

## NPN Transistors

## 2KD3007

## ■ Features

- Low collector-to-emitter saturation voltage.
- Large current capacity and wide ASO.
- Fast switching speed.

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CB0}$	60	V
Collector - Emitter Voltage	$V_{CE0}$	50	
Emitter - Base Voltage	$V_{EB0}$	6	
Collector Current - Continuous	$I_C$	2	A
Collector Current - Pulse	$I_{CP}$	4	
Collector Power Dissipation (Note.1)	$P_C$	0.5 1.3	W
Junction Temperature	$T_J$	150	
Storage Temperature Range	$T_{stg}$	-55 to 150	

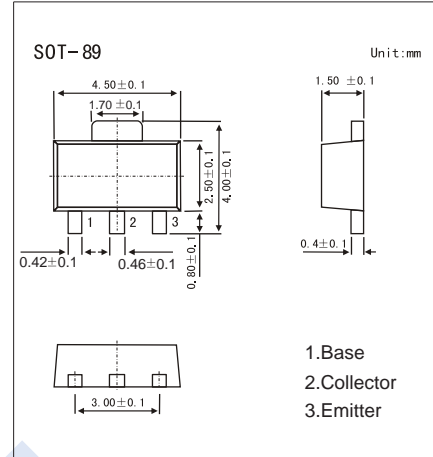
Note.1: Mounted on ceramic board (250mm<sup>2</sup> x 0.8mm)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CB0}$	$I_C = 100 \mu\text{A}$ , $I_E = 0$	60			V
Collector- emitter breakdown voltage	$V_{CE0}$	$I_C = 1 \text{ mA}$ , $R_{BE} = \infty$	50			
Emitter - base breakdown voltage	$V_{EB0}$	$I_E = 100 \mu\text{A}$ , $I_C = 0$	6			
Collector-base cut-off current	$I_{CB0}$	$V_{CB} = 50 \text{ V}$ , $I_E = 0$			0.1	$\mu\text{A}$
Emitter cut-off current	$I_{EB0}$	$V_{EB} = 4 \text{ V}$ , $I_C = 0$			0.1	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1 \text{ A}$ , $I_B = 50 \text{ mA}$		0.15	0.4	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1 \text{ A}$ , $I_B = 50 \text{ mA}$		0.9	1.2	
DC current gain	$h_{FE}$	$V_{CE} = 2 \text{ V}$ , $I_C = 100 \text{ mA}$	140		280	
		$V_{CE} = 2 \text{ V}$ , $I_C = 1.5 \text{ A}$	40			
Turn-ON Time	$t_{on}$	See specified Test Circuit.		60		ns
Storage Time	$t_{stg}$			550		
Fall Time	$t_f$			30		
Collector output capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$		12		$\text{pF}$
Transition frequency	$f_T$	$V_{CE} = 10 \text{ V}$ , $I_C = 50 \text{ mA}$		150		$\text{MHz}$

## ■ Marking

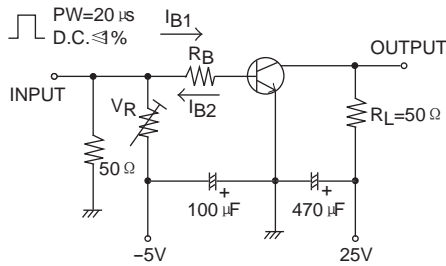
Marking	KO3*
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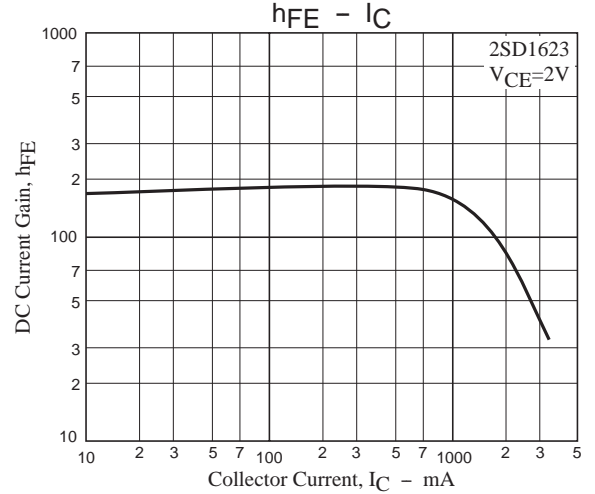
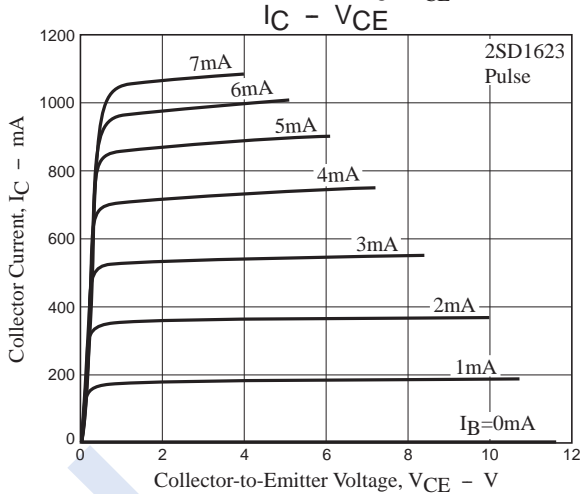
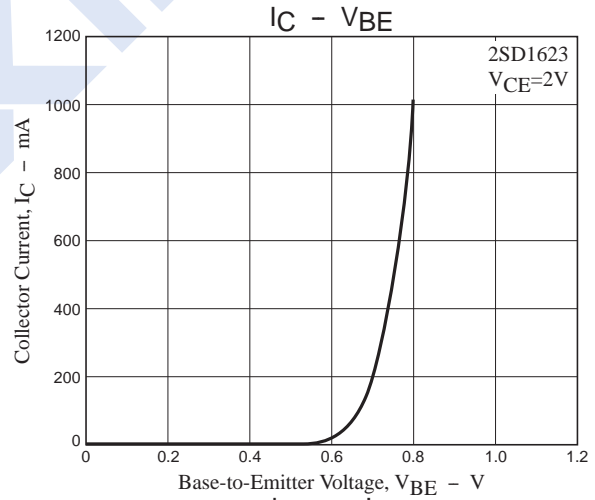
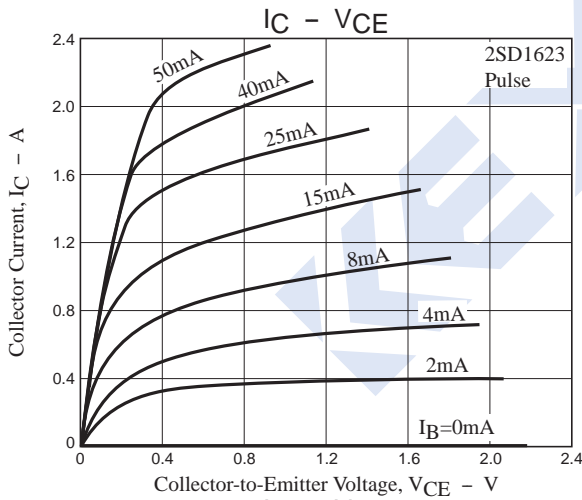
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#### Switching Time Test Circuit



$I_C = 10I_{B1} = -10I_{B2} = 500\text{mA}$   
 (For PNP, the polarity is reversed)

#### Typical Characteristics



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■ Typical Characteristics

