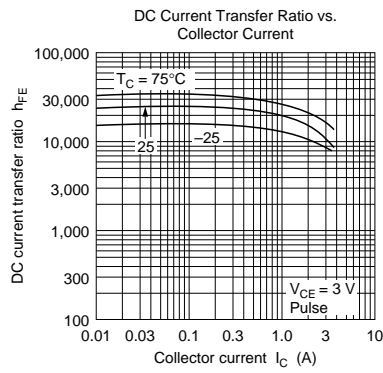
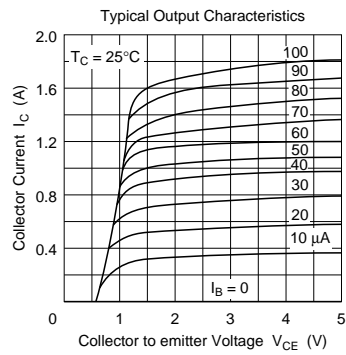
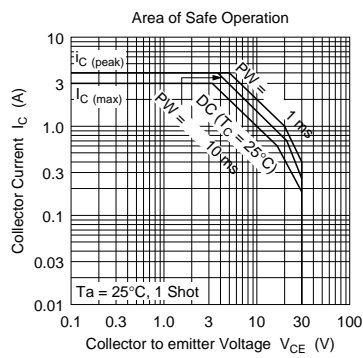
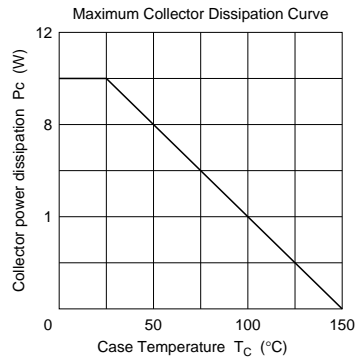
Item	Symbol	Ratings	Unit
Collector to base voltage	$V_{CBO}$	30	V
Collector to emitter voltage	$V_{CEO}$	30	V
Emitter to base voltage	$V_{EBO}$	7	V
Collector current	$I_C$	3	A
Collector peak current	$I_{C(\text{peak})}$	4	A
Collector power dissipation	$P_C^{*1}$	10	W
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

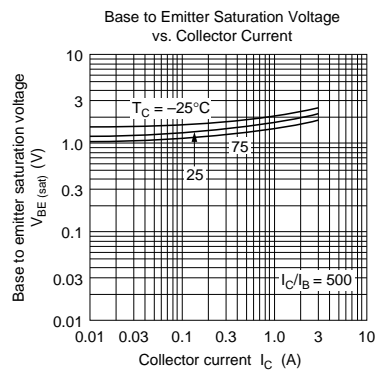
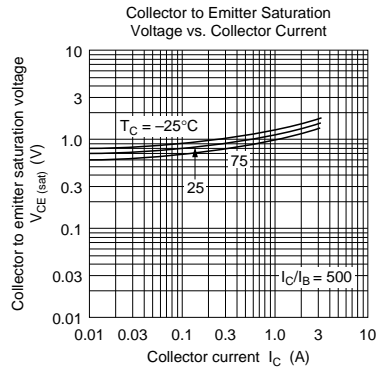
Note: 1. Value at  $T_C = 25^\circ\text{C}$ .

### Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 0.1 \text{ mA}$ , $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	30	—	—	V	$I_C = 1 \text{ mA}$ , $R_{BE} = \_$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	7	—	—	V	$I_E = 0.1 \text{ mA}$ , $I_C = 0$
Collector cutoff current	$I_{CEO}$	—	—	20	$\mu\text{A}$	$V_{CE} = 24 \text{ V}$ , $R_{BE} = \_$
DC current transfer ratio	$h_{FE}$	2000	—	50000		$V_{CE} = 3 \text{ V}$ , $I_C = 1.5 \text{ A}^{*1}$
Collector to emitter saturation voltage	$V_{CE(\text{sat})}$	—	—	1.5	V	$I_C = 1.5 \text{ A}$ , $I_B = 3 \text{ mA}^{*1}$
				2.0	V	$I_C = 3 \text{ A}$ , $I_B = 30 \text{ mA}^{*1}$
Base to emitter saturation voltage	$V_{BE(\text{sat})}$	—	—	2.0	V	$I_C = 1.5 \text{ A}$ , $I_B = 3 \text{ mA}^{*1}$
				3.5	V	$I_C = 3 \text{ A}$ , $I_B = 30 \text{ mA}^{*1}$
Turn on time	$t_{on}$	—	0.4	—	$\mu\text{s}$	$I_C = 1.5 \text{ A}$ , $I_{B1} = -I_{B2} = 3 \text{ mA}$ $V_{CC} = 30 \text{ V}$
Turn off time	$t_{off}$	—	1.2	—	$\mu\text{s}$	
Storage time	$t_{stg}$	—	0.8	—	$\mu\text{s}$	

Note: 1. Pulse test





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